



Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249
Tel 914 788 2055

Fred Dacimo
Vice President
License Renewal

January 30, 2008

Re: Indian Point Units 2 & 3
Docket Nos. 50-247 & 50-286
NL-08-023

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

SUBJECT: **Supplemental Response to Request for Additional Information
Regarding Environmental Review for License Renewal Application**

- REFERENCES:
1. NRC letter dated December 5, 2007, "Request for Additional Information Regarding Environmental Review for Indian Point Generating Unit Nos. 2 and 3 License Renewal Application (TAC Nos. MD5411 and MD5412)"
 2. Entergy Letter dated January 4, 2008, F. R. Dacimo to Document Control Desk; "Reply to Request for Additional Information Regarding Environmental Review for License Renewal Application" (NL-08-006)
 3. Entergy Letter dated January 11, 2008, J. E. Pollock to Document Control Desk, "Results of Ground Water Contamination Investigation" (NL-08-009)
 4. Entergy Letter dated January 10, 2008, F. R. Dacimo to Document Control Desk, "Supplemental Response to Request for Additional Information Regarding Environmental Review of License Renewal Application" (NL-08-012)

Dear Sir or Madam:

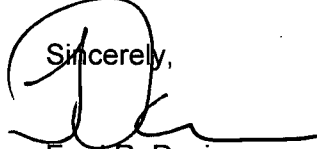
The NRC staff requested additional information by letter dated December 5, 2007 (Reference 1) in order to complete its review of the environmental portion of the License Renewal Application for Indian Point 2 and Indian Point 3. Responses to questions 1 through 3 were provided by

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Entergy Nuclear Operations, Inc. by letter dated January 4, 2008 (Reference 2) and letter dated January 10, 2008 (Reference 4). The purpose of this letter is to supplement our response to questions 1 and 2 (Attachment 1 and Enclosure 1 to this letter). The final results of the Ground Water Contamination Investigation report was previously submitted in Reference 3. A description of the report's relevance to license renewal is found in Attachment 1 of this letter.

There are no new commitments identified in this submittal. If you have any questions or require additional information, please contact Mr. R. Walpole, Manager, Licensing at (914) 734-6710.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 1/30/08.

Sincerely,

Fred R. Dacimo
Vice President
License Renewal

Attachment I – Supplemental Response to Request for Additional Information
Regarding Environmental Review for License Renewal Application (LRA)

Enclosure 1 – Entrainment and Impingement at IP2 and IP3: A Biological Impact
Assessment

cc: Mr. Bo M. Pham, NRC Environmental Project Manager
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel
Mr. John P. Boska, NRC NRR Senior Project Manager
Mr. Samuel J. Collins, Regional Administrator, NRC Region I
Mr. Drew Stuyvenberg, NRC Environmental Project Manager
IPEC NRC Senior Resident Inspector Office
Mr. Paul D. Tonko, President, NYSERDA
Mr. Paul Eddy, New York State Dept. of Public Service

ATTACHMENT 1 TO NL-08-023

**Supplemental Response to Request for Additional Information
Regarding Environmental Review for License Renewal Application (LRA)**

ENERGY NUCLEAR OPERATIONS, INC
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 and 3
DOCKETS 50-247 and 50-286

**Supplemental Response to Request for Additional Information
Regarding Environmental Review for License Renewal Application (LRA)**

The U.S. Nuclear Regulatory Commission (NRC or staff) has reviewed the Environmental information provided by the applicant in the Indian Point Nuclear Generating Unit Nos. 2 and 3 (IP2 and IP3) LRA. The staff identified that additional information was needed to complete their review in Reference 1. Entergy Nuclear Operations, Inc. is supplementing its response to questions 1 and 2 as addressed below.

Supplemental Response for Environmental RAI 1

Section 5.0 of the Indian Point Environmental Report (ER) contains Entergy's response to the NRC requirement that an applicant for license renewal assess any "new and significant" information regarding environmental impacts of a plant's operation during the extended license term. To do so, Entergy identified any (1) information that identifies a significant environmental issue not covered in the NRC's GEIS and codified in Part 51, or (2) information not covered in the GEIS analyses that lead to an impact finding different from that codified in Part 51. Because NRC does not specifically define the term "significant," Entergy used guidance available in Council on Environmental Quality ("CEQ") regulations. For the purposes of this evaluation, Entergy assumed that MODERATE and LARGE impacts, as defined by the NRC in the GEIS, would be significant. Section 5.1; "New and Significant Information: Groundwater Contamination" provides Entergy's assessment of whether the identified groundwater radionuclide contamination at the Indian Point site ("site") is "new and significant" as it relates to license renewal. Entergy confirmed the presence of tritium in site groundwater in October 2005. Since then, Entergy has been conducting an extensive site assessment utilizing a network of monitoring wells to assess and characterize groundwater movement and behavior relative to groundwater contamination.

As noted in Section 5.1 of the ER, full characterization of the impact to groundwater was ongoing when the LRA was submitted to the NRC. Since submission of the LRA, Entergy has completed the two-year site hydrogeologic investigation of the entire Indian Point site, performed between September 2005 and September 2007, including all three units (IP1, IP2, and IP3) and a comprehensive report (the "Investigation Report") summarizing the findings and conclusions of that study was submitted to the NRC, NYDEC, and NY Public Service Commission on January 11, 2008. The overall purpose of the report was to identify the nature and extent of radiological groundwater contamination and assess the geohydrological implications of that contamination. As noted in Section 1.0 of the Investigation Report, at no time did the results of that analysis yield any indication of potential adverse environmental or health risk as assessed by Entergy as well as the principal regulatory authorities. In fact, radiological assessments have consistently shown that the releases to the environment are a small percentage of regulatory limits, and no threat to public health and safety.

The groundwater monitoring network is extensive and comprised of shallow and deep, overburden and bedrock multi-level monitoring installations, site storm drains and building footing drains. Groundwater testing, while initially focused on tritium, was expanded in the winter of 2006 to encompass all radionuclides typically associated with nuclear power generation, although tritium and strontium remained the principal constituents of interest.

The investigation of possible contaminant source and release mechanisms included an extensive investigation of the IP2 spent fuel pool ("IP2-SFP") liner integrity and also areas surrounding IP1, IP2 and IP3. Section 8.0 of the Investigation Report fully documents the results of the investigation of contaminant sources and release mechanisms. Its conclusions are summarized below:

- The source of the strontium contamination detected in groundwater beneath the site has been established as the Unit 1 Fuel Pool Complex (IP1-SFPs). All the IP1 SFPs have been drained except for the West Pool. While the West Pool is estimated to currently be leaking at a rate of up to 70 gallons per day, the source term to groundwater has been reduced through reduction in the contaminant concentrations in the pool water. Further, Entergy plans to permanently eliminate the West Pool, as well as the entire IP1-SFP complex, as a source of contamination to groundwater by relocating the spent fuel stored in the West Pool to dry storage casks at an Independent Spent Fuel Storage Installation ("ISFSI") and permanently draining the West Pool in 2008.
- The majority of the tritium detected in the groundwater at the site was traced to the IP2 spent fuel pool ("IP2-SFP"). Two confirmed leaks through the IP2 spent fuel pool stainless steel liner have been documented. All identified leaks have been repaired. The first liner leak was identified and repaired in 1992. The second leak, a single small weld imperfection in the IP2-SFP transfer canal, was identified in September 2007 after the canal was drained for further liner investigations specific to the transfer canal. While additional active leaks cannot be completely ruled out, if they any exist, all data indicate that they are very small and of little impact to the groundwater.
- No releases were identified as coming from IP3 structures, systems or components. The absence of releases from Unit 3 SFP sources is attributed to the design upgrades in that Unit, including a stainless steel liner (consistent with IP2 but not included in the IP1 design) and an additional, secondary leak detection drain system not included in the IP2 design.

Consistent with Section 5.1 of the ER, the Investigation Report confirms that there is no current or reasonably anticipated use of groundwater at IPEC and, according to the NYDEC, there are no active potable water wells or other production wells on the east side (plant side) of the Hudson River in proximity to IPEC. Drinking water in the area (Town of Buchanan and City of Peekskill) is sourced from surface water reservoirs in Westchester County and the Catskills region of New York. The nearest of these reservoirs is 3.3 miles north-northeast of the site and its elevation is hundreds of feet above the IPEC ground elevation. Because site groundwater flows to the west towards the Hudson River, the contaminated groundwater will not impact these drinking water sources. In summary, the only pathway of potential interest for groundwater is through consumption of fish and invertebrates in the Hudson River, and the calculated doses are less than 1/100 of the federal limits.

Based on the above, Entergy considered the impact of the groundwater contamination in the ER in accordance with NRC requirements for the evaluation of new and significant information. The groundwater contamination at the Indian Point Site has been thoroughly studied, analyzed, and characterized over a two-year period using state-of-the-art science and methodology. Identified leaks at IP2 have been repaired and, while additional active leaks cannot be completely ruled out, all data indicate that, if any exist, they are very small and of little impact to the groundwater. Any changes to this condition would be detected by the ongoing site environmental monitoring program. Further, the source of leaks from the IP1 SFP will be permanently eliminated in 2008 and there are no known leaks from the IP3 SFP. And while the initial evaluation conducted by Entergy did not address the recently identified leak in the IP2-SFP transfer canal, given the relevant hydrogeologic environment, the conclusions remain the same—estimated doses due to the groundwater contamination are and will remain well below NRC dose limits for the period of the renewed operating license and EPA drinking water limits are not applicable. Accordingly, Entergy adequately and appropriately characterized the environmental impacts of the radioactive water leaks from IP1 and IP2 spent fuel pools on the groundwater and the Hudson River ecosystem as new but not significant in accordance with 10 C.F.R. § 51.53(c)(3)(iv).

The final Ground Water Contamination Investigation for Indian Point Nuclear Generating Unit Nos. 2 and 3 including monitoring well locations, sampling data, and site geology, was formally submitted in Reference 3 of this letter. An additional CD-ROM copy of the report will be provided to the NRC Environmental Project Manager. This supplement closes out the data request in RAI 1.

Supplemental Response for Environmental RAI 2

Provided in Enclosure 1 is the Barnthouse et al compilation of fish trends in the Hudson River for staff review. This supplement closes out the data request in RAI 2.

ENCLOSURE I TO NL-08-023

Entrainment and Impingement at IP2 and IP3:
A Biological Impact Assessment

ENERGY NUCLEAR OPERATIONS, INC
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 and 3
DOCKETS 50-247 and 50-286