Entergy

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Fred Dacimo
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NL-14-133

October 27, 2014

U.S. Nuclear Regulatory Commission
Document Control Desk
11545 Rockville Pike, TWFN-2 F1
Rockville, MD 20852-2738

SUBJECT: Reply to Request for Additional Information Regarding the License Renewal Application
Indian Point Nuclear Generating Unit Nos. 2 & 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

REFERENCE: NRC letter, "Request for Additional Information for the Review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, License Renewal Application Environmental Review (TAC Nos. MD5411 and MD5412)" dated September 26, 2014.

Dear Sir or Madam:

Entergy Nuclear Operations, Inc. is providing, in the Attachment, the additional information requested in the referenced letter pertaining to NRC review of the License Renewal Application for Indian Point 2 and Indian Point 3.

If you have any questions, or require additional information, please contact Mr. Robert Walpole at 914-254-6710.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 10/27, 2014.

Sincerely,

FRD/rw

A128
NRR

Attachment: Reply to NRC Request for Additional Information Regarding the License Renewal Application

cc: Mr. David Lew, Acting Regional Administrator, NRC Region I
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel
Mr. Michael Wentzel, NRC Project Manager, Division of License Renewal
Ms. Kimberly Green, NRC Project Manager, Division of License Renewal
Dr. Dennis Logan, NRC Aquatic Biologist, Division of License Renewal
Mr. Douglas Pickett, NRR Senior Project Manager
Ms. Bridget Frymire, New York State Department of Public Service
NRC Resident Inspector's Office
Mr. John B. Rhodes, President and CEO NYSERDA

**ATTACHMENT TO NL-14-133**

**REPLY TO NRC REQUEST FOR ADDITIONAL INFORMATION**

**REGARDING THE**

**LICENSE RENEWAL APPLICATION**

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

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October 24, 2014

Ms. Dara Gray
Entergy Nuclear Operations, Inc.
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Buchanan, NY 10511-0249

**Re: Nuclear Regulatory Commission Request for Additional Information for the Review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, License Renewal Application Environmental Review (TAC Nos. MD5411 and MD5412) (the "RAI")**

Dear Ms. Gray:

Enclosed is the RAI response prepared by Drs. Doug Heimbuch of AKRF, Inc. and John Young of ASA Analysis and Communications, Inc. Given its volume, the data responsive to the RAIs have been copied electronically to the enclosed compact disc in the format requested by the Nuclear Regulatory Commission ("NRC") staff.

In providing this information to NRC staff, it may be useful to provide a detailed explanation of how the data has been compiled and presented. By way of overview, the data collected from the Hudson River Biological Monitoring Program ("HRBMP") is initially recorded in raw data files with information on the time, date, location of sampling, in addition to the numbers collected in any particular sample. NRC staff should be advised that the specific information requested in the RAIs, such as annual densities, etc., has been calculated from these raw data files in the same manner used to provide this information to NRC staff previously, *e.g.*, in its development of the SFEIS. The files on the compact disc include extensive documentation to clearly identify the units and other pertinent information associated with the data provided.

As a further measure of quality assurance, we asked Drs. Heimbuch and Young to repeat the analysis using the methodology contained in Entergy's February 19, 2014 submission using two separate starting points. First, Dr. Heimbuch performed the analysis using the raw data files from the HRBMP as the input data. Second, Dr. Young performed the analysis using the data as compiled on the enclosed compact disc in the format requested in the RAIs. The purpose of these separate analyses was to verify whether the conversion from the raw input data to the format requested in the RAIs had any material effect on the impact level (*i.e.*, SMALL, MODERATE or LARGE) to be assigned to any particular species. The result of each analysis was virtually identical in terms of the ultimate impact level assigned

to each species, and the similarity in results lends further confidence to the conclusion that IPEC's operations have not resulted in significant adverse environmental impacts to the fish species of the Hudson River.

It is worth highlighting the results for rainbow smelt, which has undergone a northern shift in its geographical range over the last three decades with the result that it is no longer collected in the HRBMP (since 1996) and not susceptible to entrainment and impingement at Indian Point, thus requiring an assignment of the SMALL impact level. Nevertheless, when the analysis was performed using the raw data sets for rainbow smelt, the impact level assigned was MODERATE; whereas, when the analysis was performed with the data in the format requested by the NRC, the result was SMALL. Drs. Heimbuch and Young associate this dynamic with a non-material artifact of the raw data which is worth mentioning: HRBMP sampling events historically take place during the work week – *i.e.*, Monday through Friday. In a few limited instances, sampling occurred on a Sunday because a holiday occurred within the work week; however, the standard algorithm used to assign a week based upon date resulted in the Sunday samples being assigned to the prior week. This inconsistency was corrected in the data previously provided to the NRC prior to preparation of the SFEIS and also has been corrected in the data provided in response to these RAIs. However, Drs. Heimbuch and Young discovered that if this correction is not applied to the raw data, the result for rainbow smelt changes from an impact level of SMALL to MODERATE, suggesting that the impact level conclusion for rainbow smelt may be very close to the dividing line between the SMALL and MODERATE impact levels.

While the data originally provided to the NRC and now provided in the response to the RAIs is based upon the adjusted data (*i.e.*, Sunday data are treated as being in the same week as the next five days), it suggests that the methodology utilized in the SFEIS and in Entergy's February 19, 2014 submission (which was intended to duplicate the SFEIS methods) can be sensitive to minor changes in the batching of weekly data when used to analyze a species that is not frequently collected (or collected in very low numbers) by the sampling program. Indeed, rainbow smelt has not been collected since 1996, which is understandable due to the acknowledged coast-wide retraction in this species' range. Because the method relies on an intermediate calculation of the 75$^{th}$ percentile of weekly densities for any given species, in the case of a rarely collected species such as rainbow smelt, changing the week of collection of even a small number of samples turned out to have made a difference on the weekly average (since the unadjusted Sunday data would be averaged with the previous six days, whereas the Monday data would be averaged with the data from the following six days). Notably, for all other species, there was no difference in the assigned impact level.

This interesting finding also suggests that minor differences between the methodology used in the SFEIS and Entergy's February 19, 2014 submission could cause some differences in results. Although the methodology in Entergy's February 19, 2014 submission attempted to mimic the methods of the SFEIS, undoubtedly there are minor differences in intermediate calculations or other computational methods that may lead to slightly different results. Thus, differences in the results between Entergy's submission and the forthcoming NRC staff analysis would not be surprising. However, Drs. Heimbuch and Young believe that any such differences are likely to be minor, if there are any differences at all.

If you have any questions regarding this information, please do not hesitate to contact me, Dr. Heimbuch or Dr. Young. Please also convey to NRC staff that Drs. Heimbuch and Young are available to address any questions they may have regarding these RAI responses or the HRBMP data sets more generally.

Sincerely,

Elise N. Zoli

Enclosures