



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
Operations License Renewal

NL-11-034

March 29, 2011

Mr. Brian E. Holian
Director, License Renewal
U.S. Nuclear Regulatory Commission
11555 Rockville Pike – Mailstop 011F1
Rockville, MD 20852

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

SUBJECT: Final Supplemental Environmental Impact Statement
Indian Point Nuclear Generating Unit Nos. 2 & 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

REFERENCE:

1. Generic Environmental Impact Statement for License Renewal of Nuclear Plants Supplement 38 Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Final Report (December 2010), Sections 4.1.1.-4.1.3, Office of Nuclear Reactor Regulation NUREG-1437, Supplement 38 ("FSEIS")
2. Appendix H (U.S. Nuclear Regulatory Commission Staff Evaluation of Environmental Impacts of Cooling System)
3. Appendix I (Statistical Analyses Conducted for Chapter 4 Aquatic Resources and Appendix H)

Dear Mr. Holian:

The purpose of this letter is to provide the Nuclear Regulatory Commission ("NRC") with a technical analysis of certain discrepancies to the subsidiary biological findings contained in Sections 4.1.1-4.1.3 of the FSEIS, including its supporting Appendices H and I, as it relates to license renewal of Indian Point Units 2 and 3 (respectively, "IP2" and "IP3", collectively, "IPEC"). The biological analysis was conducted by AKRF, Inc., and AKRF prepared the enclosed report (the "AKRF Report") which addresses the NRC's technical assessment of theoretical entrainment and/or impingement of certain aquatic species in IPEC's cooling water intake structure. Consistent with Entergy's commitment to ensuring the accuracy of the record relating to this proceeding and 10 C.F.R. § 51.94, Entergy submits this correspondence and the AKRF Report to the NRC with a request that it be included in the record of this proceeding.

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The discussion in the AKRF Report is highly technical; as such, below Entergy provides in this letter an overview of the AKRF Report and the implications for the enumerated sections of the FSEIS and Appendices. Notably, the discrepancies do not alter, but rather confirm, NRC's ultimate conclusion in the FSEIS that potential impacts to aquatic species as a result of theoretical entrainment and impingement at IPEC are no more than MODERATE.

Background

By way of background, the enumerated FSEIS Sections and Appendices relate to theoretical (or projected) impingement and/or entrainment ("I&E") of certain aquatic species in IPEC's cooling water intake structure under NRC-renewed licenses. (We understand that the analysis was performed by an NRC consultant at Pacific Northwest National Laboratory ("PNNL"), but herein reference NRC for simplicity's sake.) While NRC determined that IPEC's continued operation during the license renewal period would have only SMALL or MODERATE potential impacts to the vast majority of Hudson River aquatic species reviewed, it identified five (5) species, i.e., blueback herring, hogchoker, rainbow smelt, spottail shiner and white perch, the potential impacts to which it identified as LARGE. NRC's findings with respect to all of these species are subsidiary findings; NRC then used these subsidiary findings to reach a general MODERATE conclusion regarding I&E.

Entergy retained Dr. Doug Heimbuch of AKRF, a leading fisheries scientist and statistician, to review the FSEIS. In its review, AKRF identified certain discrepancies relating to the subsidiary LARGE impact determinations in the enumerated FSEIS Sections and Appendices (collectively, the "Sections/Appendices"). AKRF specifically concluded that, as a result of these discrepancies, LARGE impact determinations for the species in question are unsupported and/or overstated. Key aspects of the AKRF Report are summarized below.

Summary of the AKRF Report

As noted above and briefly, the AKRF Report focuses on NRC's subsidiary findings in the Sections/Appendices that potential environmental impacts of theoretical I&E at IPEC were LARGE for the five (5) species in question. Pursuant to NRC's definition of LARGE impacts, the effects of I&E would have to be "sufficient to destabilize" those fish populations. FSEIS, p. 1-3. As documented in the AKRF Report, the Sections/Appendices do not demonstrate that I&E is the cause of any destabilization of those fish populations. Rather, NRC appears to have assumed that I&E was the cause of observed trends in abundance of those fish populations, which NRC concluded were declining. Furthermore, NRC's analysis of historical data on those fish populations contains discrepancies that bias the results of the analysis in favor of the conclusion that impacts are LARGE.

The AKRF Report consists of two complimentary sections. Section B of the AKRF Report addresses the appropriateness of the overall approach ("Approach") that NRC used to reach its LARGE findings for the five (5) species. Section C of the AKRF Report addresses certain discrepancies in the NRC's implementation of its Approach, including the effects on the subsidiary findings in the Sections/Appendices.

In Section B, AKRF discusses the following:

- While NRC's Approach may be used to differentiate among SMALL and MODERATE potential impacts on a theoretical screening basis, that Approach is not suitable for addressing, and as applied did not address, the question of whether I&E are sufficient to cause destabilization of important attributes of the five (5) fish populations. It is unsuitable because it relies on an exponential model that found I&E impacts where zero I&E occurs, and also is designed in a manner that invariably reduces fish abundance over time. Because the model reaches anomalous conclusions about fish abundance, the Approach does not support NRC's subsidiary findings of LARGE potential impacts to the species in question of IPEC's continued operation during the license renewal period.
- Insufficient evidence is presented in the Sections/Appendices to demonstrate that trends in juvenile fish abundance were caused by theoretical I&E at IPEC during the license renewal period. Rather, a connection between trends and I&E is assumed in NRC's approach. That assumption is contradicted by technical information identified in the FSEIS, as noted in the AKRF Report. NRC's substitution of assumption for technical evidence, which underpins its LARGE impact findings, is not supported.
- As discussed below, this weakness in the NRC's Approach in addressing potential LARGE impacts was amplified in the manner NRC implemented its Approach. This appears to have contributed to NRC's LARGE impact findings.

In Section C, AKRF discusses application or implementation discrepancies, including the following:

- The exponential model underlying NRC's analysis, as applied in the Sections/Appendices, is not suitable for projecting fish abundance (which is essential to NRC's assessment of potential LARGE impacts). Specifically, the model produces anomalous results that cannot be reconciled with its intended purpose.
- Conditional mortality rates ("CMRs"), which represent the fractional reductions in abundance of a fish population over time due to a single cause (such as entrainment), and therefore represent a critical input to NRC's analysis, for four (4) of the five (5) species were significantly overestimated due to several data analysis discrepancies.
- Input errors, including mismatching of annual I&E and abundance data, produced species-specific entrainment mortality estimates that contradict New York State Department of Environmental Conservation findings. For certain species, NRC estimates were overstated by in excess of an order of magnitude, again creating an improper bias toward LARGE impact findings. Moreover, the NRC's LARGE impact findings are inconsistent with United States Environmental Protection Agency information about natural mortality of the species in question, and fall within natural species variability.

In summary, the AKRF Report describes how the Sections/Appendices do not demonstrate that theoretical I&E at IPEC are sufficient to cause destabilization of fish populations in the Hudson River. As such, the LARGE impact findings to the five species in question, although subsidiary, are not supported by the underlying data or analyses. Again, the discrepancies do not alter, but rather confirm, NRC's ultimate conclusion in the FSEIS that potential impacts to aquatic species as a result of theoretical entrainment and impingement at IPEC are no more than MODERATE.

If you have any additional questions, or require additional information, please contact Dara Gray at (914) 736-8414.

Consistent with Entergy's commitment to ensuring the accuracy of the record relating to this proceeding and 10 C.F.R. § 51.94, Entergy submits this correspondence and the AKRF Report to the NRC with a request that it be included in the record of this proceeding.

Sincerely,

A handwritten signature in black ink, appearing to be 'FRD/cbr', written over a horizontal line.

FRD/cbr

Enclosure: AKRF Report

cc: Mr. William Dean, Regional Administrator, NRC Region I
Mr. John Boska, NRR Senior Project Manager
Mr. Paul Eddy, New York State Department of Public Service
NRC Resident Inspector's Office
Mr. Andrew Stuyvenberg, NRC License Renewal Environmental Project Manager
Mr. Sherwin Turk, NRC Office of General Counsel