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VIA E-MAIL AND UPS - NEXT DAY DELIVERY

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Re: Monitoring, pursuant to January 30, 2013 Biological Opinion/Incidental Take Statement in connection with Indian Point, including the associated February 9, 2018 amendment (individually, the “Amendment”; collectively, the “BiOp/ITS”)

Dear Ms. Crocker and Ms. Williams:

Pursuant to BiOp/ITS, the Department of Commerce, National Oceanic and Atmospheric National Marine Fisheries Service (collectively, “NMFS”) approved an intensive Ristroph-screen-based Atlantic and Shortnose Sturgeon (collectively, “Sturgeon”) monitoring regime to be performed by Entergy Nuclear Indian Point 2, LLC and Entergy Nuclear Indian Point 3, LLC (collectively, “Entergy”), the owners of operating Indian Point Nuclear Stations (consisting of Unit 2 and Unit 3; collectively, the “Stations”). This letter summarizes Entergy’s request for termination of that Sturgeon monitoring program based on the absence of Sturgeon from sampling in April and May 2019 and Normandeau Associates Inc.’s (“NAI”) informed understanding of Sturgeon behavior, distribution, and abundance in the Hudson River Estuary.

As detailed herein, Entergy respectfully submits that continued Sturgeon monitoring has no discernible scientific or regulatory value beyond what has already been demonstrated (i.e., that healthy Sturgeon are not susceptible to impingement at the Stations, a dynamic that will become all the more definitive with Indian Point’s planned cessation of electric-generating

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activities), with an unnecessarily heavy cost to species not subject to protection under the Endangered Species Act (the “ESA”).

The Sturgeon monitoring regime commenced, respectively, for Unit 2 on April 1, 2019 and for Unit 3 on April 12, 2019, continuing at both Stations through May 31, 2019 (the “spring monitoring period”). During that timeframe and as reflected in the multiple (e.g., weekly and monthly) reports previously submitted to NMFS, NAI performed three days of monitoring each week at each Unit, with each day consisting of twenty-four hours of continuous monitoring and analysis of hourly samples. Despite this level of sampling intensity, no Sturgeon were observed during the spring monitoring period.

As NMFS previously has acknowledged, this is not a surprise. Indeed, the BiOp/ITS reflects the following scientific expectations, based on the input of Dr. Mark Mattson of NAI, Dr. Doug Heimbuch of AKRF, Inc., Dr. John Young of ASA Analysis and Communications, Inc., and Dr. Lawrence W. Barnhouse of LWB Environmental, Inc. (collectively, the “Bio Team”) and set forth in several Bio Team reports, including principally the report titled *Atlantic Sturgeon and Shortnose Sturgeon Impingement at IPEC Units 2 and 3: Review of Historical Data, Projections of Impingement, and Assessment of the Condition of Impinged Sturgeon Upon Arrival at IPEC*, dated July 23, 2012 and previously provided to NMFS:

- Impingement of healthy Sturgeon at the Indian Point Ristroph screens was not and is not likely to occur at all in the present time frame. The reasons are based on the demonstrated migratory patterns in the Hudson River of Sturgeon, the limited likely access of Sturgeon to the Indian Point Ristroph screens (which are located behind trash racks which exclude the overwhelming majority of Sturgeon larger than 600 millimeters total length (“mmTL”), Sturgeon size and swimming abilities, in combination with low through-trash rack and through-Ristroph screen system approach velocities that allow escape of far smaller and more susceptible fish species than Sturgeon. It is worth emphasizing that impingement of Sturgeon was not expected, despite the fact that April and May were selected as reflecting the highest potential incidence of Sturgeon impingement, based on historic data.
- Historic data suggests that the rare instances of Ristroph Screen impingement of Sturgeon most likely resulted from the passive collection by Indian Point of Sturgeon that had experienced prior morbidity or mortality as a result of becoming by-catch in the historic commercial gillnet, e.g., American Shad and Sturgeon, and related fisheries. In other words, those few Sturgeon impinged at Indian Point in the 1970s through 1990 most likely experienced prior serious

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injury or were fatally affected by capture in fishing gear deployed by American Shad and other commercial fisheries near Indian Point, with Sturgeon routinely discarded as a bycatch or not an allowed harvest, therefore available to be collected in the water withdrawn from the Estuary into Indian Point Ristroph screen system. These historic fisheries and therefore their impacts to Sturgeon within the Hudson no longer exist, as the commercial gillnet fisheries either are subject to regulatory moratoria or otherwise have ceased to operate in the main stem of the Hudson River Estuary.

- Historic data indicates that, if impinged, Sturgeon are likely to experience or undergo minimal physical harm at the optimized Indian Point Ristroph screens. This is because this screen system: (1) was specifically designed by Entergy's predecessors as of 1981 and extensively tested through 1990 to advance fish protection for all but a subset of small, soft-bodied species; and (2) was approved by the United States Environmental Protection Agency ("EPA") as state of the art impingement protection on a national basis for the majority of species subject to impingement. This EPA finding is confirmed by historically extensive impingement monitoring at the Stations during 1974 through 1990, which demonstrates an absence of impingement-related damage to species comparable to Sturgeon in terms of their likely Ristroph screen system survival. For these reasons, Entergy undertook the current Sturgeon monitoring with a hope of demonstrating the effectiveness of the optimized Ristroph screen system to Sturgeon, but must now accept that such a demonstration is unlikely to materialize and comes at too high a cost to non-ESA species (as addressed below).

It is important to add that, based on NAI's analyses, fall Sturgeon monitoring, scheduled to resume in September 2019 and continue through October 2019 (the "fall monitoring period"), will likewise provide no Sturgeon. NAI's assessment is summarized below:

- Although based on a relatively small sample size ($n = 26$) for historic HRBMP work, NAI determined that the Atlantic Sturgeon potentially susceptible to water withdrawal at Indian Point are the likely the older spring cohort, and therefore both larger than they were during their spring migration and less likely to experience impingement due to enhanced swimming ability. Specifically, and by way of example for Atlantic Sturgeon, NAI determined that the predicted mean length of Atlantic Sturgeon in the historic Indian Point impingement data was very similar between Unit 2 and Unit 3 and in the spring and fall monitoring seasons, e.g., 281 mmTL (at Unit 2) to 286 mmTL at (Unit 3) and 354 mmTL (at Unit 2) to 347 mmTL(at Unit 3), respectively, during the spring and fall

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monitoring periods. These data indicate that the same cohorts of Atlantic sturgeon are exposed to impingement at IPEC during the spring upriver migration from Haverstraw Bay to north of the plant, and likewise during the fall migration from north to south back into Haverstraw Bay for overwintering. Atlantic Sturgeon of these mean lengths fall within the age 0 to age 2 cohorts with a range of sizes of 30 mmTL to 490 mmTL (Bain 1997), with Age 1 fish averaged 325 mmTL in the spring and 475 mmTL a year later, increasing in length by an average of 150 mmTL over twelve (12) months (Dovel and Berggren (1983, Table 4). NAI suggests that it is therefore likely that the same cohorts of Atlantic Sturgeon are moving back and forth past Indian Point in the spring monitoring period and have grown an average of about 65 mmTL when they migrate past Indian Point during the fall monitoring period. If Sturgeon are collected at Indian Point, which is unlikely, we expect any such collected Sturgeon to reflect morbidity or mortality at another (non-Indian Point) source.

- NAI also examined the current year (2019) and the most recent five years (2014 – 2018) of monthly Sturgeon bycatches in the HRBMP ichthyoplankton (1 m² epibenthic sled) and fall juvenile (3-m beam trawl) surveys as a gauge of relative Sturgeon abundance in the Estuary and potential exposure of these Sturgeon to impingement at Indian Point Units 2 and 3, i.e., to ensure that low Sturgeon abundance in 2019 was not the cause of zero impingement at Indian Point in the spring monitoring period. By way of reminder, the ichthyoplankton program was conducted annually (through 2017) in the spring months coincident with Sturgeon sampling at Indian Point in April and May, and the fall juvenile survey is conducted annually (through 2019) from mid-June through October, thus providing insight for, respectively, relative abundance during the spring and fall sturgeon impingement sampling periods. For the spring months of April and May, the HRBMP ichthyoplankton survey caught an average of three (3) Atlantic Sturgeon and an average of three (3) Shortnose Sturgeon per year in April, and an average of five (5) Atlantic Sturgeon and six (6) Shortnose Sturgeon per year in May, for the most recent four (4)-year period that the program was conducted (2014 – 2017), indicating that Sturgeon of both species were present in the Estuary. The fall juvenile survey performed in September and October caught an average of 10 Atlantic Sturgeon and an average of two (2) Shortnose Sturgeon per year in September, and an average of seven (7) Atlantic Sturgeon and two (2) Shortnose Sturgeon per year in October for the most recent five (5)-year period that the program was conducted (2014 – 2018), again indicating that Sturgeon of both species are present in the Estuary at comparable numbers as in the recent representative past. Furthermore, the fall juvenile program conducted in July 2019 (the first complete month of sampling in 2019) caught 13 Shortnose Sturgeon and six (6) Atlantic Sturgeon, compared to an annual average of

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eight (8) Atlantic Sturgeon and an annual average of four (4) Shortnose Sturgeon for the most recent five years of sampling in July (2014 – 2018), again indicating comparable relative abundance of both Sturgeon species in 2019 and their presence in the spring period. Therefore, the absence of Sturgeon from the Indian Point impingement samples observed in April and May 2019 is not reasonably attributable to low relative abundance in the Estuary in 2019, but instead due to other reasons described above in this letter. Likewise, there is no evidence supporting an expectation of impingement of either Sturgeon species in the proposed sampling in September and October 2019.

This dynamic – of continued Sturgeon monitoring – is not without environmental and operational costs, particularly given the planned closure of the Stations in the near term. By way of reminder, IP2 and IP3 are scheduled to cease commercial electric generating activities, and the accompanying use of the circulating water-related Ristroph screens, by April 30, 2020 and 2021, respectively. Viewed in this light, Entergy respectfully submits that the following environmental and operational costs are not supportable:

- As the New York State Department of Conservation (“NYSDEC”) previously has raised, Sturgeon monitoring comes at a potentially heavy cost to certain non-ESA species, particularly the small marine forage species, e.g., *clupeids* and the species of river herrings, such as Blueback Herring, Alewife and American Shad. While Entergy and NYSDEC advocated for, and NMFS approved, timeframes designed to reduce such non-ESA impacts, continued Sturgeon monitoring during the spring and fall monitoring periods will cause harm to non-ESA species with no measurable or discernible benefit to Sturgeon or NMFS’s understanding of that species. Indeed, while the second most abundant fish species and life stage seen in the spring monitoring period was the yearling White Perch (which averaged about 20 to 50 per 24 hours of sampling over the last six weeks of impingement sampling, i.e., mid-April through May 2019), several adult American Shad also were seen. Per NAI, the most susceptible species, such as out-migrating juvenile American Shad and river herring are, further, more likely to be seen in Ristroph screen monitoring that occurs in the fall monitoring period.
- The Sturgeon monitoring program is conducted in the waterfront area and requires substantial involvement by the Indian Point operations team, when its focus is more appropriately on the cessation of electric generating activities and the circulating water systems that underpin those activities. Given the expected and demonstrated absence of Sturgeon during the spring monitoring period, the continued diversion of Entergy resources simply does not make sense.

For all of these reasons, Entergy respectfully requests that monitoring for Sturgeon at

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Indian Point cease this year, ideally after a short confirmatory period in September, absent some collection of Sturgeon that period establishing anything other than zero collection or the passive collection of Sturgeon impacted by other sources. We welcome the opportunity to discuss this request in detail at your earliest convenience.

In the interim, please do not hesitate to contact me or Dara Gray (at 914/254-8414) for scheduling or, as always, with any questions or concerns that you may have.

Very truly yours,


Elise N. Zoli

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