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Via Electronic Mail and U.S. Mail

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Re: GenOn Potomac River Generating Station NPDES Permitting

Dear David McGuigan, Mary Letzkus, Patricia A. Kurkul, and Julie Crocker,

On behalf of Greenpeace USA, Greater Washington Interfaith Power and Light, and Chesapeake Climate Action Network or "CCAN," the Sierra Club (collectively, "the Groups") respectfully submits the following information concerning any National Pollutant Discharge Elimination System ("NPDES") permit that is renewed for the GenOn (formerly Mirant Corp.) Potomac River Generating Station ("the Potomac River Plant" or "the Plant") in Alexandria, Virginia, the environmental impacts of the Plant, and the requirements under the Clean Water Act ("CWA") and Endangered Species Act ("ESA") to minimize those impacts. The Potomac River Plant is currently operating under a NPDES permit first issued in April of 2000 that has been expired for nearly six years. To date, the Environmental Protection Agency ("EPA") has released two draft renewal permits, in 2006 and 2007, neither of which would require minimization of impacts to aquatic species, including the federally listed shortnose sturgeon, as mandated by Section 316(b) of the CWA and Section 7 of the ESA. In addition, both draft permits would reward the Plant's reported unpermitted discharges of bis(2-ethylhexyl) phthalate (more commonly known as "DEHP")—a CWA-designated toxic pollutant and known endocrine disruptor—with unlimited discharges of DEHP for a period of three years upon permit renewal. Documents submitted by the Plant to EPA indicate that the Plant has discharged DEHP without a permit for DEHP discharges and had not disclosed to EPA that it discharged DEHP when it applied for the NPDES permit that is currently in effect.

As the Environmental Appeals Board and the EPA have themselves previously concluded, and as demonstrated below and in the attached declarations of Professor Peter Henderson, an ecologist at Oxford University, and William Powers, a mechanical engineer, minimization of impacts to aquatic species requires that the Plant meet or exceed entrainment and impingement reductions attainable by closed cycle cooling. Moreover, as William Powers attests, installing closed cycled cooling on the site is feasible and can be done with a minimum amount of down time.

Similarly, as Dr. Boyd Kynard states in his sworn declaration attached hereto, the Plant will likely cause the take of the shortnose sturgeon, and such take raises "grave concerns" about the overall long term survival of the species given the unique geographic location of the Plant. Dr. Kynard is the preeminent expert on shortnose sturgeon, holding various positions on the National Marine Fisheries Service's ("NMFS") Shortnose Sturgeon Recovery Team and Shortnose Sturgeon Protocol Development Team continuously since 1986. He is likewise the expert whom the National Park Service ("NPS") and Fish and Wildlife Service ("FWS") commissioned to conduct a recently completed study on the shortnose sturgeon in the Potomac.

As such, the Groups request an opportunity to meet with EPA and NMFS, individually or jointly, at their earliest opportunity to discuss: a) the issuance of a new NPDES permit that requires impingement and entrainment reductions equivalent to closed cycle cooling and immediate compliance with water quality standards for DEHP with no compliance schedule; b) the initiation of a formal consultation process between the agencies concerning the impact of any such NPDES permit for the Potomac River Plant on the shortnose sturgeon; and c) the initiation of an enforcement action against the Potomac Plant for its unpermitted discharge of DEHP. The Sierra Club has repeatedly sought such a meeting with EPA since early March but to date EPA has not scheduled one.

In addition, the Groups seek to discuss the procedure and timeframe for the renewal of the Plant's NPDES permit, which expired in 2005 and has been administratively continued for approximately six years, especially as concerns the implementation of closed cycle cooling in accordance with § 316(b) of the Clean Water Act. In this regard, EPA should reopen the public comment period for any draft permit given the passage of time, the revision of applicable law in the interim, and the availability of new information that should be disclosed to the public if the public is to provide meaningful, informed comments on a draft NPDES permit. The Groups note that in any event, EPA and NMFS are required to consider the information herein before issuing any final permit under general principles of administrative law and the ESA. *See Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 30-31 (1983) ("[T]he agency must . . . examine the relevant data and articulate a satisfactory explanation for its action.").

BACKGROUND

I. Statutory and Regulatory Framework

A. The Clean Water Act

The Clean Water Act's goal is to eliminate all discharges of pollution into navigable waters. 33 U.S.C. § 1251(a)(1). No pollutant may be discharged from any point source without a NPDES permit. 33 U.S.C. §§ 1311(a) and 1342(a). Further, any failure to comply with a permit "constitutes a violation of the Clean Water Act." 40 C.F.R. § 122.41(a). The NPDES permit program is an integral part of the CWA's plan to eliminate pollution discharges, and to restore and maintain the health and integrity of the nation's waters. 33 U.S.C. § 1342. The CWA and EPA regulations seek to ensure that the goals are met by imposing a number of requirements through NPDES permits.

1. Technology Requirements

First, all discharges of pollutants must be eliminated or controlled with application of the Best Available Technology ("BAT") in the NPDES permit. 33 U.S.C. §§ 1311(a)(1), 1342(a)(1). In accordance with the CWA's goal to eliminate all discharges of pollutants, BAT limits "shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him . . . that such elimination is technologically and economically achievable. . ." 33 U.S.C. § 1311(b)(2)(A).

When EPA sets national effluent limitation guidelines identifying what constitutes BAT, those guidelines are the floor—the minimum level of control that must be imposed in a NPDES permit. Where EPA has not set effluent limitation guidelines for a pollutant or source or particular activity, or where such guidelines are inadequate, a state permitting agency must promulgate effluent limitations in permits, in accordance with BAT, on a case-by-base basis. 40 C.F.R.§ 125.3(c)(2) and (3); *see also Texas Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 928-29 (5th Cir. 1998). In doing so, the state agency is bound by the same factors that EPA is required to apply in determining and applying BAT limits in a permit. *See* 33 U.S.C. §§ 1342(b) and 1311(b); *see also Natural Res. Def. Council v. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988).

Those factors for determining and applying BAT are: the production process in use and the possibility of changing processes; the non-water-quality impacts of controlling pollution; the age of equipment; the costs of pollution control; and the engineering aspects of various control techniques. 33 U.S.C. § 1314(b)(2)(B); 40 C.F.R. § 125.3(d)(3). In applying the factors, the agency must consider the best state of the art practices in the industry, again to ensure the goals of the CWA are met. "Congress intended these [BAT] limitations to be based on the performance of the single best-performing plant in an industrial field." *Chem. Mfrs. Ass'n v. EPA*, 870 F.2d 177, 226 (5th Cir. 1989); *Texas Oil & Gas Ass'n*, 161 F.3d at 927; *see also Am. Frozen Food Inst. v. Train*, 539 F.2d 107, 132 (D.C. Cir. 1976).

A technology is considered available where there is or has been practicable use within an industry. In fact, courts have held that even where "no plant in a given industry has adopted a pollution control device which could be installed [that] does not mean that the device is not 'available'", thus ensuring that industry cannot game the system by all agreeing to not adopt the latest, best pollution control technology. *Hooker Chems. & Plastics Corp. v. Train*, 537 F.2d 620, 636 (2d Cir. 1976). A discharger of pollutants may also be required to transfer a particular technology that has been used in another context where the transfer is practicable. *See, e.g., Reynolds Metals Co. v. EPA*, 760 F.2d 549, 562 (4th Cir. 1985); *Tanner's Council of Am. v. Train*, 540 F.2d 1188, 1192 (4th Cir. 1976).

With respect to economic considerations, a technology is "economically achievable" under the BAT standard if it is affordable for the best-run facility within an industry. "BAT should represent 'a commitment of the maximum resources economically possible to the ultimate goal of eliminating all polluting discharges.'" *Natural Res. Def. Council v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988) [citations omitted]; *see also EPA v. Nat'l Crushed Stone*, 449 U.S. 64, 74 (1980) (if a discharger of pollutants can afford the best available technology, then it must meet, and should not be allowed a variance from, stringent BAT limits.)

2. <u>Water Quality Requirements</u>

Second, after application of the most stringent treatment technologies, if a discharge causes or contributes, or has the reasonable potential to cause or contribute to a violation of water quality standards, the permitting agency must also include any limits in the NPDES permits necessary to ensure that water quality standards are maintained and not violated. 40 C.F.R. § 122.44(d).[1] This obligation includes compliance with narrative, as well as numeric, water quality standards. 40 C.F.R. § 122.44(d)(1). The obligation is plain: "the permit must contain effluent limits" for any pollutant for which the state determines there is a reasonable potential for the pollutant to cause or contribute to a violation. 40 C.F.R. § 122.44(d)(1)(iii); *see also American Paper Inst. v. U.S. Envtl. Protection Agency*, 996 F.2d 346, 350 (D.C. Cir. 1993); *American Iron and Steel Inst. v. EPA*, 115 F.3d 979, 992 (D.C. Cir. 1997); *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d. Cir. 2005).

[1] These limits are generally referred to as Water Quality Based Effluent Limits ("WQBELs").

3. *Compliance Schedules*

As a general rule, the Clean Water Act requires that dischargers comply immediately with all technology-based effluent limitations, in furtherance of the statute's goal that all discharges of pollution ultimately be eliminated. *See* 33 U.S.C. § 1311(b) (requiring compliance with BAT limitations no later than March 31, 1989). EPA's CWA regulations therefore prohibit EPA from granting a discharger a schedule for coming into compliance where the statutory deadline has been passed; even where this is not the case, a compliance schedule cannot be issued when the water quality standards to be met are more than three years old. *See* 40 C.F.R. § 122.47(a)(1), (2) ("a schedule of compliance shall be available only when necessary to allow a reasonable opportunity to attain compliance with requirements issued or revised less than three years before recommencement of discharge"). To obtain such a compliance schedule, the permitee must establish that such a schedule is necessary—that the standard could not otherwise be met—and even then the permitee must achieve compliance as soon as possible. *Id.*; *see also* D.C. Mun. Regs. tit. 21 § 1105.9.

4. *Cooling Water Systems*

Section 316(b) of the CWA requires that the "location, design, construction, and capacity of cooling water intake structures reflect the best technology available [BAT] for minimizing adverse environmental impact." 33 U.S.C. § 1326(b); *see also U.S. Steel Corp. v. Train*, 556 F.2d 822, 850 (1977) ("§ 402(a)(1) [of the Clean Water Act] implicitly requires the Administrator to ensure compliance with § 316(b) [of the Clean Water Act] as one of the permit conditions"). Again, dischargers must comply immediately with all technology-based effluent limitations. *See* 33 U.S.C. § 1311(b).

Numerous permitting authorities have recently rendered their best professional judgment that the best technology available to minimize adverse environmental impacts results in a performance standard of a reduction in impingement and entrainment consistent with that achievable by closed-cycle cooling at thermal electrical generating units such as the Potomac Plant. For example, the E.A.B has upheld a permit provision that "would essentially require closed cycle cooling [i.e., cooling towers] for the entire station" as BAT. *See In re Dominion Energy Brayton Point, L.L.C., NPDES Appeal*, 03-12, 2006 WL 3361084, slip op. at 19 (E.A.B. Feb. 1, 2006), attached hereto as Exhibit No. 1.

EPA itself has identified what the best technology available is in its now-suspended Phase II rule for Section 316(b) compliance at existing facilities: cooling towers. *See* Cooling Water Intake Structures-Section 316(b) Final Regulation for Cooling Water Intake Structures at Large Power Plants (Phase II) EPA, 69 Fed. Reg. 41,576 (Feb. 2004) (requiring reduction of impingement by 80 to 95 percent from baseline levels and reduction of entrainment by 60 to 90 percent) (remanded *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2d Cir. 2007)). Similarly, state permitting authorities have concluded that closed cycle cooling constituted the appropriate performance standard for compliance with CWA-mandated reductions in impingement and entrainment. *See, e.g.*, Notice of Denial: Joint Application for CWA § 401 Water Quality Certification; NRC License Renewal – Entergy Nuclear Indian Point Units 2 and 3, NYS DEC Nos.: 3-5522-00011/00030 (IP2) & 3-5522-00105/00031 (IP3) (N.Y.S. D.E.C. Apr. 2, 2010) (denying water quality certification on grounds that implementation of closed cycle cooling was necessary to comply with Section 316(b)), attached hereto as Exhibit No. 2.

Thus, when issuing or renewing a NPDES permit for a facility with a cooling water intake structure such as the Potomac Plant, permitting precedent establishes that the permit must require technology that achieves performance commensurate with closed cycle cooling. Currently the only technology available to achieve such a reduction is, in fact, a closed cycle cooling system. *See* Declaration on Feasibility and Cost-Effectiveness of Cooling Tower Retrofit at GenOn Potomac River, LLC Potomac River Generating Station, (hereinafter "Powers Decl."), attached hereto as Exhibit No. 3, at 6; Henderson, "Impingement and entrainment in relation to cooling water use at the Potomac River Generating Station," (hereinafter "PISCES Report"), attached hereto as Exhibit No. 4, at 13, 22.

B. The Endangered Species Act

Congress enacted the ESA to provide both "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] a program for the conservation of such endangered species and threatened species . . . ." 16 U.S.C. § 1531(b). To achieve this purpose, the ESA imposes duties on the Secretary of the Interior, which have been delegated to FWS. 50 C.F.R. § 402.01(b).

The ESA affords protections to species listed as "endangered" or "threatened" ("listed species"). 16 U.S.C. §§ 1532(6), (16), (20). For example, Section 9 and implementing regulations proscribe the "take" of listed species (*see id.* at § 1538(a)(1); *see also*, 50 C.F.R. §§ 17.21, 17.31), which is defined to include "kill[ing]," "wound[ing]," "harass[ing]," or "harm[ing]" a species. 16 U.S.C. § 1532(19). In turn, "harm" may encompass "significant habitat modification." 50 C.F.R. § 17.3.

Section 7 of the ESA mandates that each federal agency "shall, in consultation with and with the assistance of the Secretary, insure that any action authorized . . . by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species." 16 U.S.C. § 1536(a)(2). Under Section 7's implementing regulations, each federal agency must review its actions and determine if they "may affect" a listed species. 50 C.F.R. § 402.14(a). If an action "may affect" a listed species, the agency must engage in "formal consultation" with FWS—or NMFS depending on the agencies' respective jurisdiction over the species potentially affected—unless FWS and/or NMFS (the "Service"), as the case may be, "concur[s]" in writing that the "action is not likely to adversely affect any listed species." *Id.* at § 402.14(b). NMFS has jurisdiction over the shortnose sturgeon. *See* Shortnose Sturgeon Recovery Plan (hereinafter "Recovery Plan"), attached hereto as Exhibit No. 5, at ii, 1.

If a federal agency's action may affect a listed species, Section 7 of the ESA requires that the federal agency formally consult with either NMFS or FWS to ensure that its actions, and any actions it authorizes, are not likely to "jeopardize the continued existence" of a listed species. 16 U.S.C. § 1536(a)(2). To this end, if an action will result in any take of a species, the Service must issue an Incidental Take Statement ("ITS") identifying the anticipated impact to the species, "reasonable and prudent measures" to minimize such impact, and mandatory "terms and conditions" to implement the measures that will minimize impacts to the species. 16 U.S.C. § 1536(b)(4). If the action is not only likely to take a species, but is likely to jeopardize a listed species' existence, the Service must specify "reasonable and prudent alternatives" to insure jeopardy is not likely to occur. *Id.* § 1536(b)(3)(A). In the process of consulting and preparing its determination, the agency must rely on only "the best scientific and commercial data available." *Id.* at § 1536(a)(2).

The only means by which formal consultation can be avoided is if, "as a result of the preparation of a biological assessment under § 402.12 or as a result of informal consultation with the Service under § 402.13, the Federal agency determines, with the written concurrence of the [expert agency], that the proposed action is not likely to adversely affect any listed species or critical habitat." *Id.* at 402.14(b). Again, however, the agency must rely on only "the best scientific and commercial data available." *Id.* at § 1536(a)(2). This means that in the preparation of the biological assessment, EPA must consider the results of "an on-site inspection of the area affected by the action to determine if listed or proposed species are present or occur seasonally," "the views of recognized experts on the species at issue," "literature and other information," an "analysis of the effects of the action on the species and habitat, including consideration of cumulative effects, and the results of any related studies," and "an analysis of alternate actions considered by the Federal agency for the proposed action." 50 C.F.R. § 402.12 (emphasis added).

Formal consultation requires a full evaluation of impacts to listed species, including the status of the listed species and "the effects of the action and cumulative effects" on the species. 50 C.F.R. § 402.14(g)(2)-(4). It concludes with the Service's biological opinion "detailing how the agency action affects the species," 16 U.S.C. § 1536(b)(3)(A), and whether the Service believes the action is "likely to jeopardize the continued existence of a listed species." 50 C.F.R. § 402.14(h)(3). If an action is unlikely to jeopardize a species, but will result in any take of a species, the Service must issue an Incidental Take Statement ("ITS") identifying the anticipated impact to the species, "reasonable and prudent measures" to minimize such impact, and mandatory "terms and conditions" to implement such measures. 16 U.S.C. § 1536(b)(4). If the action is likely to jeopardize a listed species, the Service must specify "reasonable and prudent alternatives" to insure jeopardy is not likely to occur. *Id.* at § 1536(b)(3)(A). In the process of consulting and preparing its determination, the agency must rely on only "the best scientific and commercial data available." *Id.* at § 1536(a)(2).

II. Facts Giving Rise To The Groups' Concerns

A. The Potomac River

The Potomac River flows for roughly 340 miles from its headwaters in the eastern Appalachian Mountains to its confluence with Chesapeake Bay at Point Lookout, Virginia. *See* EPA Office of Water, Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment, Chapter 8 "Potomac Estuary Case Study," (hereinafter "Potomac River Estuary Case Study"), attached hereto as Exhibit No. 6, at 8-1. The last 117 miles of the river from the fall line at Little Falls are classified into three distinct hydrographic regions: tidal river, transition zone, and estuary, with the region extending from the fall line to roughly Quantico, Virginia, characterized as freshwater with net seaward flow from surface to bottom. *Id.* At Little Falls, the Potomac has an average flow of roughly 11,400 cubic feet per second, or 7.4 billion gallons per day; flow is highest during the spring (February through May), and averages as low as roughly 4,100 cubic feet per second (or 2.7 billion gallons per day) during September, the month with the lowest flow. *Id.* at 8-3. It is in this region that the Potomac River Generation Station lies, some nine miles south of Little Falls. The long-term mean 7-day, 10-year low flow at the fall line is 628 ft^3/sec, or approximately 406 million gal/day. *Id.* at 8-3.

The Potomac is home to a wide range of aquatic life, including numerous anadromous, semi-anadromous, resident, estuarine, and marine spawning fish. *See* EPRIsolutions "Proposal for Information Collection Potomac River Generating Station Mirant Mid-Atlantic," (hereinafter "EPRIsolutions Proposal"), attached hereto as Exhibit No. 7, at Attachment B page 4. Such species include longnose gar, American eel, bay anchovy, blueback herring, alewife, American shad, hickory shad, gizzard shad, white and channel catfish, chain pickerel, Atlantic needlefish, white perch, striped bass, bluegill, black crappie, tessellated darter, yellow perch, and walleye, among others, in addition to crustaceans such as the blue crab. *Id.* at Attachment B pages 9-10. Many of these species have had their impingement and entrainment by the Potomac River facility documented. *See* PISCES Report at 3-4, 7-8 (noting that various studies have identified white perch, gizzard shad, blueback herring, channel catfish, and striped bass as impinged species, and perch and herring as among entrained species). Of particular note are two sturgeon species, the Atlantic sturgeon and the shortnose sturgeon. The Atlantic sturgeon is a candidate species for listing under the ESA; the shortnose sturgeon has been listed as an endangered species since 1967.

The Potomac is the second-largest tributary emptying into Chesapeake Bay, home of an economically vital fishery. *See, e.g.*, USGS, Chesapeake Bay: Measuring Pollution Reduction, *available at* http://water.usgs.gov/wid/html/chesbay.html (noting the relative size of the Potomac); *see also id.* ("The Chesapeake Bay is the Nation's largest and most productive estuary"). Virginia has estimated that in 2004, recreation and commercial fishing contributed to $1.23 billion in sales, $717 million in income, and more than 13,000 jobs in Virginia. *See* Kirkley et al. "Economic Contributions of Virginia's Commercial Seafood and Recreational Fishing Industries: A User's Manual for Assessing Economic Impacts," (hereinafter "Kirkley Study"), attached hereto as Exhibit No. 8, at iv. Indeed, the Bay region generated some $908 million in commercial fishing landings from 2000 to 2004, with 97 percent coming from the bay. NOAA, "Estuarine Fish and Shellfish Species in U.S. Commercial and Recreational Fisheries: Economic Value as an Incentive to Protect and Restore Estuarine Habitat," (hereinafter "NOAA Economic Value as an Incentive to Protect and Restore"), attached hereto as Exhibit No. 9, at 20. Many of the species contributing to this catch occur in the Potomac. For example, blue crab—a species that occurs near the Potomac River Plant—has an annual dockside catch value of $50 million Bay-wide. *See* USDOI "Landscape Conservation and Public Access in the Chesapeake Bay Region," attached hereto as Exhibit No. 10, at 3.

The Potomac is designated for all uses, including primary and secondary contact recreation, aesthetic enjoyment, protection and propagation of fish, shellfish, and wildlife. D.C.

Mun. Regs. tit. 21 § 1101. Currently Potomac has a water quality standard of 2.2 ug/L for DEHP (*see* D.C. Mun. Regs. tit. 21 § 110.8 at Table 3), and data indicates that water in the stretch of the Potomac occupied by the plant has a concentration of 3.5ug/L for DEHP. *See* USGS "Assessment of Endocrine Disruption in Smallmouth Bass (*Micropterus dolomieu*) and Largemouth Bass (*Micropterus salmoides*) in the Potomac River Watershed," (hereinafter "USGS Assessment of Endocrine Disruption"), attached hereto as Exhibit No. 11, at II-32, Table II-4. Nonetheless, at the location of the Plant, the ambient water has a concentration of 49 ug/L, or approximately seventeen times the water quality standard. *See* 2004 NPDES Renewal for Mirant Potomac River, Potomac River Generating Station, (hereinafter "2004 NPDES Permit Application"), attached hereto as Exhibit No. 12, at Microbac Test Results for July 16, 2004 at 4.

Intersex fish—fish with both male and female reproductive organs—have become a fixture of the Potomac. *See, e.g.*, USGS "Intersex Fish: Endocrine disruption in smallmouth bass," (hereinafter "USGS Intersex Fish") attached hereto as Exhibit No. 13, at 2 (finding "female germ cells (oocytes) in the testes of 82% to 100% of the male smallmouth bass"); Blazer et al. "Intersex (Testicular Oocytes) in Smallmouth Bass from the Potomac River and Selected Nearby Drainages," (hereinafter "Blazer") attached hereto as Exhibit No. 14, (discussing intersex fish in the Potomac River); Iwanowicz et al. "Reproductive Health of Bass in the Potomac, USA Drainage: Part 1," attached hereto as Exhibit No. 15, (hereinafter "Iwanowicz Part 1") at 1072 (noting that "[i]ntersex . . . has been observed" in the Potomac River "during the past five years"); Alvarez et al. "Reproductive Health of Bass in the Potomac, USA, Drainage: Part 2," attached hereto as Exhibit No. 16, (hereinafter Alvarez Part 2") at 1084 ("Recent studies of fish health in the Potomac watershed have found sites with alarming . . . incidences of intersex"); USGS "A Reconnaissance for Emerging Contaminants in the South Branch Potomac River, Cacapon River, and Williams River Basins, West Virginia, April-October 2004," (hereinafter "USGS Emerging Contaminants), attached hereto as Exhibit No. 17, at 1 (noting "a high incidence of an intersex condition . . . in the South Branch Potomac River and the Cacapon River of West Virginia, indicating the possible presence of endocrine-disrupting compounds"); USGS Assessment of Endocrine Disruption, at iii ("[a] high prevalence of intersex (82% to 100%) was identified in male smallmouth bass at all sites").

Such intersex fish are the associated exposure to endocrine disruptors, which can have a number of sources, including agriculture in rural areas (from pesticides) to industrial and public treatment works in urban areas. While rates vary according to the stretch of the river sampled, over 20% of male largemouth bass sampled in the vicinity of the Plant had female ovaries or related structures. *See* USGS Assessment of Endocrine Disruption at iii ("Intersex (23%) was identified in male largemouth bass collected at the site near Blue Plains").[2]

B. Bis(2-ethylhexyl) phthalate ("DEHP")

DEHP has been designated by EPA as a probable human carcinogen. *See* EPA "Bis(2-ethylhexyl) phthalate (DEHP)," *available at* http://www.epa.gov/ttnatw01/hlthef/eth-phth.html,

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[2] Notably, both Blue Plains sewage treatment works and the Potomac plant discharge in the same general area of the Potomac, and while the water at the location of the Blue Plains discharge contained 3.5ug/L of DEHP, this is far below the concentration of DEHP in the ambient water at the site of the Plant. *See* USGS Assessment of Endocrine Disruption, at II-32, Table II-4.

("EPA has classified DEHP as a Group B2, probable human carcinogen"); *see also* August 13, 2007 Correspondence between Evelyn S. MacKnight and Patricia A. Kurkul, attached hereto as Exhibit No. 18, at 5-6 (hereinafter "NMFS Sturgeon Determination"). It is a listed toxic compound under the CWA regulations. *See* 40 C.F.R. § 401.15(53). DEHP is also a known endocrine disruptor: studies have associated DEHP with a number of reproductive disorders including, in humans, the failure of testes to descend and reduced penile size. *See* USGS Emerging Contaminants, at 15; Swan, "Environmental phthalate exposure in relation to reproductive outcomes and other health endpoints in humans," (hereinafter "Swan Study"), attached hereto as Exhibit No. 19, at § 3.2.5. DEHP exposure is also associated with reduced anogenital distance, which is an indication of increased feminization of males. *See id.*

C. The Federally Listed Endangered Shortnose Sturgeon And Threats To Its Survival

The shortnose sturgeon, *Acipenser brevirostrum* ("the sturgeon") is a large fish, three to four feet long, with a short blunt nose and five rows of bony plates along its body. Declaration of Dr. Boyd Kynard (hereinafter "Kynard Decl."), attached hereto as Exhibit No. 20, at ¶ 7. The sturgeon lives in estuaries and rivers along the U.S. east coast, and is a migratory fish, moving between its spawning areas, summer foraging areas, and overwintering areas. *Id.* at ¶¶ 8, 10. It has a multi-stage life cycle: egg (embryo), free embryo (fish hatched, food supplied by yolk-sac), larvae (first feeding life stage), juvenile, and adult. *Id.* at ¶ 11. Early-larvae migrate downstream from the spawning area to stop and rear in freshwater for the first 10-12 months of their life, after which they resume descending downstream to salt water reaches lower in the river where they join older shortnose sturgeon. *Id.* According to NMFS, the freshwater zone in which larvae and young juveniles reside for the first 10-12 months of their life is the first 9 miles or so of the river immediately below their spawning ground. *See* September 21, 2006 Correspondence between Julie Crocker and Karen M Greene, attached hereto as Exhibit No. 21. Larvae and young juveniles must use such freshwater areas as they have no tolerance for salinity. Kynard Decl. at ¶ 12.

The sturgeon has been federally listed as endangered under the ESA and predecessor laws since 1967.[3] *See* Endangered Species, 32 Fed. Reg. § 4,001 (March 11, 1967). The U.S. Department of the Interior determined that pollution and overfishing caused the species' initial decline. Recovery Plan at 1; Kynard Decl. at ¶ 7. Today, the greatest threats to the survival of the shortnose sturgeon include, among other things, power plant construction and operation, and pollutant and thermal discharges. *Id.* at ¶ 16.

Indeed, NMFS has concluded that electric power generating plants are a significant threat to the species and contribute to the species' decline. *Id.* at ¶ 17. Of particular concern is the impact that electric power generating plants' cooling water intake structures have on sturgeon through impingement and entrainment of larval and young juvenile sturgeon, when the fish are small and poor swimmers. *Id.* As NMFS explained in the Recovery Plan for the shortnose sturgeon,

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[3] The Atlantic sturgeon, while currently not listed for protection under the ESA, has been proposed for listing. *See* Proposed Listing Determinations for Three Distinct Population Segments of Atlantic Sturgeon in the Northeast Region, 75 Fed. Reg. § 61,872 (Oct. 6, 2010).

> Shortnose sturgeon are susceptible to impingement on cooling water intake screens. Electric power and nuclear power generating plants can affect sturgeon by impinging larger fish on cooling water intake screens and entraining larval fish.

Recovery Plan at 53. Numerous observations in laboratories have demonstrated that larvae and young juveniles cannot escape flow rates as low as 0.25 feet per second. *See* Kynard Decl. at ¶ 17. Moreover, because sturgeon are relatively slow growing and exist in a vulnerable larval and young juvenile stage for 10-12 months, sturgeon and sturgeon populations are particularly susceptible to adverse impacts from impingement and entrainment. The take of young sturgeon can have magnified impacts on sturgeon populations. This is because sturgeon are slow maturating, they do not spawn every year, and the species is already critically imperiled. *See id.*

In addition to impingement and entrainment, power plants can also harm sturgeon by lowering water quality, including by creating anoxic conditions, and by thermal loading. Recovery Plan at 49, 52. Indeed, NMFS has concluded that sturgeon can be adversely affected by water temperatures above 28°C. *Id.* at 46; NMFS Sturgeon Determination at 3; *see also* Kynard Decl. at ¶ 30. Likewise, sturgeon are also adversely affected by pollutants such as copper and chlorine, Kynard Decl. at ¶¶ 29-30, and endocrine disrupters.

D. The Shortnose Sturgeon In The Potomac

NMFS has recognized 19 distinct population segments of shortnose sturgeon. Shortnose sturgeon populations consist of two clusters: a northern cluster of population segments (spanning from New Brunswick to the Hudson River) and a southern cluster of population segments (spanning from Cape Fear in South Carolina down through Georgia). Accordingly, there is a gap in the middle of the species range that is only filled by the Delaware River population (in Pennsylvania) and the Chesapeake population. *Id.* at ¶ 9; *see also* Recovery Plan at 2, 12. As NMFS has concluded, the "loss of a single shortnose sturgeon population segment may risk the permanent loss of unique genetic information that is critical to the survival and recovery of the species." Recovery Plan at 7 (emphasis added).

The Chesapeake population, however, is of particularly critical importance to the long term survival of the species. This is because, as NMFS itself has concluded, it is highly important to "re-establish minimal gene flow" between the northern and southern populations, and doing so requires "restoring the historically continuous range of the species." *Id.* at 5 (emphasis added). The Chesapeake population—situated as it is in the center of the gap between the northern and southern sturgeon populations—is the population that must provide that crucial genetic link between the otherwise isolated northern and southern populations. *See* Kynard Decl. at ¶ 9. Accordingly, the health of the Chesapeake population is critical to the health and viability of the species as a whole.

The Potomac sturgeon, in turn, is the key to fulfilling the role of the Chesapeake population in linking northern and southern populations. This is because the Potomac River is the only river in the Chesapeake population range where a permanent presence of adults year round has been documented. *See* Kynard Decl. at ¶¶ 9, 31. Indeed, within the Chesapeake population, only the Potomac sturgeon are known to be using upstream riverine spawning habitat. *Id.* at ¶ 9. Moreover, only the Potomac sturgeon have been observed attempting to spawn. *Id.* Indeed, all other instances of sturgeon in the Chesapeake population have been limited to sturgeon that were found in the Chesapeake itself and at the mouths of rivers. *See* Recovery Plan at 19. As such, "adverse impacts to the Potomac shortnose sturgeon are of grave concern to, and may well have adverse impacts on, the long term survival of the species." Kynard Decl. at ¶ 31 (emphasis added).

In the recent past, at least eight shortnose sturgeon have been caught in fishing gear in the Potomac. *See* USGS "Status of Shortnose Sturgeon in the Potomac River" Part I – Field Studies, attached hereto as Exhibit No. 22 (hereinafter "Kynard/FWS Field Study") at 3-4. From March 2004 to July 2007, the National Park Service and the Fish and Wildlife Service commissioned a Field Study of the shortnose sturgeon in the Potomac, performed by Professor Boyd Kynard. *Id.* at 4. The Kynard/FWS Field Study, as well as other catch reports of the shortnose sturgeon in the Potomac, indicates that the shortnose sturgeon is a permanent resident of the Potomac River. Kynard Decl. at ¶ 27. Adults are returning year after year to an area within approximately nine miles of the Plant with spawning habitat in an attempt to spawn. *Id.* at ¶ 26.

As noted above, NMFS itself has previously concluded that the nine miles or so immediately below spawning grounds are where larval and young juvenile shortnose sturgeon reside for the most vulnerable first 10-12 months of life, while they grow large enough to move further downstream into more saline waters. *See* Ex. 21, September 21, 2006 Correspondence between Julie Crocker and Karen M. Greene. It is therefore inevitable that the Potomac Plant will likely injure and kill young shortnose sturgeon through entrainment and impingement, particularly at the larval and young juvenile life stages. Kynard Decl. at ¶ 28. For the reasons discussed above, the impact of such take is of great concern to the Potomac sturgeon generally given the slow maturation of the shortnose sturgeon, the fact that they do not spawn every year, and the imperiled status of the fish, and moreover the take of Potomac River sturgeon raises "grave concern[]" for the viability of the species as a whole. *Id.* at ¶¶ 17, 31.

D. The Potomac River Plant

The Potomac River Plant is a coal-fired power generation facility located in Alexandria, Virginia, approximately nine miles below the sturgeon spawning area. Its five boilers came online between 1949 and 1957. Three boilers, Units 3, 4, and 5, are rated at 108 megawatts ("MW") each, and are base-load units. The two remaining boilers, Units 1 and 2, are older and smaller (92 MW each), and are operated infrequently. The Plant employs once-through cooling, meaning that up to 483 million of gallons of water daily are pulled from the Potomac River into the Plant, piped through the Plant's cooling system, and then discharged back into the Potomac. *See* 2004 NPDES Renewal Application. In the process, significant numbers of aquatic life forms are killed due to entrainment within the system, and impingement against intake screens. The Potomac River facility's water intakes are equipped with traveling screens with 3/8-inch rectangular mesh. *Id.* Such screens, however, are designed to prevent debris from entering the cooling system, and not to limit aquatic life mortality. *See* PISCES Report at 8, 12.

Indeed, the Potomac River facility likely kills tens of thousands of fish per year via impingement, and tens to hundreds of millions of fish per year via entrainment of eggs and larvae. *Id.* at 12. The Plant's own studies confirm this. *See* EPRIsolutions Proposal at Attachment B, page 14 (estimated entrainment of 543 million eggs and larvae); *id.* at page 24 (estimated 206,000 fish and 57,000 crabs impinged).

E. Fish Protection Technology At The Potomac River Plant

All else being equal, the major determinant of fish mortality from cooling water intake structures is the quantity of water withdrawn from the source. PISCES Report at 13. Thus, installing closed cycle cooling towers that would dramatically reduce overall cooling water intake would concomitantly reduce fish mortality. *See* Powers Decl. at 1 (implementation of closed cycle cooling at the Potomac River Plant could reduce water withdrawals by 95%); PISCES Report at 13 (closed cycle cooling would reduce water withdrawals by over 90%, and would reduce impingement by upwards of 95%, and entrainment by an order of magnitude).

Other potential technologies to reduce impingement and entrainment are, owing to the ecology and geography of the Potomac River, and the size of the Potomac River Plant, likely to be largely ineffective at significantly reducing fish mortality. Traveling screens with fish buckets—known as "Ristroph screens"—are unlikely to significantly reduce impingement mortality in areas like the Potomac River because of the presence of numerous fish species poorly-adapted to surviving contact with fish buckets. PISCES Report at 14-15. At Potomac River, such screens may only reduce impingement mortality by roughly 36%, and would do nothing to diminish entrainment mortality. *Id.* at 17. Likewise, cylindrical wedgewire screens—a technology used for low volume intakes of 1 to 50 million gallons per day—are unlikely to provide many benefits, because the large water withdrawal needs of the Potomac River Plant would require immense screens to maintain the necessary low flow speeds; there is unlikely to be space to properly arrange such screens in the Potomac River. *Id.* at 19, 21. Additionally, problems with debris loading in the Potomac, along with the growth of weeds such as *Hydrilla*, would render cylindrical wedgewire screens liable to clogging and fouling, which would undercut their efficacy. *Id.* at 19. As such, it is likely that no feasible screening technology can decrease fish mortality at the Potomac River Plant to the level achievable by switching from once-through cooling to closed cycle cooling. *Id.* at 22.

F. The History Of The Potomac River Plant's NPDES Permitting

The Potomac River Plant currently operates under an administratively continued permit first issued in 2000, and originally set to expire April 19, 2005, nearly six years ago. *See* 2000 NPDES Permit, attached hereto as Exhibit No. 23. The permit does not authorize any discharge of DEHP. Nor was any such discharge contemplated by the EPA as the permitting agency. In fact, in its application for the 2000 permit, the Plant never disclosed that it discharged DEHP—to the contrary, the Plant asserted that the category of pollutants that included DEHP were not applicable to the Plant's permit. *See* 1998 Renewal for Potomac Electric Power Company, (hereinafter "1998 NPDES Permit Application"), attached hereto as Exhibit No. 24, at Outfall No. 001 page V-6 (noting "N/A" for the list of compounds that includes bis (2-ethylhexyl) phthalate). The Plant never disclosed any discharges of DEHP until applying for its permit renewal in 2004. Nor has it ever disclosed the date it began such discharges of DEHP.

When the Plant's operators submitted an application for a new permit in the fall of 2004, they were required to sample its discharges and characterize its wastewater. It was at this point in time that the Plant identified the fact that it was discharging DEHP. In fact, the Plant stated it was discharging DEHP in concentrations as high as 77 ug/L, when the ambient water quality standard for DEHP was in the single digits. *See* 2004 Permit Application at Outlet 001, page V-6; D.C. Mun. Reg. tit. 21 § 1104.8 table 3 (30-day average WQS for DEHP is 2.2 ug/L).

Confronted with the information submitted by the Plant stating that the Plant was discharging DEHP at high levels without a permit for DEHP discharges, EPA did not initiate enforcement action. Nor has EPA issued a permit requiring that the Plant begin to comply with WQS. Instead, EPA stated in March of 2005 that the old permit would continue in force "until the effective date of a new permit issued by EPA," *See* March 15, 2005 Correspondence from Jon M. Capacasa to Hula C. Edmonds, attached hereto as Exhibit No. 25.

Although EPA has still not issued a new final permit, as noted above EPA did eventually issue a draft NPDES permit in November 2006. *See* 2006 Draft NPDES Permit, attached hereto as Exhibit No. 26. Strikingly, however, in the 2006 draft permit, EPA did not propose to require the Plant to immediately comply with the WQS of 2.2 ug/L. Instead, EPA proposed to allow the Potomac River Plant to discharge DEHP in unlimited amounts for three years with a monitor only standard. *See id.* at 3-4; *cf.* 2000 NPDES Permit (no mention of DEHP or bis(2-ethylhexyl) phthalate). As discussed further below, EPA then issued a second draft permit in 2007, but this permit likewise would have authorized unlimited discharges of DEHP for three years. *See also* 2007 Draft NPDES Permit, attached hereto as Exhibit No. 27, at 3-4 (same).

As discussed above, DEHP is recognized by EPA as a probable human carcinogen. *See* EPA "Bis(2-ethylhexyl) phthalate (DEHP)," *available at* http://www.epa.gov/ttnatw01/hlthef/eth-phth.html, ("EPA has classified DEHP as a Group B2, probable human carcinogen"); *see also* NMFS Sturgeon Determination, at 5-6. It is also a known endocrine disrupter correlated with serious reproductive disorders. *See* USGS Emerging Contaminants, at 15; *see also* Swan Study at § 3.2.5. Information submitted by the Plant indicates that the Potomac already has an ambient level of DEHP of 49 ug/L at the site of the Plant, with high rates of intersex fish in the area reflecting significant effects from endocrine disruptors. *See, e.g.*, USGS Assessment of Endocrine Disruption at III-4 ("intersex in male smallmouth bass ranged from 82% to 100% with a high degree of severity at these sites and that male largemouth bass exhibited 23% intersex, also with a high severity index").

In January of 2007, as part of EPA's permitting process, National Oceanic and Atmospheric Administration ("NOAA") sent a letter to EPA concerning the presence of endangered shortnose sturgeon in the Potomac River. *See* January 23, 2007 Correspondence from Mary A. Colligan to Evelyn S. MacKnight, attached hereto as Exhibit No. 28. Specifically, NOAA referenced "eight shortnose sturgeon captured incidentally in fishing gear in the Potomac River," as well as two "mature egg bearing female[s]" captured in the Potomac in September

2005 and March 2006 respectively. *Id.* NOAA stated further that this "suggests that a spawning population of shortnose sturgeon continues to exist in the [Potomac] river system." *Id.*

Similarly, in April of 2007, NOAA again contacted EPA to comment about the impact of the Potomac River Plant on shortnose sturgeon. *See* April 19, 2007 Correspondence from Julie Crocker to Mary Letzkus, attached hereto as Exhibit No. 29. In this email, NOAA expressed "concern" about "the potential for shortnose sturgeon larvae to be vulnerable to impingement and/or entrainment," noting specifically that "larvae would be of a size and swimming ability to be vulnerable." *Id.*

On May 31, 2007, EPA issued a second draft permit for notice and comment. Although the fact sheet for this second permit stated that NOAA had "raised concerns about the impact of the permitted activities on the shortnose sturgeon, a federally endangered species known to be present in the Potomac River," the second draft permit contained no changes concerning these impacts to the sturgeon; nor did it contain any requirements for implementation of closed-cycle cooling. *See* Draft Fact Sheet, Supplemental Fact Sheet for Revised Draft Permit, attached hereto as Exhibit No. 30. The Revised Fact Sheet did note that EPA and NOAA would be "sharing information preliminary to conducting a consultation under Section 7 of the Endangered Species Act"; however, no formal consultation has taken place, nor has any been incorporated in the NPDES permitting for the Potomac River Plant. *Id.* at 1.

Despite its concerns, NMFS nonetheless ultimately offered a concurrence to EPA's opinion that operation of the Potomac River Plant was not likely to adversely affect the sturgeon. *See* NMFS Sturgeon Determination. However, NMFS's conclusion is starkly at odds with the best available science, with NMFS's own conclusions in other similar circumstances, and with the opinion of the shortnose sturgeon expert that the government itself has retained to study the sturgeon in the Potomac. For example, in its determination, NMFS asserted that impingement and entrainment would not be a problem as shortnose larvae and young juveniles would swim past the Plant to reside further downstream for their first year—a premise that is at odds with NMFS's own assessment of the best available science just a year before that "[s]hortnose sturgeon larvae are known to only travel a maximum of 9 miles (15km) from spawning grounds before becoming resident," a conclusion which is corroborated by the assessment of Dr. Kynard that larvae and young juvenile shortnose sturgeon are likely to use the area around the Plant for rearing in the first year of life. Ex. 21, September 21, 2006 Correspondence between Julie Crocker and Karen M. Greene; *see* Kynard Decl. at ¶ 20, 30. NMFS's assertion that sturgeon will not be affected by high water temperatures in the Potomac because they will have swum past the Plant in just a few days in early spring is therefore equally contradicted by NMFS's previous assessments of the best available science. *Compare* NMFS Sturgeon Determination at 3 (noting that temperatures reached in June, July, and August as a result of thermal discharges are high enough to adversely affect sturgeon, but they would have swum past); *with* Ex. 21, September 21, 2006 Correspondence between Julie Crocker and Karen M. Greene; Kynard Decl. at ¶ 20 (noting that "during the first 10 months of the shortnose sturgeon lifecycle, larvae and young juveniles depend upon upstream freshwater habitat such as that present in the reach occupied by the Potomac Plant"). Nor did NMFS substantiate its assessment that sturgeon larvae can resist water intake flows of 0.6 feet per second, when numerous laboratory observations demonstrate that sturgeon larvae can be impinged and entrained at flow velocities as low as 0.25 feet per second. *See, e.g.*, Kynard Decl. at ¶ 17, 20.

ARGUMENT

I. <u>EPA Should Provide For Further Public Notice And Comment On Any Permit That It Issues</u>

To comply with minimum standards of required public notice and comment under the CWA, the ESA and the APA, EPA must allow further additional public notice and comment opportunities on any permit that issues. It has been approximately four years since EPA circulated the 2007 draft NPDES permit for notice and comment. Since that time, new circumstances exist, significant additional information has been made public, and applicable regulations have changed. For example, as explained more fully below, further studies and information have been released concerning the presence of shortnose sturgeon in the Potomac, as well as the presence of intersex fish in the Potomac. Similarly, the Plant has submitted information now in the public domain that indicates that the Plant has discharged DEHP without a permit. Meanwhile, it has now been over three years since the current water quality standards for DEHP have been revised, meaning that under EPA regulations a compliance schedule is no longer allowed, and as of 2010, the District of Columbia has amended its regulations in such a manner that compliance schedules are no longer appropriate. Moreover, additional information about BAT for cooling water intake structures has been made available.

As such, for these reasons and for the reasons explained below, EPA must provide an additional notice and comment period for any NDPES permit it reissues for the Plant. At the very least, EPA must consider the information submitted herein when making its eventual final permitting decision, as the data submitted is critically relevant to the permitting process. To do otherwise would be to act arbitrarily and capriciously. *See Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 30-31 (1983) ("[T]he agency must . . . examine the relevant data and articulate a satisfactory explanation for its action").

II. <u>To Ensure Compliance With CWA § 316(b), EPA Must Require Implementation of Closed Cycle Cooling at the Potomac River Plant</u>

As part of the re-permitting of the Potomac River Plant, the EPA must require implementation of technologies sufficient to reduce the impingement and entrainment of aquatic life by the Plant's intake systems to levels commensurate with closed-cycle cooling, as the current once-through cooling system employed does not comply with the Clean Water Act. Such a requirement would entail the use of cooling towers at the Potomac River Plant, as no other technology can provide equivalent benefits.

Section 316(b) of the Clean Water Act requires that the "location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." 33 U.S.C. § 1326(b); *see also U.S. Steel Corp. v.*

Train, 556 F.2d 822, 850 (7th Cir. 1977) ("§ 402(a)(1) [of the Clean Water Act] implicitly requires the Administrator to ensure compliance with § 316(b) [of the Clean Water Act] as one of the permit conditions"). As a general rule, the Clean Water Act requires that dischargers comply immediately with all technology-based effluent limitations, in furtherance of the statute's goal that all discharges of pollution ultimately be eliminated. *See* 33 U.S.C. § 1311(b) (requiring compliance with BAT limitations no later than March 31, 1989).

A. Closed Cycle Cooling Constitutes The Best Available Technology for Minimizing Entrainment and Impingement of Aquatic Life

EPA has made it clear that permitting authorities must ensure compliance with Section 316(b) of the Clean Water Act by making their own determinations using best professional judgment ("BPJ") regarding what constitutes best available technology. *See* National Pollutant Discharge Elimination System—Suspension of Regulations Establishing Requirements for Cooling Water Intake Structures at Phase II Existing Facilities, 72 Fed. Reg. 37,107 (July 9, 2007) (suspending Phase II rule and noting that permitting authorities should ensure compliance with Section 316(b) through case-by-case BPJ analyses of BAT). In this regard, numerous permitting authorities have concluded that the BAT standard is one that achieves a reduction of at least 95% in both entrainment and impingement of aquatic life.

As the E.A.B. has concluded, a 95% level of protection is achieved through, and corresponds to, the use of a closed cycle cooling tower system. *See* Ex. 1, *In re Dominion Energy Brayton Point, L.L.C.*, NPDES Appeal 03-12, 2006 WL 3361084, slip op. at 19 (E.A.B. Feb. 1, 2006) (upholding permit provision that "would essentially require closed cycle cooling [*i.e.*, cooling towers] for the entire station" as BAT); Ex. 2, *Notice of Denial: Joint Application for CWA § 401 Water Quality Certification; NRC License Renewal – Entergy Nuclear Indian Point Units 2 and 3*, NYS DEC Nos.: 3-5522-00011/00030 (IP2) & 3-5522-00105/00031 (IP3) (N.Y.S. D.E.C. Apr. 2, 2010) (denying water quality certification on grounds that implementation of closed cycle cooling was necessary to comply with Section 316(b)). In fact, several jurisdictions considering the question have concluded that closed cycle cooling itself is required for facilities similar to the Potomac Plant. *See, e.g.*, Mirant Canal Station Final NPDES Permit (noting EPA Region 1's requirement for implementation of closed cycle cooling at the Mirant Canal Station Power Plant), attached hereto as Exhibit No. 31; SPDES Fact Sheet Narrative (noting New York Department of Environmental Conservation's requirement for implementation of closed cycle cooling at the E.F. Barrett Power Station), attached hereto as Exhibit No. 32; DEP Permit Calls for Oyster Creek Nuclear Plant to Build Cooling Towers (noting New Jersey Department of Environmental Protection's requirement for implementation of closed cycle cooling at the Oyster Creek Power Plant), attached hereto as Exhibit No. 33.

Other technologies for decreasing aquatic life mortality do not approach this level of performance, particularly in conditions and settings such as those at the Potomac River facility. For example, Ristroph screens (traveling screens with fish buckets) would likely at best decrease fish impingement mortality by less than 40%, and would not reduce entrainment mortality at all. *See* PISCES Report at 20. Likewise, cylindrical wedgewire screens, while in some situations having the potential to reduce both impingement and entrainment, require very low intake velocities that are difficult to achieve without cooling towers. *Id.* at 18-19. In debris-loaded environments like the Potomac, they are also liable to fouling, which increases the intake velocities at the clear portions of the screens, thereby undermining their effectiveness. *Id.* at 19. Indeed, such technology is unproven for large water withdrawals such as those at the Potomac River Plant. *Id.* at 18.

At Potomac River, closed cycle cooling is the only technology that can provide impingement and entrainment reductions consistent with BAT standards. Implementing such closed cycle evaporative cooling would result in decreases in water withdrawals of roughly 95%. *See id.* at 13; Powers Decl. at 6. This would accordingly result in dramatic decreases in mortality to aquatic life. *See* PISCES Report at 13 (implementing closed-cycle evaporative cooling would reduce impingement to 5% or less); Powers Decl. at 6 ("Adding closed-cycled cooling will cut aquatic mortality . . . by approximately 95 percent").

B. Closed Cycle Cooling Can Be Readily Implemented For The Potomac River Plant

It is technically feasible to retrofit boiler Units 1-5 of the Potomac River Plant to closed-cycle cooling to reduce cooling water demand by at least 95 percent; use of treated grey water as the closed-cycle cooling makeup water supply would eliminate cooling water withdrawals for those units. *See* Powers Decl. at 3. For example, cooling needs for boilers 1-3 could be fulfilled by the use of one continuous 12-cell cooling tower; such a tower would measure 288 feet in length, and roughly 100 feet in height. *Id.* at 2-3. The structure could be contained entirely within the footprint of some parking spaces on the western side of the Potomac River Plant. *Id.* at 2.

Such a closed-cycle retrofit has been performed at a number of U.S. power plants already, including Palisades Nuclear, Pittsburg Unit 7, Yates, Units 1-5, Canadys Station, and Jeffries Station. *Id.* at 4. In a number of these retrofits—such as those of Pittsburg Unit 7 and Yates Units 1-5—space limitations were encountered, and in all of them, some components of the existing once-through cooling system were incorporated, indicating that closed-cycle cooling implementation is not barred by having a small overall area for the facility. *Id.* at 5. Nor do such retrofits require extended unscheduled outages: much of the work related to a closed-cycle retrofit can be carried out while the power generation units are online, and the outage experience when hookup of the cooling tower is accomplished can be as little as four weeks or less. *Id.*

Such a system would, moreover, be cost effective to install. The installation of cooling towers for the three primary boilers at the Potomac River Plant would likely cost as little as $44-66 million. *Id.* at 3. For sake of comparison, EPA estimated that complying with 316(b) for a coal fired plant would cost roughly $87 million if the implementing technology were a series of screens and intake requirements. *See* EPA Summary of Compliance Costs, attached hereto as Exhibit No. 34, at B1-11. Although such a comparison is not required, this is relatively little in light of the vast economic benefits reaped from the Chesapeake fisheries as a whole. *See* Kirkley Study at iv (Virginia recreation and commercial fishing contributed to $1.23 billion in sales, $717 million in income, and more than 13,000 jobs); NOAA Economic Value as an Incentive to Protect and Restore at 20 (Chesapeake Bay region generated $908 million in commercial fishing landings between 2000 and 2004); *see also* PISCES Report at 7 (noting studies estimating that the Plant was entraining roughly nine percent of the *total population* of herring larvae in the Potomac River).

This projection is consistent with installation costs elsewhere: for example, a recent review of technological options for compliance with Clean Water Act Section 316(a) and 316(b) for a power plant in Ohio found that wet cooling towers were the most cost-effective option for compliance with the statute. *See* Tetratech Report – Bay Shore Power Plant, attached hereto as Exhibit No. 35, at A-1. This study found that "cooling towers may reduce the volume of water withdrawn from a particular source by as much as 98 percent depending on various site-specific characteristics and design specifications." *Id.* at 26. With this greatly reduced water use would come dramatic reductions in fish kills due to impingement and entrainment. The study found that implementing wet cooling towers at the Ohio plant would result in 95-98% reduction in *both* impingement and entrainment. *Id.* at A-1. It is also worth noting that, although they are separate legal requirements, the CWA's requirement to use BAT to reduce thermal discharges complements the requirement in Section 316(b) to reduce the impingement and entrainment of fish—both requirements would be served by requiring the Potomac Plant to implement wet cooling towers or an equally effective method of reducing cooling water use. *See In re Dominion Energy*, 2006 WL 3361084, slip op. at 8-9.

As such, EPA must require that closed cycle cooling be implemented at the Potomac River Plant. Moreover, as the Plant has been on notice that it must comply with section 316(b) and perform studies regarding such compliance since at least 2006, and since studies have already been performed that indicate the Plant's impacts on the aquatic environment, EPA should advance compliance with section 316(b) expeditiously with limited time allowed for further research.

III. EPA Must Formally Consult With NMFS Concerning Minimization of Impacts to the Federally Listed Shortnose Sturgeon Before Issuing a NPDES Permit

The best available science plainly indicates that operation of the Potomac River Plant without closed cycle cooling as contemplated in the draft permits is likely to adversely affect the endangered shortnose sturgeon. This conclusion flows not only from NMFS's own statements concerning the sturgeon in the Potomac and other similar rivers, but from the research and conclusions of Dr. Boyd Kynard, the preeminent expert on shortnose sturgeon who has sat on and helped guide NMFS's shortnose sturgeon Recovery Team and Protocol Team since 1986, and who was commissioned by FWS and NPS specifically to study the shortnose sturgeon in the Potomac. As a result, EPA and NMFS are required to formally consult on the impacts that the Plant will have on the shortnose sturgeon. NMFS, after preparing a biological opinion evaluating the impacts, is required to issue an Incidental Take Statement with legally binding terms and conditions that mandate measures to minimize those impacts.

If a federal agency's action may affect a listed species, Section 7 of the ESA requires that the federal agency formally consult with either NMFS or FWS to ensure that its actions, and any actions it authorizes, are not likely to "jeopardize the continued existence" of a listed species. 16 U.S.C. § 1536(a)(2). To this end, if an action will result in any take of a species, the Service must issue an Incidental Take Statement ("ITS") identifying the anticipated impact to the species, "reasonable and prudent measures" to minimize such impact, and mandatory "terms and conditions" to implement the measures that will minimize impacts to the species. 16 U.S.C. § 1536(b)(4). In the process of consulting and preparing its determination, the agency must rely on only "the best scientific and commercial data available." *Id.* at § 1536(a)(2).

Here, the best available science indicates that the Potomac River Plant will indeed adversely affect the shortnose sturgeon. For example, Professor Boyd Kynard has concluded that the operation of the Potomac River Plant will likely take the endangered shortnose sturgeon. *See* Kynard Decl. at ¶¶ 28, 31-32. Moreover, this conclusion was informed by over two years of field research on the shortnose sturgeon in the Potomac, including in the very reach of the Potomac on which the Plant sits: a study that the Fish and Wildlife Service and the National Park Service commissioned. *See generally* Kynard/FWS Field Study.

The 2007 Kynard/FWS Field Study, as well as other catch reports of the shortnose sturgeon in the Potomac, indicate that the shortnose sturgeon is a permanent resident of the Potomac River. Kynard Decl. at ¶ 27. Adults have been observed returning year after year to a spawning area just upstream from the Plant. *Id.* Moreover, the Potomac Plant's cooling water intake structure and discharge outfalls are located precisely within the stretch of the river where they are most likely to take the sturgeon. As discussed above, shortnose sturgeon are most susceptible to impingement and entrainment in the first 10-12 months of their life when they are in the larval and young juvenile life stage and therefore are small and poor swimmers. NMFS itself has concluded in evaluating potential sturgeon impacts at other plants that, during the 10-12 month larval/young juvenile stage, "[s]hortnose sturgeon larvae are known to only travel a ***maximum of 9 miles*** (15km) from the spawning grounds before becoming resident." *See* Ex. 21, September 21, 2006 Correspondence between Julie Crocker and Karen M Greene. (emphasis added). This is precisely the location of the Potomac Plant: approximately nine miles from the sturgeon spawning grounds in the Potomac. *See* Kynard Decl. at ¶ 20.

Indeed, Dr. Kynard's own research and observations confirm the fact that in the Potomac, the stretch of the Potomac on which the Plant is located is the region of the Potomac in which shortnose sturgeon larvae and young juvenile larvae are likely to reside for the first 10-12 months of their life. *See* Kynard Decl. at ¶ 20. As Dr. Kynard has stated, "during the first 10 months of the shortnose sturgeon lifecycle, larvae and young juveniles depend on upstream freshwater habitat such as that present in the river reach occupied by the Potomac Plant." *Id.* Further, "the Potomac Plant could impinge and/or entrain shortose sturgeon . . . during downstream dispersal and/or rearing activities." *Id.*

The Plant is all the more likely to impinge and entrain sturgeon because of its size and design. When the Plant is running at full capacity, the Plant's cooling water intake structures withdraw over 450 million gallons of water a day. To give some scale to this volume, it eclipses the total flow of the Potomac on its lowest 10-year low flow, which was approximately 406 million gal/day. *See* Potomac Estuary Case Study at 8-3.

Moreover, the Plant's cooling water intakes withdraw water at a rate of between 0.5 and 0.6 feet per second. It is well established from numerous laboratory observations that shortnose sturgeon larvae cannot avoid flow rates even as low as 0.25 feet per second. *See* Kynard Decl. at ¶ 17.

Exacerbating these conditions, the Plant's water intakes lack even the most basic fish protection technologies. In fact, nine of the ten bays of the Plant's cooling water intake structure are not equipped with any fish protection equipment at all; instead they are merely equipped with anti-fouling equipment to prevent debris from clogging the Plant. *See* EPRIsolutions Proposal at 7-8; EPRI Latent Impingement Mortality Assessment of the Geiger™ Multi-Disc Screening System, attached hereto as Exhibit No. 36, at v; PISCES Report at 2. These are large mesh screens that rotate once every 7.5 hours that are affixed with high pressure spray washes to remove accumulated debris. *See* EPRIsolutions Proposal at 7-8.

It is therefore inevitable that the Plant will take shortnose sturgeon larvae and young juvenile shortnose sturgeon that are resident in the area. Indeed, this is reinforced by the history of the Plant's high rates of impingement and entrainment of other fish, as reflected in at least two previous studies conducted at the Plant. For example, earlier studies conducted at the Potomac River Plant that the Plant itself commissioned estimated that the facility entrains some 543 million eggs and larvae a year. *See* EPRIsolutions Proposal at Attachment B, page 14 (estimated entrainment of 543 million eggs and larvae). Similarly, studies performed at the facility suggest that its intakes also result in the impingement of 206,000 fish and 57,000 crabs annually. *Id.* at page 24.

The Plant's high impingement and entrainment rates documented by the studies are reinforced by the attached report of Dr. Henderson in which Dr. Henderson reviewed studies of impingement and entrainment rates of other electricity generating plants throughout the country and calculated estimates of the likely impingement and entrainment rates of the Plant using the other plants' data. As Dr. Henderson concluded looking at other facilities in similar settings with a similar lack of fish-protective technologies in place, one would expect the Potomac River Plant to impinge tens of thousands of fish, and to entrain hundreds of millions of fish. PISCES Report at 12.

Sturgeon are similarly susceptible to impingement and entrainment, as NMFS explains in its Recovery Plan. Indeed, there is abundant empirical evidence of cooling water intake structures at other electric generation plants taking larvae and young juvenile sturgeon in the first year of their life. For example, in April of 2006, at least 24 larval shortnose sturgeon were entrained by the cooling system for the Fairless Hills plant on the Delaware River. *See* August 14, 2006 Correspondence between Robert Blye and Walter Masny, attached hereto as Exhibit No. 37.

Thus, as Dr. Kynard concludes in his sworn statement attached hereto, it is inevitable that the plant as currently operated will likely injure and kill young shortnose sturgeon through entrainment and impingement, particularly at the larval and young juvenile life stages. *Id.* at 28. As Dr. Kynard points out,

> [T]his concern is corroborated by the fact that mortalities of shortnose sturgeon from cooling water intake structures have previously been documented in the

> Delaware, Hudson, Savannah, and Santee Rivers. Specifically, 39 shortnose sturgeon were impinged at power plants on the Hudson River between 1969 and 1979 and 160 larval shortnose sturgeons were impinged on intake screens at the Albany Steam Generation station in one year. On the Delaware River, eight shortnose sturgeons died on intake trash bars between 1978 and 1992, but smaller fish passed through the intake trash bars and their deaths were not documented.

Id.

Moreover, the impacts of the take of a Potomac shortnose sturgeon raise particularly grave concerns for the long term viability of the shortnose sturgeon species. *Id.* at 31. This is because, as discussed above, the species currently exists in two clusters of populations, the northern and sourthern populations. Between these populations, from Delaware down to North Carolina, there is a gap between the populations, and as NMFS itself has concluded, it is "important[t] [to] restor[e] the historically continuous range of the species to re-establish minimal gene flow" between the northern and southern populations. *Id.* at ¶ 9. Yet at present, it is only the Chesapeake population that exists in this gap, and within the Chesapeake population, only the Potomac River has a permanent presence of adults year round, and only the Potomac sturgeon are using spawning grounds. Thus, as Dr. Kynard explains, "<u>adverse impacts to the Potomac River shortnose sturgeon raise a particular concern as a threat to the long term genetic health of, and survival of, the shortnose sturgeon generally.</u>" *Id.* at ¶ 32 (emphasis added).

On at least two separate occasions NMFS itself communicated concerns in writing to EPA that operation of the Potomac River Plant could result in take of the sturgeon. *See* Ex. 28, January 23, 2007 Correspondence from Mary A. Colligan to Evelyn S. MacKnight (noting that available data "suggests that a spawning population of shortnose sturgeon continues to exist in the [Potomac] river system"); Ex. 29, April 19, 2007 Correspondence from Julie Crocker to Mary Letzkus (expressing "concern" about "the potential for shortnose sturgeon larvae to be vulnerable to impingement and/or entrainment," and noting specifically that "larvae would be of a size and swimming ability to be vulnerable."). These included concerns about impacts from impingement and entrainement on larvae and young juveniles.

Nonetheless, NMFS disregarded its own counsel and concurred with EPA that the take of the sturgeon by the Potomac River Plant was unlikely—despite the fact that these conclusions were and are contradicted by not only the best available science, but by *other contemporaneous statements by NMFS*. For example, central to NMFS's concurrence that the Plant was not likely to adversely affect the shortnose sturgeon was its conclusion that the sturgeon larvae and young juvenile would quickly swim past the Plant in just a few days in early spring, and thus impacts from impingement, entrainment, and from the high thermal temperatures which are reached in the summer, were not likely to affect the species. NMFS Sturgeon Determination at 3. Yet, as discussed above, just a year before, with regard to another power plant's impacts on the shortnose, NMFS concluded that the best available science indicated that "[s]hortnose sturgeon larvae are known to only travel a <u>***maximum of 9 miles***</u> (15km) from the spawning grounds before becoming resident." *See* Ex. 21, September 21, 2006 Correspondence between Julie Crocker and Karen M Greene (emphasis added). As noted above, the Potomac River Plant is approximately nine miles below the Potomac River sturgeon spawning site. *See* Kynard Decl. at

¶ 19. Likewise, Professor Kynard—after studying shortnose sturgeon in the Potomac for two years—explains that "larvae and young juveniles have zero tolerance for saline water, and thus will not migrate directly downstream to all foraging areas used by adults, as the EPA suggested in its Biological Evaluation . . . . larvae and young juveniles depend upon upstream freshwater habitat such as that present in the river reach occupied by the Potomac Plant," *id.* at ¶ 20 (emphasis added), and are likely to use the part of the Potomac in which the Plant is located. *Id.* Shortnose sturgeon are therefore likely to be present in the Potomac in the freshwater reaches around the Plant for their first 10-12 months, and are likely to be entrained and impinged. For the same reason, shortnose sturgeon will be in the area during the summer months when high temperatures are reached that NMFS itself has concluded do in fact adversely affect shortnose sturgeon. NMFS Sturgeon Determination at 3; Kynard Decl. at ¶ 30.

Similarly, without citing any authority, NMFS asserts that juvenile and larval sturgeon would not be impinged at the flow rates of the Potomac River Plant intakes of 0.5-0.6 feet per second. *See* NMFS Sturgeon Determination at 3. Yet, as Professor Kynard notes, numerous laboratory observations have concluded that "larval shortnose sturgeon . . . cannot avoid impingement or entrainment in flows as low as 0.25 ft/sec, which is less than the 0.5-0.6 ft/sec velocity . . . present at the screens of the Potomac River Power Plant." Kynard Decl. at ¶ 17. Further, NMFS is of course aware of repeated occurrences of sturgeon being impinged or entrained by other power plants. *See, e.g.*, Ex. 37, August 14, 2006 Correspondence between Robert Blye and Walter Masny et al. at 1 ("I became aware today that some 24 larval shortnose sturgeon were collected in an April 24, 2006 entrainment sample from the Fairless Hills intake near Tullytown, Bucks County, PA").

In addition, sturgeon in the vicinity of the Potomac River Plant are likely to be affected by copper and chlorine. As Professor Kynard notes:

> [NMFS's] assertion in its concurrence letter fails to address why a discharge limit of 0.392 mg/L of copper will not adversely affect shortnose sturgeon that rear in the area of the Potomac Plant's discharge plume when the EPA has set a Criteria Maximum Concentration for aquatic life of 0.0048 micrograms/L, and the EPA permit allows a maximum discharge level far above that of 0.392 mg/L.

Kynard Decl. at ¶ 30.

Likewise, the best available science indicates that the sturgeon may well be impacted by the presence of DEHP in the Potomac River. Numerous studies identify an association between DEHP, other endocrine disruptors and harmful effects to aquatic life in general. *See, e.g.* Norman et al. "Studies of Uptake, Elimination, and Late Effects in Atlantic Salmon (*Salmo salar*) Dietary Exposed to Di-2-Ethylhexyle Phthalate (DEHP) During Early Life," attached hereto as Exhibit No. 38, at 235 (noting that DEHP "may interfere with gonad differentiation"). Sturgeon are likewise susceptible to such endocrine disruptors as indicated by the fact that intersex sturgeon have been identified in other rivers. *See, e.g.*, Harshbarger et al., "Intersexes in Mississippi River shovelnose sturgeon sampled below Saint Louis, Missouri, USA," attached hereto as Exhibit No. 39, at 247 (noting "the occurrence of intersex in 29% of the male Mississippi River shovelnose sturgeon"). Meanwhile, there is abundant evidence that endocrine disruptors in the Potomac have reached such levels that they are causing widespread occurrences of intersex fish. USGS Intersex Fish at 2 (finding "female germ cells (oocytes) in the testes of 82% to 100% of the male smallmouth bass"); Blazer (discussing intersex fish in the Potomac River); Iwanowicz Part 1 at 1072 (noting that "[i]ntersex . . . has been observed" in the Potomac River "during the past five years"); Alvarez Part 2 at 1084 ("Recent studies of fish health in the Potomac watershed have found sites with alarming . . . incidences of intersex"); USGS Emerging Contaminants at 1 (noting "a high incidence of an intersex condition . . . in the South Branch Potomac River and the Cacapon River of West Virginia, indicating the possible presence of endocrine-disrupting compounds"); USGS Assessment of Endocrine Disruption at iii ("[a] high prevalence of intersex (82% to 100%) was identified in male smallmouth bass at all sites"); *see also* 40 C.F.R. § 401.15(53) (listing DEHP as a toxic compound); Swan Study at § 3.2.5 (observing interference with male genital formation associated with DEHP exposure).

NMFS's concurrence does not provide an adequate assessment of this, and indeed, is based upon fundamental misconceptions about the draft permit that EPA proposed. For example, NMFS states that its concurrence is based in part on "modeling explained in the Fact Sheet" for the draft permit that shows that the end-of-pipe limit for DEHP "will ensure that once mixed with the receiving water, the effluent does not exceed the 0.0022mg/L human health criteria." NMFS Sturgeon Determination at 6. However, the fact sheet *specifically* disclaims *any* discussion of modeling or mixing zones for DEHP in the fact sheet. *See* 2006 Draft NPDES Permit Fact Sheet, attached hereto as Exhibit No. 40("A mixing zone analysis cannot be used for . . . bis(2-ethylhexyl) phthalate because the ambient concentrations . . . are already greater than the DC WQS"). Similarly, NMFS's concurrence makes no mention of ambient concentrations of DEHP present in the water; what the affects to the sturgeon would be within the mixing zone, nor does it discuss the fact that the discharge limits in the draft permits do not even apply for *the first three years* of the permit. *See* 2006 Draft NPDES Permit at 3-4; 2007 Draft NPDES Permit at 3-4.

Accordingly, as the NPDES permit issued for the Potomac River Plant is likely to impact the endangered shortnose sturgeon, EPA is required to undergo formal consultation with NMFS. Moreover, any permit ultimately issued must incorporate the terms and conditions of an Incidental Take Statement issued by NMFS that requires minimization of adverse impacts to the sturgeon, which can only be achieved through cooling towers and significant reductions in the discharge of DEHP.

IV. Based Upon Information Submitted By The Plant Itself, EPA Should Initiate An Enforcement Action Against The Plant For Unauthorized Discharges Of DEHP And Any Permit Issued Must Require Compliance With Water Quality Standards

EPA should begin an enforcement action against the operator of the Potomac River Plant for its unpermitted discharges of DEHP into the Potomac at levels of up to 77 ug/L, more than thirty times the human health based water quality standards of 2.2 ug/L. EPA should also issue a NPDES permit that requires immediate compliance with water quality standards for DEHP.

The foundation of the CWA is the prohibition of the "discharge of any pollutant by any person" into waters of the United States without a NPDES permit. 33 U.S.C. § 1342. Without enforcement of the CWA's fundamental prohibition of unpermitted discharges, none of the central objectives of the NPDES permit program and the CWA more generally—such as driving pollution reduction, ensuring that minimum water quality standards are being met, and preventing degradation of waterbodies, among other things, *see* 33 U.S.C. § 1342—will be achieved.

In this case, DEHP is an EPA-designated toxic pollutant and probable carcinogen. *See* 40 C.F.R. § 401.15(53); EPA "Bis(2-ethylhexyl) phthalate (DEHP)," *available at* http://www.epa.gov/ttnatw01/hlthef/eth-phth.html, ("EPA has classified DEHP as a Group B2, probable human carcinogen"). It is also a known endocrine disruptor associated with serious reproductive disorders in humans, such as the failure of testes to descend and reduced penile size. Swan Study at § 3.2.5.

The Plant's existing permit does not authorize the discharge of any DEHP. To the contrary, when the Plant applied for its existing permit in 1998 the Plant did not characterize its waste stream for DEHP, asserting that the suite of chemicals that included DEHP was inapplicable to the Plant's discharge. *See* 1998 NPDES Permit Application at Outfall No. 001 page V-6. The Plant only provided information disclosing the discharge of DEHP when it was required to characterize its discharges in full in 2004 for its permit renewal.[4] The documents submitted by the Potomac River Plant indicate that it has been discharging large quantities of DEHP. *See* 2004 NPDES Permit Application at V-6 for Outfall 001. According to submissions by the operator, the Plant has been discharging at much as 77 micrograms of DEHP per liter, with a long-term average discharge of 49 micrograms per liter. *Id.*; *compare with* 2006 Draft NPDES Permit Fact Sheet at 9 (setting discharge limits for DEHP equal to the human health criteria limit of 2.2 micrograms per liter).[5]

The potential impacts of the Plant's unpermitted and high DEHP discharges are all the more severe given the fact that the Potomac already has high ambient levels of DEHP at the site of the Plant. Indeed, intersex fish are now common in the Potomac, and over 20% of male largemouth bass withdrawn from the Potomac in the vicinity of the Plant are intersex and contain oocytes in their gonads. *See* USGS Assessment of Endocrine Disruption at iii ("Intersex (23%) was identified in male largemouth bass collected at the site near Blue Plains").

Nor is the situation one where the Plant did not understand the law, was new to the NPDES permitting scheme, or had a minor exceedance of permit limits for a conventional pollutant such as suspended solids. To the contrary, this is a sophisticated actor. It has been subject to NPDES permitting requirements for decades and has environmental consultants that apply for its permits and engage with EPA. It earns millions of dollars generating power and

[4] Indeed, it is plain that no DEHP discharges were ever even *contemplated* by the EPA: examination of the 1998 permit application reveals that discussion of discharges of DEHP (along with discharges of a vast number of other chemicals) were not applicable or "N/A". *See* 1998 NPDES Permit Application, at V-6. Thus, any discharges of DEHP are off-permit.

[5] Nor is the plant simply "discharging" the DEP already present in the Potomac River: according to data submitted by the operator, the plant discharged 28 micrograms per liter *more* DEHP from Outfall 001 than it took in from the river. *See* 2004 NPDES Permit Application, Microbac Test Results for July 16, 2004, at 4, 6.

selling it into the interstate market. And yet the documents it submitted indicate that it began unpermitted discharges of a toxic chemical into a waterbody in a densely populated area at levels far higher than allowable water quality standards, without disclosing it to the EPA, and without obtaining the necessary permit.

Nonetheless, EPA has not taken any enforcement action against the Plant in the intervening seven years since the Plant first submitted information indicating it was discharging DEHP. Indeed, rather than enforce the CWA against the Plant and discourage discharges in the future, EPA has instead proposed to reward the Plant with draft permits that contain compliance schedules that are contrary to EPA and DC regulations and that allow unlimited discharges with monitor only requirements for DEHP for three years. More specifically, for outlet 001, both draft permits would allow an initially *unlimited* quantity of DEHP to be discharged, for three years, after which the permits would limit discharges to a monthly average and daily maximum, respectively, of 2.2 ug/L and 3.2 ug/L. *See* 2006 Draft NPDES Permit at 3-4; 2007 Draft NPDES Permit at 3-4.

Under Federal regulations, however, EPA cannot authorize a compliance schedule when the water quality standards to be complied with are more than three years old. *See* 40 C.F.R. § 122.47(a)(2) ("a schedule of compliance shall be available only when necessary to allow a reasonable opportunity to attain compliance with requirements issued or revised less than three years before recommencement of discharge"). Likewise, the District of Columbia regulations provide that permits must "require compliance as soon as possible," and that at any rate, no compliance scheduled may be longer than three years "unless the permitee can demonstrate, and the record reflects, that a longer compliance period is warranted." D.C. Mun. Reg. tit. 21 § 1105.9.

Simply put, EPA cannot lawfully issue a NPDES permit with a compliance schedule for DEHP. First, the applicable water quality standard of 2.2 ug/L has been in existence since at least 2005, well over three years ago. Thus, the EPA regulations do not allow for a compliance schedule in any new final permit. Second, compliance schedules are allowed only after there is a demonstration that the schedule is "necessary to allow a reasonable opportunity to attain compliance" as required by federal regulations. *See* 40 C.F.R. § 122.47(a)(2). No such demonstration has been made in the record. Third, the regulations require that compliance be achieved "as soon as possible." *Id.* In requiring a three year compliance schedule in 2006, EPA already effectively determined that the Plant can come into compliance in three years, or 2009. The Plant has therefore already had well over three years notice of the need to come into compliance as a result of the 2006 and 2007 draft permits. The Plant should not be given another three years.

In short, EPA should enforce the CWA's prohibition against unpermitted discharges against the Plant. At the very least, any new NPDES permit to replace the expired and administratively continued 2000 NPDES permit should not contain a compliance schedule for DEHP discharges, as was contemplated by the draft permits issued nearly five years ago. EPA's actions are contrary to law, will incentivize further unpermitted discharges, and exacerbate the Potomac's pollution.

CONCLUSION

For the foregoing reasons, the EPA should undertake enforcement actions against the Plant for its past unpermitted discharges of DEHP. It should also issue a NPDES permit, after public notice and comment, that is fully compliant with Section 316(b) of the CWA and Section 7 of the ESA, which require that EPA and NMFS engage in formal consultation, and that any permit issued minimize impacts to aquatic resources and the shortnose sturgeon through implementation of closed cycle cooling systems. The Groups request an opportunity to meet with EPA and NMFS, individually or jointly, to discuss the terms, procedure and timeframe for the renewal of the Plant's long-since expired NPDES permit upon conclusion of the formal consultation process.

Sincerely,

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