UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

MAY 11 2016

John H. Nagle
United States Environmental Protection Agency
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: Reissuance of NPDES Permit for Schiller Station Electric Generating Facility (Permit No. NH0001473)

Dear Mr. Nagle:

We have completed an Endangered Species Act (ESA) section 7 consultation in response to your letter received January 26, 2016, regarding the proposed reissuance of the National Pollutant Discharge Elimination System (NPDES) permit for the Schiller Station Electric Generating Facility (SSEGF) (Permit No. NH0001473). We concur with your determination that the proposed action may affect, but is not likely to adversely affect, any species listed by us as threatened or endangered under the ESA of 1973, as amended. Our supporting analysis is provided below.

Proposed Project

You propose to re-issue the NPDES permit for the SSEGF located on the southwestern bank of the Piscataqua River in Portsmouth, NH. SSEGF is a four-unit, 163 megawatt (MW), steam electric generating facility. The three main generators are designated as 4, 5, and 6; all rated at 48 MW each. Units 4 and 6 are equipped with dual fuel boilers capable of firing both pulverized bituminous coal and #6 fuel oil. Unit 5 was converted to a dual fuel fluidized bed boiler that is capable of burning both wood and coal, with wood being its primary fuel. The remaining unit, designated CT-1, is a 19 MW combustion turbine fired with #1 fuel oil that is typically operated during periods of highest seasonal peak demand. SSEGF is a base load plant and generates upwards of one million MW-hours annually, with a third of the power being provided by a renewable energy resource. SSEGF provides enough energy to supply 65,000 homes. However, over the past few years, operations in the two coal-burning units (4 and 6) have been significantly reduced.

SSEGF's current NPDES permit allows the withdrawal of cooling water from, and the discharge of effluent to, the Piscataqua River. The Station is permitted to discharge non-contact cooling water (NCCW), operational plant wastewater, process water and runoff. The majority of stormwater runoff on the site is commingled with other non-stormwater effluent; so much of the

runoff is regulated under the individual permit. For any stormwater that is directly discharged, a Stormwater Pollution Prevention Plan (SWPPP) has been drafted and a NOI will be filed to cover these outfalls under a Multi-Sector General Storm Water Permit, and will be consulted upon separately. As such, these discharges will not be analyzed in this consultation.

SSEGF operates two intake structures that withdraw water directly from the southwestern bank of the Piscataqua River. The CWISs have a combined total maximum design intake flow of 150 million gallons per day (MGD). Each intake structure has two openings which provide cooling water to the two circulation pumps. Unit 4 has a submerged offshore intake pipe that is 6.5 feet in diameter. The opening is located 32 feet from the shore of the river and is equipped with a coarse mesh (12 inch by 12 inch grating) stationary bar rack. In addition there is another fixed screen at the bottom of the tunnel entrance to divert lobsters from crawling into the intake. The facility reports that the through-screen velocity at the tunnel entrance is 1.38 feet per second (fps) at mean low water (MLW), however the intake velocity at the tunnel entrance is 1.97 fps. The four screen openings used for Units 5 and 6 are approximately 5.5-feet wide each. The openings are protected by bar racks with 4 3/8-inch by 4 inch gratings. The through-screen velocities of these two units are 0.68 fps each at the shoreline.

The facility still utilizes the same traveling screen design and technology that was originally installed with each unit: Unit 4 in 1952, Unit 5 in 1955, and Unit 6 in 1957. The mesh size of the traveling screens is 3/8-inch square, which is a size commonly used in the industry for CWIS screens. In addition, narrow shelves (2-3 inches wide) are attached to the screens which carry debris and fish up as the screen rotates.

The Station maintains 16 permitted outfalls into the Piscataqua River (Figure 1) and two separate wastewater treatment plants (WWTP) within the confines of the generation facility that are covered under the scope of this permit. Outfall 001 authorizes discharges from NCCW and drains from the northwest yard. Outfall 001 is subject to a permitted monthly flow of 40 MGD and a maximum daily flow of 40 MGD. Limits are also set for average monthly and total daily total residual oxidant, oil & grease, temperature and temperature rise. Outfalls 002 (Unit 4), 003 (Unit 5) and 004 (Unit 6) are authorized for discharge of NCCW and condenser hotwell drains. Outfall 002 is subject to a permitted monthly flow of 43.5 MGD with a maximum daily of 52.2 MGD. Outfalls 003 and 004 are subject to a permitted monthly flow and a maximum daily flow of 50.2 MGD. Outfall 006, which consists of six pipes; two for each of Units 4, 5, and 6, is permitted for discharges from emergency boiler blowdowns, deaerator overflows and roof drains. Since this outfall is only used during emergency conditions or when a boiler experiences a severe disruption, the duration and amount of flow shall be estimated when a discharge occurs. Limits are set for average monthly Total Suspended Solids (TSS) and oil & grease for Outfall 006 when discharging.

Outfall 011 is authorized for discharges from the Schiller Station Tank Farm drains and stormwater from the facility. Outfall 011 is permitted to an average monthly limit of 300,000 gallons per day (GPD) and a maximum daily limit 600,000 GPD. Limits for average monthly and total daily Total Suspended Solids (TSS), oil & grease, pH, Group I Polycyclic Aromatic Hydrocarbons (PAHs) and Group II PAHs are also included in the draft permit. Outfall 013, an internal discharge, is authorized for emergency overflow discharge from the coal pile runoff

basin into Outfall 018. Discharge from this outfall shall only consist of stormwater from the coal pile area during an emergency condition resulting from an actual storm that exceeds the 10-year, 24-hour design storm and is included within the scope of this permit.

Outfall 015 is permitted to discharge treated effluent from WWTP #1. This discharge is only used during times of essential maintenance of WWTP #2. When discharging Outfall 015 is authorized for an average monthly flow of 61,800 GPD and a maximum flow of 85,300 GPD. Limits are also set for average monthly and total daily TSS, oil & grease and pH. Outfall 016 is authorized for discharges of treated effluent from WWTP #2 during normal operating conditions, and an average monthly flow of 216,000 GPD and a maximum daily flow of 360,000 GPD are allowed. Limits are also set for average monthly and maximum daily limits for TSS, oil & grease, pH and nitrogen at this outfall. Outfall 017 is authorized for discharges of treated metal cleaning waste from WWTP #2 prior to comingling with any other waste streams, and is permitted for a maximum daily flow of 360,000 GPD as well as for average monthly, and maximum daily limitations for TSS, total copper, total iron, pH and oil & grease.

Outfall 018 is authorized to discharge effluent from Schiller Station's yard drains, the Newington Station Tank Farm yard drains, and heater condensate drips. An average monthly flow of 300,000 GPD and maximum daily limits of 600,000 GPD are authorized at Outfall 018. Limits are also set for average monthly and maximum daily limits for TSS, oil & grease, pH, and Group I and Group II PAHs. Outfall 020, Outfall 021 and Outfall 022 are authorized to discharge effluent from intake screen wash activities at the facility. Outfalls 020 and 021 are limited to maximum daily limits of 108,000 GPD each. Outfall 023 authorizes discharge of stormwater runoff from parking lots containing two chemical loading zones, and is not part of this permit renewal, and thus will not be considered further in this consultation. Limits are set for pH.

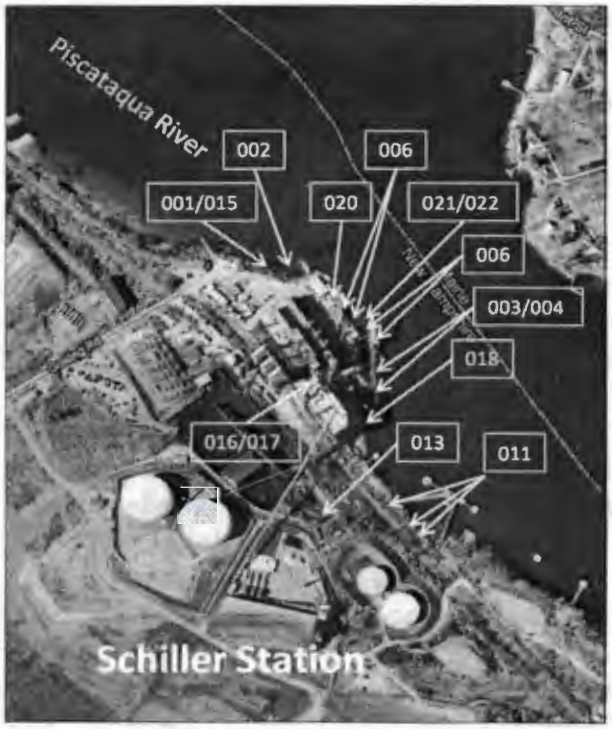

Figure 1. Locations of Schiller Station Outfalls in Piscataqua River

Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR § 402.02). For this project, the action area includes the underwater areas where the effects of the discharge may be experienced in the receiving water body. At peak discharge it is estimated that all effluent will be sufficiently diluted within 200 feet of discharge location into the Piscataqua River. In New Hampshire, mixing zones must be as small as feasibly possible, may not interfere with the migration or movement of fish, and must not occupy more than one-half of the waterbody's area; in this case, the mixing zone extends no more than 200 feet in any direction from any outfall.

The action area includes withdrawal areas and effluent discharge locations to the lower Piscataqua River approximately 6 miles upstream from the mouth of the river at the Atlantic Ocean. The Piscataqua River is high value habitat for a variety of marine and estuarine species, and serves as the only conduit between the Gulf of Maine and Great Bay Estuary. The tidal river is formed by the confluence of the Salmon Falls and Cocheco Rivers. It is approximately 13 miles long and empties into Portsmouth Harbor/Atlantic Ocean. The lower portion of the Piscataqua River has been characterized as a well-mixed estuary.

This portion of the river to which discharged effluent occurs has been designated a Class B waterbody pursuant to the State of New Hampshire Surface Water Quality Regulations and N.H RSA 485-A:8. Class B waters are "considered as being acceptable for fishing, swimming and other recreational purposes and, after adequate treatment, for use as water supplies." (RSA 485-A:8, II). There are two other federal funded, or carried out actions we have consulted on in the upstream of the Station and one federal action we have consulted on downstream. None of these actions discharge heated effluent into this portion of the river and each are approximately 1.5 to 2.5 miles away from the Station.

NMFS Listed Species in Action Area

Atlantic Sturgeon

Atlantic sturgeon *(Acipenser oxyrinchus)* are long-lived (approximately 60 years), late maturing, estuarine dependent, anadromous fish (Bigelow and Schroeder 1953; Vladykov and Greeley 1963; Mangin 1964; Pikitch *et al.* 2005; Dadswell 2006; ASSRT 2007). Diets of adult and migrant subadult Atlantic sturgeon include mollusks, gastropods, amphipods, annelids, decapods, isopods, and fish such as sand lance (Bigelow and Schroeder 1953; ASSRT 2007; Guilbard *et al.* 2007; Savoy 2007). Juvenile Atlantic sturgeon feed on aquatic insects, insect larvae, and other invertebrates (Bigelow and Schroeder 1953; ASSRT 2007; Guilbard *et al.* 2007). Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina distinct population segments (DPSs) are listed as endangered, while the Gulf of Maine DPS is listed as threatened. The marine range of all five DPSs extends along the Atlantic coast from Hamilton Inlet, Labrador, Canada to Cape Canaveral, Florida.

Information on Atlantic sturgeon presence in the Piscataqua River was provided in the Status Review of Atlantic Sturgeon (ASSRT, 2007). Their range in the watershed is considered to extend from the mouth of the Piscataqua River to the first dams on the Cocheco and Salmon Falls rivers. The system historically supported spawning (ASSRT, 2007). Hard substrate and

low salinity conditions, consistent with conditions that support Atlantic sturgeon spawning habitat, are present in the Cocheco and Salmon Falls Rivers below the first dams (Short 1992; Jones 2000).

We have records of two Atlantic sturgeon in the Piscataqua River system since 1990. In June 1990, a gravid female Atlantic sturgeon was captured by a commercial fisherman in a small mesh gill net at the head-of-tide in the Salmon Falls River in South Berwick, ME (D. Grout, NHFG, Pers. Comm. 2006 in ASSRT 2007). In June 2012, an Atlantic sturgeon (originally tagged in New York Harbor), was detected on acoustic receivers in Great Bay. The detection site is approximately 2.4 miles upstream from the Schiller facility.

Based on the best available information on the distribution of Atlantic sturgeon and genetic analyses, we have determined that most Atlantic sturgeon in the action area will be of Gulf of Maine (GOM) DPS origin (Damon-Randall *et al.* 2012). However, it is also likely that some Atlantic sturgeon in the action area are Canadian in origin (and therefore not listed under the ESA), and even a smaller portion of Atlantic sturgeon in the action area may be of New York Bight (NYB) DPS origin (Damon-Randall *et al.* 2012). For this consultation, we consider effects of the proposed action on the GOM and NYB DPSs of Atlantic sturgeon.

The characteristics of habitat used by Atlantic sturgeon life stages, including spawning and foraging habitat, are summarized in Greene *et al.*, 2009. Given the high salinity of the action area, no eggs, larvae or young of the year Atlantic sturgeon could survive in the action area; therefore, we do not expect any of these life stages to be present in the action area. With suitable forage present in the river, we expect adult and subadult Atlantic sturgeon could be present in the action area during the spring through fall. Tagging detections suggest some Atlantic sturgeon may overwinter in the Kennebec Estuary, and at least one tagged sturgeon was detected during the winter in the Back River, Maine (G. Zydlewski, Univ. of Maine, pers. comm., Wippelhauser, 2012). However, the best available information suggests Atlantic sturgeon adults and subadults leave coastal estuaries in the fall, traveling along the coast to more southern waters or move into marine waters offshore of coastal estuaries (T. Savoy, CT DEEP, pers. comm., Oliver *et al*,. 2013). Therefore, we do not anticipate Atlantic sturgeon to be present in the action area during the winter.

Shortnose Sturgeon

The range of federally endangered shortnose sturgeon *(Acipenser brevirostrum)* extends from the St. John's River in Canada to the Minas Basin in Nova Scotia, Canada (NMFS 1998; Dadswell et al. 2013). There are approximately 19 spawning populations of shortnose sturgeon within this range. Until recently, shortnose sturgeon were thought to carry out their lifecycle within their natal river. Acoustic telemetry studies indicate, at least within the Gulf of Maine, some percentage of adult shortnose sturgeon participate in coastal migrations, moving between their natal river and other coastal rivers, with the southern and northern limits of detected movements being the Merrimack and Penobscot rivers, respectively.

The Piscataqua River is suspected to have historically supported shortnose sturgeon spawning; there is currently no evidence of spawning by shortnose sturgeon in this river. (SSSRT 2010).

Species presence in the river has been confirmed through the detection of three tagged adult shortnose sturgeon by acoustic receivers (Micah Kieffer, USGS, personal communication, 2015). The available information indicates that adult shortnose sturgeon spend only brief periods in the Piscataqua system during longer movements between the Merrimack and Kennebec rivers and that they move between the mouth of the river and the first dam on the Salmon Falls River (at this time there are no receivers deployed in the Cocheco River) (M. Kieffer, personal communication 2015. Based on the dates of detection of shortnose sturgeon in the river and movement patterns in other river systems, we expect shortnose sturgeon in the action area between early May and early November. Based on the habitat available in the action area, we expect transient adult shortnose sturgeon to be moving through and opportunistically foraging in the action area.

Effects of the Action

Water quality criteria are developed by EPA for protection of aquatic life. Both acute (short term exposure) and chronic (long term exposure) water quality criteria are developed by EPA based on toxicity data for plants and animals. Often, both saltwater and freshwater criteria are developed, based on the suite of species likely to occur in the freshwater or saltwater environment. For aquatic life, the national recommended toxics criteria are derived using a methodology published in *Guidelines for Deriving Numeric National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*. Under these guidelines, criteria are developed from data quantifying the sensitivity of species to toxic compounds in controlled chronic and acute toxicity studies. The final recommended criteria are based on multiple species and toxicity tests. The groups of organisms are selected so that the diversity and sensitivities of a broad range of aquatic life are represented in the criteria values. To develop a valid criterion, toxicity data must be available for at least one species in each of eight families of aquatic organisms. The eight taxa required are as follows: (1) salmonid (e.g., trout, salmon); (2) a fish other than a salmonid (e.g., bass, fathead minnow); (3) chordata (e.g., salamander, frog); (4) planktonic crustacean (e.g., daphnia); (5) benthic crustacean (e.g., crayfish); (6) insect (e.g., stonefly, mayfly); (7) rotifer, annelid (worm), or mollusk (e.g., mussel, snail); and, (8) a second insect or mollusk not already represented. Where toxicity data are available for multiple life stages of the same species (e.g., eggs, juveniles, and adults), the procedure requires that the data from the most sensitive life stage be used for that species.

The result of the above analysis is the calculation of acute (CMC) and chronic (CCC) criteria. CMC is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly (i.e., for no more than one hour) without resulting in an unacceptable effect. The CCC is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. EPA defines "unacceptable acute effects" as effects that are lethal or immobilize an organism during short term exposure to a pollutant and defines "unacceptable chronic effects" as effects that will impair growth, survival, and reproduction of an organism following long term exposure to a pollutant. The CCC and CMC levels are designed to ensure that aquatic species exposed to pollutants in compliance with these levels will not experience any impairment of growth, survival or reproduction.

Very few toxicity tests have been conducted with sturgeon. In the absence of species specific chronic and acute toxicity data, the EPA aquatic life criteria represent the best available scientific information. Absent species specific data, we believe it is reasonable to consider that the CMC and CCC criteria for pollutants are applicable to ESA listed species under our jurisdiction as these criteria are derived from data using the most sensitive species and life stages for which information is available. As explained above, a suite of species is utilized to develop criteria and these species are intended to be representative of the entire ecosystem, including Atlantic and shortnose sturgeon as well as their benthic prey. These criteria are designed to not only prevent mortality but to prevent all "unacceptable effects," which, as noted above, are defined by EPA to include not only lethal effects but also effects that impair growth, survival and reproduction. Therefore, discharges in compliance with water quality standards will result in effects to listed species that will be so small they would not be meaningfully detected. As such, effects are insignificant.

Total Suspended Solids

TSS can affect aquatic life in a number of ways including reducing growth rates, resistance to disease, preventing the successful development of fish eggs and larvae, modifying natural movements and migration, or though the reduction in the abundance of food (EPA 1986). Studies on the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). The TSS levels permitted for the facility are monthly average concentrations of 30 mg/l and daily average concentrations of 100 mg/l at Outfalls 006, 011, 015, 016, 017, and 018. These levels are well below those shown to have an adverse effect on fish (580.0 mg/L for the most sensitive species, with 1,000.0 mg/L more typical; see summary of scientific literature in Burton 1993) and benthic communities (390.0 mg/L (EPA 1986)). These levels are also in compliance with the recommended water quality standards which have been shown to have insignificant effects on aquatic life, including sturgeon species and their prey. Therefore, effects of increased TSS on Atlantic sturgeon and shortnose sturgeon in the action area will not be able to be meaningfully measured or detected, and are insignificant.

pH

The draft permit limits the range of pH to 6.5 to 8.3 standard units (SU) consistent with water quality standards. A pH of 6.0 to 9.0 is harmless to most aquatic life; therefore, discharges in compliance with the permit limits will have insignificant effects to aquatic life, including both sturgeons and their prey. All discharges except for effluent from non-contact cooling water (NCCW) discharged from outfalls 001, 002, 003, 004, and screen wash effluent which is expected to have no excursions above pH limits discharged from outfalls 020, and 021, are subject to this limit.

Metals (Copper, Iron)

You have established both average monthly and maximum daily limits at Outfall 017 as 1.0 mg/L for total recoverable copper and iron. These limits comply with New Hampshire Water Quality Standards. Metals are not permitted in the discharges at any other outfall. Very few toxicity studies have been conducted with Atlantic sturgeon. In the absence of species-specific acute and chronic data, you have identified the EPA aquatic criteria as the best available scientific information. Discharges will be in compliance with water quality standards, which

have been shown to have insignificant effects on aquatic life, including sturgeon species and their prey. As such, any effects will be too small to be detected, and are, therefore, insignificant.

Oil and Grease

You have established the average monthly of 15 mg/L and maximum daily limits of 20 mg/L for oil and grease. These limits are based on water quality considerations. It is likely that any discharge of oil and grease from Outfalls 001, 006, 011, 015, 016, 017, and 018 in the concentration allowed under the permit will remain localized and on the surface of the river, and not come in contact with deeper waters or benthic habitat where sturgeon may be foraging or migrating. Because of the high dilution, low discharge concentration in compliance with standards, and the likelihood that oil and grease will remain in surface waters until full dilution, any effects to Atlantic and shortnose sturgeon or their prey are extremely unlikely to occur, and are, therefore, discountable.

Toxics

The draft permit prohibits the discharge of any stormwater containing a pollutant or combination of pollutants in toxic amounts, and any toxic components of the effluent cannot result in demonstrable harm to aquatic life. Additionally, toxic discharges cannot violate any of the state or federal water quality standards (WQS) that are in place for the receiving water. Toxic discharges in harmful levels or in violation of WQS are not expected to occur during wet weather events at the site. Regardless, a number of monitoring parameters have been instated to ensure compliance with the receiving water body's standards. Monitoring will occur for total group I polycyclic aromatic hydrocarbons (PAH) and total group II PAH. Due to the infrequent nature of storm water flows at Outfalls 011 and 018, and the trace amounts of these pollutants detected in past monitoring events, toxics in the waste stream are not expected to cause an excursion above the standards in the receiving water due to 1) limited levels of pollutants in the storm water and 2) high dilution at the site. The WQS are assumed to maintain appropriate aquatic conditions for all aquatic life, including Atlantic or shortnose sturgeon. As such, any effects from toxics during wet weather events, resulting in waste streams from the site, will be too small to be detected, and will be insignificant.

Vessel Interaction

While the exact number of Atlantic sturgeon or shortnose sturgeon killed as a result of being struck by boat hulls or propellers is unknown, it may be a concern in the action area. The factors relevant to determining the risk to these species from vessel strikes may be related to the number, size, and speed of the vessels, as well as the navigational clearance (*i.e.*, depth of water and draft of the vessel) and the behavior of individuals in the area (*e.g.*, foraging, migrating, etc.). We do not believe that an increase in vessel traffic associated with the delivering fuel to the Station—an action that is part of the overall operation of the facility and interrelated to your permitting action--would increase the risk of interactions between any of these species considered in this consultation. As the delivery of fuel is located near shore, involve only incremental and temporary increases in vessel traffic, coupled with the benthic nature of sturgeon, the risk of interaction between shallow-draft vessels, such as fuel barges, and sturgeon are extremely

unlikely to occur. Therefore, effects to sturgeon from the increase in vessel traffic related to the delivery of fuel to the Station will be discountable.

Impingement or Entrainment

The operation of Cooling Water Intake Structures (CWISs) may impinge or entrain aquatic organisms.

Impingement

Impingement occurs when organisms are trapped against cooling water intake screens or racks by the force of moving water. Impingement can kill organisms immediately, or contribute to mortality resulting from exhaustion, suffocation, injury, or exposure to air when screens are rotated for cleaning. The potential for injury or death is generally related to the amount of time an organism is impinged, its susceptibility to injury, the physical characteristics of the screenwashing, and the fish return system that the plant operator uses.

Adult and sub-adult Atlantic sturgeon as well as adult shortnose sturgeon occur in the action area. The flow field of the CWISs would be located in the mid-water column, while the prominent activity undertaken by sturgeon in the Piscataqua River would be opportunistic benthic foraging and migrating into the mid-water column. The Piscataqua possesses relatively swift currents (6.75 fps), which sub-adult and adult Atlantic and shortnose sturgeon can readily maneuver in. The Unit 4 CWIS at the site has a through-screen velocity of 1.38 fps at mean low water (MLW) and an intake velocity of 1.98 fps at the tunnel entrance. The CWIS for Units 5 and 6 have a monitored through-screen velocity of 0.5 fps. Adult sturgeon are able to easily avoid intakes with velocities of less than 3.5 fps (Anderson *et al.* 2007), and even the less mobile life stages, such as larvae, are able to avoid approach velocities of 0.5 fps (NMFS & USFWS 2014). Due to the high salinity in the action area, the only life stages expected to be in the area are adult and sub-adult Atlantic sturgeon and adult shortnose sturgeon. The width of the river at its narrowest near the CWIS is approximately 790 feet wide with flow rates well above 0.5 fps (6.75 fps)(NOAA 2012) that fish are able to actively, swim, forage, and perform other necessary life behaviors in. This leaves a large zone of passage for adult and sub-adult sturgeon to forage and navigate within the action area, allowing fish to avoid the CWIS. Given that the areas used by sturgeon for foraging are below the CWIS flow field, the relatively low velocity of the CWIS, and the width of the river in the action area, impingement is extremely unlikely to occur and effects are not expected to occur. Any risk of impingement of sub-adult and adult Atlantic sturgeon and adult shortnose sturgeon is therefore discountable.

Entrainment

Entrainment occurs when individuals pass through the intake screens of the CWIS and become trapped within the cooling water stream. Organisms most vulnerable to entrainment are typically small enough to fit through the intake screens, and are buoyant (within the mid-water column flow-field). Typically, this may include buoyant eggs or pelagic larvae. Currently, the Station employs 9.5 mm fine mesh screens which is wide enough to allow Atlantic sturgeon larvae (7.8 mm TL (Smith 1980, 1981)) to be entrained. Over the next 12 months, you propose the Station will be installing new narrow-slot wedgewire screens with widths of either 0.80, 0.69 or 0.68 mm. These sizes are adequate to keep Atlantic sturgeon larvae from being entrained within the CWIS.

The only life stages of shortnose and Atlantic sturgeon that would be small enough to be entrained at the intake are eggs and larvae. As noted above, the salinity in the action area is too high to allow the survival or any sturgeon eggs or larvae, and the only sturgeon expected to be in the action area are adult and subadult Atlantic sturgeon and adult shortnose sturgeon. Therefore, because sturgeon in the action area are too large to be entrained, the risk of entrainment at the facility is insignificant.

Thermal Impacts

The proposed permit allows the Station to discharge heated effluent. Thermal impacts associated with the discharge are affected by the dilution capacity of the receiving water, the flow rate of discharge, and the difference in temperature of the effluent compared to the ambient water.. You reference New Hampshire RSA 485-A:8, II as the basis for your thermal requirements: discharges shall not appreciably interfere with Class B waters by lowering biological, physical, chemical or biological characteristics. The monitoring requirements for facilities located in New Hampshire per state WQS require that temperature samples be taken from the effluent stream before it is commingled with other discharges or the receiving water.

Effects of Thermal Discharge on Sturgeon

Sturgeon may be adversely affected by moderate to long-term exposure to temperatures above 84.2°F and are likely to display avoidance behaviors for waters of this temperature (Linares-Casenave *et al.* 2013). Rapid mixing with receiving waters will occur immediately, which will help minimize any increases in water temperature and keep them within your identified limits of receiving waters' maximum temperature of no more than 84°F at a distance of 200 feet in any direction from the point of discharge. You also identified limits of no more than a 25°F difference between intake temperature and discharge temperature with the exception of a two hour period during condenser maintenance when the temperature shall not rise more than 30°F above intake temperature. The width of the river at the outfalls is approximately 825 feet leaving a wide zone of passage for sturgeon to avoid the thermal effects of the outfalls. Once the effluent is discharged into the action area, as defined in this consultation, further and rapid dilution occurs within 200 feet of the discharge point in all directions. Also, because discharge of effluent will take place thirty feet above the river surface and falls to the river, mixing will only occur in surface waters (no contact with the benthic environment). As such, any effects to Atlantic and shortnose sturgeon or their prey in the action area would be so small they would not be able to be meaningfully detected, and are, therefore, insignificant.

Essential Fish Habitat

Our Habitat Conservation Division (HCD) is responsible for reviewing projects that occur within Essential Fish Habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act and those that may impact other NOAA trust resources under the Fish and Wildlife Coordination Act. An EFH consultation is necessary for this project due to the presence of habitats used by federally managed species in the project areas which may be adversely impacted by the proposed activity. A guide to EFH designations in the Northeastern United States is located on the HCD website at: If you have any questions concerning EFH and other NMFS trust resources, please contact Mike R. Johnson at 978-281-9130 or (mike.r.johnson@noaa.gov).

Conclusions
Based on the analysis that any effects to listed Atlantic and shortnose sturgeon will be insignificant or discountable, we concur with your determination that the proposed action is not likely to adversely affect any listed species under our jurisdiction. Therefore, no further consultation pursuant to section 7 of the ESA is required.

Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the actions that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified actions are subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) If a new species is listed or critical habitat designated that may be affected by the identified actions. No take is anticipated or exempted. If there is any incidental take of a listed species, reinitiation would be required. Should you have any questions about this correspondence please contact Ross Pilotte at 978-281-9153 or by email (ross.pilotte@noaa.gov).

Sincerely,

Kimberly Damon-Randall
Assistant Regional Administrator
for Protected Resources

EC: Pilotte, GAR
Cobb, EPA

File Code: H:\Section 7 Team\Section 7\Non-Fisheries\EPA\Informal\2016\EPA SSEGF NH0001473
PCTS: NER-2016-13145

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