



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
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NOV - 3 2016

Joseph Donaghue, Chief
Licensing Branch 3
Office of New Reactors
US Nuclear Regulatory Commission
Washington, DC 20555-0001

RE: Docket: 52-017 Biological Assessment for Combined Operating License for North Anna Power Station, Unit 3

Dear Ms. Dixon-Herrity,

We have reviewed your request for consultation pursuant to section 7 of the Endangered Species Act, inclusive of the Biological Assessment (BA) prepared by the U.S. Nuclear Regulatory Commission (NRC) for Dominion's application for a Combined License (COL) to construct and operate a third nuclear reactor at the North Anna Power Station site in Louisa County, Virginia. The U.S. Army Corps of Engineers' Norfolk District (USACE) has issued Clean Water Act Section 404 and Section 10 Rivers and Harbors Act permits for site preparation activities. NRC is the lead Federal agency for this consultation. We concur with your determination that the proposed action, as defined in the Biological Assessment (BA), is not likely to adversely affect any listed species under our jurisdiction. The justification for our concurrence that the construction and operation of North Anna Unit 3 is not likely to adversely affect listed species is provided below. We also agree with your determination that a conference to consider effects to critical habitat proposed for the Chesapeake Bay Distinct Population Segment of Atlantic sturgeon is not necessary and provide our justification below.

Consultation History

As mentioned above, the NRC is considering Dominion's application for a COL. NRC issued an early site permit (ESP) to Dominion in November 2007. As part of the ESP process, NRC coordinated with us to determine if there were any ESA listed species in the project area; we determined that there were no species under our jurisdiction in the action area. The USACE issued a permit for project activities in September 2011. We listed five Distinct Population Segments (DPS) of Atlantic sturgeon under the ESA in February 2012. Coordination between NMFS and NRC regarding the North Anna project resumed in 2014 and we agreed that a consultation should occur to consider the effects of issuance of the COL. While the ESP and USACE permits authorized certain pre-construction activities, no activities that may affect NMFS listed species have occurred to date. We received your request for consultation on April 6, 2016 and requested additional information and clarification in June 2016. Additional information was provided in July 2016 and on August 23, 2016, you supplemented the BA with



an analysis of effects to the critical habitat proposed for the Chesapeake Bay DPS of Atlantic sturgeon and requested concurrence with your determination that conference is not necessary.

Proposed Action

The proposed action is described in the BA; further details are available in NRC's Supplemental EIS for the COL for North Anna Power Station Unit 3 (NUREG-1917; NRC 2010). In summary, Dominion proposes to construct and operate a new nuclear unit at the existing North Anna site in Virginia. Components of the action include construction at the North Anna site, operation of the new unit (including discharge and withdrawal of cooling water from Lake Anna), construction of a clear span bridge across the North Anna River to support the large component transport route, a transmission line corridor, and the Walkerton roll-off facility. No NMFS listed species occur at the North Anna site, along the transmission line corridor or in the North Anna River or Lake Anna. When constructed and licensed, the new facility is expected to operate for 40 years. Effects of operation of the new nuclear facility will be experienced in upland areas that compose the footprint of the new facility, along the transmission line corridor and in Lake Anna and the North Anna River. As described in the Environmental Impact Statement (EIS) issued by NRC for the issuance of the Early Site Permit (NUREG-1811, December 2006) and the Combined Operating License (NUREG-1917, February 2010), the effects of operation, including the effects of water withdrawal, radiological release and accidents, as well as effects of decommissioning, do not extend to waterbodies beyond Lake Anna and the North Anna River. Because NMFS listed species do not occur in areas where effects of operations will be experienced, no NMFS listed species will be exposed to any effects of operations of the new nuclear unit. Therefore, (we agree with your determination that no listed species under our jurisdiction will be exposed to any effects of those activities.

As noted in the BA, Atlantic sturgeon occur in the Mattaponi River where the Walkerton roll-off facility will be constructed. Atlantic sturgeon and listed sea turtles occur along the barge transport route between Norfolk, VA and the Walkerton facility. As such, this consultation will focus on the effects of the construction and operation of the Walkerton roll-off facility, including transport of materials along the barge transport route as those are the only activities where listed species could be exposed to effects.

Walkerton roll-off facility

The barge slip at the Walkerton roll-off location is a proposed temporary structure. The barge offloading facility would consist of a solid cofferdam constructed of filled sheetpile and a roll-on/roll-off ramp to connect the barge with the onshore roadway. Dominion plans to offload equipment approximately two to three times a year (for three years) from a barge that would travel from existing marine terminals in Norfolk, VA. The cofferdam would be 36.6 m (120 ft.) wide and extend approximately 51.8 m (170 ft.) into the river from the shoreline (total approximately 0.5 acres); additionally, five mooring dolphins (a total of 15 pilings) would be installed.

No in-water work will be performed February 15 through June 30 or August 1 through October 31. Dominion anticipates in-water work to install the cofferdam and dolphins will take two weeks to complete with pile driving occurring over three days. All pile installation will occur behind a full-depth turbidity/silt curtain. The roll-off facility will be used for approximately three

years, receiving a total of 10-11 barge shipments from existing barge terminals in Norfolk, VA. The cofferdam and mooring piles will be removed at the end of three years with all removal work occurring behind a full depth silt curtain outside of the two “no-work” windows.

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). The action area consists of the footprint of the North Anna site, the waters of Lake Anna and the North Anna River that will be affected by the operation of the new nuclear unit, the transmission line corridor, the barge transport route to/from the Norfolk marine terminal and the Walkerton roll-off location including the area surrounded by the silt curtain in the Mattaponi River. The barge transport route consists of the Mattaponi and York river navigation channels and navigation channels within the Chesapeake Bay and the James River (from existing barge terminals in Norfolk, Virginia to the project site). This area is expected to encompass all of the direct and indirect effects of the proposed project.

NMFS Listed Species in the Action Area

Atlantic sturgeon occur in the action area. Four DPSs of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) are listed as endangered (*New York Bight, Chesapeake Bay, Carolina, and South Atlantic*) and one DPS as threatened (Gulf of Maine) under the ESA. The marine range for all five DPSs includes all marine waters, coastal bays and estuaries, from Labrador Inlet, Labrador, Canada to Cape Canaveral, FL. Proposed critical habitat is addressed below.

Atlantic sturgeon are well distributed throughout the Chesapeake Bay and occur in the waters that will be transited by the barge (i.e., James and York rivers and mainstem Bay). Information on use of the Mattaponi River is limited to the observation of breaching adults and the detection of a small number of tagged adult Atlantic sturgeon in the river (Jason Kahn, NMFS, personal communication January 2016¹; VIMS, unpublished data²). Telemetry receivers are deployed in the Mattaponi River, providing coverage from near the confluence with the York River to the Route 360 bridge near rkm 112. Prior to summer 2015, tagged adult Atlantic sturgeon have been tracked only as far as eight miles upstream from the confluence with the York River (Jason Kahn, NMFS, personal communication January 2016) (approximately rkm 52) which is downstream of the Walkerton roll-off area. In summer and early fall of 2015, a female Atlantic sturgeon was detected on the furthest upstream receiver (rkm 112) (VIMS, unpublished data). In the fall of 2016, a small number of additional adult Atlantic sturgeon were detected in the Mattaponi. The number of Atlantic sturgeon using the Mattaponi river appears to be a small fraction of the number using the Pamunkey (Jason Kahn, personal communication). The

¹ Email and phone communications from Jason Kahn, fisheries biologist with NMFS Office of Protected Resources providing results from Atlantic sturgeon telemetry monitoring carried out by himself under Permit 19642 “Characterizing juvenile, sub-adult, and adult life stages of endangered Atlantic and Shortnose Sturgeon in the York, Rappahannock, Potomac, and Susquehanna Rivers, their tributaries, the Chesapeake Bay, and the Atlantic Coast.”

² Unpublished information provided to NMFS from the Virginia Institute for Marine Science in a letter dated September 1, 2016 characterizing information collected by VIMS under Permit 19642 “Characterizing juvenile, sub-adult, and adult life stages of endangered Atlantic and Shortnose Sturgeon in the York, Rappahannock, Potomac, and Susquehanna Rivers, their tributaries, the Chesapeake Bay, and the Atlantic Coast.”

detection of tagged Atlantic sturgeon upstream and downstream of the Walkerton project area confirm that Atlantic sturgeon are present in the area.

Researchers investigating the York River and its tributaries (Pamunkey and Mattaponi) have confirmed that spawning occurs in the Pamunkey River in the late summer. It is currently unknown if spawning occurs in the Mattaponi; however, suitable spawning habitat is present and this, combined with the detection of tagged adults at the same time of year as when spawning occurs in the adjacent Pamunkey, indicates that spawning is possible in the Mattaponi.

Assuming that Atlantic sturgeon in the Mattaponi River behave the same way as tagged Atlantic sturgeon in the Pamunkey River and consistent with the available information from the limited number of tagged adults detected in the river, we expect a few adults to begin entering the river in July, with the majority not entering the river until August. Adults would be present into October (J. Kahn, NMFS, personal communication; Hager *et al.* 2014; Kahn *et al.* 2014). If spawning occurs in the Mattaponi, we expect it to occur at the same time of year as in the Pamunkey (e.g. in August and/or September); this is a reasonable assumption because of the close geographic proximity of the two rivers.

In-water work, including deployment of the full depth silt curtains and installation of the sheetpiles for the cofferdams and piles to support the mooring dolphins would occur over approximately two weeks in July or between November 1 and February 14 with pile driving occurring on three days. If the work occurs in July, a few adult Atlantic sturgeon could be present in the Mattaponi River. We expect adults to leave the river after spawning in August and/or September; therefore, if the work occurs in the November 1 – February 14 window, we would not expect adults to be present. If spawning is occurring in the Mattaponi River, we would expect that juveniles would be present in the river year round. Juveniles, subadults and adults may be present year-round along the barge transport route. While there is suitable spawning habitat (i.e., hard bottom habitat in the tidal freshwater reach) in the Mattaponi River (Bushnoe *et al.* 2005), the lack of hard bottom habitat in the area where the roll off facility will be constructed indicates that spawning and rearing of early life stages cannot occur in the area where effects of the construction of the roll-off facility will be experienced. Therefore, because there is no hard bottom habitat which is necessary for the development of eggs and early larvae, these life stages are not expected where effects of the construction of the Walkerton roll off facility will be experienced. Older larvae could occur in the action area during the November – February construction window.

Four species of federally listed threatened or endangered sea turtles under our jurisdiction are found seasonally in Chesapeake Bay: the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead (*Caretta caretta*), and the endangered Kemp's ridley (*Lepidochelys kempi*), North Atlantic DPS green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*) sea turtles. Sea turtles are most likely to occur in the action area between June and October when water temperatures are above 11°C and depending on seasonal weather patterns, could be present in April and early November. Sea turtles would be present between April and November in the Chesapeake Bay portion of the barge transport route but not occur in the Mattaponi River.

Effects of the Action

As described in the BA, the majority of activities authorized by NRC and/or USACE will occur on land or will impact Lake Anna. The cooling system for Unit 3 involves the intake and discharge of water from Lake Anna. No NMFS listed species occur in Lake Anna; NMFS listed species will not be exposed to effects of activities occurring on land or in or around Lake Anna. This includes effects of the work to be done at the North Anna Power Station site and associated Route 700 parcels, the transmission line corridor and the large component transport route. The only activities that may affect NMFS listed species are the construction and operation of the Walkerton roll-off facility.

Construction of the Walkerton Roll-Off facility

Construction of the roll-off facility consists of installation of a cofferdam along the shoreline, installation of fill within the cofferdam and installation of fifteen 24" piles in three clusters of five to construct mooring dolphins. The piles and cofferdam will be installed behind a full-depth silt curtain.

Sediment Plume

Sediment will be disturbed during pile installation. The full depth silt curtain will be set prior to construction and extend along the river edge where the roll off facility will be constructed. The curtain is deployed in sections and it is extremely unlikely that any sturgeon would be trapped within the curtain because we expect they would swim away from the in-water activity associated with curtain deployment. We are not aware of any occurrences where sturgeon have been trapped within silt curtains in any location. The silt curtain will retain any increase in suspended sediment. Because no sturgeon will be present within the silt curtain, no sturgeon will be exposed to any effects of the increase in suspended sediment.

Noise

Installation of the sheet piles and 15 mooring dolphin piles will generate underwater noise. All piles will be installed with a vibratory hammer behind a full depth silt curtain. We have information on noise produced during the installation of similar size piles in the Hudson River (TZA 2014). In-field monitoring of the installation of a 4-foot diameter pile with a vibratory hammer (TZA 2014) indicates a peak SPL of 158 dB re 1 μ Pa at a distance of 47 feet from the pile; noise decreased to a maximum peak SPL of 148 dB re 1 μ Pa at a distance of 220 feet from the pile and decreased to a peak SPL of 136 dB re 1 μ Pa at 555 feet from the pile. Noise was measured at 150 dB re 1 μ Pa RMS at a distance of 47 feet from the pile and decreased rapidly to 130 dB re 1 μ Pa RMS SPL at 220 feet and 119 dB re 1 μ Pa RMS SPL at a distance of 555 feet from the pile. Available information on driving sheet piles with a vibratory hammer indicates we can expect noise 163 dB re 1 μ Pa²-s cSEL at a distance of 16 feet or the driving of wood piles with an acoustic footprint of 150 dB re 1 μ Pa²-s cSEL within 33 feet of the pile being driven (Jones and Stokes, 2009).

Sturgeon exposed to underwater noise of 206 dB re 1 μ Pa peak or cSEL greater than 187 dB re 1 μ Pa²-s may experience physiological effects (FHWG 2008). Installation of piles with a vibratory hammer will not result in peak noise levels greater than 206 dB re 1 μ Pa or cSEL greater than 187 dB re 1 μ Pa²-s. Thus, there is no potential for physiological effects due to exposure to this noise. Underwater noise greater than 150 dB re 1 μ Pa RMS is expected to be avoided by sturgeon (see Fewtrell 2003 and Mueller-Blenkle *et al.* 2010). The area where noise will be

greater than 150 dB re 1 μ Pa RMS will be within the silt curtain; therefore, no sturgeon will be exposed to potentially disturbing levels of underwater noise.

Effects to Benthic Resources

Information provided by NRC in September 2016 indicates that the area where the roll off facility will be constructed is mostly sandy substrate that is dominated by clams, snails, aquatic worms and crustaceans. Based on the presence of Atlantic sturgeon prey, we assume that foraging occurs in the area. The placement of the cofferdam and installation of the piles will reduce the amount of soft substrate available for foraging (0.57 acres and 0.07 acres, respectively) and will result in the displacement or mortality of some benthic resources that sturgeon prey on. However, the total area that would be affected by the proposed action is very small (approximately 0.64 acres) and is surrounded by similar habitat that has similar benthic resources. Further, this loss of habitat and associated loss of benthic resources will be temporary as all in-water structures will be removed after three years. Based on this information, the loss of a limited amount of potential forage in an area of approximately 0.64 acres will not have any measurable or detectable effects to sturgeon; therefore, these effects are insignificant.

Vessel traffic

Once the roll-off facility is constructed, it will be used to unload up to eleven barges of material over a three-year period. Barges would transit to the Walkerton facility from existing marine terminals in Norfolk, Virginia and travel in existing navigation channels from Norfolk, within the Chesapeake Bay to the York River and then into the Mattaponi River. Bulk material delivery scow barges typically have a draft of 11 feet maximum and a speed of 1 to 7 knots. The increase in vessel traffic in the action area is about one additional vessel every 100 days for three years; an increase of no more than 4 total round-trips per year. This is an extremely small increase in vessel traffic in the action area; over 1,000 ships per year visit the marine terminal at Norfolk and the York and Mattaponi Rivers are frequently used by recreational vessels, Naval ships, and barges transporting materials up and down the rivers.

Factors thought to be relevant to increasing risk of vessel strike include high speeds, limited clearance with the bottom, and restricted or narrow waterways; these factors all seem to contribute to the reduced ability of a sea turtle or sturgeon to avoid an oncoming vessel. Here, the risk of an interaction is reduced by the slow speed of the vessels. All of these barges are expected to move slowly (less than 7 knots). Slow operating speeds are expected to reduce the risk of vessel strike for sturgeon and sea turtles because they would allow for greater opportunity for individuals to avoid the vessel. There will be at least several feet of clearance between the barges and the bottom at the shallowest conditions, with more clearance in other conditions; given the swimming ability of sturgeon and sea turtles in the action area, a sturgeon or sea turtle should be able to swim under the vessel without getting hit. The areas to be transited by the barges are free flowing with no obstructions; therefore, there is ample room for a sturgeon or sea turtle to avoid a vessel. Given the slow operating speeds of the vessels, the clearance between the vessels and the river bottom, and the wide un-impeded geography of the action area, we expect sturgeon and sea turtles to be able to avoid any vessels. Combined with the very small number of vessels that will use the roll off facility (no more than 11 trips total over a three year period), it is extremely unlikely that a sturgeon or sea turtle will be struck by a project vessel. We have also considered whether avoiding these project vessels increases the risk of being struck

by non-project vessels operating in the action area. In order for this to occur, another vessel would have to be close enough to the project vessel such that the animal's evasive movements made it such that it was less likely to avoid the nearby vessel. Given common navigational safety practices (i.e., not traveling too close to other vessels to minimize the risk of collisions), it is extremely unlikely that another vessel would be close enough such that a sturgeon or sea turtle avoiding a project vessel would not be able to avoid another non-project vessel or that the risk of being struck by another non-project vessel would otherwise increase. Based on this analysis, effects are discountable.

Conclusions

We agree that activities to be carried out as described herein, including the construction and operation of the Walkerton roll-off facility, are not likely to adversely affect any NMFS listed species. As explained above, once the roll-off facility is removed, no NMFS listed species will be exposed to any effects of the operation of North Anna Unit 3.

Critical Habitat Proposed for the Chesapeake Bay DPS

A proposed rule regarding the designation of critical habitat for the Chesapeake Bay DPS of published in the Federal Register on June 3, 2016. The action area overlaps with portions of the proposed critical habitat in the James River (where the barge will transit the mainstem James River to Hampton Roads), the York River (where the barge will transit from the mouth of the York River to the confluence with the Mattaponi), and the Mattaponi River (the barge transit route and where the Walkerton roll off facility will be constructed). Once critical habitat is proposed, the requirement to conference is in place. Conference is required when a proposed action is likely to result in the destruction or adverse modification of proposed critical habitat. You have determined that the proposed action is not likely to adversely affect the proposed critical habitat and that conference is not necessary; here, we consider the impacts of the proposed action on critical habitat proposed for designation for the Chesapeake Bay DPS and whether the proposed action is likely to result in the destruction or adverse modification of proposed critical habitat.

The critical habitat designation is for habitats that support successful Atlantic sturgeon reproduction and recruitment. In order to determine if the proposed action may affect critical habitat, we consider whether it would impact the habitat in a way that would affect its ability to support reproduction and recruitment. Specifically, we consider the effects of the project on the physical and biological features of the proposed critical habitat. The essential features identified in the proposed rule are:

- suitable hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 parts per thousand range) for settlement of fertilized eggs, refuge, growth, and development of early life stages;
- transitional salinity zones of 0.5-30 parts per thousand inclusive of waters with a gradual downstream gradient and soft substrate (e.g., sand, mud) downstream of spawning sites for juvenile foraging and physiological development;
- water depth of up to 27 meters absent physical barriers to passage (e.g., locks, dams, reservoirs, gear, etc.) between the river mouth and spawning sites for unimpeded movements of spawning adults as well as seasonal and physiological-dependent

movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary, and;

- Water with the temperature, salinity, and oxygen values that, combined, provide for dissolved oxygen values that support successful reproduction and recruitment (e.g., 6 mg/L for juvenile rearing habitat) and are within the temperature range that supports the habitat function (e.g., 13 to 26° C for spawning habitat and no more than 30° C for juvenile rearing habitat).

The barge transport route overlaps with portions of the critical habitat proposed for the James River, York River and the Mattaponi River. However, the movement of the barge from the facility in Norfolk to the Walkerton roll-off facility will not have any effects to any of the proposed features.

Effects at the Walkerton Project Area

The first feature (hard bottom habitat with salinity less than 0.05 ppt) is not present in the area that will be impacted by construction of the Walkerton roll off facility. While salinity can be less than 0.05 ppt at certain times of year, there is no hard bottom habitat in this area. Because this feature is not present, the project will have no effect on this feature.

The remaining three features are present in the action area. The installation of the cofferdam and the mooring piles will impact soft substrate within the transitional salinity zone. Because these structures will be removed after three years, the impact to this feature (reduction in the amount of soft substrate available in the action area) will be temporary. The estimated acreage of temporary habitat loss due to the pile and cofferdam footprints is approximately 0.5 acres. This is an extremely small percentage of the total soft-sediment benthic habitat in the Mattaponi River and an even smaller percentage of the total soft-sediment benthic habitat in the Chesapeake Bay DPS. Given the extremely small loss of soft-bottom benthic habitat and the temporary nature of this loss, it is extremely unlikely that the action will reduce the ability of the features to support the conservation needs of Atlantic sturgeon (i.e., reproduction and recruitment) in the action area.

The proposed action will not affect the habitat in a way that impedes the movements of spawning adults or juveniles; this is because it will not alter the depth of the action area in a way that makes the area inaccessible or result in the placement of physical barriers to passage. While the project will result in additional structures in the water, we do not expect the cofferdam located along the shoreline or the mooring piles to impede the movements of adult or juvenile sturgeon. Therefore, we do not anticipate any effects to the third feature.

The project will have no effect on salinity. No impacts to dissolved oxygen or temperature are anticipated. Effects to water quality are limited to a temporary increase of suspended sediment within the turbidity curtain while the piles are being installed and removed; these effects will only be experienced within the turbidity curtain for a few hours and are extremely unlikely to affect the ability of the habitat to support the conservation needs of Atlantic sturgeon in the action area.

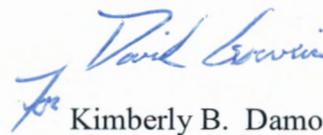
In sum, it is not reasonable to anticipate that the temporary loss of an extremely small amount of soft substrate that could be used for juvenile foraging would result in a direct or indirect alteration of the proposed critical habitat that appreciably diminishes the value of the critical habitat for the conservation of the Chesapeake Bay DPS of Atlantic sturgeon. Therefore, we conclude the action is not likely to result in the destruction or adverse modification of the proposed critical habitat; therefore, conference is not necessary.

Reinitiation requirement

Reinitiation of consultation is required and shall be requested by NRC or by NMFS 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 action 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 action is 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 action. No take is anticipated or exempted for this particular action; take is defined in the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” If there is any incidental take of a listed species, reinitiation would be required. Any observations of sea turtles or sturgeon should be reported to us immediately.

If you have any questions about this correspondence, please contact Julie Crocker of my staff at (978) 282-8480 or by e-mail Julie.Crocker@noaa.gov.

Sincerely,



For Kimberly B. Damon Randall
Assistant Regional Administrator for
Protected Resources

Literature Cited

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