



INCIDENTAL HARASSMENT AUTHORIZATION

Virginia Electric and Power Company, d/b/a Dominion Energy Virginia (Dominion) is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to harass marine mammals incidental to construction activities associated with the Coastal Virginia Offshore Wind (CVOW) Project in the Atlantic Ocean, when adhering to the following terms and conditions.

1. This Authorization is valid for one year from the date of issuance.
2. This IHA is valid only for activities associated with in-water construction work for the Coastal Virginia Offshore Wind (CVOW) Pilot Project in the Atlantic Ocean.
3. General Conditions
 - (a) A copy of this IHA must be in the possession of Dominion, its designees, work crew personnel, and Protected Species Observers (PSOs) operating under the authority of this IHA.
 - (b) The species authorized for taking are listed in Table 1.
 - (c) The taking by serious injury or death of the species listed in condition 3(b) or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization. Any taking exceeding the authorized amounts listed in Table 1 is prohibited and may result in the modification, suspension, or revocation of this IHA.
 - (d) Dominion must conduct briefings for construction supervisors and crews, marine mammal monitoring team, and Dominion staff prior to the start of all in-water construction activities, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.
4. Mitigation Measures

The holder of this IHA is required to implement the following mitigation measures:

- (a) For in-water construction, heavy machinery activities other than pile driving (e.g., use of barge-mounted excavators, or dredging), if a marine mammal comes within 10 meters, Dominion must cease operations and reduce vessel speed to the minimum level required to maintain steerage and safe working conditions.
- (b) Dominion is required to employ PSOs per the Monitoring Measures described in section 5 of this IHA.
- (c) PSOs must establish an Exclusion Zone and Monitoring Zone (see Table 2). Marine mammals observed entering or within the Exclusion Zone would trigger further mitigation as described under conditions 4(e) and 4(f) of this IHA. PSOs must document marine mammal observations within the Monitoring Zone as described under condition 6(a) of this IHA.
- (d) Marine mammal monitoring must take place from 60 minutes prior to initiation of pile driving activity through 30 minutes post-completion of pile driving activity. Pile driving may commence when observers have declared the Exclusion Zone clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the Exclusion Zone (Table 2), animals must be allowed to remain in the zone (*i.e.*, must leave of their own volition) and their behavior must be monitored and documented.
- (e) If a marine mammal is entering or is observed within an established Exclusion Zone (Table 2) within 30 minutes prior to commencement of pile driving, pile driving must be delayed. Pile driving may not commence until either the animal has voluntarily left and been visually confirmed beyond the Exclusion Zone or 15 minutes have elapsed without subsequent detection for delphinoids and pinnipeds, or 30 minutes have elapsed without subsequent detection for all other marine mammals.
- (f) If a marine mammal is entering or is observed within an established Exclusion Zone (Table 2) while pile driving is underway, pile driving must be halted, when technically practicable. Pile driving may not commence until either the animal has voluntarily left and been visually confirmed beyond the Exclusion Zone or 15 minutes have elapsed without subsequent detection for delphinids and pinnipeds, or 30 minutes have elapsed without subsequent detection for all other marine mammals. Pile driving must be halted, when technically practicable, upon observation of a North Atlantic right whale at any distance from the pile.
- (g) Exclusion Zones may only be declared clear, and pile driving started, when the entire Exclusion Zones are visible (*i.e.*, when not obscured by dark, rain, fog, etc.), as determined by the lead PSO on duty, for 30 minutes prior to pile driving.
- (h) Pile driving must commence only during daylight hours at least four hours prior to sunset. Pile driving may continue after dark only when the installation of the same pile began during daylight when the Exclusion Zone was fully visible for at

least 30 minutes (as described under condition 4(d)) and must proceed for human safety or installation feasibility reasons¹ as determined by the lead engineer.

- (i) Dominion must use soft start techniques when initiating impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a thirty-second waiting period, then two subsequent reduced energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of thirty minutes or longer.
- (j) If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized takes are met, is observed entering or within the monitoring zone, pile driving and removal activities must shut down immediately using delay and shutdown procedures. Activities must not resume until the animal has been confirmed to have left the area or the observation time period, as indicated in condition 4(e) above, has elapsed.
- (k) Pile driving activities must not occur between November 1 and April 30.
- (l) Dominion is required to employ an operational double bubble curtain on at least one pile during impact pile driving. One single pile may be driven without the bubble curtains activated, for comparison purposes. For the pile(s) driven with the active bubble curtains, Dominion must operate it in a manner consistent with the following performance standards:
 - (i) The bubble curtain nearest the pile must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column.
 - (ii) The lowest bubble ring must be in contact with the mudline for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100 percent mudline contact. No parts of the ring or other objects must prevent full mudline contact.
 - (iii) Air flow to the bubblers must be balanced around the circumference of the pile.
- (m) Vessel Strike Avoidance – Vessel operator and crew must maintain a vigilant watch for all marine mammals and slow down or stop the vessel or alter course, as appropriate, to avoid striking any marine mammal, unless such action represents a human safety concern. Vessel crew members responsible for navigation duties must receive site-specific training on marine mammal sighting/reporting and vessel strike avoidance measures. Vessel strike avoidance measures must include

¹ Installation feasibility refers to ensuring that the pile installation results in a usable foundation for the wind turbine generator (*e.g.*, installed to the target penetration depth without refusal and with a horizontal foundation/tower interface flange).

the following, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk:

- (i) The vessel operator and crew must maintain vigilant watch for cetaceans and pinnipeds, and slow down or stop the vessel to avoid striking marine mammals;
- (ii) All vessels, regardless of length, must observe a 10-knot speed restriction in specific areas designated by NMFS for the protection of North Atlantic right whales, including any Dynamic Management Areas when in effect, and the Mid-Atlantic Seasonal Management Area (from November 1 through April 30).
- (iii) The vessel operator must reduce vessel speed to 10 knots (18.5 km/hr) or less when any large whale, any mother/calf pairs, whale or dolphin pods, or large assemblages of non-delphinoid cetaceans are observed near (within 100-m (330-ft)) an underway vessel;
- (iv) Vessels must maintain a separation distance of 500-m (1640 ft) or greater from any sighted North Atlantic right whale. If a whale is observed but cannot be confirmed as a species other than a right whale, the vessel operator must assume that it is a right whale and maintain a minimum separation distance of 500 m.
- (v) If underway, vessels must steer a course away from any sighted North Atlantic right whale at 10 knots (18.5 km/hr) or less until the 500-m (1640 ft) minimum separation distance has been established. If a North Atlantic right whale is sighted in a vessel's path, or within 500-m (330 ft) to an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. Engines must not be engaged until the North Atlantic right whale has moved outside of the vessel's path and beyond 500-m. If stationary, vessels must not engage engines until the North Atlantic right whale has moved beyond 500-m;
- (vi) Vessels must maintain a separation distance of 100-m (330 ft) or greater from any sighted non-delphinoid cetacean. If sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the non-delphinoid cetacean has moved outside of the vessel's path and beyond 100-m. If a vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean has moved out of the vessel's path and beyond 100-m;
- (vii) Vessels must maintain a separation distance of 50-m (164 ft) or greater from any sighted delphinoid cetacean or pinniped. Any vessel underway must remain parallel to a sighted delphinoid cetacean's course whenever possible, and avoid excessive speed or abrupt changes in direction. Vessels may not

adjust course and speed until the delphinoid cetaceans have moved beyond 50-m and/or the abeam of the underway vessel;

- (viii) All vessels underway must not divert or alter course in order to approach any whale, delphinoid cetacean, or pinniped. Any vessel underway must avoid excessive speed or abrupt changes in direction to avoid injury to the sighted cetacean or pinniped; and

5. Monitoring Measures

The holder of this IHA is required to abide by the following marine mammal monitoring measures:

- (a) Marine mammal monitoring must be conducted in accordance with the measures in the IHA application.
- (b) Marine mammal monitoring during pile driving must be conducted by NMFS-approved PSOs in a manner consistent with the following:
 - (i) Independent PSOs (*i.e.*, not construction personnel) who have no other assigned tasks during monitoring periods must be employed;
 - (ii) A minimum of two PSOs must be on duty at all times during pile driving activities to observe and collect data on marine mammals in and around the pile driving vicinity as described below;
 - (iii) At least one observer must have prior experience working as an observer. Other PSOs may substitute education (degree in biological science or related field) or training for experience;
 - (iv) PSOs must work shifts of a maximum of four consecutive hours and must work no more than 12 hours in any 24-hour period.
 - (v) Dominion must submit PSO CVs for approval by NMFS prior to the onset of pile driving.
- (c) Acoustic monitoring of pile driving must be conducted. If one pile is driven without the activation of the bubble curtain, as described under condition 4(1), acoustic monitoring must be conducted during pile driving of both piles. The following data, at minimum, must be collected during acoustic monitoring and reported:
 - (i) Hydrophone equipment and methods: recording device, sampling rate, distance from the pile where recordings were made; depth of recording device(s).

- (ii) Specifications of pile being driven, substrate type, and type of attenuation device used during pile driving.
- (iii) Mean, medium, and maximum sound levels (dB re: 1 μ Pa): cumulative sound exposure level (SEL_{cum}), peak sound pressure level (SPL_{peak}), root mean square sound pressure level (SPL_{rms}), and single-strike sound exposure level (SEL_{s-s}).
- (iv) Number of strikes per pile measured, one-third octave band spectrum and/or power spectral density.

6. Reporting

The holder of this IHA is required to:

- (a) Submit a draft report on all monitoring conducted under the IHA within ninety calendar days of the completion of marine mammal monitoring or sixty days prior to the issuance of any subsequent IHA for this project, whichever comes first. A final report must be prepared and submitted within thirty days following resolution of comments on the draft report from NMFS. This report must contain the following information:
 - (i) Dates and times (begin and end) of all marine mammal monitoring.
 - (ii) Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed and by what method (*i.e.*, impact or vibratory).
 - (iii) Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).
 - (iv) The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
 - (v) Age and sex class, if possible, of all marine mammals observed.
 - (vi) PSO locations during marine mammal monitoring.
 - (vii) Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
 - (viii) Description of any marine mammal behavior patterns during observation, including direction of travel.
 - (ix) Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of

marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).

- (x) Detailed information about any implementation of any mitigation triggered (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.
- (xi) Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
- (v) Results of hydro-acoustic monitoring of pile driving, including all elements listed under 5(c), as well as the following: Spatial configuration of the first and second bubble curtains relative to the pile; whether and when the double bubble curtain was active; and, extents of the Level A and B harassment zones for both unattenuated and attenuated pile driving.
- (b) Reporting sightings of North Atlantic right whales
 - (i) If a North Atlantic right whale is observed at any time by PSOs or personnel on any project vessels, during any project-related activity or during vessel transit, Dominion must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System: (866) 755-6622. North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16.
- (c) Reporting injured or dead marine mammals:
 - (i) In the event that personnel involved in the activities covered by the authorization discover an injured or dead marine mammal, Dominion must report the incident to the NOAA Fisheries Office of Protected Resources (301-427-8401), and to the NOAA Fisheries New England/Mid-Atlantic Regional Stranding Coordinator (978-282-8478) as soon as feasible. The report must include the following information:
 - (A) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
 - (B) Species identification (if known) or description of the animal(s) involved;
 - (C) Condition of the animal(s) (including carcass condition if the animal is dead);
 - (D) Observed behaviors of the animal(s), if alive;
 - (E) If available, photographs or video footage of the animal(s); and
 - (F) General circumstances under which the animal was discovered.

(ii) In the event of a vessel strike of a marine mammal by any vessel involved in the activities covered by the authorization, Dominion must report the incident to the NOAA Fisheries Office of Protected Resources (301-427-8401) and to the NOAA Fisheries New England/Mid-Atlantic Regional Stranding Coordinator (978-282-8478) as soon as feasible. The report must include the following information:

- (A) Time, date, and location (latitude/longitude) of the incident;
- (B) Species identification (if known) or description of the animal(s) involved;
- (C) Vessel's speed during and leading up to the incident;
- (D) Vessel's course/heading and what operations were being conducted (if applicable);
- (E) Status of all sound sources in use;
- (F) Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- (G) Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
- (H) Estimated size and length of animal that was struck;
- (I) Description of the behavior of the marine mammal immediately preceding and following the strike;
- (J) If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- (K) Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
- (L) To the extent practicable, photographs or video footage of the animal(s).

Activities must not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with Dominion to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Dominion may not resume their activities until notified by NMFS.

7. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein, or if NMFS determines the authorized taking is

having more than a negligible impact on the species or stock of affected marine mammals.

8. Renewals – On a case-by-case basis, NMFS may issue a one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical or nearly identical, or nearly identical, activities as described in the Specified Activities section of this notice is planned or (2) the activities as described in the Specified Activities section of this notice would not be completed by the time the IHA expires and a Renewal would allow for completion of the activities beyond that described in the Dates and Duration section of this notice, provided all of the following conditions are met:
- (a) A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (recognizing that the Renewal IHA expiration date cannot extend beyond one year from expiration of the initial IHA).
 - (b) The request for renewal must include the following:
 - (i) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (e.g., reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).
 - (ii) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.
 - (c) Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Donna S. Wieting,
Director, Office of Protected Resources
National Marine Fisheries Service

Date

Table 1: Species/stocks and numbers of marine mammals authorized to be taken

Species	Takes by Level B Harassment Authorized
Common dolphin	39
Atlantic white-sided dolphin	40
Bottlenose dolphin	100
Atlantic spotted dolphin	100
Harbor porpoise	4
Humpback whale	2
Gray seal	1
Harbor seal	1

Table 2. Exclusion zones and monitoring zones

Species	Exclusion Zone	Monitoring Zone (pile driven with active bubble curtains)	Monitoring Zone (pile driven without bubble curtains)
North Atlantic right whale	Any distance*	3,830 m	5,930 m
All other marine mammal species	1,750 m	3,830 m	5,930 m

* a North Atlantic right whale observed by a PSO **at any distance from the pile** triggers mitigation actions as described under 4(e) and 4(f)