



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
1315 East-West Highway  
Silver Spring, Maryland 20910

DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL MARINE FISHERIES SERVICE  
Letter of Authorization

Sunrise Wind, LLC (Sunrise Wind) and those persons it authorizes or funds to conduct activities on its behalf in the specified geographical region described herein are authorized to take marine mammals incidental to construction of the Sunrise Offshore Wind Project (hereafter known as the “Project”), located in state and Federal waters offshore New York, subject to the provisions of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*; MMPA) of 1972, as amended and the applicable regulations (50 CFR §§ 217.310 - 217.319), provided they are in compliance with all terms, conditions, and requirements described herein.

### **Effective Dates**

This Letter of Authorization (LOA) is effective for a period of five years, beginning on June 21, 2024 and expiring after June 20, 2029.

### **Specified Geographical Region**

The specified geographical region is the Mid-Atlantic Bight<sup>1</sup>, which includes, but is not limited to, the Bureau of Ocean Energy Management (BOEM) Lease Area Outer Continental Shelf (OCS)-A 0487 Commercial Lease of Submerged Lands for Renewable Energy Development, the export cable route, and one sea-to-shore transition point located at Smith Point County Park in Shirley, New York (see Figure 1).

### **Specified Activities**

The specified activities are impact pile driving of wind turbine generator (WTG; monopiles) and offshore converter substation (OCS-DC) foundations (pin piles for jacket foundations); pneumatic hammering for installation and removal of temporary casing pipes and vibratory pile driving for installation and removal of temporary goal post and sheet piles at the cable landfall site; impact and vibratory pile driving associated with the Smith Point County Park temporary pier; detonating up to three unexploded ordnance or munitions and explosives of concern (UXO/MEC) of different charge weights; site characterization surveys using high-resolution geophysical (HRG) acoustic sources; vessel transit within the specified geographical region to

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<sup>1</sup> The Mid-Atlantic Bight spans from Cape Hatteras, North Carolina, and Martha's Vineyard, Massachusetts, extending westward into the Atlantic to the 100-m isobath.

transport crew, supplies, and materials; WTG operation; fishery and ecological monitoring surveys; site preparation work (*e.g.*, boulder removal); placement of scour protection; and trenching, laying, and burial activities associated with the installation of the export cable from OCS-DC to shore-based converter stations and inter-array cables between turbines.

### **1. Permissible Methods of Taking:**

Sunrise Wind may incidentally, but not intentionally, take marine mammals within the specified geographical region in the course of conducting the specified activities, provided Sunrise Wind is in compliance with all terms, conditions, and requirements described herein.

(a) Permissible methods of taking consist of:

- (1) Level B harassment associated with the acoustic disturbance resulting from impact pile driving for WTG monopile and OCS-DC foundation installation, pneumatic hammering of casing pipes; vibratory pile driving of goal posts and sheet piles; UXO/MEC detonations; and HRG site characterization surveys; and
- (2) By Level A harassment associated with impact pile driving WTG and OCS-DC foundations and UXO/MEC detonations.

(b) The incidental take of marine mammals by the specified activities described above is limited to only the species and stocks found in Table 1 below.

### **2. Prohibitions:**

Except for the takings described under **Permissible Methods of Taking**, it is unlawful for any person to do any of the following in connection with the specified activities described herein:

- (a) Violate or fail to comply with the terms, conditions, and requirements of this LOA or the regulations;
- (b) Take any marine mammal not specified in Table 1;
- (c) Take any marine mammal in Table 1 in any manner other than those specified in **Permissible Methods of Taking** above or number greater than those specified in Table 1; and
- (d) Take any marine mammal in Table 1 after NMFS determines such takings results in more than a negligible impact on the species or stocks.

### **3. Mitigation Requirements:**

When conducting the specified activities in the specified geographic region, Sunrise Wind must implement the following mitigation measures:

(a) *General conditions.* Sunrise Wind must comply with the following general measures:

- (1) A copy of any issued LOA must be in the possession of Sunrise Wind and its designees, all vessel operators, visual protected species observers (PSOs), passive acoustic monitoring (PAM) operators, pile driver operators, and any other relevant designees operating under the authority of the issued LOA;
- (2) Sunrise Wind must conduct training for construction supervisors, construction crews, and the PSO and PAM team prior to the start of all construction activities and when new personnel join the work in order to explain responsibilities, communication procedures, marine mammal monitoring and reporting protocols, and operational procedures. A description of the training program must be provided to NMFS at least 60 days prior to the initial training before in-water activities begin. Confirmation of all required training must be documented on a training course log sheet and reported to NMFS Office of Protected Resources prior to initiating project activities within 30 days of completing training;
- (3) PSOs and PAM operators have the authority to call for a delay or shutdown to an activity and Sunrise Wind must instruct all personnel regarding the authority of the PSOs and PAM operators. If a shutdown of an activity is called for by a PSO or PAM operator, Sunrise Wind must take the required mitigative action unless shutdown would result in imminent risk of injury or loss of life to an individual, pile refusal, or pile instability. Any disagreements between the PSO, PAM operator, and the activity operator regarding delays or shutdowns must only be discussed after the mitigative action has occurred;
- (4) Sunrise Wind and PSOs are required to use available sources of information on North Atlantic right whale presence to aid in monitoring efforts. These include daily monitoring of the Right Whale Sighting Advisory System, consulting of the WhaleAlert app, and monitoring of the Coast Guard's VHF Channel 16 to receive notifications of marine mammal sightings and information associated with any Dynamic Management Areas (DMA) and Slow Zones;
- (5) Any marine mammal observation by project personnel must be immediately communicated to any on-duty PSOs and PAM operator(s). Any large whale observation or acoustic detection must be conveyed to all vessel captains;
- (6) If an individual from a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized take number has been met, is observed entering or within the relevant clearance zone prior to beginning a specified activity, the activity must be delayed. If an activity is ongoing and an individual from a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized take number has been met, is observed entering or within the relevant shutdown zone, the activity must be shut down (*i.e.*, cease) immediately, unless shutdown would result in imminent risk of injury or loss of life to an individual, pile refusal, or pile instability. The activity must not commence or resume until the animal(s) has been confirmed to have left the clearance or shutdown zones and is on a path

away from the applicable zone or after 30 minutes for all baleen whale species and sperm whales, and 15 minutes for all other species;

- (7) In the event that a large whale is sighted or acoustically detected that cannot be confirmed as a non-North Atlantic right whale, it must be treated as if it were a North Atlantic right whale for purposes of mitigation;
  - (8) For in-water construction heavy machinery activities listed in section 1(a)(1), if a marine mammal is detected within, or about to enter, 10 meters (m) (32.8 feet (ft)) of equipment, Sunrise Wind must cease operations until the marine mammal has moved more than 10 m on a path away from the activity to avoid direct interaction with equipment;
  - (9) All vessels must be equipped with a properly installed, operational Automatic Identification System (AIS) device and Sunrise Wind must report all Maritime Mobile Service Identify (MMSI) numbers to NMFS Office of Protected Resources prior to vessel use;
  - (10) By accepting a LOA, Sunrise Wind consents to on-site observation and inspections by Federal agency personnel (including NOAA personnel) during activities described in this subpart, for the purposes of evaluating the implementation and effectiveness of measures contained within this subpart and the LOA; and
  - (11) It is prohibited to assault, harm, harass (including sexually harass), oppose, impede, intimidate, impair, or in any way influence or interfere with a PSO, PAM operator, or vessel crew member acting as an observer, or attempt the same. This prohibition includes, but is not limited to, any action that interferes with an observer's responsibilities, or that creates an intimidating, hostile, or offensive environment. Personnel may report any violations to the NMFS Office of Law Enforcement.
- (b) *Vessel strike avoidance measures.* Sunrise Wind must comply with the following vessel strike avoidance measures while in the specific geographic region, unless a deviation is necessary to maintain safe maneuvering speed and justified because the vessel is in an area where oceanographic, hydrographic, and/or meteorological conditions severely restrict the maneuverability of the vessel; an emergency situation presents a threat to the health, safety, life of a person; or when a vessel is actively engaged in emergency rescue or response duties, including vessel-in distress or environmental crisis response. An emergency is defined as a serious event that occurs without warning and requires immediate action to avert, control, or remedy harm.
- (1) Prior to the start of the Project's activities involving vessels, all vessel personnel must receive a protected species training that covers, at a minimum, identification of marine mammals that have the potential to occur in the specified geographical region; detection and observation methods in both good weather conditions (*i.e.*, clear visibility, low winds, low sea states) and bad weather conditions (*i.e.*, fog, high winds, high sea states, with glare); sighting communication protocols; all

vessel strike avoidance mitigation requirements; and information and resources available to the project personnel regarding the applicability of Federal laws and regulations for protected species. This training must be repeated for any new vessel personnel who join the project;

- (2) All vessel operators and dedicated visual observers must maintain a vigilant watch for all marine mammals and slow down, stop their vessel, or alter course to avoid striking any marine mammal;
- (3) All transiting vessels, operating at any speed must have a dedicated visual observer on duty at all times to monitor for marine mammals within a 180° direction of the forward path of the vessel (90° port to 90° starboard) located at an appropriate vantage point for ensuring vessels are maintaining appropriate separation distances. Dedicated visual observers may be PSOs or crew members, but crew members responsible for these duties must be provided sufficient training by Sunrise Wind to distinguish marine mammals from other phenomena and must be able to identify a marine mammal as a North Atlantic right whale, other large whale (defined in this context as sperm whales or baleen whales other than North Atlantic right whales), or other marine mammals. Dedicated visual observers must be equipped with alternative monitoring technology (*e.g.*, night vision devices, infrared cameras) for periods of low visibility (*e.g.*, darkness, rain, fog, *etc.*). The dedicated visual observer must not have any other duties while observing and must receive prior training on protected species detection and identification, vessel strike avoidance procedures, how and when to communicate with the vessel captain, and reporting requirements in this subpart;
- (4) All vessel operators and dedicated visual observers must continuously monitor US Coast Guard VHF Channel 16 at the onset of transiting through the duration of transit. At the onset of transiting and at least once every 4 hours, vessel operators and/or trained crew member(s) must monitor the project's Situational Awareness System, (if applicable), WhaleAlert, and relevant NOAA information systems such as the Right Whale Sighting Advisory System (RWSAS) for the presence of North Atlantic right whales;
- (5) All vessel operators must abide by vessel speed regulations (50 CFR 224.105). Nothing in this subpart exempts vessels from any other applicable marine mammal speed or approach regulations;
- (6) In the event that a DMA or Slow Zone is established that overlaps with an area where a project-associated vessel is operating, that vessel, regardless of size, must transit that area at 10 kn or less;
- (7) Between November 1<sup>st</sup> and April 30<sup>th</sup>, all vessels, regardless of size, must operate port to port (specifically from ports in New Jersey, New York, Maryland, Delaware, and Virginia) at 10 kn or less, except for vessels while transiting in Narragansett Bay or Long Island Sound;

- (8) All vessels, regardless of size, must immediately reduce speed to 10 kn or less when any large whale (other than a North Atlantic right whale), mother/calf pairs, or large assemblages of non-delphinid cetaceans are sighted within 500 m (0.31 mi) of an transiting vessel;
- (9) All vessel operators must immediately reduce speed to 10 kn (11.5 mph) or less for at least 24 hours when a North Atlantic right whale is sighted, at any distance, by any project-related personnel or acoustically detected by any project-related PAM system. Each subsequent observation or acoustic detection shall trigger an additional 24-hour period. If a vessel is traveling at speed greater than 10 kn (11.5 mph) (*i.e.*, no speed restrictions are enacted) in the transit corridor (defined as from a port to the Lease Area or return), in addition to the required dedicated visual observer, Sunrise Wind must monitor the transit corridor in real-time with PAM prior to and during transits. If a North Atlantic right whale is detected via visual observation or PAM within or approaching the transit corridor, all vessels in the transit corridor must travel at 10 kn (11.5 mph) or less for 24 hours following the detection. Each subsequent detection shall trigger a 24-hour reset. A slowdown in the transit corridor expires when there has been no further North Atlantic right whale visual or acoustic detection in the transit corridor in the past 24 hours;
- (10) All vessels must maintain a minimum separation distance of 500 m from North Atlantic right whales. If underway, all vessels must steer a course away from any sighted North Atlantic right whale at 10 kn (11.5 mph) or less such that the 500-m minimum separation distance requirement is not violated. If a North Atlantic right whale is sighted within 500 m of an underway vessel, that vessel must turn away from the whale(s), reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m;
- (11) All vessels must maintain a minimum separation distance of 100 m (328 ft) from sperm whales and non-North Atlantic right whale baleen whales. If one of these species is sighted within 100 m of an underway (*i.e.*, transiting) vessel, the vessel must turn away from the whale(s), reduce speed, and shift the engine(s) to neutral. Engines must not be engaged until the whale(s) has moved outside of the vessel's path and beyond 100 m;
- (12) All vessels must maintain a minimum separation distance of 50 m (164 ft) from all delphinid cetaceans and pinnipeds with an exception made for those that approach the vessel (*e.g.*, bow-riding dolphins). If a delphinid cetacean or pinniped is sighted within 50 m of a transiting vessel, the vessel must turn away from the animal(s), reduce speed, and shift the engine to neutral, with an exception made for those that approach the vessel (*e.g.*, bow-riding dolphins). Engines must not be engaged until the animal(s) has moved outside of the vessel's path and beyond 50 m;
- (13) All vessels underway must not divert or alter course to approach any marine mammal;

- (14) Prior to transit, vessel operators must check for information regarding the establishment of Seasonal and Dynamic Management Areas, Slow Zones, and any information regarding North Atlantic right whale sighting locations; and
  - (15) Sunrise Wind must submit a Marine Mammal Vessel Strike Avoidance Plan 180 days prior to the planned start of vessel activity that provides details on all relevant mitigation and monitoring measures for marine mammals, vessel speeds and transit protocols from all planned ports, vessel-based observer protocols for transiting vessels, communication and reporting plans, and proposed alternative monitoring equipment in varying weather conditions, darkness, sea states, and in consideration of the use of artificial lighting. If Sunrise Wind plans to implement PAM in any transit corridor to allow vessel transit above 10 kn the plan must describe how PAM, in combination with visual observations, will be conducted. If a plan is not submitted and approved by NMFS prior to vessel operations, all project vessels must travel at speeds of 10 kn (11.5 mph) or less at all times. Sunrise Wind must comply with any approved Marine Mammal Vessel Strike Avoidance Plan.
- (c) *WTG and OCS-DC foundation installation.* The following requirements apply to impact pile driving activities associated with the installation of WTG and OCS-DC foundations:
- (1) Foundation impact pile driving activities must not occur January 1 through April 30, annually. Foundation impact pile driving must not be planned in December; however, it may only occur if necessary to complete the Project within a given year with prior approval by NMFS. Sunrise Wind must notify NMFS in writing by September 1 of that year that pile driving cannot be avoided, and circumstances are expected to necessitate pile driving in December;
  - (2) No more than four monopiles may be installed per day;
  - (3) Monopiles must be no larger than a tapered 7/12 m monopile design. The minimum amount of hammer energy necessary to effectively and safely install and maintain the integrity of the piles must be used. Hammer energies must not exceed 4,000 kilojoules (kJ);
  - (4) Sunrise Wind must not initiate pile driving earlier than 1 hour after civil sunrise or later than 1.5 hours prior to civil sunset, unless Sunrise Wind submits, and NMFS approves, a Nighttime Pile Driving Plan, that demonstrates the efficacy of their night vision devices to effectively monitor the mitigation zones. Sunrise Wind must submit this plan or plans (if separate Daytime Reduced Visibility and Nighttime Monitoring Plans are prepared) to NMFS Office of Protected Resources at least 180 calendar days before impact pile driving is planned to begin. This Plan(s) must include, but is not limited to, a complete description of how Sunrise Wind will monitor pile driving activities during reduced visibility conditions (*e.g.* rain, fog) and at night, including proof of the efficacy of monitoring devices (*e.g.*, mounted thermal/infrared camera systems, hand-held or wearable night vision devices NVDs, spotlights) in detecting marine mammals over the full extent of the required clearance and shutdown zones, including

demonstration that the full extent of the minimum visibility zones can be effectively and reliably monitored. The Plan must identify the efficacy of the technology at detecting marine mammals in the clearance and shutdown zones under all the various conditions anticipated during construction, including varying weather conditions, sea states, and in consideration of the use of artificial lighting. If the plan does not include a full description of the proposed technology, monitoring methodology, and data demonstrating to NMFS Office of Protected Resources' satisfaction that marine mammals can reliably and effectively be detected within the clearance and shutdown zones for monopiles before and during impact pile driving, nighttime pile driving (unless a pile was initiated 1.5 hours prior to civil sunset) may not occur. Additionally, this plan must contain a thorough description of how Sunrise Wind will monitor pile driving activities during daytime when unexpected changes to lighting or weather occur during pile driving that prevent visual monitoring of the full extent of the clearance and shutdown zones;

- (5) Sunrise Wind must utilize a soft-start protocol at the beginning of foundation installation for each impact pile driving event and at any time following a cessation of impact pile driving of 30 minutes or longer;
- (6) Sunrise Wind must deploy, at minimum, a double bubble curtain and AdBm during all monopile foundation pile driving<sup>2</sup> and, at minimum, a double bubble curtain during all jacket foundation pile driving:
  - (i) The double bubble curtain must distribute air bubbles using an air flow rate of at least  $0.5 \text{ m}^3/(\text{min} \cdot \text{m})$ . The double bubble curtain must surround 100 percent of the piling perimeter throughout the full depth of the water column. In the unforeseen event of a single compressor malfunction, the offshore personnel operating the bubble curtain(s) must make appropriate adjustments to the air supply and operating pressure such that the maximum possible sound attenuation performance of the bubble curtain(s) is achieved.
  - (ii) The lowest bubble ring must be in contact with the seafloor for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100-percent seafloor contact;
  - (iii) No parts of the ring or other objects may prevent full seafloor contact with a bubble curtain ring;
  - (iv) Sunrise Wind must inspect and carry out appropriate maintenance on the noise attenuation system prior to every pile driving event and prepare and submit a Noise Attenuation System (NAS) inspection/performance report<sup>3</sup>.

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<sup>2</sup> Construction contractors must train personnel in the proper balancing of airflow to the bubble curtain ring.

<sup>3</sup> Corrections to the bubble ring(s) to meet the performance standards in this paragraph (c)(6) must occur prior to pile driving of foundation piles. For any noise mitigation device in addition to the bubble curtain, Sunrise Wind must inspect and carry out appropriate maintenance on the system and ensure the system is functioning properly prior to every pile driving event. Sunrise Wind must provide NMFS Office of Protected Resources with a bubble



For piles for which complete SFV is carried out, this report must be submitted as soon as it is available, but no later than when the interim SFV report is submitted for the respective pile. Performance reports for all subsequent piles must be submitted with the weekly pile driving reports. All reports must be submitted by email to *pr.itp.monitoringreports@noaa.gov*. For any noise mitigation device in addition to the bubble curtain, Sunrise Wind must inspect and carry out appropriate maintenance on the system and ensure the system is functioning properly prior to every pile driving event;

- (7) Sunrise Wind must utilize PSO(s). Each pile driving platform, including a minimum of a secondary, PSO-dedicated vessel, must have at least three on-duty PSOs;
- (8) Concurrent with visual monitoring, Sunrise Wind must utilize at least one PAM operator who must actively monitor for marine mammals one hour before, during and 30 minutes after impact pile driving with PAM. PAM operators must immediately communicate all detections of marine mammals to the Lead PSO, including any determination regarding species identification, distance, and bearing and the degree of confidence in the determination;
- (9) Sunrise Wind must utilize NMFS-approved PAM systems. The PAM system components (*i.e.*, acoustic buoys) must not be placed closer than 1 km (0.6 mi) to the pile being driven so that the activities do not mask the PAM system. Sunrise Wind must demonstrate and prove the detection range of the system they plan to deploy while considering potential masking from concurrent pile-driving and vessel noise. The PAM system must be able to detect a vocalization of North Atlantic right whales up to 10 km (6.2 mi);
- (10) Sunrise Wind must submit a Passive Acoustic Monitoring Plan (PAM Plan) to NMFS Office of Protected Resources for review and approval at least 180 days prior to the planned start of foundation installation activities and abide by the Plan if approved<sup>4</sup>. The PAM Plan must include, but is not limited to, a description of all proposed PAM equipment; the calibration data; bandwidth capability; and sensitivity of hydrophones address how the proposed passive acoustic monitoring must follow standardized measurement, processing methods, reporting metrics, and metadata standards for offshore wind. The Plan must describe all proposed PAM equipment, procedures, and protocols including proof that vocalizing North Atlantic right whales will be detected within the clearance and shutdown zones, including, deployment locations, procedures, detection review methodology, and protocols; hydrophone detection ranges with and without foundation installation activities and data supporting those ranges; communication time between call and detection, and data transmission rates between PAM Operator and PSOs on the

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curtain performance test and maintenance report to review within 72 hours after each pile using a bubble curtain is installed. Additionally, a full maintenance check must occur prior to each pile being installed.

<sup>4</sup> No pile installation can occur if Sunrise Wind's PAM Plan does not receive approval from NMFS Office of Protected Resources and NMFS Greater Atlantic Regional Fisheries Office Protected Resources Division.

pile driving vessel; where PAM Operators will be stationed relative to hydrophones and PSOs on pile driving vessel calling for delay/shutdowns; and a full description of all proposed software, call detectors, and filters. The Plan must also include a description of Sunrise Wind's evaluation of the planned acoustic detection software using the PAM Atlantic baleen whale annotated data set available at National Centers for Environmental Information (NCEI) and provide evaluation/performance metrics (*e.g.*, false negatives/positives).

- (11) Sunrise Wind must establish clearance and shutdown zones (see Table 2 for zone sizes), which must be measured using the radial distance around the pile being driven. PSOs must visually monitor clearance zones for marine mammals for a minimum of 60 minutes prior to commencing pile driving. At least one PAM operator must review data from at least 24 hours prior to pile driving and actively monitor hydrophones for 60 minutes prior to pile driving, at all times during pile driving, and for 30 minutes after pile driving. All clearance zones must be confirmed to be free of marine mammals for 30 minutes immediately prior to the beginning of soft-start procedures. If a marine mammal is detected within or about to enter the applicable clearance zones, during this 30-minute time period, impact pile driving, including soft-start, must be delayed until the animal has been visually observed exiting the clearance zone or until a specific time period has elapsed with no further sightings. The specific time periods are 30 minutes for all baleen whale species and sperm whales and 15 minutes for all other species;
- (12) For North Atlantic right whales, any visual observation by a PSO at any distance or acoustic detection within the 10 km PAM Monitoring Zone must trigger a delay to the commencement of pile driving;
- (13) PSOs must be able to visually clear (*i.e.*, confirm no marine mammals are present), at minimum, the minimum visibility zone. The entire minimum visibility zone must be visible (*i.e.*, not obscured by dark, rain, fog, *etc.*) for a full 30 minutes immediately prior to commencing impact pile driving;
- (14) If a marine mammal is detected (visually or acoustically) entering or within the respective shutdown after pile driving has begun, the PSO or PAM operator must call for a shutdown of pile driving and Sunrise Wind must stop pile driving immediately, unless shutdown is not practicable due to imminent risk of injury or loss of life to an individual or risk of damage to a vessel that creates risk of injury or loss of life for individuals, or the lead engineer determines there is risk of pile refusal or pile instability. If pile driving is not shut down due to one of these situations, Sunrise Wind must reduce hammer energy to the lowest level practicable;
- (15) If pile driving has been shut down due to the presence of a marine mammal other than a North Atlantic right whale, pile driving must not restart until either the marine mammal(s) has voluntarily left the specific clearance zones and has been visually or acoustically confirmed beyond that clearance zone, or, when specific time periods have elapsed with no further sightings or acoustic detections have occurred. The specific time periods are 30 minutes for all baleen whale species

and sperm whales and 15 minutes for all other species. In cases where these criteria are not met, pile driving may restart only if necessary to maintain pile stability at which time Sunrise Wind must use the lowest hammer energy practicable to maintain stability;

- (16) Sunrise Wind must submit a Foundation Installation Pile Driving Marine Mammal Monitoring Plan to NMFS Office of Protected Resources for review and approval at least 180 days prior to planned start of foundation pile driving and abide by the Plan if approved. Sunrise Wind must obtain both NMFS Office of Protected Resources and NMFS Greater Atlantic Regional Fisheries Office Protected Resources Division's concurrence with this Plan prior to the start of any pile driving. The plan must detail all plans and procedures for noise attenuation, including procedures for adjusting the noise attenuation system(s) and available contingency noise attenuation measures/systems if distances to modeled isopleths of concern are exceeded during SFV. The plan must include a description of all monitoring equipment and PAM operator and PSO protocols (including number and location of PSOs and PAM operators) for all foundation pile driving and an informal guide to aid personnel in identifying species if they are observed in the vicinity of the project area;
- (17) Sunrise Wind must perform complete sound field verification (SFV) measurements during installation of, at minimum, the first three monopile WTG foundations and all OCS-DC foundation pin piles;
- (18) Complete SFV measurements must continue until at least three consecutive piles demonstrate noise levels are at or below those modeled, assuming 10 decibels (dB) of attenuation. Subsequent complete SFV measurements are also required should larger piles be installed or if additional monopiles are driven that may produce louder sound fields than those previously measured (*e.g.*, from higher hammer energy, greater number of strikes, harder substrate composition, deeper water, *etc.*):
  - (i) Complete SFV measurements must be made at a minimum of four distances from the pile(s) being driven, along a single transect, in the direction of lowest transmission loss (*i.e.*, projected lowest transmission loss coefficient), including, but not limited to, 750 m (2,460 ft) and three additional ranges, including, at least, the modeled Level B harassment isopleth assuming 10-dB attenuation. At least one additional measurement at an azimuth 90 degrees from the array at 750 m must be made;
  - (ii) At each measurement distance, there must be a near bottom and mid-water column hydrophone (measurement system); and
  - (iii) Sunrise Wind must submit complete SFV interim reports within 48 hours after each foundation is measured and before an additional foundation is installed. If any of the interim SFV reports submitted indicate that distances to the Level A harassment and Level B harassment thresholds exceed those modeled assuming 10-dB attenuation, then Sunrise Wind

must implement additional measures on all subsequent foundations to ensure the measured Level A and Level B harassment isopleths do not exceed those modeled for foundation installation, assuming 10-dB attenuation. Sunrise Wind must also increase clearance and shutdown zone sizes to those identified by NMFS until SFV measurements on at least three additional foundations demonstrate acoustic distances to harassment thresholds meet or are less than those modeled assuming 10-dB of attenuation. For every 1,500 m that a marine mammal clearance or shutdown zone is exceeded, additional PSOs must be deployed from additional platforms/vessels to ensure adequate and complete monitoring of the expanded shutdown and/or clearance zone with each observer responsible for maintaining watch in no more than 120° and of an area with a radius no greater than 1,500 m. Sunrise Wind must optimize the sound attenuation systems ( *e.g.*, ensure hose maintenance, pressure testing, *etc.*) to, at least, meet noise levels modeled, assuming 10-dB attenuation, within three piles or else foundation installation activities must cease until NMFS and Sunrise Wind can evaluate the situation and ensure future piles will not exceed noise levels modeled assuming 10-dB attenuation.

- (19) Sunrise Wind also must conduct abbreviated SFV, using at least one acoustic recorder (consisting of a bottom and mid-water column hydrophone) for every foundation for which complete SFV monitoring is not conducted. Abbreviated SFV reports must be included in weekly reports. Any indications that distances to the identified Level A harassment and Level B harassment thresholds for marine mammals may be exceeded based on this abbreviated monitoring must be addressed by Sunrise Wind in the weekly report, including an explanation of factors that contributed to the exceedance and corrective actions that were taken to avoid exceedance on subsequent piles. Sunrise Wind must meet with NMFS within two business days of Sunrise Wind's submission of a report that includes an exceedance to discuss if any additional action is necessary;
- (20) The SFV measurement systems must have a sensitivity appropriate for the expected sound levels from pile driving received at the nominal ranges throughout the installation of the pile. The frequency range of SFV measurement systems must cover the range of at least 20 hertz (Hz) to 20 kilohertz (kHz). The SFV measurement systems must be designed to have omnidirectional sensitivity so that the broadband received level of all pile driving exceeds the system noise floor by at least 10-dB. The dynamic range of the SFV measurement system must be sufficient such that at each location, and the signals avoid poor signal-to-noise ratios for low amplitude signals and avoid clipping, nonlinearity, and saturation for high amplitude signals;
- (21) All hydrophones used in SFV measurements systems are required to have undergone a full system, traceable laboratory calibration conforming to International Electrotechnical Commission (IEC) 60565, or an equivalent standard procedure, from a factory or accredited source to ensure the hydrophone

receives accurate sound levels, at a date not to exceed 2 years before deployment. Additional *in situ* calibration checks using a pistonphone are required to be performed before and after each hydrophone deployment. If the measurement system employs filters via hardware or software (*e.g.*, high-pass, low-pass, *etc.*), which is not already accounted for by the calibration, the filter performance (*i.e.*, the filter's frequency response) must be known, reported, and the data corrected before analysis;

- (22) Sunrise Wind must be prepared with additional equipment (*e.g.*, hydrophones, recording devices, hydrophone calibrators, cables, batteries), which exceeds the amount of equipment necessary to perform the measurements, such that technical issues can be mitigated before measurement;
- (23) If any of the SFV measurements from any pile indicate that the distance to any isopleth of concern is greater than those modeled assuming 10-dB attenuation before the next pile is installed Sunrise Wind must implement the following measures as applicable: identify and propose for review and concurrence: additional, modified, and/or alternative noise attenuation measures or operational changes that present a reasonable likelihood of reducing sound levels to the modeled distances; provide a written explanation to NMFS Office of Protected Resources supporting that determination and requesting concurrence to proceed; and, following NMFS Office of Protected Resources' concurrence, deploy those additional measures on any subsequent piles that are installed (*e.g.*, if threshold distances are exceeded on pile 1 then additional measures must be deployed before installing pile 2);
- (24) If acoustic measurements indicate that ranges to isopleths corresponding to the Level A harassment and Level B harassment thresholds are less than the ranges predicted by modeling (assuming 10-dB attenuation), Sunrise Wind may request to NMFS Office of Protected Resources a modification of the mitigation zones for non-North Atlantic right whale species;
- (25) Sunrise Wind must conduct SFV measurements upon commencement of turbine operations to estimate turbine operational source levels and transmission loss rates, in accordance with a NMFS-approved Foundation Installation Pile Driving SFV Plan;
- (26) Sunrise Wind must submit a SFV Plan to NMFS Office of Protected Resources for review and approval at least 180 days prior to planned start of foundation installation activities and abide by the Plan if approved. At minimum, the SFV Plan must describe how Sunrise Wind would ensure that the first three monopile foundation installation sites selected for SFV measurements are representative of the rest of the monopile installation sites such that future pile installation events are anticipated to produce similar sound levels to those piles measured. In the case that these sites/scenarios are not determined to be representative of all other pile installation sites, Sunrise Wind must include information in the SFV Plan on how additional sites/scenarios would be selected for SFV measurements. This SFV Plan must also include methodology for collecting, analyzing, and preparing SFV

measurement data for submission to NMFS Office of Protected Resources and describe how the effectiveness of the sound attenuation methodology would be evaluated based on the results. Pile driving may not occur until NMFS approves the SFV Plan for this activity; and

- (27) If a subsequent monopile installation location is selected that was not represented by previous three locations (*i.e.*, substrate composition, water depth), Complete SFV must be conducted.

(d) *Cable landfall construction.* The following requirements apply to the cable landfall construction activities:

- (1) Sunrise Wind must conduct vibratory pile driving and pneumatic hammering during daylight hours only;
- (2) Sunrise Wind must have a minimum of two PSOs on active duty 30 minutes before, during, and 30 minutes after any installation and removal of the temporary sheet piles, casing pipes and goal posts. These PSOs must always be located at the best vantage point(s) on the vibratory pile driving, pneumatic hammering, or secondary platform in the immediate vicinity of the vibratory pile driving or pneumatic hammering platform in order to ensure that appropriate visual coverage is available for the entire visual clearance zone and as much of the Level B harassment zone, as possible;
- (3) Sunrise Wind must establish clearance and shutdown zones. If a marine mammal(s) is observed entering or is observed within the clearance zones (see Table 3), before vibratory pile driving or pneumatic hammering has begun, the activity must not commence until the animal(s) has exited the zone at its own volition or a specific amount of time has elapsed since the last sighting. The specific time periods are 30 minutes for all baleen whale species and sperm whales, and 15 minutes for all other species;
- (4) If a marine mammal is observed entering or within the respective shutdown zone (see Table 3) after pile driving or pneumatic hammering has begun, the PSO must call for a shutdown of pile driving and pneumatic hammering and Sunrise Wind must stop pile driving and pneumatic hammering immediately, unless shutdown is not practicable due to imminent risk of injury or loss of life to an individual, if there is a risk of damage to the vessel that would create a risk of injury or loss of life for individuals, or if the lead engineer determines there is risk of pile refusal or instability. If pile driving is not shut down due to one of these situations, Sunrise Wind must reduce hammer energy to the lowest level practicable;
- (5) Pile driving must not restart until either the marine mammal(s) has voluntarily left the specific clearance zones and has been visually confirmed beyond that clearance zone, or, when specific time periods have elapsed with no further sightings or acoustic detections have occurred. The specific time periods are 30 minutes for all baleen whale species and sperm whales, and 15 minutes for all other species; and

- (6) Sunrise Wind must employ a soft-start for all impact pile driving of goal posts. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets.
- (e) *UXO/MEC detonation*. The following requirements apply to UXO/MEC detonation:
- (1) Sunrise Wind may only detonate a maximum of three UXO/MECs, of varying sizes;
  - (2) Sunrise Wind must not detonate UXOs/MECs from December 1 through April 30, annually;
  - (3) Sunrise Wind must only detonate UXO/MECs during daylight hours (1 hour after civil sunrise through 1.5 hours prior to civil sunset);
  - (4) Upon encountering a UXO/MEC of concern, Sunrise Wind may only resort to high-order removal (*i.e.*, detonation) if all other means of removal are impracticable;
  - (5) Sunrise Wind must utilize a dual noise abatement system (*e.g.*, double bubble curtain) around all UXO/MEC detonations and operate that system in a manner that achieves the maximum noise attenuation levels practicable. If a double bubble curtain is used, it must be placed at a distance such that the nozzle hose remains undamaged;
  - (6) A pressure transducer must be used to monitor pressure levels during all UXO/MEC detonations;
  - (7) Sunrise Wind must use at least 3 visual PSOs on each PSO platform and one PAM operator to monitor for marine mammals in the clearance zones prior to detonation. If the clearance zone is larger than 2 km (based on charge weight), Sunrise Wind must deploy a secondary PSO vessel. If the clearance is larger than 5 km (based on charge weight), an aerial platform must be used unless Sunrise Wind determines an aerial platform is not practical and, in such case, an additional vessel must be used;
  - (8) Sunrise Wind must establish and implement clearance zones for UXO/MEC detonation using both visual and acoustic monitoring (see Table 4). Clearance zones must be fully visible for at least 60 minutes and all marine mammal(s) must be confirmed to be outside of the clearance zone for at least 30 minutes prior to detonation. PAM must also be conducted for at least 60 minutes prior to detonation and the zone must be acoustically cleared during this time;
  - (9) If a marine mammal is observed entering or within the clearance zone prior to denotation, the activity must be delayed. Detonation may only commence if all marine mammals have been confirmed to have voluntarily left the clearance zones and been visually confirmed to be beyond the clearance zone, or when 60 minutes have elapsed without any redetections for whales (including the North Atlantic

right whale) or 15 minutes have elapsed without any redetections of delphinids, harbor porpoises, or seals;

- (10) During each UXO/MEC detonation, Sunrise Wind must conduct SFV, in accordance with a NMFS-approved UXO/MEC SFV Plan, at a minimum of three locations, with two water depths at each location, from each detonation in a direction toward deeper water to empirically determine source levels (peak and cumulative sound exposure level), the ranges to the isopleths corresponding to the Level A harassment and Level B harassment thresholds, and estimated transmission loss coefficient(s);
  - (11) If SFV measurements on any of the detonations indicate that the ranges to Level A harassment and Level B harassment thresholds are larger than those modeled, assuming 10 dB attenuation, Sunrise Wind must modify the clearance zones, with approval from NMFS, and apply additional noise attenuation measures (*e.g.*, improve efficiency of bubble curtain(s)) before the next detonation event of similar size; and
  - (12) Sunrise Wind must prepare and submit a UXO/MEC Marine Mammal Monitoring Plan to NMFS for review and approval at least 180 days before the start of any UXO/MEC detonations. The plan must include final project design and all information related to visual and PAM PSO monitoring protocols for UXO/MEC detonations.
- (f) *HRG surveys*. The following requirements apply to HRG surveys operating sub-bottom profilers (SBPs) (*i.e.*, boomers, sparkers, and Compressed High Intensity Radiated Pulse (CHIRPS)) (hereinafter referred to as “acoustic sources”):
- (1) Sunrise Wind must abide by the relevant Project Design Criteria (PDCs 4, 5, and 7) of the programmatic consultation completed by NMFS’ Greater Atlantic Regional Fisheries Office on June 29, 2021 (revised September 2021), pursuant to section 7 of the Endangered Species Act (ESA) or otherwise updated. To the extent that any relevant Best Management Practices (BMPs) described in these PDCs are more stringent than the requirements herein, those BMPs supersede these requirements;
  - (2) Acoustic sources must be deactivated when not acquiring data or preparing to acquire data except as necessary for testing. Acoustic sources must be used at the lowest practicable source level to meet the survey objective;
  - (3) Sunrise Wind must use at least one PSO during daylight operations and two PSOs during nighttime operations, per vessel;
  - (4) PSOs must begin visually monitoring 30 minutes prior to the initiation of the specified acoustic source (including ramp-up, if applicable), through 30 minutes after the use of the specified acoustic source has ceased;
  - (5) Prior to starting the survey and after receiving confirmation from the PSOs that the clearance zone is clear of any marine mammals, Sunrise Wind is required to



ramp-up acoustic sources to half power for 5 minutes prior to commencing full power, unless the equipment operates on a binary on/off switch (in which case ramp-up is not required)<sup>5</sup>. Any ramp-up of acoustic sources may only commence when visual clearance zones are fully visible (*e.g.*, not obscured by darkness, rain, fog, *etc.*) and clear of marine mammals, as determined by the Lead PSO, for at least 30 minutes immediately prior to the initiation of survey activities using a specified acoustic source. Ramp-ups must be scheduled so as to minimize the time spent with the source activated;

- (6) Prior to a ramp-up procedure starting or activating acoustic sources, the acoustic source operator (operator) must notify the on-duty Lead PSO. The notification time must not be less than 60 minutes prior to the planned ramp-up or activation in order to allow the PSO(s) time to monitor the clearance zone(s) for 30 minutes prior to the initiation of ramp-up or activation (pre-start clearance). During this 30-minute pre-start clearance period, the entire applicable clearance zones must be visible, except as indicated in paragraph (f)(9) of this section;
- (7) A PSO conducting pre-start clearance observations must be notified again immediately prior to reinitiating ramp-up procedures and the operator must receive confirmation from the on-duty PSO to proceed;
- (8) If a marine mammal is observed within a clearance zone during the 30 minute clearance period, ramp-up or acoustic surveys may not begin until the animal(s) has been observed voluntarily exiting its respective clearance zone or until a specific time period has elapsed with no further sighting. The specific time periods are 30 minutes for all baleen whale species and sperm whales, and 15 minutes for all other species;
- (9) In any case when the clearance process has begun in conditions with good visibility, including via the use of night vision equipment/reduced visibility condition equipment (infrared (IR)/thermal camera), and the Lead PSO has determined that the clearance zones are clear of marine mammals, survey operations may commence (*i.e.*, no delay is required) despite periods of inclement weather and/or loss of daylight. Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of marine mammals in the 30 minutes prior to beginning ramp-up;
- (10) Once the survey has commenced, Sunrise Wind must shut down acoustic sources if a marine mammal enters a respective shutdown zone. In cases when the shutdown zones become obscured for brief periods (less than 30 minutes) due to inclement weather, survey operations would be allowed to continue (*i.e.*, no shutdown is required) so long as no marine mammals have been detected. The shutdown requirement does not apply to small delphinids of the following genera: *Delphinus*, *Stenella*, *Lagenorhynchus*, and *Tursiops*. If there is uncertainty regarding the identification of a marine mammal species (*i.e.*, whether the

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<sup>5</sup> Sunrise Wind must establish and implement clearance and shutdown zones for HRG surveys using visual monitoring (see Table 5).

observed marine mammal belongs to one of the delphinid genera for which shutdown is waived), the PSOs must use their best professional judgment in making the decision to call for a shutdown. Shutdown is required if a delphinid that belongs to a genus other than those specified in this paragraph of this section is detected in the shutdown zone. If there is uncertainty regarding the identification of a marine mammal species (*e.g.*, whether the observed marine mammal belongs to one of the delphinid genera for which shutdown is waived), the PSOs must use their best professional judgment in making the decision to call for a shutdown;

- (11) If an acoustic source has been shut down due to the presence of a marine mammal, the use of an acoustic source may not commence or resume until the animal(s) has been confirmed to have left the Level B harassment zone or until a full 30 minutes for all baleen whale species and sperm whales, and 15 minutes for all other species have elapsed with no further sighting. If an acoustic source is shut down for reasons other than mitigation (*e.g.*, mechanical difficulty) for less than 30 minutes, it may be activated again without ramp-up only if PSOs have maintained constant observation and no additional detections of any marine mammal occurred within the respective shutdown zones. If an acoustic source is shut down for a period longer than 30 minutes, then all clearance and ramp-up procedures must be initiated;
  - (12) If multiple HRG vessels are operating concurrently, any observations of marine mammals must be communicated to on-duty PSOs on all nearby survey vessels; and
  - (13) Should an autonomous survey vehicle (ASV) be used during HRG surveys, the ASV must remain with 800 m (2,635 ft) of the primary vessel while conducting survey operations; two PSOs must be stationed on the mother vessel at the best vantage points to monitor the clearance and shutdown zones around the ASV; at least one PSO must monitor the output of a thermal high-definition camera installed on the mother vessel to monitor the field-of-view around the ASV using a hand-held tablet, and during periods of reduced visibility (*e.g.*, darkness, rain, or fog), PSOs must use night-vision goggles with thermal clip-ons and a hand-held spotlight to monitor the clearance and shutdown zones around the ASV.
- (g) *Fisheries monitoring surveys.* The following requirements apply to fishery monitoring surveys:
- (1) Marine mammal monitoring must be conducted by the captain and/or a member of the scientific crew before (within 1 nautical mile (nmi) (1.85 km) and 15 minutes prior to deploying gear), during, and after haul back;
  - (2) Survey gear must be deployed as soon as possible once the vessel arrives on station. Gear must not be deployed if there is a risk of interaction with marine mammals. Gear may be deployed after 15 minutes of no marine mammal sightings within 1 nautical mile (nmi; 1,852 m) of the sampling station;

- (3) Sunrise Wind must implement the following “move-on” rule. If marine mammals are sighted within 1 nm (nmi (1.2 mi)) of the planned location in the 15 minutes before gear deployment, then Sunrise Wind must move the vessel away from the marine mammal to a different section of the sampling area. If, after moving on, marine mammals are still visible from the vessel, Sunrise Wind and its cooperating institutions, contracted vessels, or commercially hired captains must move again or to skip the station;
  - (4) All captains and crew conducting fishery surveys will be trained in marine mammal detection and identification;
  - (5) If a marine mammal is at risk of interacting with deployed gear, all gear must be immediately removed from the water. If marine mammals are sighted before the gear is fully removed from the water, the vessel must slow its speed and maneuver the vessel away from the animals to minimize potential interactions with the observed animal;
  - (6) Sunrise Wind must maintain visual marine mammal monitoring effort during the entire period of time that gear is in the water (*i.e.*, throughout gear deployment, fishing, and retrieval);
  - (7) Trawl tows must be limited to a maximum of a 20-minute trawl time;
  - (8) All gear must be emptied as close to the deck/sorting area and as quickly as possible after retrieval;
  - (9) All fisheries monitoring gear must be fully cleaned and repaired (if damaged) before each use/deployment;
  - (10) All in-water survey gear, including buoys, must be properly labeled with the scientific permit number or identification as Sunrise Wind’s research gear. All labels and markings on the gear, buoys, and buoy lines must also be compliant with the applicable regulations, and all buoy markings must comply with instructions received by the NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division. Any lost gear associated with the fishery surveys must be reported to the NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division within 24 hours;
  - (11) All survey gear must be removed from the water whenever not in active survey use (*i.e.*, no wet storage); and
  - (12) All reasonable efforts, that do not compromise human safety, must be undertaken to recover gear.
- (h) *Temporary Pier Construction*. The following requirements apply to impact and vibratory pile driving during temporary pier construction at Smith Point County Park:

- (1) Sunrise Wind must delay or shutdown pile driving if a marine mammal is observed entering or within the Level B harassment zones (see Table 6 for zone sizes); and
- (2) At least one PSO must be on duty monitoring for marine mammals 30 minutes prior to, during and 30 minutes after pile driving.

#### **4. Monitoring and Reporting Requirements:**

Sunrise Wind must implement the following monitoring and reporting requirements when conducting the specified activities (see also 50 CFR § 217.315):

- (a) *Protected species observer (PSO) and passive acoustic monitoring (PAM) operator qualifications.* Sunrise Wind must implement the following measures applicable to PSOs and PAM operators:
  - (1) Sunrise Wind must use independent, NMFS-approved PSOs and PAM operators, meaning that the PSOs and PAM operators must be employed by a third-party observer provider, must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant crew with regard to the presence of protected species and mitigation requirements;
  - (2) All PSOs and PAM operators must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics. The educational requirements may be waived if the PSO or PAM operator has acquired the relevant skills through a suitable amount of alternate experience. Requests for such a waiver must be submitted to NMFS Office of Protected Resources and must include written justification containing alternative experience. Alternate experience that may be considered includes, but is not limited to, previous work experience conducting academic, commercial, or government-sponsored marine mammal visual and/or acoustic surveys; or previous work experience as a PSO/PAM operator;
  - (3) PSOs must have visual acuity in both eyes (with correction of vision being permissible) sufficient enough to discern moving targets on the water's surface with the ability to estimate the target size and distance (binocular use is allowable); ability to conduct field observations and collect data according to the assigned protocols; sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations; writing skills sufficient to document observations, including but not limited to, the number and species of marine mammals observed, the dates and times of when in-water construction activities were conducted, the dates and time when in-water construction activities were suspended to avoid potential incidental take of marine mammals from construction noise within a defined shutdown zone, and marine mammal behavior; and the ability to communicate orally, by radio, or in-person,

with project personnel to provide real-time information on marine mammals observed in the area;

- (4) All PSOs must be trained in northwestern Atlantic Ocean marine mammal identification and behaviors and must be able to conduct field observations and collect data according to assigned protocols. Additionally, PSOs must have the ability to work with all required and relevant software and equipment necessary during observations described in paragraphs (b)(2) and (b)(3) of this section;
- (5) All PSOs and PAM operators must successfully complete a relevant training course within the last 5 years and obtain a certificate of course completion;
- (6) PSOs and PAM operators are responsible for obtaining NMFS' approval. NMFS may approve PSOs as conditional or unconditional. A conditionally-approved PSO may be one who has completed training in the last 5 years but has not yet attained the requisite field experience. An unconditionally approved PSO is one who has completed training within the last 5 years and attained the necessary experience (*i.e.*, demonstrate experience with monitoring for marine mammals at clearance and shutdown zone sizes similar to those produced during the respective activity). A conditionally approved PSO must be paired with an unconditionally approved PSO;
- (7) PSOs for cable landfall construction and temporary pier construction (*i.e.*, vibratory and impact pile installation and removal; pneumatic hammering) and HRG surveys may be unconditionally or conditionally approved. PSOs and PAM operators for foundation installation and UXO detonation must be unconditionally approved;
- (8) At least one on-duty PSO for each activity (*e.g.*, foundation installation, cable landfall and temporary pier construction, and HRG surveys) must be designated as the Lead PSO. The Lead PSO must meet the minimum requirements described in paragraphs (a)(2) through (a)(5) of this section, have a minimum of ninety days of at-sea experience working in the Northwest Atlantic Ocean and have no more than eighteen months elapsed since the conclusion of their last at-sea experience;
- (9) Sunrise Wind must submit NMFS previously approved PSOs and PAM operators to NMFS Office of Protected Resources for review and confirmation of their approval for specific roles at least 30 days prior to commencement of the activities requiring PSOs/PAM operators or 15 days prior to when new PSOs/PAM operators are required after activities have commenced;
- (10) For prospective PSOs and PAM operators not approved, Sunrise Wind must submit resumes for approval at least 60 days prior to PSO and PAM operator use. Resumes must include information related to relevant education, experience, and training, including dates, duration, location, and description of prior PSO or PAM operator experience. Resumes must be accompanied by relevant documentation of successful completion of necessary training;

- (11) PAM operators are responsible for obtaining NMFS approval. To be approved as a PAM operator, the person must meet the following qualifications: the PAM operator must demonstrate that they have prior experience with real-time acoustic detection systems and/or have completed specialized training for operating PAM systems, including experience with relevant Project acoustic software and equipment. They must also demonstrate experience detecting and identifying Atlantic Ocean marine mammals sounds, including North Atlantic right whale sounds, humpback whale sounds and deconflicting them from similar North Atlantic right whale sounds and other co-occurring species' sounds in the area. The PAM operator must be able to review and classify acoustic detections in real-time (prioritizing North Atlantic right whales and noting detection of other cetaceans) during the real-time monitoring periods and must be able to distinguish between whether a marine mammal or other species sound is detected, possibly detected, not detected. Where localization of sounds or deriving bearings and distance are possible, the PAM operators must demonstrate experience in using this technique. PAM operators must have the qualifications and relevant experience/training to safely deploy and retrieve equipment and program the software, as necessary and test software and hardware functionality prior to operation; and
  - (12) PSOs may work as PAM operators and vice versa, pending NMFS approval; however, they may only perform one role at any one time and must not exceed work time restrictions, which must be tallied cumulatively.
- (b) *General PSO and PAM operator requirements.* The following measures apply to PSOs and PAM operators and must be implemented by Sunrise Wind:
- (1) All PSOs must be located at the best vantage point(s) on any platform, as determined by the Lead PSO, in order to collectively obtain 360-degree visual coverage of the entire clearance and shutdown zones around the activity area, and as much of the Level B harassment zone as possible. PAM operators may be located on a vessel or remotely on-shore, but must have the appropriate equipment (*i.e.*, computer station equipped with a data collection software system and acoustic data analysis software) available wherever they are stationed, and data or data products must be streamed in real-time or in near real-time to allow PAM operators to provide assistance to on-duty visual PSOs.
  - (2) PSOs must use high magnification (25x) binoculars, standard handheld (7x) binoculars, and the naked eye to search continuously for marine mammals. During foundation installation, at least two PSOs on the pile driving-dedicated PSO vessel must be equipped with functional Big Eye binoculars (*e.g.*, 25 x 150; 2.7 view angle; individual ocular focus; height control). These must be pedestal mounted on the deck at the best vantage point that provides for optimal sea surface observation and PSO safety. PAM operators must use a NMFS-approved PAM system to conduct monitoring;

- (3) During periods of low visibility (*e.g.*, darkness, rain, fog, poor weather conditions, *etc.*), PSOs must use alternative technology (*i.e.*, infrared or thermal cameras) to monitor the mitigation zones (*e.g.*, clearance zone; shutdown zone);
- (4) PSOs and PAM operators must not exceed 4 consecutive watch hours on duty at any time, must have a 2-hour (minimum) break between watches, and must not exceed a combined watch schedule of more than 12 hours in a 24-hour period;
- (5) For UXO/MEC detonation areas larger than 2 km, Sunrise Wind must use a secondary PSO vessel to monitor for marine mammals. For any additional vessels determined to be necessary, three PSOs must be used and located at the appropriate vantage point on the vessel. These additional PSOs would maintain watch during the same time period as the PSOs on the primary monitoring vessel. For detonation areas larger than 5 km, Sunrise Wind must use an aircraft or additional PSO vessels in addition to the primary monitoring vessel to monitor for marine mammals. If an aircraft is used, two PSOs must be used and located at the appropriate vantage point on the aircraft. These additional PSOs would maintain watch during the same time period as the PSOs on the primary monitoring vessel;
- (6) During foundation installation and UXO/MEC detonation, Sunrise Wind must conduct PAM for at least 24 hours immediately prior to pile driving activities. The PAM operator must review all detections from the previous 24-hour period immediately prior to pile driving;
- (7) During cable landfall construction, at least two PSOs must be on active duty 30 minutes prior to, during, and 30 minutes after all pile driving activities; and
- (8) Sunrise Wind must ensure that visual PSOs conduct, as rotation schedules allow, observations for comparison of sighting rates and behavior with and without use of the specified acoustic sources. Off-effort PSO monitoring must be reflected in the PSO monitoring reports.

(c) *Reporting.* Sunrise Wind must comply with the following reporting measures:

- (1) Prior to initiation of project activities, Sunrise Wind must demonstrate in a report submitted to NMFS Office of Protected Resources ([pr.itp.monitoringreports@noaa.gov](mailto:pr.itp.monitoringreports@noaa.gov)) that all required training for Sunrise Wind personnel, including the vessel crews, vessel captains, PSOs, and PAM operators has been completed;
- (2) Sunrise Wind must use a standardized reporting system. All data collected related to the Project must be recorded using industry-standard software that is installed on field laptops and/or tablets. Unless stated otherwise, all reports must be submitted to NMFS Office of Protected Resources ([PR.ITP.MonitoringReports@noaa.gov](mailto:PR.ITP.MonitoringReports@noaa.gov)), dates must be in MM/DD/YYYY format, and location information must be provided in Decimal Degrees and with the coordinate system information (*e.g.*, NAD83, WGS84, *etc.*);

- (3) For all visual monitoring efforts and marine mammal sightings, the following information must be collected and reported to NMFS Office of Protected Resources: the date and time that monitored activity begins or ends; the construction activities occurring during each observation period; the watch status (*i.e.*, sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform); the PSO who sighted the animal; the time of sighting; the weather parameters (*e.g.*, wind speed, percent cloud cover, visibility); the water conditions (*e.g.*, Beaufort sea state, tide state, water depth); all marine mammal sightings, regardless of distance from the construction activity; species (or lowest possible taxonomic level possible); the pace of the animal(s); the estimated number of animals (minimum/maximum/high/low/best); the estimated number of animals by cohort (*e.g.*, adults, yearlings, juveniles, calves, group composition, *etc.*); the description (*i.e.*, as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics); the description of any marine mammal behavioral observations (*e.g.*, observed behaviors such as feeding or traveling) and observed changes in behavior, including an assessment of behavioral responses thought to have resulted from the specific activity; the animal's closest distance and bearing from the pile being driven or specified HRG equipment and estimated time entered or spent within the Level A harassment and/or Level B harassment zone(s); the activity at time of sighting (*e.g.*, pile driving, construction surveys), use of any noise attenuation device(s), and specific phase of activity (*e.g.*, ramp-up of HRG equipment, HRG acoustic source on/off, soft-start for pile driving, active pile driving, *etc.*); the description of any mitigation-related action implemented, or mitigation-related actions called for but not implemented, in response to the sighting (*e.g.*, delay, shutdown, *etc.*) and time and location of the action; other human activity in the area, and; other applicable information, as required in any LOA issued under section 5 herein;
- (4) If a marine mammal is acoustically detected during PAM monitoring, the following information must be recorded and reported to NMFS: species identification (if possible); call type and number of calls (if known); temporal aspects of vocalization (date, time, duration, *etc.*; date times in ISO 8601 format); confidence of detection (detected, or possibly detected); comparison with any concurrent visual sightings; location and/or directionality of call (if determined) relative to acoustic recorder or construction activities; location of recorder and construction activities at time of call and site name; name and version of detection or sound analysis software used, with protocol reference; minimum and maximum frequencies viewed/monitored/used in detection (in Hz); name of PAM operator(s) on duty; bottom depth and depth of recording unit (in meters); recorder (model & manufacturer) and platform type (*i.e.*, bottom-mounted, electric glider, *etc.*), and instrument ID of the hydrophone and recording platform (if applicable); time zone for sound files and recorded date/times in data and metadata (in relation to Universal Coordinated Time (UTC); *i.e.*, Eastern Standard Time (EST) time zone is UTC-5); duration of recordings (start/end dates and times; in International Organization for Standardization (ISO) 8601 format, yyyy-mm-ddTHH:MM:SS.sssZ); deployment/retrieval dates and times (in ISO



8601 format); recording schedule (must be continuous); hydrophone and recorder sensitivity (in dB *re. 1* microPascal ( $\mu$ Pa)); calibration curve for each recorder; bandwidth/sampling rate (in Hz); sample bit-rate of recordings; and detection range of equipment for relevant frequency bands (in meters);

- (5) Full marine mammal acoustic detection data, metadata, and location of recorders (or GPS tracks, if applicable) from all real-time hydrophones used for monitoring during construction must be submitted within 90 calendar days following completion of activities requiring PAM for mitigation via the International Organization for Standardization (ISO) standard metadata forms available on the NMFS Passive Acoustic Reporting System website (<https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates>). Submit the completed data templates to [nmfs.nec.pacmdata@noaa.gov](mailto:nmfs.nec.pacmdata@noaa.gov). The full acoustic recordings from real-time systems must also be sent to the National Centers for Environmental Information (NCEI) for archiving within 90 days following completion of activities requiring PAM for mitigation. Submission details can be found at: <https://www.ncei.noaa.gov/products/passive-acoustic-data>;
- (6) Sunrise Wind must compile and submit weekly reports during foundation installation to NMFS Office of Protected Resources that document SFV results, the daily start and stop of all pile driving HRG survey, or UXO/MEC detonation activities associated with the Project; the start and stop of associated observation periods by PSOs, details on the deployment of PSOs, a record of all detections of marine mammals (acoustic and visual); any mitigation actions (or if mitigation actions could not be taken, provide reasons why), and details on the noise attenuation system(s) used and its performance. Weekly reports are due on Wednesday for the previous week (Sunday – Saturday) and must include the information required under this section. The weekly report must identify which turbines become operational and when (a map must be provided);
- (7) Sunrise Wind must compile and submit monthly reports to NMFS Office of Protected Resources during foundation installation ([PR.ITP.monitoringreports@noaa.gov](mailto:PR.ITP.monitoringreports@noaa.gov)) that include a summary of all information in the weekly reports, including project activities carried out in the previous month, vessel transits (number, type of vessel, MMIS number, and route), number of piles installed, number of UXO/MEC detonations, all detections of marine mammals, and any mitigative action taken. Monthly reports are due on the 15<sup>th</sup> of the month for the previous month. The monthly report must also identify which turbines become operational and when (a map must be provided). Full PAM detection data and metadata must also be submitted monthly on the 15<sup>th</sup> of every month for the previous month via the webform on the NMFS North Atlantic Right Whale Passive Acoustic Reporting System website at <https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates>;
- (8) Sunrise Wind must submit draft annual marine mammal monitoring report to NMFS ([PR.ITP.monitoringreports@noaa.gov](mailto:PR.ITP.monitoringreports@noaa.gov)) no later than March 31, annually.

Sunrise Wind must submit a draft annual SFV report to NMFS (*PR.ITP.monitoringreports@noaa.gov*) no later than 90 days after SFV is completed for the year. The annual marine mammal monitoring report must detail the following: the total number of marine mammals of each species/stock detected and how many were within the designated Level A harassment and Level B harassment zone(s) with comparison to authorized take of marine mammals for the associated activity type; marine mammal detections and behavioral observations before, during, and after each activity; what mitigation measures were implemented (*i.e.*, number of shutdowns or clearance zone delays, *etc.*) or, if no mitigative actions was taken, why not; operational details (*i.e.*, days and duration of impact and vibratory pile driving, days, days and amount of HRG survey effort, *etc.*); any PAM systems used; the results, effectiveness, and which noise attenuation systems were used during relevant activities (*i.e.*, foundation pile driving); summarized information related to situational reporting; and any other important information relevant to the Project, including additional information that may be identified through the adaptive management process. The annual SFV report must summarize all reporting during complete and abbreviated monitoring for the construction year. The final annual reports must be prepared and submitted within 30 calendar days following the receipt of any comments from NMFS on the draft report;

- (9) Sunrise Wind must submit its draft final 5-year report to NMFS (*PR.ITP.monitoringreports@noaa.gov*) on all visual and acoustic monitoring, including SFV, conducted within 90 calendar days of the completion of the specified activities. A 5-year report must be prepared and submitted within 30 calendar days following receipt of any NMFS Office of Protected Resources comments on the draft report. The draft and final 5-year report must include, but is not limited to: the total number (annually and across all five years) of marine mammals of each species/stock detected and how many were detected within the designated Level A harassment and Level B harassment zone(s) with comparison to authorized take of marine mammals for the associated activity; a summary table(s) indicating the amount of each activity type (*e.g.*, pile installation, HRG) completed in each of the five years and total; GIS shapefile(s) of the final location of all piles, cable routes, and other permanent structures including an indication of what year installed and began operating; GIS shapefile of all North Atlantic right whale sightings, including dates and group sizes; a five-year summary and evaluation of all SFV data collected; a five-year summary and evaluation of all PAM and SFV data collected; a five-year summary and evaluation of marine mammal behavioral observations; a five-year summary and evaluation of mitigation and monitoring implementation and effectiveness; and a list of recommendations to inform environmental compliance assessments for future offshore wind actions;
- (10) For those foundations requiring complete SFV measurements, Sunrise Wind must provide the initial results of the SFV measurements to NMFS Office of Protected Resources in an interim report after each foundation installation event as soon as they are available and prior to any subsequent foundation installation, but no later

than 48 hours after each completed foundation installation event. The report must include hammer energies/schedule used during pile driving, the model-estimated acoustic ranges ( $R_{95\%}$ ) to compare with the real-world sound field measurements, estimated source levels at 1 m and/or 10 m, peak sound pressure level ( $SPL_{pk}$ ) and median, mean, maximum, and minimum root-mean-square sound pressure level that contains 90 percent of the acoustic energy ( $SPL_{rms}$ ) and sound exposure level (SEL, in single strike for pile driving ( $SEL_{s-s}$ ) and  $SEL_{cum}$ ) for each hydrophone, including at least the maximum, arithmetic mean, minimum, median (L50) and L5 (95 percent exceedance) statistics for each metric; estimated marine mammal Level A harassment and Level B harassment acoustic isopleths, calculated using the maximum-over-depth L5 (95 percent exceedance level, maximum of both hydrophones) of the associated sound metric; comparison of modeled results assuming 10-dB attenuation against the measured marine mammal Level A harassment and Level B harassment acoustic isopleths; estimated transmission loss coefficients; pile identifier name, location of the pile and each hydrophone array in latitude/longitude; depths of each hydrophone; one-third-octave band single strike SEL spectra; if filtering is applied, full filter characteristics must be reported; and hydrophone specifications including the type, model, and sensitivity. Sunrise Wind must also report any immediate observations which are suspected to have a significant impact on the results including but not limited to: observed noise mitigation system issues, obstructions along the measurement transect, and technical issues with hydrophones or recording devices. If any *in situ* calibration checks for hydrophones reveal a calibration drift greater than 0.75 dB, pistonphone calibration checks are inconclusive, or calibration checks are otherwise not effectively performed, Sunrise Wind must indicate full details of the calibration procedure, results, and any associated issues in the 48-hour interim reports;

- (11) All Abbreviated SFV results must be included in the weekly reports (see section 3(c)(19)). The report must include estimated source levels at 1 m or 10 m and the measured  $SEL_{cum}$  noise levels at distance. Any indications that distances to the identified Level A harassment and Level B harassment thresholds for marine mammals were exceeded must be addressed by Sunrise Wind, including an explanation of factors that contributed to the exceedance and corrective actions that were taken to avoid exceedance on subsequent piles;
- (12) The final results of all SFV measurements from each foundation installation must be submitted as soon as possible, but no later than 90 days following completion of all annual SFV measurements. The final reports must include all details included in the interim report and descriptions of any notable occurrences, explanations for results that were not anticipated, or actions taken during foundation installation. The final report must also include at least the maximum, mean, minimum, median (L50) and L5 (95 percent exceedance) statistics for each metric; the SEL and SPL power spectral density and/or one-third octave band levels (usually calculated as decade band levels) at the receiver locations should be reported; range of transmission loss coefficients; the local environmental conditions, such as wind speed, transmission loss data collected

on-site (or the sound velocity profile); baseline pre- and post-activity ambient sound levels (broadband and/or within frequencies of concern); a description of depth and sediment type, as documented in the Construction and Operation Plan (COP), at the recording and foundation installation locations; the extents of the measured Level A harassment and Level B harassment zone(s); hammer energies required for pile installation and the number of strikes per pile; the hydrophone equipment and methods (*i.e.*, recording device, bandwidth/sampling rate; distance from the pile where recordings were made; the depth of recording device(s)); a description of the SFV measurement hardware and software, including software version used, calibration data, bandwidth capability and sensitivity of hydrophone(s), any filters used in hardware or software, any limitations with the equipment, and other relevant information; the spatial configuration of the noise attenuation device(s) relative to the pile; a description of the noise abatement system and operational parameters (*e.g.*, bubble flow rate, distance deployed from the pile, *etc.*), and any action taken to adjust the noise abatement system. A discussion which includes any observations which are suspected to have a significant impact on the results including but not limited to: observed noise mitigation system issues, obstructions along the measurement transect, and technical issues with hydrophones or recording devices. Sunrise Wind must submit a revised report within 30 days following receipt of NMFS' comments on the draft final report;

- (13) Sunrise Wind must submit SFV results from UXO/MEC detonation monitoring in a report prior to detonating a subsequent UXO/MEC or within the relevant weekly report, whichever comes first. The report must include, at minimum, the size of UXO/MEC detonated and donor charge weight, why detonation was necessary, current speeds and direction (degrees), SELcum, a description of the noise abatement system and operational parameters (*e.g.*, bubble flow rate, distance deployed from the detonation, *etc.*) and any action taken to adjust the noise abatement system, modeled and SFV-based estimated ranges to all relevant NMFS explosive thresholds (including those from pressure transducer measurements);
- (14) If at any time during the project Sunrise Wind becomes aware of any issue or issues which may to any reasonable subject-matter expert, including the persons performing the measurements and analysis call into question the validity of any measured Level A harassment or Level B harassment isopleths to a significant degree, which were previously transmitted or communicated to NMFS Office of Protected Resources, Sunrise Wind must inform NMFS Office of Protected Resources within 1 business day of becoming aware of this issue or before the next pile is driven, whichever comes first;
- (15) Performance reports for each bubble curtain deployed during foundation installation and UXO/MEC detonation must include water depth (m), current speed (m/s) and direction (degrees), wind speed (m/s) and direction (degrees), Beaufort sea state, bubble curtain deployment/retrieval date and time (UTC), bubble curtain hose length (m), bubble curtain radius (distance from pile) (m),

diameter of holes and hole spacing (metric units), air supply hose length (m), compressor type (including rated Cubic Feet per Minute (CFM) and model number), number of operational compressors, performance data from each compressor (including Revolutions Per Minute (RPM), pressure, start and stop times [UTC]), free air delivery (m<sup>3</sup>/min), total hose air volume (m<sup>3</sup>/(min m)), schematic of GPS waypoints during hose laying, maintenance procedures performed and results (pressure tests, inspections, flushing, re-drilling, and any other hose or system maintenance) before and after installation and start and stop times of those tests (UTC), and the length of time the bubble curtain was on the seafloor prior to the associated foundation installation, and confirmation that the bubble curtain was in full contact with the seafloor throughout the use. Additionally, the report must include any important observations regarding performance (before, during, and after pile installation), such as any observed weak areas of low pressure, corrective measures conducted to ensure the system is working sufficiently. The report may also include any relevant video and/or photographs of the bubble curtain(s) operating during all pile driving;

- (16) Sunrise Wind must provide NMFS Office of Protected Resources with notification of planned UXO/MEC detonation as soon as possible but at least 48 hours prior to the planned detonation unless this 48-hour notification would create delays to the detonation that would result in imminent risk of human life or safety. This notification must include the coordinates of the planned detonation, the estimated charge size, and any other information available on the characteristics of the UXO/MEC;
- (17) Sunrise Wind must submit situational reports if the following circumstances occur, including but not limited to the following:
  - (i) All instances wherein an exemption to a measure is taken must be reported to the NMFS Office of Protected Resources within 24 hours (see sections 3(a)(3),(6); 3(b); 3(c)(14));
  - (ii) If a North Atlantic right whale is sighted with no visible injuries or entanglement by PSOs or project personnel, Sunrise Wind must immediately report the sighting to NMFS; if immediate reporting is not possible, the report must be submitted as soon as possible but no later than 24 hours after the initial sighting. All North Atlantic right whale acoustic detections within a 24-hour period should be collated into one spreadsheet and reported to NMFS as soon as possible but no later than 24 hours. To report sightings and acoustic detections, download and complete the *Real-Time North Atlantic Right Whale Reporting Template* spreadsheet found at: <https://www.fisheries.noaa.gov/resource/document/template-datasheet-real-time-north-atlantic-right-whale-acoustic-and-visual>. Save the spreadsheet as a .csv file and email it to NMFS NEFSC-PSD ([ne.rw.survey@noaa.gov](mailto:ne.rw.survey@noaa.gov)), NMFS GARFO-PRD ([nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov)), and NMFS Office of Protected Resources ([PR.ITP.MonitoringReports@noaa.gov](mailto:PR.ITP.MonitoringReports@noaa.gov)). If the sighting is in the Southeast (North Carolina through Florida), report via the template and to the

Southeast Hotline 877-WHALE-HELP (877-942-5343) with the observation information provided below (PAM detections are not reported to the Hotline). If unable to report a sighting through the spreadsheet within 24 hours, call the relevant regional hotline (Greater Atlantic Region [Maine through Virginia] Hotline 866-755-6622; Southeast Hotline 877-WHALE-HELP) with the observation information provided below (PAM detections are not reported to the Hotline). The visual sighting report must, at minimum, include the following information: the time (note time format), date (MM/DD/YYYY), location (latitude/longitude in decimal degrees; coordinate system used) of the observation, number of whales, animal description/certainty of observation (follow up with photos/video if taken), reporter's contact information, and lease area number/project name, PSO/personnel name who made the observation, and PSO provider company (if applicable) (PAM detections are not reported to the Hotline). If unable to report via the template or the regional hotline, enter the sighting via the WhaleAlert app (<http://www.whalealert.org/>). If this is not possible, report the sighting to the U.S. Coast Guard via channel 16. The report to the Coast Guard must include the same information as would be reported to the Hotline. PAM detections are not reported to WhaleAlert or the U.S. Coast Guard;

- (iii) If a non-NARW large whale is observed, report the sighting via WhaleAlert app (<http://www.whalealert.org/>) as soon as possible but within 24 hours;
- (iv) In the event that personnel involved in the Project discover a stranded, entangled, injured, or dead marine mammal, the Sunrise Wind must immediately report the observation to NMFS. If in the Greater Atlantic Region (Maine through Virginia), call the NMFS Greater Atlantic Stranding Hotline (866-755-6622), and if in the Southeast Region (North Carolina through Florida) call the NMFS Southeast Stranding Hotline (877-WHALE-HELP (877-942-5343)). Separately, the LOA Holder must report, within 24 hours, the incident to NMFS Office of Protected Resources ([PR.ITP.MonitoringReports@noaa.gov](mailto:PR.ITP.MonitoringReports@noaa.gov)) and, if in the Greater Atlantic Region to the NMFS Greater Atlantic Regional Fisheries Office (GARFO; [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov)) or if in the Southeast Region, to the NMFS Southeast Regional Office (SERO; [secmammalreports@noaa.gov](mailto:secmammalreports@noaa.gov)). Note, the stranding hotline may request the report be sent to the local stranding network response team. The report must include contact information (*e.g.*, name, phone number, *etc.*); time, date, and location (*i.e.*, specify coordinate system) of the first discovery (and updated location information, if known and applicable); species identification (if known) or description of the animal(s) involved; condition of the animal(s) (including carcass condition if the animal is dead); observed behaviors of the animal(s) (if alive); photographs or video footage of the animal(s) (if available); and general circumstances under which the animal was discovered; and

- (v) In the event of a suspected or confirmed vessel strike of a marine mammal by any vessel associated with the Project or other means by which Project activities caused a non-auditory injury or death of a marine mammal, Sunrise Wind must immediately report the incident to NMFS. If in the Greater Atlantic Region (Maine through Virginia), call the NMFS Greater Atlantic Stranding Hotline (866-755-6622), and if in the Southeast Region (North Carolina through Florida) call the NMFS Southeast Stranding Hotline (877-WHALE-HELP (877-942-5343)). Separately, the Sunrise Wind must immediately report the incident to NMFS Office of Protected Resources (*PR.ITP.MonitoringReports@noaa.gov*) and, if in the Greater Atlantic Region to the NMFS Greater Atlantic Regional Fisheries Office (GARFO; *nmfs.gar.incidental-take@noaa.gov*) or if in the Southeast Region, to the NMFS Southeast Regional Office (SERO; *secmammalreports@noaa.gov*). The report must include time, date, and location (*i.e.*, specify coordinate system) of the incident; species identification (if known) or description of the animal(s) involved (*i.e.*, identifiable features including animal color, presence of dorsal fin, body shape and size, *etc.*); vessel strike reporter information (name, affiliation, email for person completing the report); vessel strike witness (if different than reporter) information (*e.g.*, name, affiliation, phone number, platform for person witnessing the event, *etc.*); vessel name and/or MMSI number; vessel size and motor configuration (inboard, outboard, jet propulsion); vessel's speed leading up to and during the incident; vessel's course/heading and what operations were being conducted (if applicable); part of vessel that struck marine mammal (if known); vessel damage notes; status of all sound sources in use at the time of the strike; if the marine mammal was seen before the strike event; description of behavior of the marine mammal before the strike event (if seen) and behavior immediately following the strike; 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; environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility, *etc.*) immediately preceding the strike; estimated (or actual, if known) size and length of marine mammal that was struck; if available, description of the presence and behavior of any other marine mammals immediately preceding the strike; other animal-specific details if known (*e.g.*, length, sex, age class); behavior or estimated fate of the marine mammal post-strike (*e.g.*, dead, injured but alive, injured and moving, external visible wounds (linear wounds, propeller wounds, non-cutting blunt-force trauma wounds), blood or tissue observed in the water, status unknown, disappeared); to the extent practicable, any photographs or video footage of the marine mammal(s); and, any additional notes the witness may have from the interaction. For any numerical values provided (*i.e.*, location, animal length, vessel length, *etc.*), please provide if values are actual or estimated. The Sunrise Wind must immediately cease activities until the NMFS Office of Protected Resources is able to review

the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the LOA(s). NMFS Office of Protected Resources may impose additional measures to minimize the likelihood of further prohibited take and ensure MMPA compliance. Sunrise Wind may not resume their activities until notified by NMFS Office of Protected Resources.

- (18) Sunrise Wind must report any lost gear associated with the fishery surveys to the NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division (*nmfs.gar.incidentaltake@noaa.gov*) as soon as possible or within 24 hours of the documented time of missing or lost gear. This report must include information on any markings on the gear and any efforts undertaken or planned to recover the gear.

Should you have questions regarding this LOA or the required conditions found herein, please contact NMFS Office of Protected Resources staff, Jaclyn Daly (*jaclyn.daly@noaa.gov*).

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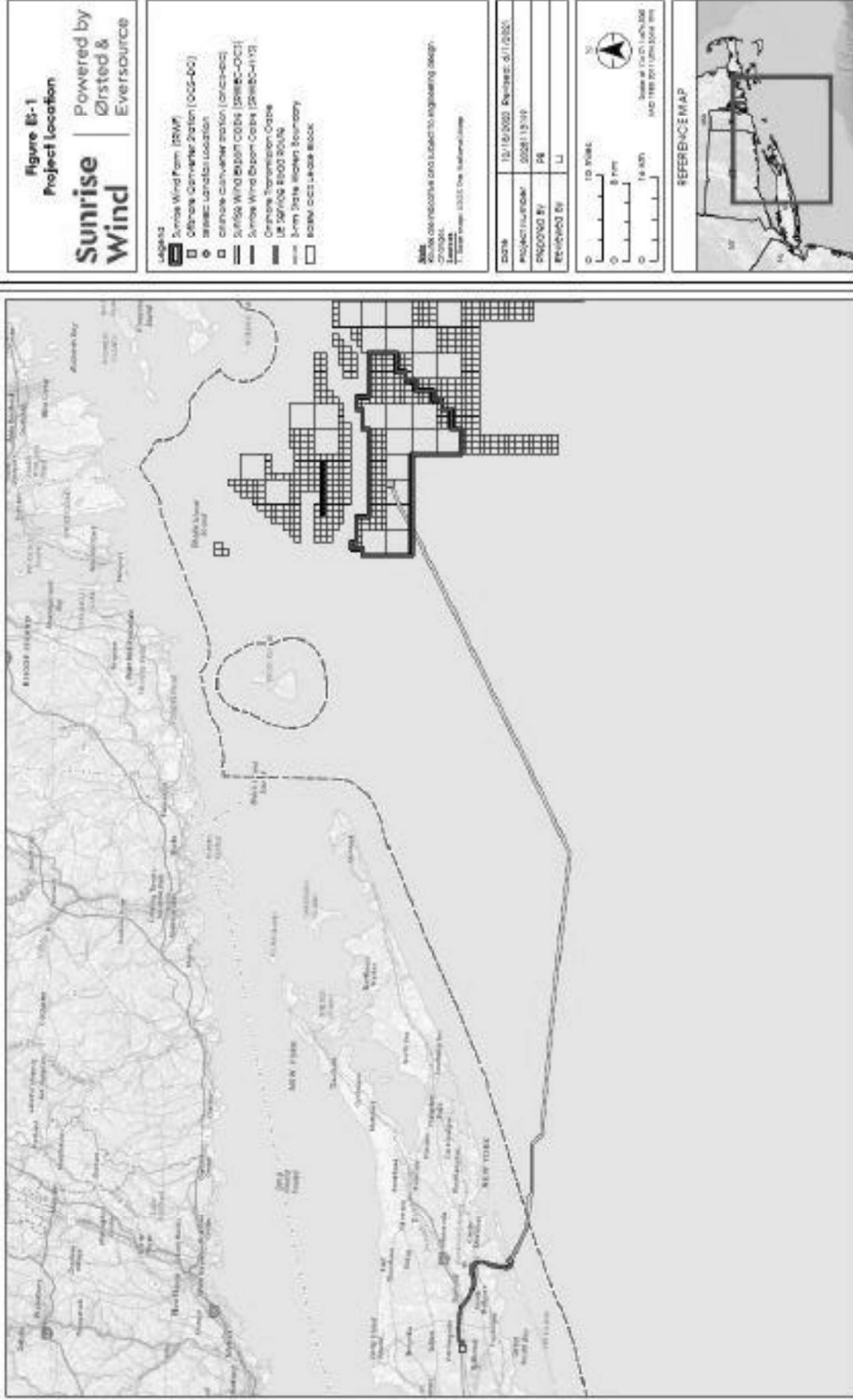
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**Kimberly Damon-Randall,**  
*Director, Office of Protected Resources,  
National Marine Fisheries Service.*

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Date





**Figure 1 — Project Location**

**Table 1 – Maximum Annual and 5-year Total Take Authorized For the Sunrise Wind Project Incidental to All Specified Activities**

Common Name	Scientific Name	Stock	Maximum Annual Take		5-year Total Take	
			Level A Harassment	Level B Harassment	Level A Harassment	Level B Harassment
<i>Order Artiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)</i>						
<i>Family Balaenidae</i>						
North Atlantic right whale*	<i>Eubalaena glacialis</i>	Western Atlantic	0	32	0	45
<i>Family Balaenopteridae (rorquals)</i>						
Blue whale*	<i>Balaenoptera musculus</i>	Western North Atlantic	0	4	0	8
Fin whale*	<i>Balaenoptera physalus</i>	Western North Atlantic	4	68	4	87
Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine	3	79	3	113
Sei whale*	<i>Balaenoptera borealis</i>	Nova Scotia	2	27	2	35
Minke whale	<i>Balaenoptera acutorostrata</i>	Canadian Eastern Coastal	23	371	23	415
<i>Family Physeteridae</i>						
Sperm whale*	<i>Physeter macrocephalus</i>	North Atlantic	0	14	0	22
<i>Family Delphinidae</i>						

Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>	Western North Atlantic	0	569	0	696
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Western North Atlantic	0	122	0	238
Common bottlenose dolphin	<i>Tursiops truncatus</i>	Western North Atlantic Offshore	0	387	0	579
Long-finned pilot whales	<i>Globicephala melas</i>	Western North Atlantic	0	56	0	92
Risso's dolphin	<i>Grampus griseus</i>	Western North Atlantic	0	46	0	70
Common dolphin	<i>Delphinus delphis</i>	Western North Atlantic	0	6,526	0	11,001
<i>Family Phocoenidae (porpoises)</i>						
Harbor porpoise	<i>Phocoena phocoena</i>	Gulf of Maine/Bay of Fundy	20	894	20	1,167
<i>Order Carnivora – Superfamily Pinnipedia</i>						
<i>Family Phocidae (earless seals)</i>						
Gray seal	<i>Halichoerus grypus</i>	Western North Atlantic	3	975	3	1,208
Harbor seal	<i>Phoca vitulina</i>	Western North Atlantic	5	2,189	5	2,712

\* Endangered Species Act-listed species

**Table 2 - Minimum Visibility, Clearance, and Shutdown Zones During Impact Pile Driving for Monopiles and Pin Piles**

Zone	Species	Monopile (sequential, 2 or 3 piles per day, km) <sup>1</sup>		Concurrent (all foundation types, km) <sup>2</sup>		OCS-DC only (km) <sup>3</sup>	
		Summer	Winter	Summer	Winter	Summer	Winter
Minimum Visibility Zone (km) <sup>4</sup>	All marine mammals	2.7	3.0	3.5	4.0	3.7	4.1
Visual and Acoustic Clearance Zone (km) <sup>5</sup>	North Atlantic right whale	Any distance visual detection by foundation installation PSOs, any acoustic detection within PAM monitoring zone (10 km)					
	Other large whales	4.0	4.3	5.3	6.3	5.6	6.5
	Delphinids	0.2	0.2	0.2	0.2	0.2	0.2
	Harbor Porpoise	0.2	0.2	0.7	0.6	0.9	0.6
	Pinnipeds	0.1	0.1	1.7	1.8	1.8	1.8
Visual and Acoustic Shutdown Zone (km) <sup>5</sup>	North Atlantic right whale	Any distance visual detection by foundation installation PSOs, any acoustic detection within PAM monitoring zone (10 km)					
	Other large whales	4.0	4.3	5.3	6.3	5.6	6.5
	Delphinids	0.2	0.2	0.2	0.2	0.2	0.2
	Harbor Porpoise	0.2	0.2	0.7	0.6	0.9	0.6
	Pinnipeds	0.1	0.1	1.7	1.8	1.8	1.8

1- Level A ER95% exposure ranges for two sequential monopile schedules; 2 piles per day (Schedule 1) and 3 piles per day (Schedule 2) in summer and winter. The schedule resulting in the larger distances was used here.

2-Level A harassment ER95% exposure ranges for proximal installation of monopiles (one vessel installing two monopiles per day) and the OCS-DC foundation (one vessel installing four pin piles per day) (Scenario 5).

3-Level A harassment ER95% exposure ranges considering installing up to four pin piles per day for the OCS-DC jacket foundation.

4- The minimum visibility zone represents the largest ER95% distance for NARW's modeled under the different construction scenarios. PSOs must be able to visually detect marine mammals within the minimum visibility zone.

5- The clearance and shutdown zones for "other large whales" represent the largest Level A harassment threshold (ER95%) for all large whales. If the clearance and shutdown zone distances are smaller than the distance at which the outer bubble curtain ring is deployed, clearance and shutdown must occur before an animal breaches the bubble curtain. The PAM system used during clearance and shutdown must be designed to detect marine mammal vocalizations, maximize baleen whale detections, and must be capable of detecting North Atlantic right whales within 10 km (6.2 mi). NMFS recognizes that detectability of each species' vocalizations will vary based on vocalization characteristics (e.g., frequency content, source level), acoustic propagation conditions, and competing noise sources), such that other marine mammal species (e.g., harbor porpoise) may not be detected at 10 km (6.2 mi) .

6- Sunrise Wind must select the most conservative (largest) zone sizes each day depending on which construction scenario is planned. If the real-world construction scenario for that day occurs that would have had smaller zone sizes than what was planned at the start of the day, Sunrise Wind may not decrease to the smaller zone sizes for that day. These zone sizes may be adjusted based on SFV.

**Table 3—Clearance and Shutdown Zones During Vibratory Pile Driving of Sheet Piles and/or Pneumatic Hammering of Casing Pipe Piles For Cofferdams and Goal Posts<sup>a</sup>**

Installation	Hearing Groups	Clearance Zone <sup>b</sup> (m)	Shutdown Zone <sup>c</sup> (m)
Sheet Piles	Low-frequency cetaceans	200	50
	Mid-frequency cetaceans	200	50
	High-frequency cetaceans	200	200
Casing Pipe	Phocid Pinnipeds	200	10
	Low-frequency cetaceans	500	500
	Mid-frequency cetaceans	100	100
	High-frequency cetaceans	500	500
	Phocid Pinnipeds	100	100

a – Although Sunrise Wind is also building temporary goal posts in some locations to aid their nearshore installation work, they have committed to using the same zones previously proposed for temporary cofferdams as they are considered more conservative and protective.

b – The clearance zones for large whales, porpoises, and seals are based upon the maximum Level A harassment zone for temporary cofferdams and rounded up for PSO clarity.

c – The shutdown zones for large whales (including NARWs) and porpoises are based upon the maximum Level A harassment zone for each group and rounded up for PSO clarity. Shutdown zones for other dolphins and pilot whales were set using precautionary distances.

**Table 4—Clearance, Level A Harassment, and Level B Harassment Zones During UXO/MEC Detonations, by Charge Weight and Assuming 10 dB of Sound Attenuation**

UXO/MEC Charge Weights	Low-frequency cetaceans	Mid-frequency cetaceans	High-frequency cetaceans	Phocid Pinnipeds
E4 (2.3 kg)	Level A harassment (m)	552	50	182
	Level B harassment (m)	282	453	1,470
	Clearance Zone (m) <sup>a, b</sup>	2,500	500	2,500
E6 (9.1 kg)	Level A harassment (m)	982	75	357
	Level B harassment (m)	4,680	773	8,000

	Clearance Zone (m) <sup>a</sup> <sub>b</sub>	4,000	600	4,000	1,500
E8 (45.5 kg)	Level A harassment (m)	1,730	156	3,900	690
	Level B harassment (m)	7,490	1,240	10,300	3,820
	Clearance Zone (m) <sup>a</sup> <sub>b</sub>	6,000	1,000	6,000	3,000
E10 (227 kg)	Level A harassment (m)	2,970	337	5,400	1,220
	Level B harassment (m)	10,500	2,120	12,900	5,980
	Clearance Zone (m) <sup>a</sup> <sub>b</sub>	9,000	1,500	9,000	4,000
E12 (454 kg)	Level A harassment (m)	3,780	461	6,200	1,600
	Level B harassment (m)	11,900	2,550	14,100	7,020
	Clearance Zone (m) <sup>a</sup> <sub>b</sub>	10,000	2,000	10,000	5,000

a – The clearance zones presented here for the Level B harassment thresholds were derived based on an approximate proportion of the size of the Level B harassment isopleth.

b – Some of the zones have been rounded for PSO clarity.

**Table 5– Level B Harassment Threshold Ranges and Mitigation Zones During HRG Surveys**

Species	Level B Harassment Zone Boomer/Sparker (m)	Level B Harassment Zone CHIRPs (m)	Clearance Zone (m)	Shutdown Zone (m)
North Atlantic right whale	141	48	500	500
Other low-frequency cetaceans (non-North Atlantic right whale species)			100	100

Mid-frequency cetaceans	141	48	100	100 <sup>a</sup>
High-frequency cetaceans	141	48	100	100
Phocid Pinnipeds	141	48	100	100

a – An exception is noted for bow-riding delphinids of the following genera: Delphinus, Stenella, Lagenorhynchus, and Tursiops.

**Table 6– Clearance and Shutdown Zones for Temporary Pier at Smith Point County Park**

	Vibratory Pile Driving	Impact Pile Driving
Temporary Pier	800 m (extending to opposite shoreline of Intracoastal Waterway)	300 m

Note- Clearance and shutdown zones extend the entire Level B harassment area to avoid take (see the Sunrise Wind Temporary Pier Memo, dated March 2023, as described in the proposed rule)

**Table 7 – Vessel Separation Distances in Meters**

North Atlantic right whale	500
Sperm whales and non-North Atlantic right whale baleen whales	100
Delphinids and pinnipeds*	50

\*Note- An exception is made for bow-riding dolphins.