



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XC784

Takes of Marine Mammals Incidental to Specified Activities; Rockaway Delivery Lateral Project off New York, January 2013 through January 2014

AGENCY: National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed Incidental Harassment Authorization; request for comments.

SUMMARY: We have received an application from Transcontinental Gas Pipe Line Company, LLC (Transco) for an Incidental Harassment Authorization to take marine mammals, by harassment, incidental to expanding a natural gas pipeline system off the coast of New York from April 2014 through August 2014. Per the Marine Mammal Protection Act, we are requesting comments on our proposal to issue an Incidental Harassment Authorization to Transco to incidentally harass by Level B harassment only, seven species of marine mammals during pile driving and removal operations.

DATES: Comments and information must be received no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Comments on the application should be addressed to P. Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910-3225. The mailbox address for providing email comments is ITP.Magliocca@noaa.gov. Please include 0648-XC784 in the subject line. We are not responsible for e-mail comments sent to other addresses other than the

one provided here. Comments sent via email to ITP.Magliocca@noaa.gov, including all attachments, must not exceed a 10-megabyte file size.

All submitted comments are a part of the public record and we will post to <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications> without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

To obtain an electronic copy of the application, write to the previously mentioned address, telephone the contact listed here (see **FOR FURTHER INFORMATION CONTACT**), or visit the internet at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>.

The public can view documents cited in this notice by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Michelle Magliocca, National Marine Fisheries Service, Office of Protected Resources, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Section 101(a)(5)(D) of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 et seq.) directs the Secretary of Commerce to authorize, upon request, the incidental, but not intentional, taking of small numbers of marine mammals of a species or population stock, by United States citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if, after notice of a proposed authorization to the public for review and public comment: (1) we make certain findings; and (2) the taking is limited to harassment.

We shall grant authorization for the incidental taking of small numbers of marine mammals if we find that the taking will have a negligible impact on the species or stock(s), and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant). The authorization must set forth the permissible methods of taking; other means of effecting the least practicable adverse impact on the species or stock and its habitat (i.e., mitigation); and requirements pertaining to the monitoring and reporting of such taking. We have defined "negligible impact" in 50 CFR 216.103 as " an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA establishes a 45-day time limit for our review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Within 45 days of the close of the public comment period, we must either issue or deny the authorization and must publish a notice in the Federal Register within 30 days of our determination to issue or deny the authorization.

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Summary of Request

We received an application from Transco on March 21, 2013, requesting that we issue an Incidental Harassment Authorization (Authorization) for the take, by Level B harassment only, of small numbers of marine mammals incidental to the Rockaway delivery lateral project (Project) off the coast of New York from April 2014 August May 2014. We received a revised application from Transco on May 13, 2013, which reflected updates to the proposed mitigation measures, proposed monitoring measures, and incidental take requests for marine mammals. Upon receipt of additional information, we determined the application complete and adequate on May 21, 2013. Further revisions were made to the request in October 2013 due to a change in the project schedule and the application was considered complete and adequate on November 9, 2013.

Transco proposes to expand its pipeline system to meet immediate and future demand for natural gas in the New York City market area. This project would provide an additional delivery point to National Grid's (an international electricity and gas company) local distribution companies, giving National Grid the flexibility to redirect supplies during peak demand periods. The in-water portion of the project, which would require pile driving, may result in the incidental taking of seven species of marine mammals by behavioral harassment.

Description of the Proposed Specified Activities

The specific Project activity would be to install a sub-sea natural gas pipeline extending from the existing Lower New York Bay Lateral in the Atlantic Ocean to an onshore delivery point on the Rockaway Peninsula. The work would include the following:

- Horizontal directional drilling
 - Beginning onshore and exiting offshore

- Includes excavation of the horizontal directional drilling exit pit and pile driving activities
- Offshore construction and support vessels
 - Various vessels would be used throughout the in-water work
- Sub-sea dual hot-tap installation of the existing Lower New York Bay Lateral
 - Includes use of diver-controlled hand-jetting to clear sediment around the existing pipeline
- Offshore pipeline construction
 - Includes offshore pipe laying and subsea jet-sled trenching
- Anode bed installation and cable crossing
 - Includes use of divers and hand-jetting to clear sediment around the locations of the anode bed and existing power cable crossing
- Hydrostatic test water withdrawal and discharge
 - Would occur four times during the course of in-water construction.
 - Post-installation and final (as-built) hydrographic survey
 - Includes the use of a multibeam echo sounder and high resolution side scan sonar
 - Subsea trench and HDD exit pit backfill
 - Includes the use of a small-scale crane-supported suction dredge for the trench
 - Includes the use of diver-controlled hand jetting and/or clamshell dredge for the HDD exit pit
 - Operation and maintenance

Only the pile driving activities associated with horizontal directional drilling offshore construction are expected to result in the take of marine mammals by Level B harassment. Other

aspects of the project are discussed in more detail in Transco's IHA application (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm/#applications>). No vessels would use dynamic positioning (a system to maintain position and heading), and only two vessels - a crew boat and escort boat - would make daily trips to the Project area from shore. Elevated sound levels that would result in harassment are not expected from the clamshell dredge because the dredge would be anchored and dynamic positioning would not be used. Dredging and trenching may result in a temporary, localized increase in turbidity, but are not expected to rise to the level of harassment. A complete description of all in-water Project activities is provided in Transco's application (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm/#applications>).

Vibratory Hammer Installation and Removal

Vibratory hammers are commonly used in steel pile installation and removal when the sediment conditions allow for this method. Transco will likely use the MKT V 52 model of vibratory hammer for the Project. The vibratory hammer is considered a continuous sound source because it continuously drives the pile into the substrate until the desired depth is reached. Transco would use a vibratory hammer to install about 70 piles (5 sets of temporary goal posts and up to 60 temporary fender piles). All piles would be 14- to 16-inch diameter steel pipe piles. Two vibratory hammers would be on site, but only one hammer would be used at a time. Each pile should take about 1 to 2 seconds to install per foot of depth driven, with each pile driven to a depth of about 25 to 30 feet below the seafloor. Therefore, each pile would take up to 60 seconds of continuous pile driving to install. All piles should be installed during a 1-week period, with less than 12 hours of pile driving operation. The goal posts and fenders would remain in the offshore environment for the duration of the horizontal directional drilling portion

of construction (3 to 4 months). Extraction of all piles at the end of the construction period should take about as long as installation.

Location of the Specified Activity

The Project would be located mostly in nearshore waters (within approximately 3 miles of the Atlantic Ocean), southeast of the Rockaway Peninsula in Queens County, New York. A linear segment of underwater land measuring approximately 2.15 miles would be required for offshore pipe lay and trenching activities from the interconnect with Transco's pipeline to the proposed horizontal directional drilling exit point in the nearshore area, seaward of Jacob Riis Park (see Figure 1 of Transco's application). The Project area is located within the greater New York Bight region, with construction occurring within approximately 2.86 miles from the Jacob Riis Park shoreline. Vessels associated with the Project would travel between the pipe yard in Elizabeth, New Jersey, to the offshore construction site. The greater Project area, therefore, is described as the waters between the pipe yard and construction site and the waters offshore of Jacob Riis Park where construction would occur. However, pile driving activities would only take place around the horizontal directional drilling exit point in the nearshore area. All work would occur in water depths between 25 and 50 feet.

Duration of the Specified Activity

Transco initially proposed to construct the Rockaway Delivery Lateral during the winter and early spring of 2014 (January through May), with actual pile installation and removal occurring approximately 10 percent of the time. However, the construction window will likely be shifted back; pile driving activities would begin in April and should be completed in August. Total installation time for all piles is expected total less than 1 day of operation and would occur during a 1-week period. Total operating time for the extraction of all piles at the end of the

construction period is expected to take a similar amount of time (1 day total over a 1-week period).

Metrics Used in This Document

This section includes a brief explanation of the sound measurements frequently used in the discussions of acoustic effects in this document. Sound pressure is the sound force per unit area, and is usually measured in micropascals (μPa), where 1 pascal (Pa) is the pressure resulting from a force of one newton exerted over an area of one square meter. We express sound pressure level as the ratio of a measured sound pressure and a reference level. The commonly used reference pressure level in underwater acoustics is 1 μPa , and the units for sound pressure levels are dB re: 1 μPa . Sound pressure level (in decibels (dB)) = $20 \log (\text{pressure}/\text{reference pressure})$

Sound pressure level is an instantaneous measurement and can be expressed as the peak, the peak-peak (p-p), or the root mean square. Root mean square, which is the square root of the arithmetic average of the squared instantaneous pressure values, is typically used in discussions of the effects of sounds on vertebrates and all references to sound pressure level in this document refer to the root mean square unless otherwise noted. Sound pressure level does not take the duration of a sound into account.

Predicted Sound Levels from Vibratory Pile Driving

No source levels were available for 14- to 16-inch diameter steel pipe piles at water depths of approximately 33 feet. The most applicable source levels available are for 12-inch diameter steel pipe piles in water depths of approximately 16 feet. In-water measurements for the Mad River Slough Project in Arcata, California, indicate that installation of a 12-inch steel pipe pile in about 16 feet of water measured 10 meters from the source generated 155 dB re 1 μPa RMS. To account for the increased diameter of the piles planned for use during the Project, a change in

water depth, and a different location than where the reference levels were recorded, Transco increased the source levels from the Mad River Slough Project by 5 dB. The 5 dB increase was chosen due to an overall lack of current information available for reference levels of steel pipe piles of a similar size being driven with a vibratory hammer in similar water depths. Transco expects that this increase overestimates the actual source level from the vibratory hammer.

Transco applied the practical spreading loss model to determine the approximate distance from the sound source to our acoustic threshold for marine mammal harassment. The practical spreading loss model accounts for a 4.5 dB loss per doubling of distance to determine how sound travels away from a source. The calculated distances to our current acoustic threshold criteria for harassment are shown in Table 1 below. Sound levels from vibratory pile driving would not reach the Level A harassment threshold of 180/190 dB (cetaceans/pinnipeds). However, Transco expects that sound levels within the Level B harassment threshold could occur out to 3 miles from the source (assuming no external impedances or masking by background noise). Transco and NMFS believe that this estimate represents the worst-case scenario and that the actual distance to the Level B harassment threshold may be shorter.

Table 1. Calculated distances to NMFS' acoustic threshold criteria.

Activity Type	Distance to Level B Harassment Threshold (120 dB)	Distance to Level A Harassment Threshold (180/190 dB)
Vibratory pile driving (14- to 16-inch steel pipe piles)	4,600 meters	N/A

Description of Marine Mammals in the Area of the Proposed Specified Activity

Thirteen marine mammal species under our jurisdiction may occur in the proposed Project area, including four mysticetes (baleen whales), six odontocetes (toothed cetaceans), and three pinnipeds (seals). Three of these species are listed as endangered under the Endangered Species

Act of 1973 (ESA; 16 U.S.C. 1531 et seq.), including: the humpback (Megaptera novaeangliae), fin (Balaenoptera physalus), and north Atlantic right (Eubalaena glacialis) whales.

However, based on occurrence information, stranding records, and seasonal distribution, it is unlikely that humpback whales, fin whales, minke whales, Atlantic white-sided dolphins, short-finned pilot whales, or long-finned pilot whales would be present in the Project area during the winter in-water construction period. Each of these species is discussed in detail in section 3 of Transco's IHA application (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm/#applications>). In summary, humpback whales are typically found in other regions of the east coast and there have been no reported observations within the vicinity of the Project area in recent years; fin whales prefer deeper offshore waters and there have been no reported observations within the vicinity of the Project area in recent years; minke whales are prevalent in other regions there have been no reported observations within the vicinity of the Project area in recent years; Atlantic white-sided dolphins generally occur in areas east and north of the Project area; and short-finned and long-finned pilot whales prefer deeper pelagic waters. Accordingly, we did not consider these species in greater detail and the proposed authorization only addresses requested take authorizations for seven species.

Table 2 presents information on the abundance, distribution, and conservation status of the marine mammals that may occur in the proposed survey area during January through August.

Table 2 Abundance estimates, mean density, and ESA status of marine mammals that may occur in the proposed Project area during January through August.

Common Name	Scientific Name	Stock	Abundance Estimate	ESA ^a	Time of Year Expected in Region
Mysticetes North Atlantic right whale	<u>Eubalaena glacialis</u>	N/A	444	EN	Nov-April
Odontocetes Harbor porpoise	<u>Phocoena phocoena</u>	Gulf of Maine/Bay of Fundy	89,054	-	Jan-March

Common Name	Scientific Name	Stock	Abundance Estimate	ESA ^a	Time of Year Expected in Region
Bottlenose dolphin	<u>Tursiops truncatus</u>	Western North Atlantic Northern Migratory	7,147	-	July-Sept
Short-beaked common dolphin	<u>Delphinus delphis</u>	Western North Atlantic	52,893	-	Jan-May
Pinnipeds Gray seal	<u>Halichoerus grypus</u>	Western North Atlantic	348,900	-	Sept-May
Harbor seal	<u>Phoca vitulina</u>	Western North Atlantic	99,340	-	Sept-May
Harp seal	<u>Phoca groenlandica</u>	Western North Atlantic	8.3 million	-	Jan-May

^a ESA status codes: EN – Endangered

Refer to section 3 of Transco’s application for detailed information regarding the abundance and distribution, population status, and life history and behavior of these species and their occurrence in the proposed Project area. We have reviewed these data and determined them to be the best available scientific information for the purposes of the proposed incidental harassment authorization. Further information may also be presented in NMFS’ Stock Assessment Reports: <http://www.nmfs.noaa.gov/pr/sars/species.htm#largewhales>.

Potential Effects on Marine Mammals

Transco’s proposed Project (i.e., pile driving and removal) would introduce elevated levels of sound into the marine environment and have the potential to adversely impact marine mammals. The potential effects of sound from the proposed activities may include one or more of the following: tolerance; masking of natural sounds; behavioral disturbance; non-auditory physical effects; and temporary or permanent hearing impairment (Richardson et al., 1995). However, for reasons discussed later in this document, it is unlikely that there would be any cases of temporary or permanent hearing impairment resulting from these activities. As outlined in previous NMFS documents, the effects of sound on marine mammals are highly variable, and can be categorized as follows (based on Richardson et al., 1995):

1. The sound may be too weak to be heard at the location of the animal (i.e., lower than the prevailing ambient sound level, the hearing threshold of the animal at relevant frequencies, or both);
2. The sound may be audible but not strong enough to elicit any overt behavioral response;
3. The sound may elicit reactions of varying degrees and variable relevance to the well-being of the marine mammal; these can range from temporary alert responses to active avoidance reactions such as vacating an area until the stimulus ceases, but potentially for longer periods of time;
4. Upon repeated exposure, a marine mammal may exhibit diminishing responsiveness (habituation), or disturbance effects may persist; the latter is most likely with sounds that are highly variable in characteristics and unpredictable in occurrence, and associated with situations that a marine mammal perceives as a threat;
5. Any anthropogenic sound that is strong enough to be heard has the potential to result in masking, or reduce the ability of a marine mammal to hear biological sounds at similar frequencies, including calls from conspecifics and underwater environmental sounds such as surf sound;
6. If mammals remain in an area because it is important for feeding, breeding, or some other biologically important purpose even though there is chronic exposure to sound, it is possible that there could be sound-induced physiological stress; this might in turn have negative effects on the well-being or reproduction of the animals involved; and
7. Very strong sounds have the potential to cause a temporary or permanent reduction in hearing sensitivity, also referred to as threshold shift. In terrestrial mammals, and

presumably marine mammals, received sound levels must far exceed the animal's hearing threshold for there to be any temporary threshold shift (TTS). For transient sounds, the sound level necessary to cause TTS is inversely related to the duration of the sound. Received sound levels must be even higher for there to be risk of permanent hearing impairment (PTS). In addition, intense acoustic or explosive events may cause trauma to tissues associated with organs vital for hearing, sound production, respiration and other functions. This trauma may include minor to severe hemorrhage.

Tolerance

Numerous studies have shown that underwater sounds from industrial activities are often readily detectable by marine mammals in the water at distances of many kilometers. However, other studies have shown that marine mammals at distances more than a few kilometers away often show no apparent response to industrial activities of various types (Miller et al., 2005). This is often true even in cases when the sounds must be readily audible to the animals based on measured received levels and the hearing sensitivity of that mammal group. Although various baleen whales, toothed whales, and (less frequently) pinnipeds have been shown to react behaviorally to underwater sound from sources such as airgun pulses or vessels under some conditions, at other times, mammals of all three types have shown no overt reactions (e.g., Malme et al., 1986; Richardson et al., 1995; Madsen and Mohl, 2000; Croll et al., 2001; Jacobs and Terhune, 2002; Madsen et al., 2002; Miller et al., 2005). In general, pinnipeds seem to be more tolerant of exposure to some types of underwater sound than are baleen whales. Richardson et al. (1995) found that vessel sound does not seem to strongly affect pinnipeds that are already in the water. Richardson et al. (1995) went on to explain that seals on haul-outs

sometimes respond strongly to the presence of vessels and at other times appear to show considerable tolerance of vessels, and Brueggeman et al. (1992) observed ringed seals (Pusa hispida) hauled out on ice pans displaying short-term escape reactions when a ship approached within 0.16-0.31 mi (0.25-0.5 km).

Masking

Masking is the obscuring of sounds of interest to an animal by other sounds, typically at similar frequencies. Marine mammals are highly dependent on sound, and their ability to recognize sound signals amid other sound is important in communication and detection of both predators and prey. Background ambient sound may interfere with or mask the ability of an animal to detect a sound signal even when that signal is above its absolute hearing threshold. Even in the absence of anthropogenic sound, the marine environment is often loud. Natural ambient sound includes contributions from wind, waves, precipitation, other animals, and (at frequencies above 30 kHz) thermal sound resulting from molecular agitation (Richardson et al., 1995).

Background sound may also include anthropogenic sound, and masking of natural sounds can result when human activities produce high levels of background sound. Conversely, if the background level of underwater sound is high (e.g., on a day with strong wind and high waves), an anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked. Ambient sound is highly variable on continental shelves (Thompson, 1965; Myrberg, 1978; Chapman et al., 1998; Desharnais et al., 1999). This results in a high degree of variability in the range at which marine mammals can detect anthropogenic sounds.

Although masking is a phenomenon which may occur naturally, the introduction of loud anthropogenic sounds into the marine environment at frequencies important to marine mammals increases the severity and frequency of occurrence of masking. For example, if a baleen whale is exposed to continuous low-frequency sound from an industrial source, this would reduce the size of the area around that whale within which it can hear the calls of another whale. The components of background noise that are similar in frequency to the signal in question primarily determine the degree of masking of that signal. In general, little is known about the degree to which marine mammals rely upon detection of sounds from conspecifics, predators, prey, or other natural sources. In the absence of specific information about the importance of detecting these natural sounds, it is not possible to predict the impact of masking on marine mammals (Richardson et al., 1995). In general, masking effects are expected to be less severe when sounds are transient than when they are continuous. Masking is typically of greater concern for those marine mammals that utilize low-frequency communications, such as baleen whales and, as such, is not likely to occur for pinnipeds or small odontocetes in the Project area.

Disturbance

Behavioral disturbance is one of the primary potential impacts of anthropogenic sound on marine mammals. Disturbance can result in a variety of effects, such as subtle or dramatic changes in behavior or displacement, but the degree to which disturbance causes such effects may be highly dependent upon the context in which the stimulus occurs. For example, an animal that is feeding may be less prone to disturbance from a given stimulus than one that is not. For many species and situations, there is no detailed information about reactions to sound.

Behavioral reactions of marine mammals to sound are difficult to predict because they are dependent on numerous factors, including species, maturity, experience, activity,

reproductive state, time of day, and weather. If a marine mammal does react to an underwater sound by changing its behavior or moving a small distance, the impacts of that change may not be important to the individual, the stock, or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on the animals could be important. In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Pinniped responses to underwater sound from some types of industrial activities such as seismic exploration appear to be temporary and localized (Harris et al., 2001; Reiser et al., 2009).

Because the few available studies show wide variation in response to underwater and airborne sound, it is difficult to quantify exactly how pile driving sound would affect marine mammals in the area. The literature shows that elevated underwater sound levels could prompt a range of effects, including no obvious visible response, or behavioral responses that may include annoyance and increased alertness, visual orientation towards the sound, investigation of the sound, change in movement pattern or direction, habituation, alteration of feeding and social interaction, or temporary or permanent avoidance of the area affected by sound. Minor behavioral responses do not necessarily cause long-term effects to the individuals involved. Severe responses include panic, immediate movement away from the sound, and stampeding, which could potentially lead to injury or mortality (Southall et al., 2007).

Southall et al. (2007) reviewed literature describing responses of pinnipeds to non-pulsed sound in water and reported that the limited data suggest exposures between approximately 90 and 140 dB generally do not appear to induce strong behavioral responses in pinnipeds, while higher levels of pulsed sound, ranging between 150 and 180 dB, will prompt avoidance of an

area. It is important to note that among these studies, there are some apparent differences in responses between field and laboratory conditions. In contrast to the mid-frequency odontocetes, captive pinnipeds responded more strongly at lower levels than did animals in the field. Again, contextual issues are the likely cause of this difference. For airborne sound, Southall et al. (2007) note there are extremely limited data suggesting very minor, if any, observable behavioral responses by pinnipeds exposed to airborne pulses of 60 to 80 dB; however, given the paucity of data on the subject, we cannot rule out the possibility that avoidance of sound in the Project area could occur.

In their comprehensive review of available literature, Southall et al. (2007) noted that quantitative studies on behavioral reactions of pinnipeds to underwater sound are rare. A subset of only three studies observed the response of pinnipeds to multiple pulses of underwater sound (a category of sound types that includes impact pile driving), and were also deemed by the authors as having results that are both measurable and representative. Blackwell et al. (2004) is the only cited study directly related to pile driving. The study observed ringed seals during impact installation of steel pipe pile. Received underwater SPLs were measured at 151 dB at 63 m. The seals exhibited either no response or only brief orientation response (defined as “investigation or visual orientation”). It should be noted that the observations were made after pile driving was already in progress. Therefore, it is possible that the low-level response was due to prior habituation. During a Caltrans installation demonstration project for retrofit work on the East Span of the San Francisco Oakland Bay Bridge, California, sea lions responded to pile driving by swimming rapidly out of the area, regardless of the size of the pile-driving hammer or the presence of sound attenuation devices (74 FR 63724).

Several available studies provide information on the reactions of pinnipeds to non-pulsed underwater sound. Kastelein et al. (2006) exposed nine captive harbor seals in an approximately 82×98 ft (25×30 m) enclosure to non-pulse sounds used in underwater data communication systems (similar to acoustic modems). Test signals were frequency modulated tones, sweeps, and bands of sound with fundamental frequencies between 8 and 16 kHz; 128 to 130 ± 3 dB source levels; 1- to 2-s duration (60-80 percent duty cycle); or 100 percent duty cycle. They recorded seal positions and the mean number of individual surfacing behaviors during control periods (no exposure), before exposure, and in 15-min experimental sessions ($n = 7$ exposures for each sound type). Seals generally swam away from each source at received levels of approximately 107 dB, avoiding it by approximately 16 ft (5 m), although they did not haul out of the water or change surfacing behavior. Seal reactions did not appear to wane over repeated exposure (i.e., there was no obvious habituation), and the colony of seals generally returned to baseline conditions following exposure. The seals were not reinforced with food for remaining in the sound field.

Reactions of harbor seals to the simulated sound of a 2-megawatt wind power generator were measured by Koschinski et al. (2003). Harbor seals surfaced significantly further away from the sound source when it was active and did not approach the sound source as closely. The device used in that study produced sounds in the frequency range of 30 to 800 Hz, with peak source levels of 128 dB at 1 m at the 80- and 160-Hz frequencies.

Ship and boat sound do not seem to have strong effects on seals in the water, but the data are limited. When in the water, seals appear to be much less apprehensive about approaching vessels. Some would approach a vessel out of apparent curiosity, including noisy vessels such as those operating seismic airgun arrays (Moulton and Lawson, 2002). Gray seals (Halichoerus

grypus) have been known to approach and follow fishing vessels in an effort to steal catch or the bait from traps. In contrast, seals hauled out on land often are quite responsive to nearby vessels. Terhune (1985) reported that northwest Atlantic harbor seals were extremely vigilant when hauled out and were wary of approaching (but less so passing) boats. Suryan and Harvey (1999) reported that Pacific harbor seals commonly left the shore when powerboat operators approached to observe the seals. Those seals detected a powerboat at a mean distance of 866 ft (264 m), and seals left the haul-out site when boats approached to within 472 ft (144 m).

The studies that address responses of high-frequency cetaceans (such as the harbor porpoise) to non-pulse sounds include data gathered both in the field and the laboratory and related to several different sound sources (of varying similarity to chirps), including: pingers, AHDs, and various laboratory non-pulse sounds. All of these data were collected from harbor porpoises. Southall et al. (2007) concluded that the existing data indicate that harbor porpoises are likely sensitive to a wide range of anthropogenic sounds at low received levels (around 90 to 120 dB), at least for initial exposures. All recorded exposures above 140 dB induced profound and sustained avoidance behavior in wild harbor porpoises (Southall et al., 2007). Rapid habituation was noted in some but not all studies.

Southall et al. (2007) also compiled known studies of behavioral responses of marine mammals to airborne sound, noting that studies of pinniped response to airborne pulsed sounds are exceedingly rare. The authors deemed only one study as having quantifiable results. Blackwell et al. (2004) studied the response of ringed seals within 500 m of impact driving of steel pipe pile. Received levels of airborne sound were measured at 93 dB at a distance of 63 m. Seals had either no response or limited response to pile driving. Reactions were described as “indifferent” or “curious.”

Marine mammals are expected to traverse through and not remain in the Project area. Therefore, animals are not expected to be exposed to a significant duration of construction sound.

Vessel Operations – Fifteen vessels would be used in association with the Project, including a dive support vessel, various barges, a crew boat, an escort boat, and six tug boats. Only the crew boat and the escort boat would make daily trips between shore and the offshore construction site and most vessels would remain stationary during construction activities. During pipe lay activities, the pipe transport barge would also be transported between the pipe yard and the offshore construction site about once or twice a day. Transco would abide by current vessel activity and speed restrictions in place to protect the north Atlantic right whale. Similar and much larger vessels already use the surrounding area in moderately high numbers; therefore, the vessels to be used in the Project area do not represent a new sound source, only a potential increase in the frequency and duration of these sound source types.

There are very few controlled tests or repeatable observations related to the reactions of marine mammals to vessel noise. However, Richardson et al. (1995) reviewed the literature on reactions of marine mammals to vessels, concluding overall that pinnipeds and many odontocetes showed high tolerance to vessel noise. Mysticetes, too, often show tolerance of slow, quieter vessels. Because the Project area is highly industrialized, it seems likely that marine mammals that transit the Project area are already habituated to vessel noise, thus the additional vessels that would occur as a result of construction activities would likely not have an additional effect on these animals. Proposed vessel noise and operations in the Project area are unlikely to rise to the level of harassment.

Physical Disturbance – Vessels and in-water structures have the potential to cause physical disturbance to marine mammals. As previously mentioned, various types of vessels already use the Project area in high numbers. Tug boats and barges are slow moving and follow a predictable course. Marine mammals would be able to easily avoid these vessels while transiting through the Project area and are likely already habituated to the presence of numerous vessels. Therefore, vessel strikes are extremely unlikely and, thus, discountable. Potential encounters would likely be limited to brief, sporadic behavioral disturbance, if any at all. Such disturbances are not likely to result in a risk of Level B harassment of marine mammals transiting the Project area.

Hearing Impairment and Other Physiological Effects

Temporary or permanent hearing impairment is a possibility when marine mammals are exposed to very strong sounds. Non-auditory physiological effects might also occur in marine mammals exposed to strong underwater sound. Possible types of non-auditory physiological effects or injuries that may occur in mammals close to a strong sound source include stress, neurological effects, bubble formation, and other types of organ or tissue damage. It is possible that some marine mammal species (i.e., beaked whales) may be especially susceptible to injury and/or stranding when exposed to strong pulsed sounds, particularly at higher frequencies. Non-auditory physiological effects are not anticipated to occur as a result of proposed construction activities. The following subsections discuss the possibilities of temporary threshold shift (TTS) and permanent threshold shift (PTS).

TTS – TTS, reversible hearing loss caused by fatigue of hair cells and supporting structures in the inner ear, is the mildest form of hearing impairment that can occur during exposure to a strong sound (Kryter, 1985). While experiencing TTS, the hearing threshold rises

and a sound must be stronger in order to be heard. TTS can last from minutes or hours to (in cases of strong TTS) days. For sound exposures at or somewhat above the TTS threshold, hearing sensitivity in both terrestrial and marine mammals recovers rapidly after exposure to the sound ends.

Marine mammal hearing plays a critical role in communication with conspecifics and in interpretation of environmental cues for purposes such as predator avoidance and prey capture. Depending on the degree (elevation of threshold in dB), duration (i.e., recovery time), and frequency range of TTS and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious. For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during a time when communication is critical for successful mother/calf interactions could have more serious impacts if it were in the same frequency band as the necessary vocalizations and of a severity that it impeded communication. The fact that animals exposed to levels and durations of sound that would be expected to result in this physiological response would also be expected to have behavioral responses of a comparatively more severe or sustained nature is also notable and potentially of more importance than the simple existence of a TTS. NMFS considers TTS to be a form of Level B harassment, as it consists of fatigue to auditory structures rather than damage to them. Few data on sound levels and durations necessary to elicit mild TTS have been obtained for marine mammals, and none of the published data concern TTS elicited by exposure to multiple pulses of sound.

Human non-impulsive sound exposure guidelines are based on exposures of equal energy (the same sound exposure level [SEL]; SEL is reported here in dB re: 1 $\mu\text{Pa}^2\text{-s}$ /re: 20 $\mu\text{Pa}^2\text{-s}$ for in-water and in-air sound, respectively) producing equal amounts of hearing impairment regardless of how the sound energy is distributed in time (NIOSH, 1998). Until recently, previous marine mammal TTS studies have also generally supported this equal energy relationship (Southall et al., 2007). Three newer studies, two by Mooney et al. (2009a, b) on a single bottlenose dolphin (Tursiops truncatus) either exposed to playbacks of U.S. Navy mid-frequency active sonar or octave-band sound (4-8 kHz) and one by Kastak et al. (2007) on a single California sea lion exposed to airborne octave-band sound (centered at 2.5 kHz), concluded that for all sound exposure situations, the equal energy relationship may not be the best indicator to predict TTS onset levels. Generally, with sound exposures of equal energy, those that were quieter (lower SPL) with longer duration were found to induce TTS onset more than those of louder (higher SPL) and shorter duration. Given the available data, the received level of a single seismic pulse (with no frequency weighting) might need to be approximately 186 dB SEL in order to produce brief, mild TTS.

In free-ranging pinnipeds, TTS thresholds associated with exposure to brief pulses (single or multiple) of underwater sound have not been measured. However, systematic TTS studies on captive pinnipeds have been conducted (e.g., Bowles et al., 1999; Kastak et al., 1999, 2005, 2007; Schusterman et al., 2000; Finneran et al., 2003; Southall et al., 2007). Finneran et al. (2003) studied responses of two individual California sea lions. The sea lions were exposed to single pulses of underwater sound, and experienced no detectable TTS at received sound level of 183 dB peak (163 dB SEL). There were three studies conducted on pinniped TTS responses to non-pulsed underwater sound. All of these studies were performed in the same lab and on the

same test subjects, and, therefore, the results may not be applicable to all pinnipeds or in field settings. Kastak and Schusterman (1996) studied the response of harbor seals to non-pulsed construction sound, reporting TTS of about 8 dB. The seal was exposed to broadband construction sound for 6 days, averaging 6 to 7 hours of intermittent exposure per day, with SPLs from just approximately 90 to 105 dB.

Kastak et al. (1999) reported TTS of approximately 4-5 dB in three species of pinnipeds (harbor seal, California sea lion, and northern elephant seal) after underwater exposure for approximately 20 minutes to sound with frequencies ranging from 100-2,000 Hz at received levels 60-75 dB above hearing threshold. This approach allowed similar effective exposure conditions to each of the subjects, but resulted in variable absolute exposure values depending on subject and test frequency. Recovery to near baseline levels was reported within 24 hours of sound exposure. Kastak et al. (2005) followed up on their previous work, exposing the same test subjects to higher levels of sound for longer durations. The animals were exposed to octave-band sound for up to 50 minutes of net exposure. The study reported that the harbor seal experienced TTS of 6 dB after a 25-minute exposure to 2.5 kHz of octave-band sound at 152 dB (183 dB SEL). The California sea lion demonstrated onset of TTS after exposure to 174 dB and 206 dB SEL.

Southall et al. (2007) reported one study on TTS in pinnipeds resulting from airborne pulsed sound, while two studies examined TTS in pinnipeds resulting from airborne non-pulsed sound. Bowles et al. (unpubl. data) exposed pinnipeds to simulated sonic booms. Harbor seals demonstrated TTS at 143 dB peak and 129 dB SEL. California sea lions and northern elephant seals experienced TTS at higher exposure levels than the harbor seals. Kastak et al. (2004) used the same test subjects as in Kastak et al. 2005, exposing the animals to non-pulsed sound (2.5

kHz octave-band sound) for 25 minutes. The harbor seal demonstrated 6 dB of TTS after exposure to 99 dB (131 dB SEL). The California sea lion demonstrated onset of TTS at 122 dB and 154 dB SEL. Kastak et al. (2007) studied the same California sea lion as in Kastak et al. 2004 above, exposing this individual to 192 exposures of 2.5 kHz octave-band sound at levels ranging from 94 to 133 dB for 1.5 to 50 min of net exposure duration. The test subject experienced up to 30 dB of TTS. TTS onset occurred at 159 dB SEL. Recovery times ranged from several minutes to 3 days.

Additional studies highlight the inherent complexity of predicting TTS onset in marine mammals, as well as the importance of considering exposure duration when assessing potential impacts (Mooney et al., 2009a, 2009b; Kastak et al., 2007). Generally, with sound exposures of equal energy, quieter sounds (lower SPL) of longer duration were found to induce TTS onset more than louder sounds (higher SPL) of shorter duration (more similar to subbottom profilers). For intermittent sounds, less threshold shift will occur than from a continuous exposure with the same energy (some recovery will occur between intermittent exposures) (Kryter et al., 1966; Ward, 1997). For sound exposures at or somewhat above the TTS-onset threshold, hearing sensitivity recovers rapidly after exposure to the sound ends. Southall et al. (2007) considers a 6 dB TTS (that is, baseline thresholds are elevated by 6 dB) to be a sufficient definition of TTS-onset. NMFS considers TTS as Level B harassment that is mediated by physiological effects on the auditory system; however, NMFS does not consider TTS-onset to be the lowest level at which Level B harassment may occur. Southall et al. (2007) summarizes underwater pinniped data from Kastak et al. (2005), indicating that a tested harbor seal showed a TTS of around 6 dB when exposed to a nonpulse noise at sound pressure level 152 dB re: 1 μ Pa for 25 minutes.

Some studies suggest that harbor porpoises may be more sensitive to sound than other odontocetes (Lucke et al., 2009; Kastelein et al., 2011). While TTS onset may occur in harbor porpoises at lower received levels (when compared to other odontocetes), NMFS' 160-dB and 120-dB threshold criteria are based on the onset of behavioral harassment, not the onset of TTS. The potential for TTS is considered within NMFS' analysis of potential impacts from Level B harassment.

Although underwater sound levels produced by the proposed project may exceed levels produced in studies that have induced TTS in marine mammals, there is a general lack of controlled, quantifiable field studies related to this phenomenon, and existing studies have had varied results (Southall et al., 2007). Therefore, it is difficult to extrapolate from these data to site-specific conditions for the proposed project. For example, because most of the studies have been conducted in laboratories, rather than in field settings, the data are not conclusive as to whether elevated levels of sound would cause marine mammals to avoid the Region of Activity, thereby reducing the likelihood of TTS, or whether sound would attract marine mammals, increasing the likelihood of TTS. In any case, there are no universally accepted standards for the amount of exposure time likely to induce TTS. While it may be inferred that TTS could theoretically result from the proposed project, it is impossible to quantify the magnitude of exposure, the duration of the effect, or the number of individuals likely to be affected. Exposure is likely to be brief because marine mammals use the Region of Activity for transiting, rather than breeding or hauling out. In summary, it is expected that elevated sound would have only a slight probability of causing TTS in marine mammals.

PTS – When PTS occurs, there is physical damage to the sound receptors in the ear. In some cases, there can be total or partial deafness, whereas in other cases, the animal has an

impaired ability to hear sounds in specific frequency ranges. There is no specific evidence that exposure to underwater industrial sounds can cause PTS in any marine mammal (see Southall et al., 2007). However, given the possibility that marine mammals might incur TTS, there has been further speculation about the possibility that some individuals occurring very close to industrial activities might incur PTS. Richardson et al. (1995) hypothesized that PTS caused by prolonged exposure to continuous anthropogenic sound is unlikely to occur in marine mammals, at least for sounds with source levels up to approximately 200 dB. Single or occasional occurrences of mild TTS are not indicative of permanent auditory damage in terrestrial mammals. Studies of relationships between TTS and PTS thresholds in marine mammals are limited; however, existing data appear to show similarity to those found for humans and other terrestrial mammals, for which there is a large body of data. PTS might occur at a received sound level at least several decibels above that inducing mild TTS.

Southall et al. (2007) propose that sound levels inducing 40 dB of TTS may result in onset of PTS in marine mammals. The authors present this threshold with precaution, as there are no specific studies to support it. Because direct studies on marine mammals are lacking, the authors base these recommendations on studies performed on other mammals. Additionally, the authors assume that multiple pulses of underwater sound result in the onset of PTS in pinnipeds when levels reach 218 dB peak or 186 dB SEL. In air, sound levels are assumed to cause PTS in pinnipeds at 149 dB peak or 144 dB SEL (Southall et al., 2007). Sound levels this high are not expected to occur as a result of the proposed Project.

The potential effects to marine mammals described in this section of the document do not take into consideration the proposed monitoring and mitigation measures described later in this document (see the Proposed Mitigation and Proposed Monitoring and Reporting sections). It is

highly unlikely that marine mammals would receive sounds strong enough (and over a sufficient duration) to cause PTS (or even TTS) during the proposed activities. When taking the mitigation measures proposed for inclusion in the regulations into consideration, it is highly unlikely that any type of hearing impairment would occur as a result of Transco's proposed activities.

Anticipated Effects on Marine Mammal Habitat

Pile driving activities may have temporary impacts on marine mammal habitat by producing temporary in-water acoustic disturbances. However, elevated in-water sound levels would only occur for less than 2 days of pile driving activity, spread out over an 8-week period. While it is anticipated that the specified activity may result in marine mammals avoiding certain areas due to temporary ensonification, this impact to habitat is temporary and reversible and was considered in further detail earlier in this document as behavioral modification. Furthermore, it is possible that marine mammals within the vicinity of the Project area may not be able to perceive noise from the vibratory pile driver due to the potentially louder background noise, which is likely to be dominated by loud low-frequency commercial vessel noise. There are no known pinniped haul-outs within the vicinity of the Project area and the closest known haul-out is about 10 miles away. There is also no designated critical habitat with the proposed Project area. Increased turbidity and changes in prey distribution may also result from pile driving activities, but are expected to be temporary and return to normal shortly after construction is complete. The proposed Project is not anticipated to have any permanent impact on habitats used by the marine mammals in the proposed Project area, including the food sources they use (i.e., fish and invertebrates).

Anticipated Effects on Fish

Fish are a primary dietary component of the marine mammals mentioned previously in this document. Similar to marine mammals, fish can also be affected by noise both physiologically and behaviorally. However, the amount of information regarding impacts on fish from human-generated acoustic sources is limited.

Behavioral disturbance of fish prey species could occur as a result of vibratory pile driving. Fish may avoid the Project area due to disturbing levels of sound during vibratory hammer operation; however, behavioral changes are expected to be temporary. Injury of fish prey species is not expected to occur during the proposed Project because Project-related noise would not exceed NMFS' threshold criteria for fish injury.

Proposed Mitigation

In order to issue an incidental take authorization under section 101(a)(5)(D) of the MMPA, we must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and the availability of such species or stock for taking for certain subsistence uses.

To reduce the potential for disturbance from acoustic stimuli associated with the activities, Transco has proposed to implement the following mitigation measures for marine mammals:

- (1) Vibratory pile driving only;
- (2) Pile driving during daylight hours only;
- (3) Shutdown procedures;
- (4) Soft-start (ramp-up) procedures; and
- (5) Discharge control.

Separately, Transco acknowledges the vessel activity and speed restrictions that are already in place along the east coast for the north Atlantic right whale. While the Seasonal Management Area is in effect (November-April), vessel operators would comply with the established regulations.

Vibratory Pile Driving Only

Transco proposes to use a vibratory hammer instead of an impact hammer for all pile driving activities in order to reduce in-water sound levels while installing and removing up to 70 temporary steel pipe piles. The sound source level for the vibratory hammer is less than the source level for an impact hammer, and by avoiding use of an impact hammer Transco removes the potential for Level A harassment of marine mammals.

Pile Driving During Daylight Hours Only

Pile driving installation and removal would only be conducted when lighting and weather conditions allow the protected species observers to visually monitor the entire Level B harassment area through the use of binoculars or other devices.

Soft-start (Ramp-up) Procedures

Transco would implement soft-start procedures at the beginning of each pile driving session. Contractors would initiate the vibratory hammer for 15 seconds at 40 to 60 percent reduced energy, followed by a 1-minute waiting period. This procedure would be repeated two additional times before reach full energy.

Shutdown Procedures

Protected species observers would monitor the entire Level B harassment area for marine mammals displaying abnormal behavior. Such behavior may include aggressive signals related to noise exposure (e.g., tail/flipper slapping or abrupt directed movement), avoidance of the

sound source, or an obvious startle response (e.g., rapid change in swimming speed, erratic surface movements, or sudden diving associated with the onset of a sound source). At NMFS' recommendation, if a protected species observer sees any abnormal behavior, this information will be related to the construction manager and the vibratory hammer would be shutdown until the animal has moved outside of the Level B harassment area.

Control of Discharge

All in-water construction activities would comply with federal regulations to control the discharge of operational waste such as bilge and ballast waters, trash and debris, and sanitary and domestic waste that could be generated from all vessels associated with the Project. All Project vessels would also comply with the U.S. Coast Guard requirements for the prevention and control of oil and fuel spills (see Transco's application for more detail).

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation

measures provide the means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an incidental take authorization for an activity, section 101(a)(5)(D) of the MMPA states that we must set forth “requirements pertaining to the monitoring and reporting of such taking.” The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for an authorization must include the suggested means of accomplishing the necessary monitoring and reporting that would result in increased knowledge of the species and our expectations of the level of taking or impacts on populations of marine mammals present in the proposed action area.

Visual Monitoring

Two NMFS-approved protected species observers would survey the Level B harassment area (~3 miles) for marine mammals 30 minutes before, during, and 30 minutes after all vibratory pile driving activities. The observers would be stationed on an escort boat, located about 1.5 miles from the pile hammer. The escort boat would circle the pile hammer at a 1.5-mile distance so that the entire Level B harassment area could be surveyed. Information recorded during each observation within the Level B harassment area would be used to estimate numbers of animals potentially taken and would include the following:

- Numbers of individuals observed;
- Frequency of observation;
- Location within the Level B harassment area (i.e., distance from the sound source);
- Vibratory pile driving status (i.e., soft-start, active, post pile driving, etc.); and

- Reaction of the animal(s) to pile driving (if any) and observed behavior within the Level B harassment area, including bearing and direction of travel.

If the Level B harassment area is obscured by fog or poor lighting conditions, vibratory pile driving would be delayed until the area is visible. If the Level B harassment area becomes obscured by fog or poor lighting conditions while pile driving activities are occurring, pile driving would be shutdown until the area is visible again.

Proposed Reporting

Transco would provide NMFS with a draft monitoring report within 90 days of the conclusion of monitoring. This report would include the following:

- A summary of the activity and monitoring plan (i.e., dates, times, locations);
- A summary of mitigation implementation;
- Monitoring results and a summary that addresses the goals of the monitoring plan, including the following:
 - Environmental conditions when observations were made;
 - Water conditions (i.e., Beaufort sea-state, tidal state)
 - Weather conditions (i.e., percent cloud cover, visibility, percent glare)
 - Survey-specific data:
 - Date and time survey initiated and terminated;
 - Date, time, number, species, and any other relevant data regarding marine mammals observed (for pre-activity, during activity, and post-activity surveys);
 - Description of the observed behaviors (in both the presence and absence of activities):

- If possible, the correlation to underwater sound level occurring at the time of any observable behavior
- Estimated exposure/take numbers during activities
- An assessment of the implementation and effectiveness of prescribed mitigation and monitoring measures.

Transco would submit a final report within 30 days after receiving NMFS comments on the draft report. If NMFS has no comments, the draft report would be considered final.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner not permitted by the authorization (if issued), such as an injury, serious injury, or mortality (e.g., ship-strike, gear interaction, and/or entanglement), Transco shall immediately cease the specified activities and immediately report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Michelle.Magliocca@noaa.gov. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hours preceding the

incident;

- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Transco shall not resume its activities until we are able to review the circumstances of the prohibited take. We will work with Transco to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Transco may not resume their activities until notified by us via letter, email, or telephone.

In the event that Transco discovers an injured or dead marine mammal, and the lead visual observer determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as we describe in the next paragraph), Transco shall immediately report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Michelle.Magliocca@noaa.gov. The report must include the same information identified in the paragraph above this section. Activities may continue while we review the circumstances of the incident. We would work with Transco to determine whether modifications in the activities are appropriate.

In the event that Transco discovers an injured or dead marine mammal, and the lead visual observer determines that the injury or death is not associated with or related to the authorized activities (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Transco would report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Michelle.Magliocca@noaa.gov, within 24

hours of the discovery. Transco would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to us.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

We propose to authorize take by Level B harassment for the proposed Project. Acoustic stimuli (i.e., increased underwater sound) generated during vibratory pile driving and removal activities have the potential to result in the behavioral disturbance of marine mammals. There is no evidence that planned activities could result in serious injury or mortality within the specified geographic area for the requested authorization. The required mitigation and monitoring measures would minimize any potential risk for serious injury or mortality and reduce the amount of Level B harassment takes.

Transco estimated potential take by multiplying the area of the zone of influence (the Level B harassment area) by the local animal density. This provides an estimate of the number of animals that might occupy the Level B harassment area at any given moment during vibratory pile driving activities. However, density estimates for marine mammals within the coastal mid-Atlantic are limited, and there are no density estimates for the specific Project area along the southern coast of Long Island. Therefore, estimated takes were calculated based on the best available information for the region, including density estimates developed by the U.S. Navy

through their Navy Operating Area Density Estimate (NODE) for the Northeast operating areas (Boston, Narragansett Bay, and Atlantic City) (DON, 2007). These estimates cover all continental shelf waters from the southern point of New Jersey to Nova Scotia, Canada, from the coast out past the continental shelf. The Navy's report presents density estimates either determined by models created with species-specific data or derived from abundance estimates found in NMFS' 2007 Stock Assessment Reports. Of the Navy's density surface models, two were for species which have the potential to be harassed during this Project: the short-beaked common dolphin and the harbor porpoise. Other density estimates were determined based on shipboard and aerial surveys conducted by the Northeast Fisheries Science Center during summer months between 1998 and 2004. Density for all species was calculated based on seasons and spatial strata. Details on these calculations and how they were applied to each species are provided in section 6.3 of Transco's IHA application (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>).

Transco's requested take amounts may over-estimate the actual number of animals that would be harassed for the following reasons:

- Vibratory pile driving would only occur for 4 days over a 5-month period and the estimated exposures likely do not equate to takes of individual animals;
- The density seasons used in the Navy's NODE report include additional months outside of the proposed Project's schedule for in-water construction (which may have higher density estimates); and
- The density estimates assume even distribution throughout strata and are largely derived from adjacent stratum that may not represent density accurately in the Project area.

Table 2 shows Transco’s requested take based on estimated density and the methods described earlier and in section 6.3 of Transco’s IHA application.

Table 2. Estimated densities and requested marine mammal take for the Project.

Species	Estimated Density (per 100 km ²) Winter ¹	Estimated Density (per 100 km ²) Spring ¹	Estimated Density (per 100 km ²) Summer ¹	Estimated Take by Level B Harassment Winter	Estimated Take by Level B Harassment Spring	Estimated Take by Level B Harassment Summer	Total Takes by Level B Harassment Requested
Gray seal	N/A	N/A	N/A	7	7	0	14
Harbor seal	156.41	156.41	156.41	69	69	69	138
Harp seal	N/A	N/A	N/A	0	4	0	4
North Atlantic right whale	0.03	0.03	0.03	0.02	0.02	0.02	1
Bottlenose dolphin	0.21	8.14	26.91	0	4	12	16
Short-beaked common dolphin	145.35	1.91	3.59	64	1	2	67
Harbor porpoise	6.40	19.90	0.00	3	9	0	12

¹ Source: Navy OPAREA Density Estimates (NODE) for the Northeast OPAREAS: Boston, Narragansett Bay, and Atlantic City (2007)

N/A = Not available

Negligible Impact and Small Numbers Analyses and Determinations

As a preliminary matter, we typically include our negligible impact and small numbers analyses and determinations under the same section heading of our Federal Register notices. Despite co-locating these terms, we acknowledge that negligible impact and small numbers are distinct standards under the MMPA and treat them as such. The analyses presented below do not conflate the two standards; instead, each standard has been considered independently and we have applied the relevant factors to inform our negligible impact and small numbers determinations.

We have defined “negligible impact” in 50 CFR 216.103 as “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely

affect the species or stock through effects on annual rates of recruitment or survival.” In making a negligible impact determination, we consider the following:

- (1) Number of anticipated mortalities (none in this case);
- (2) Number and nature of anticipated injuries (none in this case);
- (3) Number, nature, intensity, and duration of Level B harassment (all relatively limited); and
- (3) The context in which the takes occur (i.e., impacts to areas of significance, impacts to local populations, and cumulative impacts when taking into account successive/contemporaneous actions when added to baseline data);
- (4) The status of stock or species of marine mammals (i.e., depleted, not depleted, decreasing, increasing, stable, impact relative to the size of the population);
- (5) Impacts on habitat affecting rates of recruitment/survival; and
- (6) The effectiveness of monitoring and mitigation measures.

We do not anticipate that any injuries, serious injuries, or mortalities would occur as a result of Transco’s proposed Project, and we do not propose to authorize injury, serious injury, or mortality for this Project.

Table 2 in this document outlines the number of requested Level B harassment takes that we anticipate as a result of these activities. Table 3 below shows the proposed take numbers compared to species population sizes. For each species, these take numbers are small (all estimates are less than one percent) relative to the affected stock size and we have provided the regional population estimates for the marine mammal species that may be taken by Level B harassment in Table 3 below.

Table 3. Proposed marine mammal takes and percentage of stock potentially affected.

Species	Takes by Level B Harassment	Abundance of Stock	Percentage of Stock Potentially Affected
Gray seal	14	348,900	0.004%
Harbor seal	207	99,340	0.208%
Harp seal	4	8,300,000 (minimum)	0.00%
North Atlantic right whale	1	444	0.225%
Bottlenose dolphin	16	7,147	0.224%
Short-beaked common dolphin	67	52,893	0.001%
Harbor porpoise	12	89,054	0.013%

Many animals perform vital functions, such as feeding, resting, traveling, and socializing, on a diel cycle (i.e., 24 hour cycle). Behavioral reactions to noise exposure (such as disruption of critical life functions, displacement, or avoidance of important habitat) are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall et al., 2007). While vibratory pile driving would occur over 2 consecutive days, this is still considered a short overall duration and it would only occur during daylight hours.

Of the seven marine mammal species under our jurisdiction that are known to occur or likely to occur in the Project area, one of these species is listed as endangered under the ESA: north Atlantic right whale. This species is also categorized as depleted under the MMPA. However, Transco is only requesting one take of a north Atlantic right whale by Level B harassment, which is less than one percent of the population. There are no known important feeding areas for north Atlantic right whales and no designated critical habitat within the proposed project area.

Our practice has been to apply the 120 dB re: 1 μ Pa received level threshold for underwater non-impulse sound levels to estimate take by Level B harassment. Southall et al. (2007) provides a severity scale for ranking observed behavioral responses of both free-ranging marine

mammals and laboratory subjects to various types of anthropogenic sound (see Table 4 in Southall et al. [2007]).

We have preliminarily determined, provided that the aforementioned mitigation and monitoring measures are implemented, that the impact of conducting pile driving activities off Rockaway Peninsula, from January 2014 through December 2014, may result, at worst, in a modification in behavior and/or low-level physiological effects (Level B harassment) of certain species of marine mammals. There are no known important feeding areas or haul-outs within the project area. While these species may make behavioral modifications, including temporarily vacating the area during the operation of the pile hammer to avoid the resultant acoustic disturbance, the availability of similar habitat surrounding the project area and the short and sporadic duration of the specified activities, have led us to preliminarily determine that this action will not adversely affect annual rates of recruitment or survival and therefore, would have a negligible impact on the species in the specified geographic region.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, we preliminarily find that Transco's proposed Project would result in the incidental take of small numbers of marine mammals, by Level B harassment only, and that the required measures mitigate impacts to affected species or stocks of marine mammals to the lowest level practicable.

Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses

Section 101(a)(5)(D) of the Marine Mammal Protection Act also requires us to determine that the authorization would not have an unmitigable adverse effect on the availability of marine mammal species or stocks for subsistence use. There are no relevant subsistence uses of marine

mammals in the Project area that implicate section 101(a)(5)(D) of the Marine Mammal Protection Act.

Endangered Species Act

Of the species of marine mammals that may occur in the proposed survey area, one is listed as endangered under the Endangered Species Act: the north Atlantic right whale. Under section 7 of the Act, the Federal Energy Regulatory Commission (FERC; the federal agency responsible for permitting Transco's construction) has initiated formal consultation with our Northeast Regional Office on this proposed seismic survey. We (i.e., National Marine Fisheries Service, Office of Protected Resources, Permits and Conservation Division), have also initiated formal consultation under section 7 of the Act with the Northeast Regional Office to obtain a Biological Opinion (Opinion) evaluating the effects of issuing an incidental harassment authorization for threatened and endangered marine mammals and, if appropriate, authorizing incidental take. Both agencies would conclude the formal section 7 consultation (with a single Opinion for FERC and NMFS' Office of Protected Resources, Permits and Conservation Division federal actions) prior to making a determination on whether or not to issue the authorization. If we issue the take authorization, FERC and Transco must comply with the mandatory Terms and Conditions of the Opinion's Incidental Take Statement which would incorporate the mitigation and monitoring requirements included in the Incidental Harassment Authorization.

National Environmental Policy Act (NEPA)

We are participating as a cooperating agency on the FERC's Rockaway Delivery Lateral Project Environmental Impact Statement (EIS). FERC published a Notice of Intent in the Federal Register on May 6, 2013 (78 FR 26354). The draft EIS was made available to the public on October 11, 2013 (78 FR 62012). We intend to adopt FERC's final EIS, if adequate and

appropriate. Currently, we believe that the adoption of FERC's final EIS will allow us to meet our responsibilities under NEPA for the issuance of an Incidental Harassment Authorization to Transco. If FERC's final EIS is deemed inadequate, we would supplement the existing analysis to ensure that we comply with NEPA prior to the issuance of an authorization.

Proposed Authorization

As a result of these preliminary determinations, we propose to authorize the take of marine mammals incidental to Transco's proposed Project from January 2014 through August 2014, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. The proposed Incidental Harassment Authorization language is provided below.

Transcontinental Gas Pipe Line Company, LLC (Transco) (2800 Post Oak Boulevard, Houston, TX 77056) is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1371(a)(5)(D)) and 50 CFR 216.107, to harass marine mammals incidental to pile driving and removal during the Rockaway Delivery Lateral Project, subject to the following:

1. This Authorization is valid from January 2014 through December 2014.
2. This Authorization is valid for the Rockaway Delivery Lateral Project off the Rockaway Peninsula, as described in the Incidental Harassment Authorization (IHA) application.
3. Transco is hereby authorized to take, by Level B harassment only, 14 gray seals (Halichoerus grypus), 138 harbor seals (Phoca vitulina), 4 harp seals (Phoca groenlandica), 1 north Atlantic right whale (Eubalaena glacialis), 16 bottlenose dolphins (Tursiops truncatus), 65 short-beaked common dolphins (Delphinus delphis), and 12 harbor porpoises (Phocoena phocoena) incidental to pile driving associated with the Rockaway Delivery Lateral Project.

4. The taking of any marine mammal in a manner prohibited under this Authorization must be reported immediately to NMFS' Northeast Region, 55 Great Republic Drive, Gloucester, MA 01930-2276; phone 978-281-9328, and NMFS' Office of Protected Resources, 1315 East-West Highway, Silver Spring, MD 20910; phone 301-427-8401; fax 301-713-0376.
5. The holder or designees must notify NMFS' Region and Headquarters at least 24 hours prior to the seasonal commencement of the specified activity (see contact information in 4 above).
6. Mitigation Requirements

The holder of this Authorization is required to abide by the following mitigation conditions listed in 6(a)-(e). Failure to comply with these conditions may result in the modification, suspension, or revocation of this Authorization.

(a) Vibratory Pile Driving: A vibratory hammer shall be used for all pile installation and removal in order to reduce in-water sound levels.

(b) Day-light Hours Only: All pile installation and removal shall be conducted when lighting and weather conditions allow for adequate visual monitoring of the entire Level B harassment area through the use of binoculars or other devices.

(c) Soft-start Procedures: Soft-start procedures shall be implemented at the beginning of each pile driving session. Contractors shall initiate the vibratory hammer for 15 seconds at 40 to 60 percent reduced energy, followed by a 1-minute waiting period. This procedure shall be repeated two additional times before full energy is reached.

(d) Shutdown Procedures: If a protected species observer sees any abnormal marine mammal behavior (e.g., tail/flipper slapping, abrupt directed movement, avoidance of the sound source, rapid change in swimming speed, erratic surface movements, or sudden diving at the

onset of the sound source), pile driving activities shall be shutdown until the animal has moved outside of the Level B harassment area.

(e) Control of Discharge: All in-water construction activities shall comply with federal regulations to control the discharge of operational waste such as bilge and ballast waters, trash and debris, and sanitary and domestic waste that could be generated from all vessels associated with the Project. All Project vessels shall also comply with the U.S. Coast Guard requirements for the prevention and control of oil and fuel spills.

7. Monitoring Requirements

The holder of this Authorization is required to abide by the following monitoring conditions listed in 7(a)-(b). Failure to comply with these conditions may result in the modification, suspension, or revocation of this Authorization.

(a) General: If the Level B harassment area is obscured by fog or poor lighting conditions, vibratory pile driving shall be delayed until the area is visible. If the Level B harassment area becomes obscured by fog or poor lighting conditions while pile driving activities are occurring, pile driving shall be shutdown until the area is visible again.

(b) Visual Monitoring: Two NMFS-approved protected species observers shall survey the Level B harassment area (~3 miles) for marine mammals 30 minutes before, during, and 30 minutes after all vibratory pile driving activities. The observers shall be stationed on an escort boat, located about 1.5 miles from the pile hammer. Information recorded during each observation within the Level B harassment area shall be used to estimate numbers of animals potentially taken and shall include the following:

- Numbers of individuals observed;
- Frequency of observation;

- Location within the Level B harassment area (i.e., distance from the sound source);
- Vibratory pile driving status (i.e., soft-start, active, post pile driving, etc.); and
- Reaction of the animal(s) to pile driving (if any) and observed behavior within the Level

B harassment area, including bearing and direction of travel.

8. Reporting Requirements

The holder of this Authorization is required to submit a draft monitoring report to the Office of Protected Resources, NMFS, within 90 days of the conclusion of monitoring.

(a) The monitoring report shall contain the following information:

- A summary of the activity and monitoring plan (i.e., dates, times, locations);
- A summary of mitigation implementation;
- Monitoring results and a summary that addresses the goals of the monitoring plan,

including the following:

- Environmental conditions when observations were made:
- Water conditions (i.e., Beaufort sea-state, tidal state)
- Weather conditions (i.e., percent cloud cover, visibility, percent glare)
- Survey-specific data:
 - Date and time survey initiated and terminated
 - Date, time, number, species, and any other relevant data regarding marine mammals observed (for pre-activity, during activity, and post-activity surveys)
 - Description of the observed behaviors (in both the presence and absence of activities):
 - If possible, the correlation to underwater sound level occurring at the time of any observable behavior

- Estimated exposure/take numbers during activities; and
- An assessment of the implementation and effectiveness of prescribed mitigation and monitoring measures.

(b) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner not permitted by the authorization (if issued), such as an injury, serious injury, or mortality (e.g., ship-strike, gear interaction, and/or entanglement), Transco shall immediately cease the specified activities and immediately report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Michelle.Magliocca@noaa.gov. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Transco shall not resume its activities until we are able to review the circumstances of the prohibited take. NMFS will work with Transco to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Transco may not resume their activities until notified by us via letter, email, or telephone.

(c) In the event that Transco discovers an injured or dead marine mammal, and the lead visual observer determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as we describe in the next paragraph), Transco shall immediately report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Michelle.Magliocca@noaa.gov. The report must include the same information identified in the paragraph above this section. Activities may continue while we review the circumstances of the incident. NMFS will work with Transco to determine whether modifications in the activities are appropriate.

(d) In the event that Transco discovers an injured or dead marine mammal, and the lead visual observer determines that the injury or death is not associated with or related to the authorized activities (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Transco would report the incident to the Incidental Take Program Supervisor, Permits and Conservation Division, Office of Protected Resources, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Michelle.Magliocca@noaa.gov, within 24 hours of the discovery. Transco would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to us.

9. A copy of this Authorization must be in the possession of the lead contractor on site and protected species observers operating under the authority of this Authorization.

10. This Authorization may be modified, suspended, or withdrawn if the Holder fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

Information Solicited

We request interested persons to submit comments and information concerning this proposed project and our preliminary determination of issuing a take authorization (see ADDRESSES).

Concurrent with the publication of this notice in the Federal Register, we will forward copies of this application to the Marine Mammal Commission and its Committee of Scientific Advisors.

Dated: December 23, 2013.

Perry Gayaldo,
Acting Deputy Director, Office of Protected Resources,
National Marine Fisheries Service.

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