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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XF603

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Casitas Pier Fender Pile Replacement

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

ACTION: Notice; Issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Venoco LLC (Venoco) to incidentally harass, by Level B harassment only, marine mammals during construction activities associated with a fender pile replacement project in Carpinteria, California.

DATES: This authorization is applicable from November 1, 2017 to October 31, 2018.

FOR FURTHER INFORMATION CONTACT: Sara Young, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at:

www.nmfs.noaa.gov/pr/permits/incidental/construction.htm. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

NMFS has 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.

The MMPA states that the term “take” means to harass, hunt, capture, kill or attempt to harass, hunt, capture, or kill any marine mammal.

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).

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. §§ 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS reviewed our proposed action (*i.e.*, the issuance of an incidental harassment authorization) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in CE B4 of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

We reviewed all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

Summary of Request

On June 13, 2017, NMFS received a request from Venoco for an IHA to take marine mammals incidental to replacement of fender piles at Casitas Pier in Carpinteria, California. Venoco's request is for take of harbor seal, California sea lions, and bottlenose dolphins by Level B harassment only. Neither Venoco nor NMFS expect mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Specified Activity

Venoco proposed to replace 13 fender piles during the fall of 2017 to minimize impact to the local harbor seal population which uses Carpinteria beach as a haulout. Work on the pier will take place over a period of 2 to 3 weeks during fall 2017. Any work that is not completed during

this period will be deferred to late summer or fall 2018. Two and a half days of pile driving are needed to complete the work but these days may not be consecutive. The authorization effective dates are November 1, 2017 through October 31, 2018 to allow pile driving to occur when all of the necessary permits and permissions are acquired.

Up to 13 fender piles located on the end of the Pier will be replaced (six on west side, and seven on the east side). The replacement piles will consist of an upper section approximately 48 to 50 feet (15 meters) long consisting of 16-inch diameter x 0.50-inch wall thickness steel pipe pile with a 12-foot (4-meter) long driven lower section consisting of 14 inch x 73 pound H-pile spliced to the bottom of the upper pipe pile section. Epoxy coating will be used on the new fender piles. Installation will be accomplished utilizing impact and vibratory pile driving techniques supported from the Pier. The replacement piles will be installed slightly offset (about two feet) from the original fender pile positions. This spliced pile design has been in service for more than 60 years at the Pier.

Each pile will require approximately 25 minutes of vibratory driving, and up to 6 piles could be installed by this method in a single day (*i.e.*, up to 2.5 hours of vibratory pile driving per day). During this time the sound levels above and in water will be in excess of normal pier operations. Sound levels from various other fender pile construction activities will not be discernible from daily pier operations and are below NMFS' thresholds. In the unlikely event that an impact hammer is used, installation of a single pile will require an estimated 400 hammer strikes over 15 minutes, and up to 6 piles could be installed by this method in a single day (*i.e.*, up to 1.5 hours of pile driving per day). A detailed description of the planned project is provided in the *Federal Register* notice for the proposed IHA (82 FR 42306; September 9, 2017). Since that time, no changes have been made to the planned construction activities. Therefore, a detailed

description is not provided here. Please refer to that *Federal Register* notice for the description of the specific activity.

Comments and Responses

A notice of NMFS's proposal to issue an IHA to Venoco was published in the *Federal Register* on September 9, 2017 (82 FR 42306). That notice described, in detail, Venoco's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission. These comments are details below.

Comment 1: The Commission noted several mitigation and monitoring measures were absent from the proposed IHA and recommends that NMFS include standard mitigation, monitoring, and reporting measures consistently for all authorizations involving pile-driving and -removal activities.

Response: NMFS included all standard mitigation measures that were appropriate and relevant to the activities proposed by Venoco. These mitigation measures include using delay and shutdown procedures for species that are not authorized and when the limit of take authorized is reached. Venoco is proposing a shutdown at 52 meters, which subsumes the standard 10 meter shutdown zone, but the 10 meter shutdown zone to avoid physical injury still applies for in-water work that is not pile driving or removal. The Commission noted inconsistency in pre and post-activity monitoring times, and the IHA reflects pre and post-activity monitoring periods of 30 minutes.

Comment 2: The Commission recommends that NMFS share the rounding criteria with the Commission such that this matter can be resolved expeditiously.

Response: NMFS will share the rounding criteria with the Commission soon (following the completion of internal edits) when available and looks forward to discussing the issue with them in the future.

Description of Marine Mammals in the Area of Specified Activities

There are three marine mammal species that may likely transit through the waters nearby the project area, and are expected to potentially be taken by the specified activity. These include harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*), and bottlenose dolphin (*Tursiops truncatus*). Multiple additional marine mammal species may occasionally enter coastal California waters but they are not be expected to occur in shallow nearshore waters of the action area (Table 1).

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SAR; www.nmfs.noaa.gov/pr/sars/) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS's website (www.nmfs.noaa.gov/pr/species/mammals/).

Table 1 lists all species with expected potential for occurrence in coastal southern California and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2016). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here,

PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS’s stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS’s U.S. Pacific SARs (NMFS 2016). All values presented in Table 1 are the most recent available at the time of publication and are available in the 2016 SARs (NMFS, 2016).

Table 1. Marine Mammal Potentially Present in the Vicinity of Carpinteria.

| Common name | Scientific name | Stock | ESA/MMPA status; Strategic (Y/N) ¹ | Stock abundance (CV, N _{min} , most recent abundance survey) ² | PBR | Annual M/SI ³ |
|---|-------------------------------|------------------------------|---|--|------|--------------------------|
| Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales) | | | | | | |
| Family Eschrichtiidae | | | | | | |
| <i>Gray whale</i> | <i>Eschrichtius robustus</i> | Eastern North Pacific | -;N | .05, 20,125, 2011 | 624 | 132 |
| Family Balaenopteridae (rorquals) | | | | | | |
| <i>Bryde’s whale</i> | <i>Balaenoptera edeni</i> | Eastern Pacific | -;N | Unk, unk, unk, N/A | unk | unk |
| <i>Humpback whale</i> | <i>Megaptera novaeangliae</i> | California-Oregon-Washington | -;N | .03, 1,876, 2014 | 11 | 6.5 |
| <i>Blue whale</i> | <i>Balaenoptera musculus</i> | Eastern North Pacific | E;Y | .07, 1,551, 2011 | 2.3 | 0.9 |
| <i>Fin whale</i> | <i>Balaenoptera physalus</i> | California-Oregon-Washington | E;Y | .12, 8,127, 2014 | 81 | 2 |
| <i>Sei whale</i> | <i>Balaenoptera borealis</i> | California-Oregon-Washington | E;Y | 0.4, 374, 2104 | 0.75 | 0 |
| Superfamily Odontoceti (toothed whales, dolphins, and porpoises) | | | | | | |
| Family Physeteridae | | | | | | |
| <i>Sperm whale</i> | <i>Physeter macrocephalus</i> | California-Oregon-Washington | E;Y | 0.58, 1,332, 2008 | 2.7 | 1.7 |
| Family Kogiidae | | | | | | |

| | | | | | | |
|--|-----------------------------------|---|-----|---------------------|-------|------|
| <i>Pygmy sperm whale</i> | <i>Kogia breviceps</i> | California-Oregon-Washington | -;N | 1.12, 1,924, 2014 | 19 | 0 |
| <i>Dwarf sperm whale</i> | <i>Kogia sima</i> | California-Oregon-Washington | | | | |
| Family Ziphiidae (beaked whales) | | | | | | |
| <i>Baird's beaked whale</i> | <i>Berardius bairdii</i> | Eastern North Pacific | -;N | 0.81, 466, 2008 | 4.7 | 0 |
| <i>Cuvier's beaked whale</i> | <i>Ziphius cavirostris</i> | California-Oregon-Washington | -;N | Unk, unk, 2014 | Unk | 0 |
| <i>Mesoplodont beaked whales (six species)</i> | <i>Mesoplodon spp.</i> | California-Oregon-Washington | -;Y | 0.65, 389, 2008 | 0.5 | 3.9 |
| Family Delphinidae | | | | | | |
| <i>Short-beaked common dolphin</i> | <i>Delphinus delphis d.</i> | California-Oregon-Washington | -;N | 0.17, 839,325, 2014 | 5,393 | 40 |
| <i>Long-beaked common dolphin</i> | <i>Delphinus capensis c.</i> | California | -;N | 0.49, 88,432, 2014 | 657 | 35.4 |
| <i>Pacific white-sided dolphin</i> | <i>Lagenorhynchus obliquidens</i> | California-Oregon-Washington northern and southern stocks | -;N | 0.28, 21,195, 2014 | 191 | 7.5 |
| <i>Striped dolphin</i> | <i>Stenella coeruleoalba</i> | California-Oregon-Washington | -;N | 0.2, 24,782, 2014 | 238 | 0.8 |
| <i>Risso's dolphin</i> | <i>Grampus griseus</i> | California-Oregon-Washington | -;N | 0.32, 4,817, 2014 | 46 | 3.7 |
| <i>Common bottlenose dolphin</i> | <i>Tursiops truncatus t.</i> | California-Oregon-Washington offshore stock | -;N | 0.54, 1,255, 2014 | 11 | 1.6 |
| <i>Common bottlenose dolphin</i> | <i>Tursiops truncatus t.</i> | California coastal stock | -;N | 0.06, 346, 2011 | 2.7 | 2 |
| <i>Northern right whale dolphin</i> | <i>Lissodelphis borealis</i> | California-Oregon-Washington | -;N | 0.44, 18,608, 2014 | 179 | 3.8 |
| Killer whale | <i>Orcinus orca</i> | Eastern North Pacific offshore | -;N | 0.49, 162, 2014 | 1.6 | 0 |
| Killer whale | <i>Orcinus orca</i> | West Coast Transient | -;N | Unk, 243, 2009 | 2.4 | 0 |
| <i>Short-finned pilot whale</i> | <i>Globicephala macrorhynchus</i> | California-Oregon-Washington | -;N | 0.79, 466, 2014 | 4.5 | 1.2 |
| Family Phocoenidae (porpoises) | | | | | | |
| <i>Dall's porpoise</i> | <i>Phocoenoides dalli</i> | California-Oregon-Washington | -;N | 0.45, 17,954, 2014 | 172 | 0.3 |
| Order Carnivora – Superfamily Pinnipedia | | | | | | |
| Family Otariidae (eared seals and sea lions) | | | | | | |
| <i>Guadalupe fur seal</i> | <i>Arctocephalus townsendi</i> | Guadalupe Island | E;Y | Unk, 15,830, 2010 | 542 | 3.2 |
| California sea lion | <i>Zalophus californianus</i> | U.S. stock | -;N | Unk, 153,337, 2011 | 9,200 | 389 |
| <i>Steller sea lion</i> | <i>Eumetopias jubatus</i> | Eastern | -;N | Unk, 41,638, | 2,498 | 108 |

| | | | | 2015 | | |
|---------------------------------|---------------------------------|---------------------------|-----|-------------------|-------|-----|
| <i>Northern fur seal</i> | <i>Callorhinus ursinus</i> | California stock | -;N | Unk, 7,524, 2013 | 451 | 1.8 |
| <i>Northern elephant seal</i> | <i>Mirounga angustirostris</i> | California breeding stock | -;N | Unk, 81,368, 2010 | 4,882 | 8.8 |
| Family Phocidae (earless seals) | | | | | | |
| Pacific harbor seal | <i>Phoca vitulina richardii</i> | California stock | -;N | Unk, 27,348, 2012 | 1,641 | 43 |

1 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2- NMFS marine mammal stock assessment reports online at: www.nmfs.noaa.gov/pr/sars/. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable [explain if this is the case]

3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

NOTE - Italicized species are not expected to be taken

All species that could potentially occur in the construction area are included in Table 1.

However, the temporal and spatial occurrence of all but three of the species listed in Table 1 with respect to the timing and location of the specified activity is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here.

Most of the species included in Table 1 above are unlikely to occur during the construction work because they are not resident to this part of California during the late summer and early fall months. For those species that may occur in coastal southern California during that time, they are unlikely to occur at such close proximity to the shoreline and the construction work is conducted from a pier connected to a beach with maximum water depths of 4-8 meters. The long-beaked common dolphin may occasionally venture within one nautical mile of the project site but is unlikely. The short-beaked common dolphin is much less likely to appear in the vicinity than the long-beaked common dolphin. The gray whale occurs within one nautical mile of the project site, but it does not migrate through the region until late December through

May, with most gray whales sighted near the project area in the spring. The other species generally occur farther offshore and have not been reported in the vicinity of this area of the Southern California Bight (SCB), so they will not be discussed further in this document.

Of the MMPA-listed species of marine mammals summarized in Table 1, only the Pacific harbor seal, the California sea lion, and the coastal stock of bottlenose dolphin are anticipated to be found in the immediate vicinity of the project site and subsequently may be taken by pile driving. Below are descriptions of those species and the relevant stock, as well as information regarding population trends and threats, and describe any information regarding local occurrence.

A detailed description of the of the species likely to be affected by the Casitas pier project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the *Federal Register* notice for the proposed IHA (82 FR 42306; September 9, 2017); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that *Federal Register* notice for these descriptions. Please also refer to NMFS' website (www.nmfs.noaa.gov/pr/species/mammals/) for generalized species accounts.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from pile driving activities for the Casitas pier project have the potential to result in behavioral harassment of marine mammals in the vicinity of the action area. The *Federal Register* notice for the proposed IHA (82 FR 42306; September 9, 2017) included a discussion of the effects of anthropogenic noise on marine mammals, therefore

that information is not repeated here; please refer to the *Federal Register* notice (82 FR 42306; September 9, 2017) for that information.

Anticipated Effects on Habitat

The main impact associated with the Casitas pier construction project will be temporarily elevated sound levels and the associated direct effects on marine mammals. The project will not result in additional permanent impacts to habitats used directly by marine mammals, but may have potential short-term impacts to food sources such as forage fish, and minor impacts to the immediate substrate during installation and removal of piles, etc. The area is a known haulout with an existing pier, so temporary disturbance of the haulout may occur but the resulting structure will leave the same footprint as currently exists. These potential effects are discussed in detail in the *Federal Register* notice for the proposed IHA (82 FR 42036; September 9, 2017), therefore that information is not repeated here; please refer to that *Federal Register* notice for that information.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of whether the number of takes is "small" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of 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).

Authorized takes will be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to pile driving. Based on the nature of the activity, Level A harassment is neither anticipated nor authorized. Below we describe how the take is estimated.

Described in the most basic way, we estimate take by considering: 1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; 2) the area or volume of water that will be ensonified above these levels in a day; 3) the density or occurrence of marine mammals within these ensonified areas; and, 4) and the number of days of activities. Below, we describe these components in more detail and present the authorized take estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals will be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2011). Based on what the available science indicates and the practical need to use a

threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 decibels (dB) re 1 microPascal (μPa) root mean square (rms) for continuous (*e.g.* vibratory pile-driving, drilling) and above 160 dB re 1 μPa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

Venoco's project includes the use of continuous (vibratory pile driving) and impulsive (impact pile driving) sources, and therefore the 120 and 160 dB re 1 μPa (rms) thresholds are applicable.

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Technical Guidance, 2016) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). Venoco's construction activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving) sources.

These thresholds were developed by compiling and synthesizing the best available science and soliciting input multiple times from both the public and peer reviewers to inform the final product, and are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2016 Technical Guidance, which may be accessed at: <http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm>.

Table 2. Thresholds identifying the onset of Permanent Threshold Shift.

| | PTS Onset Acoustic Thresholds* (Received Level) | |
|---|--|---|
| Hearing Group | Impulsive | Non-impulsive |
| Low-Frequency (LF) Cetaceans | <i>Cell 1</i> $L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB | <i>Cell 2</i> $L_{E,LF,24h}$: 199 dB |
| Mid-Frequency (MF) Cetaceans | <i>Cell 3</i> $L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB | <i>Cell 4</i> $L_{E,MF,24h}$: 198 dB |
| High-Frequency (HF) Cetaceans | <i>Cell 5</i> $L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB | <i>Cell 6</i> $L_{E,HF,24h}$: 173 dB |
| Phocid Pinnipeds (PW) (Underwater) | <i>Cell 7</i> $L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB | <i>Cell 8</i> $L_{E,PW,24h}$: 201 dB |
| Otariid Pinnipeds (OW) (Underwater) | <i>Cell 9</i> $L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB | <i>Cell 10</i> $L_{E,OW,24h}$: 219 dB |
| <p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p><u>Note:</u> Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (L_E) has a reference value of 1 μPa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p> | | |

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds.

Pile driving generates underwater noise that can potentially result in disturbance to marine mammals in the project area. Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency,

temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

$$TL = B * \log_{10}(R1/R2), \text{ where}$$

R1 = the distance of the modeled SPL from the driven pile, and

R2 = the distance from the driven pile of the initial measurement.

This formula neglects loss due to scattering and absorption, which is assumed to be zero here. The degree to which underwater sound propagates away from a sound source is dependent on a variety of factors, most notably the water bathymetry and presence or absence of reflective or absorptive conditions including in-water structures and sediments. Spherical spreading occurs in a perfectly unobstructed (free-field) environment not limited by depth or water surface, resulting in a 6 dB reduction in sound level for each doubling of distance from the source ($20 * \log[\text{range}]$). Cylindrical spreading occurs in an environment in which sound propagation is bounded by the water surface and sea bottom, resulting in a reduction of 3 dB in sound level for each doubling of distance from the source ($10 * \log[\text{range}]$). A practical spreading value of 15 is often used under conditions, such as at the Biorca Island dock, where water increases with depth as the receiver moves away from the shoreline, resulting in an expected propagation environment that will lie between spherical and cylindrical spreading loss conditions. Practical spreading loss (4.5 dB reduction in sound level for each doubling of distance) is assumed here.

Underwater Sound – The intensity of pile driving sounds is greatly influenced by factors such as the type of piles, hammers, and the physical environment in which the activity takes place. A number of studies, primarily on the west coast, have measured sound produced during underwater pile driving projects. These data are largely for impact driving of steel pipe piles and

concrete piles as well as vibratory driving of steel pipe piles, rather than the hybrid pile used by Venoco.

Reference sound levels used by Venoco were based on underwater sound measurements documented for a number of pile driving projects with similar pile sizes and types at similar sites in California (*i.e.*, areas of soft substrate where water depths are less than 16 feet (5 meters) (Caltrans 2009)). The noise energy will dissipate as it spreads from the pile at a rate of at least 4.5 dB per doubling of distance, which is practical spreading (Caltrans 2009). This is a conservative value for areas of shallow water with soft substrates, and actual dissipation rates would likely be higher. Using this information, and the pile information presented in Table 1 of the proposed IHA notice, distances to NMFS thresholds were estimated using measured sound levels and a practical spreading model.

Venoco used the NMFS Optional User Spreadsheet, available at http://www.nmfs.noaa.gov/pr/acoustics/Acoustic%20Guidance%20Files/march_v1.1_blank_spreadsheet.xlsx, to input project-specific parameters and calculate the isopleths for Level A and Level B zones from both impact and vibratory pile driving. These inputs include estimated duration of pile driving, estimated number of strikes per pile (for the impact hammer method); and maximum number of piles to be driven in a day. Each pile will require approximately 25 minutes of vibratory driving, and up to 6 piles could be installed by this method in a single day. During this time the sound levels above and below water will be in excess of normal pier operations. In the unlikely event that an impact hammer is used, installation of a single pile will require an estimated 400 hammer strikes over 15 minutes, and up to 6 piles could be installed by this method in a single day.

Venoco used the Caltrans (2015) guidelines for selection of an appropriate pile driving sound source level for a composite 50-foot, 16-inch pipe/12-foot, 14-inch H-pile configuration, for both vibratory and impact driving methods, taking into consideration that only the H-pile segment of the pile (the bottom portion) will be driven below the mudline, thus the predominant underwater noise source will emanate from the steel pipe segment.

Source Levels

For the impact hammer method, the average sound pressure level measured in dB is based on the 16-inch steel pipe sound levels (Caltrans 2015, Table I.2-1), adjusted upward for the composite 16-inch pipe/14-inch H-pile design because the sound level for the composite pile is anticipated to be greater than the Caltrans reference sound level for 16-inch steel pipe (158 dB), but less than the Caltrans reference sound level for 14-inch steel H-pile (177 dB). As described above, the replacement piles will be a composite of two materials, pre-welded into a single pile prior to driving. The upper section will consist of 48 to 50 feet (15 meters) of 16-inch diameter x 0.50-inch wall thickness pipe pile and the bottom segment will consist of a 12-foot (4-meter) long 14 inch x 73 pound H-pile. The water depth ranges from 13 to 27 feet (4 to 8 meters) at the end of the Pier, with seasonal variations due to beach sand withdraw and return between the winter and summer seasons. When impact driving is initiated the H-pile will partially enter the mud substrate (*e.g.*, up to two to four feet) pushed by hammer weight and the weight of the pipe itself due to soft substrate (mud) at the seafloor surface. Thus, when impact driving begins only a portion of the 12-foot H pile will be exposed in the water column and most of the length of pile within the water column will be steel pipe pile. As pile driving progresses, the H-pile portion of the fender pile will continue to enter the seabed, and the proportion of H-pile to steel pipe exposed to the water column will decrease until the H-pile is entirely buried or until pile driving

is suspended at a minimum depth of six feet. Consequently, the sound level for the composite pile is anticipated to be greater than the Caltrans reference sound level for 16-inch steel pipe (158 dB), and less than the Caltrans reference sound level for 14-inch steel H-pile (177 dB).

Based on these factors, the reference sound level from composite pile was based on 16-inch steel pipe pile, with an upward adjustment of 6 dB (to 164 dB SEL). This 6 dB adjustment is divided into two parts: 3 dB (one doubling) adjustment for the H-pile itself (*i.e.*, the portion of H-pile being driven by impact hammer); and 3 dB (a second doubling) adjustment for the H-pile that is acting as a foundation, and thus providing some resistance to the pipe pile while it is being driven by impact hammer. This sound level, which represents two doublings of the reference sound level of the 16-inch steel pipe, is considered sufficiently conservative to account for the H-pile portion of the fender pile that will be exposed in the water column and serving as a foundation to the pipe pile during impact driving.

For the vibratory driving method, the average sound pressure level measured in dB is based on the 12-inch H-pile sound levels (Caltrans 2015, Table I.2-2), adjusted upward by 4 dB for composite 16-inch pipe/14-inch H-pile design. Caltrans data do not include specific vibratory reference sound levels for the 14-inch H-pile. Therefore, it was assumed that doubling the reference sound level for 12-inch H-pile plus 1 dB (*i.e.*, a 4 dB increase), will provide a sufficiently conservative assumption for a 14-inch H-pile.

Table 3. NMFS Option User Spreadsheet Inputs.

| USER SPREADSHEET INPUT | | | |
|--|--------------------------|---|------------------------------|
| | Impact Driver | | Vibratory Driver |
| Spreadsheet Tab Used | E.1) Impact pile driving | Spreadsheet Tab Used | A) Non-impulsive, continuous |
| Source Level (dB; SEL) | 164 | Source Level (RMS SPL) | 154 |
| Weighting Factor Adjustment (kHz) | 2 | Weighting Factor Adjustment (kHz) | 2.5 |
| a) Number of strikes per pile | 400 | Activity duration within 24 hours (hrs) | N/A |
| a) Number of piles per day | 6 | | N/A |
| Activity duration within 24 hr period | N/A | | 2.5 |
| Propagation (xLogR) | 15 | Propagation (xLogR) | 15 |
| Distance of source level measurement (meters) ⁺ | 10 | | 10 |

⁺Unless otherwise specified, source levels are referenced 1 m from the source.

Level A Isopleths

When NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed an Optional User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which will result in some degree of overestimate of Level A take. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources, NMFS Optional User Spreadsheet predicts the closest distance at which, if a marine mammal remained at that distance the whole duration of the activity, it will not incur PTS. Inputs

used in the User Spreadsheet, and the resulting isopleths are reported below. The inputs Venoco used to obtain the isopleths discussed below are summarized in Table 3 above.

Table 4. Expected Distances of Level A Threshold Exceedance with Impact and Vibratory Driver.

| USER SPREADSHEET OUTPUT | | | | | |
|--------------------------|-------------------------|-------------------------|--------------------------|------------------|-------------------|
| Source Type | PTS Isopleth (meters) | | | | |
| | Low-Frequency Cetaceans | Mid-Frequency Cetaceans | High-Frequency Cetaceans | Phocid Pinnipeds | Otariid Pinnipeds |
| Impact driving | 96.9 | 3.4 | 115.4 | 51.8 | 3.8 |
| Vibratory driving | 4.3 | 0.4 | 6.4 | 2.6 | 0.2 |

Level B Isopleths

Using 173 dB RMS as the source level for impact pile driving and 154 dB RMS for vibratory driving, the Level B distance was calculated for both impact and vibratory driving, assuming practical spreading. For vibratory driving, the Level B isopleth extends out to 1,848 meters (1.15 miles; 6,063 feet) from the pile driving site. For impact driving, the Level B isopleth extends out to 74 meters (112 feet) from the pile driving site.

Table 5. Expected Distances of Level B Threshold Exceedance with Impact and Vibratory Driver.

| Source Type | Level B Isopleth (meters) | |
|--------------------------|---------------------------|--------------------|
| | 160 dB (Impact) | 120 dB (Vibratory) |
| Impact driving | 74 | N/A |
| Vibratory driving | N/A | 1,848 |

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

At-sea densities for marine mammal species have not been determined for marine mammals in the coastal Carpinteria area; therefore, all estimates here are determined by using observational data from biologists, peer-reviewed literature, and information obtained from personal communication with other companies that have conducted activities on or near the Carpinteria beach area. Additionally, some harbor seal information was collected by the Carpinteria Seal Watch.

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

Level A take is not expected or authorized for this activity. Of the two types of pile driving, the largest Level A isopleth is from impact driving at 51.8 meters for harbor seals, 3.8 meters for California sea lion, and 3.45 meters for bottlenose dolphins. Neither bottlenose dolphins nor California sea lions are resident to this area and are not expected to remain in water near the beach for an extended duration of time. At 15 minutes per pile, this is equal to 90 minutes per day; however, those 90 minutes will be spread out over multiple hours to account for equipment re-sets, breaks, etc. Because dolphins and sea lions are not resident and not known to linger in the area, full exposure to all impact pile driving within a day is highly unlikely. It is even more unlikely that these species will remain within 4 meters of the sound source for a continuous period of two and a half hours in a day. Harbor seals are resident to the area and the beach at the base of the pier is a frequently used haulout. However, it is unlikely a harbor seal will remain in water during the total time of construction within a day, as they likely will be transiting out from the beach to forage and then returning to the beach. Therefore, it is estimated that no marine mammal of the three species most likely to occur will remain in close enough

proximity for the duration of daily construction to be exposed to accumulated energy levels reaching the onset of PTS. Hence no Level A take is authorized.

Because of the lack of at-sea density information in the region of the project, estimated marine mammal takes were calculated using the following formula:

Level B exposure estimate = N (number of animals) in the ensonified area * Number of days of noise generating activities.

Harbor seal

Harbor seals are the most abundant species found at the project site. This beach is a known rookery for the local population, although work will be conducted outside of the pupping season. Although a wealth of data exists from the Carpinteria Seal Watch, these data are sometimes incomplete and data from some periods are missing. Moreover, these data were gathered during the period the Carpinteria Seal Watch does its monitoring (about January 1 through May 30 of each year). From June 1 through December 30 of each year, such data are virtually absent. The project is scheduled to begin in the fall, when the seals have largely abandoned the beach because it is open to the public and disturbances are chronic. The seals switch to a nighttime haul-out pattern during this period, hauling out after sundown and before dawn, unless the tide is very high (Seagars 1988). In such cases, the amount of haul-out area is very restricted and the seals are largely absent during this season. Reliable density data are not available from which to calculate the expected number of harbor seals within the Level B harassment zone from pile driving. Based on review of the available observational data, similar past experience in the project vicinity, and project timing (fall season, daytime hours), an estimated range of 0 to 50 harbor seals is anticipated to be present within the project vicinity during work periods. Therefore, it is estimated that up to 50 seals may be taken per day by Level

B harassment. Over two and a half days of activity, that results in a total of 125 instances of harbor seal takes during the project.

California sea lion

California sea lions are abundant throughout the SCB but do not regularly use Carpinteria as a haulout in large numbers. Individuals are usually observed hauled out on offshore structures approximately 0.75 miles southeast of the pier. Reliable density data are not available from which to calculate the expected number of sea lions within the Level B harassment impact zone for pile driving. Based on the available observational data and project timing (fall season), an estimated range of zero to 15 sea lions is anticipated to be present within the project vicinity during work periods. Therefore it is estimated that up to 15 California sea lions may be taken per day by Level B harassment in a day. Over two and a half days of activity, that results in a total of 38 California sea lions taken during the project as it is not known if the California sea lions that come to the beach are the same individuals.

Bottlenose dolphin

Bottlenose dolphins may occur sporadically near the project area, but never in large numbers. Past projects have revealed anywhere from 2 to 32 animals present at any one time, with an average pod size of 8 (MMCG 1995; 1998a, b, d, and e; 2001a and b; 2006; 2011c, 2013b, and 2014b). Therefore, it is estimated that no more than 16 coastal bottlenose dolphins (two pods of average group size) may be taken by Level B harassment in a day. Over two and a half days of activity, that results in a total of 40 bottlenose dolphins taken during the project as it is not known if any of the animals sighted will be repeated individuals.

Mitigation

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

- 1) the manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned) the likelihood of effective implementation (probability implemented as planned). and;
- 2) the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The following measures will apply to Venoco's mitigation through shutdown and disturbance zones:

Shutdown Zone

For all pile driving activities, Venoco will establish a shutdown zone intended to contain the area in which SELs equal or exceed the auditory injury criteria for cetaceans and pinnipeds. The purpose of a shutdown zone is to define an area within which shutdown of activity will occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area), thus further preventing injury of marine mammals (as described previously under Potential Effects of the Specified Activity on Marine Mammals, serious injury or death are unlikely outcomes even in the absence of mitigation measures). Venoco proposed a shutdown zone for the largest Level A isopleth, which is the phocid Level A isopleth of 52 meters. NMFS requires a 10 m minimum shutdown zone for construction activities, however Venoco proposed a more conservative minimum shutdown zone of 52 meters that will be established during all pile driving activities. The 52-meter output is the threshold if an animal were to remain within that distance from the source for all of the day's pile driving, which is over many hours.

Disturbance Zone

Disturbance zones are the areas in which SPLs equal or exceed 160 and 120 dB rms (for impact and vibratory pile driving, respectively). Disturbance zones provide utility for monitoring conducted for mitigation purposes (*i.e.*, shutdown zone monitoring) by establishing monitoring protocols for areas adjacent to the shutdown zones and identifying amount of take. Monitoring of disturbance zones enables observers to be aware of and communicate the presence of marine mammals in the project area but outside the shutdown zone and thus prepare for potential shutdowns of activity. However, the primary purpose of disturbance zone monitoring is for

documenting instances of Level B harassment; disturbance zone monitoring is discussed in greater detail later (see Monitoring and Reporting). Nominal radial distances for disturbance zones are shown in Table 5.

Given the size of the disturbance zone for vibratory pile driving, it is impossible to guarantee that all animals will be observed or to make comprehensive observations of fine-scale behavioral reactions to sound, and only a portion of the zone (*e.g.*, what may be reasonably observed by visual observers stationed on the pier and bluff above the beach) will be observed. In order to document observed instances of harassment, observers record all marine mammal observations, regardless of location. The observer's location, as well as the location of the pile being driven, is known from a GPS. The location of the animal is estimated as a distance from the observer, which is then compared to the location from the pile. It may then be estimated whether the animal was exposed to sound levels constituting incidental harassment on the basis of predicted distances to relevant thresholds in post-processing of observational and acoustic data, and a precise accounting of observed incidences of harassment created. This information may then be used to extrapolate observed takes in the observable zone multiplied by the portion of the zone that is unseen to reach an approximate understanding of predicted total takes ($\text{Area seen} / \text{area unseen} = \text{takes observed} / \text{takes unobserved}$).

Based on our evaluation of the applicant's proposed measures, NMFS has determined that the mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Soft Start

The use of a soft start procedure provides additional protection to marine mammals by warning or providing a chance to leave the area prior to the hammer operating at full capacity, and typically involves a requirement to initiate sound from the hammer at reduced energy followed by a waiting period. It is difficult to specify the reduction in energy for any given hammer because of variation across drivers and, for impact hammers, the actual number of strikes at reduced energy will vary because operating the hammer at less than full power results in “bouncing” of the hammer as it strikes the pile, resulting in multiple “strikes.” For impact driving, we require an initial set of three strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then 2 subsequent 3 strike sets. This procedure is repeated two additional times. Soft start will be required at the beginning of each day’s impact pile driving work and at any time following a cessation of impact pile driving of 30 minutes or longer.

Timing Restrictions

Venoco will only conduct construction activities during daytime hours. Construction will also be restricted to the fall and late summer months (July through November) to avoid overlap with harbor seal pupping.

Based on our evaluation of the Venoco’s proposed measures, NMFS has determined that the mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS 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 authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Monitoring Protocols

- Monitoring will be conducted before, during, and after pile driving activities., Observers shall record all instances of marine mammal occurrence, regardless of distance from activity, and shall document any apparent behavioral reactions in concert with distance from piles being driven. Observations made outside the shutdown zone will not result in shutdown; that pile segment will be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile driving activities will be halted. Monitoring will take place from 30 minutes prior to initiation through 30 minutes post-completion of pile driving activities. Pile driving activities include the time to install a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes. If pile driving ceases for more than 30 minutes, the 30 minute pre-pile driving monitoring effort will take place prior to onset of pile driving.

- Prior to the start of pile driving activity, the shutdown zone will be monitored for 30 minutes to ensure that it is clear of marine mammals. Pile driving will only commence once observers have declared the shutdown zone clear of marine mammals. If the shutdown zone is not clear of a marine mammals, pile driving will not commence until the shut-down zone is clear. Any animals in the shut down zone prior to commencement of pile driving will be allowed to remain in the shutdown zone and their behavior will be monitored and documented. If the 52-meter shutdown zone is not entirely visible (*e.g.*, due to dark, fog, etc), pile driving will not commence or proceed if it is underway.

- If a marine mammal approaches or enters the shutdown zone during the course of pile driving operations, activity will be halted and delayed until either the animal has voluntarily

left and been visually confirmed beyond the shutdown zone or 30 minutes have passed without re-detection.

- If a species for which authorization has not been granted, or if a species for which authorization has been granted but the authorized takes are met, approaches or is observed within the Level B harassment zone, activities will shut down immediately and not restart until the animals have been confirmed to have left the area for 30 minutes. If pile driving has ceased for more than 30 minutes, the 30 minute pre- pile driving monitoring will begin.
- Venoco shall implement a minimum shutdown zone of 10 meter radius around each pile for all construction methods other than pile driving for all marine mammals.

Visual Marine Mammal Observations

Venoco will collect sighting data and behavioral responses to construction for marine mammal species observed in the region of activity during the period of activity. All marine mammal observers (MMOs) will be trained in marine mammal identification and behaviors and are required to have no other construction-related tasks while conducting monitoring. A minimum of two MMOs will be required for all pile driving activities. Venoco will monitor the shutdown zone and disturbance zone before, during, and after pile driving, with observers located at the best practicable vantage points. Based on our requirements, Venoco will implement the following procedures for pile driving:

- MMOs will be located at the best vantage point(s) in order to properly see the entire shutdown zone and as much of the disturbance zone as possible;
- During all observation periods, observers will use binoculars and the naked eye to search continuously for marine mammals;

- If the shutdown zones are obscured by fog or poor lighting conditions, pile driving at that location will not be initiated until that zone is visible. Should such conditions arise while impact driving is underway, the activity will be halted; and

- The shutdown zone (52 m) and observable portion of the disturbance zone around the pile will be monitored for the presence of marine mammals 30 min before, during, and 30 min after any pile driving activity.

If any species for which take is not authorized is observed within or approaching the Level B zone by a MMO during pile driving, all construction will be stopped immediately. Pile driving will commence if the animal has not been seen inside the Level B zone for at 30 minutes of observation.

Data Collection

The IHA requires that observers use approved data forms. Among other pieces of information, Venoco will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, Venoco will attempt to distinguish between the number of individual animals taken and the number of incidences of take. At a minimum, the following information will be collected on the sighting forms:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters (*e.g.*, percent cover, visibility);
- Water conditions (*e.g.*, sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;

- Description of any observable marine mammal behavior patterns, including bearing and direction of travel, and if possible, the correlation to SPLs;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Description of implementation of mitigation measures (*e.g.*, shutdown or delay);
- Locations of all marine mammal observations; and
- Other human activity in the area.

Reporting

A draft report will be submitted to NMFS within 90 days of the completion of marine mammal monitoring, or 60 days prior to the requested date of issuance of any future IHA for projects at the same location, whichever comes first. The report will include marine mammal observations pre-activity, during-activity, and post-activity during pile driving days, and will also provide descriptions of any behavioral responses to construction activities by marine mammals and a complete description of all mitigation shutdowns and the results of those actions and an extrapolated total take estimate based on the number of marine mammals observed during the course of construction. A final report must be submitted within 30 days following resolution of comments on the draft report.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact 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 (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone

is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

Pile driving activities associated from the Casitas Pier project, as outlined previously in the proposed IHA, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance), from underwater sounds generated from pile driving. Potential takes could occur if individuals of these species are present in the ensonified zone when pile driving occurs.

No injury is anticipated given the nature of the activities and measures designed to minimize the possibility of injury to marine mammals. The potential for these outcomes is minimized through the implementation of the planned mitigation measures, as described in the Estimated Take section. Specifically, vibratory and impact hammers will be the primary methods of installation. Impact pile driving produces short, sharp pulses with higher peak levels and much sharper rise time to reach those peaks. If impact driving is necessary, implementation of soft start and shutdown zones significantly reduces any possibility of injury. Given sufficient “notice”

through use of soft start (for impact driving), marine mammals are expected to move away from a sound source that is annoying prior to it becoming potentially injurious. Venoco will use a minimum of two MMOs stationed strategically to increase detectability of marine mammals, enabling a high rate of success in implementation of shutdowns to avoid injury.

Venoco's activities are localized and of relatively short duration (two and a half days of pile driving 16 piles). The project area is also very limited in scope spatially, as all work is concentrated on a single pier. These localized and short-term noise exposures may cause short-term behavioral modifications in harbor seals, California sea lions, and bottlenose dolphins. Moreover, the mitigation and monitoring measures are expected to further reduce the likelihood of injury, as it is unlikely an animal will remain in close proximity to the sound source with small Level A isopleths, as well as reduce behavioral disturbances. While the project area is known to be a rookery for harbor seals, the work will be conducted in seasons when few harbor seals are known to be present and no breeding activities occur.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat. The project activities will not modify existing marine mammal habitat for a significant amount of time. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range. However, because of the short duration of the activities and the relatively small area of the habitat that may be affected, and the decreased potential of prey species to be in the Project area during the construction work window, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to temporary

reactions such as increased swimming speeds, increased surfacing time, flushing, or decreased foraging (if such activity were occurring) (*e.g.*, Thorson and Reyff 2006; Lerma 2014). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in fitness for the affected individuals, and thus will not result in any adverse impact to the stock as a whole.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No injury is anticipated or authorized;
- Level B harassment may consist of, at worst, temporary modifications in behavior (*e.g.*, temporary avoidance of habitat or changes in behavior);
- The lack of important feeding, pupping, or other areas in the action area during the construction window;
- The small impact area relative to species range size;
- The minimization of harassment likelihood and severity due to mitigation; and
- The small percentage of the stock that may be affected by project activities (< 9 percent for all stocks; Table 6).

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 monitoring and mitigation measures, NMFS finds that the total marine mammal take from the construction activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Section 101(a)(5)(D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

Table 6 details the number of instances (harbor seals) or individuals (California sea lions and bottlenose dolphins) that animals could be exposed to received noise levels that could cause Level B harassment for the construction work at the project site relative to the total stock abundance. The numbers of animals authorized to be taken for all species will be considered small relative to the relevant stocks or populations even if each estimated instance of take occurred to a new individual. The total percent of the population (if each instance was a separate individual) for which take is requested is less than nine percent for all stocks (Table 6). Based on the analysis contained herein of the construction activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Table 6. Estimated Numbers and Percentage of Stock That May Be Exposed to Level B Harassment.

| Species | Authorized Level B Takes | Stock(s) Abundance Estimate ¹ | Percentage of Total Stock (percent) |
|--|--------------------------|--|-------------------------------------|
| Harbor Seal (<i>Phoca vitulina</i>) <i>California stock</i> | 125 | 30,968 | .40 |
| California sea lion (<i>Eumatopias jubatus</i>) | 38 | 296,750 | .013 |

| | | | |
|--|----|-------|------|
| <i>U.S. Stock</i> | | | |
| Bottlenose dolphin (<i>Tursiops truncatus</i>) | | 1,924 | 2.1 |
| California-Oregon-Washington Stock | 40 | 453 | 8.83 |
| California Coastal Stock | | | |

¹ All stock abundance estimates presented here are from the 2016 Pacific Stock Assessment Report

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks will not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. § 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

No incidental take of ESA-listed species is authorized or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Authorization

NMFS has issued an IHA to Venoco LLC for the potential harassment of small numbers of three marine mammal species incidental to the Casitas Pier fender pile replacement project in Carpinteria, CA, provided the previously mentioned mitigation, monitoring and reporting requirements are incorporated.

Dated: November 16, 2017.

Catherine Marzin,
Acting Deputy Director,
Office of Protected Resources,
National Marine Fisheries Service.

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