



MARINE MAMMAL COMMISSION

14 August 2020

Ms. Jolie Harrison, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by Alaska Gasline Development Corporation (AGDC) seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (the MMPA) to take small numbers of marine mammals by harassment. The taking would be incidental to construction activities in Prudhoe Bay, Alaska. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 16 July 2020 notice (85 Fed. Reg. 43382) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions.

AGDC plans to install and remove piles to modify an existing dock (West Dock) as part of the development of a liquefied natural gas export facility in Prudhoe Bay. AGDC would install up to (1) 212 11.5-inch H-piles, 8 14-inch H-piles¹, and 16 48-inch piles using an impact hammer and (2) 64 14-inch H-piles^{1,2} and 1,726 19.69-inch and 25-inch sheet piles using a vibratory hammer. AGDC's pile-driving activities would occur on up to 123 days during the 2022³ open-water season, for up to 24 hours per day, with a break in pile driving during the Nuiqsut whaling season (approximately 25 August through 15 September). A contingency period from February to April 2023 may be necessary in the event that pile driving or removal cannot be completed during the 2022 open-water season.

NMFS preliminarily has determined that, at most, the proposed activities could cause Level B harassment of small numbers of six marine mammal species. NMFS anticipates that any impact on the affected species and stocks would be negligible. NMFS also does not anticipate any take of marine mammals by death or serious injury and believes that the potential for disturbance will be at the least practicable level because of the proposed mitigation measures. The proposed mitigation, monitoring, and reporting measures include—

¹ These were incorrectly identified as 14.5-inch piles in Table 4 (85 Fed. Reg. 43385).

² 16 of these piles would be installed and removed in the same day.

³ Although NMFS indicated activities would occur in 2022, AGDC's application, marine mammal mitigation and monitoring plan, and plan of cooperation all indicate a start date for pile-driving activities of 2021.

- ceasing in-water heavy machinery activities if any marine mammal comes within 10 m of the equipment and reducing vessel speed to the minimum level required to maintain steerage and safe working conditions;
- using pre-clearance, soft-start⁴, delay and shutdown procedures;
- using at least two land-based qualified protected species observers (PSOs) to monitor the Level A⁵ and B harassment zones for 30 minutes before, during, and for 30 minutes after the proposed activities 24 hours per day, even during periods without construction;
- monitoring the construction site 24 hours per day from shore three days prior to the onset of pile driving and continuing through three days after construction activities are completed;
- deploying PSOs on elevated structures during impact pile driving;
- during the contingency period (February to April 2023), beginning pile driving activities before 1 March, using a subsistence advisor to detect ringed seal structures in areas where the water depth is greater than 3 m, and requiring construction crews to avoid ice seal structures by at least 150 m⁶;
- using delay and shutdown procedures, 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;
- conducting hydroacoustic monitoring using a single, archival passive acoustic monitoring device deployed in the far field during pile-driving activities;
- reporting injured and dead marine mammals to the Office of Protected Resources and the Alaska Regional Stranding Coordinator and ceasing activities, if appropriate; and
- submitting a draft and final report, including all PSO datasheets and/or raw sightings data.

Availability of marine mammals for subsistence use

Based on the description of the specified activity, the measures described to minimize adverse effects on the availability of marine mammals for subsistence purposes, and the proposed mitigation and monitoring measures, NMFS preliminarily has determined that there will not be an unmitigable adverse impact on subsistence uses from AGDC's proposed activities. AGDC stated that they have consulted with communities in the Beaufort Sea area and the Alaska Eskimo Whaling Commission (AEWC) several times since 2015 about potential impacts of the project on subsistence hunting activities. NMFS made available for review a version of AGDC's plan of cooperation (POC) dated February 2020, identifying measures that AGDC would implement to minimize adverse impacts on the availability of marine mammals for subsistence purposes. NMFS stated that the POC outlined AGDC's 'extensive coordination' with subsistence communities, and that it would be updated throughout the project review and permitting process (85 Fed. Reg. 43406). NMFS noted that updates on the project were provided to the AEWC and the North Slope Borough as recently as February and May 2020. However, the POC did not reflect these more recent meetings, nor did it include any summaries of meetings conducted with stakeholders since 2015.

⁴ During impact pile driving.

⁵ And shutdown zones.

⁶ Neither the requirement to use a subsistence advisor to detect ringed seal lairs nor the requirement to avoid ringed seal lairs at a given distance were included in the draft authorization.

The POC listed several communities, subsistence groups, and Alaska Native co-management organizations that it *plans* to contact⁷, but the communities/organizations identified as being contacted to date in the POC have been limited to Nuiqsut (three meetings in 2015), the North Slope Borough (one meeting in 2015), and the AEWC (three meetings in 2018 and 2019)⁸. Follow-up meetings do not appear to have been held in the Nuiqsut community since 2015, even though Nuiqsut was identified by NMFS as the community with the greatest potential to experience impacts on subsistence practices (85 Fed. Reg. 43404). None of the other entities listed in the POC appear to have been contacted. The lack of effective engagement or communication with potentially affected communities, subsistence groups, or co-management organizations throughout the North Slope *must be addressed before construction activities progress further*. This is especially important for Utqiagvik because the whaling season during fall 2019 resulted in only one whale being landed in mid-November, despite extensive searching by hunters beginning in September. Bowhead migration during that season shifted substantially offshore based on aerial surveys (Clarke et al. 2020), but the cause is unknown. Potential disruptions to the bowhead hunt in any of the North Slope communities could have serious impacts on the nutritional and cultural needs of those communities.

The ongoing COVID-19 pandemic has and is expected to continue to limit opportunities for direct engagement with subsistence communities and co-management organizations. However, given the lack of stakeholder meetings and the limited number of entities contacted to date, the Commission recommends that, before further action is taken on issuance of an incidental harassment authorization, NMFS require AGDC to (1) revise its POC to include a summary of all meetings held to date with communities, subsistence groups, and co-management organizations, (2) make available to the public and North Slope communities on a publicly accessible website its Communication Plan detailing how it will communicate its project plans and seek input on proposed mitigation and monitoring measures from all potentially affected communities, subsistence groups, and co-management organizations well in advance of the commencement of construction activities, and most importantly, (3) include in the Communication Plan measures for conducting timely and effective two-way communications with affected subsistence users immediately prior to, during, and after construction activities.

Harassment zones and take estimates for impact installation of 48-in piles

The Commission informally noted that NMFS underestimated the source levels for impact installation of 48-in piles, the respective Level A and B harassment zones and the shutdown zones, and the resulting proposed numbers of takes⁹. NMFS indicated that it had to consult with the Alaska Regional Office on these issues. Specifically, NMFS used source level data from Caltrans (2015) for impact installation of 60-in cast-in-steel-shell (CISS) piles as a proxy for 48-in piles. However, the source levels included in Table I.2.-1 of Caltrans (2015) for 60-in CISS piles are *attenuated* source levels, not *unattenuated* source levels. Those piles were driven within either a cofferdam (see section I.3.2 in Caltrans 2015) or a sound attenuation device (isolation casing with a bubble curtain, see sections I.11 and I.11.2). NMFS indicated in the *Federal Register* notice that AGDC would not be using a sound attenuation device (85 Fed. Reg. 43406). Therefore, NMFS's use of the source levels

⁷ Listed on page 11 of the POC.

⁸ Notwithstanding the recent meetings with AEWC and the North Slope Borough mentioned herein.

⁹ The Commission also informally noted that the Level A harassment takes during impact installation of 48-in piles were incorrect for multiple species based on the method specified in AGDC's application.

from Caltrans was not appropriate¹⁰. Caltrans et al. (2015) did not include *unattenuated* source levels for impact installation of 60-in piles¹¹, and the *attenuated* source levels are less than *unattenuated* source levels for impact installation of 48-in piles.

For impact installation of 48-in piles¹², NMFS has consistently used and deemed as best available source levels from Austin et al. (2016; see 84 Fed. Reg. 31004, 85 Fed. Reg. 19312, 85 Fed. Reg. 21404, 85 Fed. Reg. 31151, 85 Fed. Reg. 40252). The source levels of 186.7 dB re 1 $\mu\text{Pa}^2\text{-sec}_{\text{single-strike (s-s)}}$ at 11 m, 198.6 dB re 1 $\mu\text{Pa}_{\text{root-mean-square (rms)}}$ at 10 m, and 212.5 dB re 1 $\mu\text{Pa}_{\text{peak}}$ at 11 m should have been used for AGDC's proposed activities as well (see values for pile IP5 in Tables 9, 11, and 7, respectively, in Austin et al. 2016). Those source levels are *unattenuated*, originate from Alaska, and have been used consistently in other recent incidental harassment authorizations that involve impact installation of 48-in piles. As such, the Commission recommends that NMFS use *unattenuated* source levels of 186.7 dB re 1 $\mu\text{Pa}^2\text{-sec}_{\text{s-s}}$ at 11 m, 198.6 dB re 1 $\mu\text{Pa}_{\text{rms}}$ at 10 m, and 212.5 dB re 1 $\mu\text{Pa}_{\text{peak}}$ at 11 m from Austin et al. (2016) for impact installation of 48-in piles rather than the *attenuated* source levels from Caltrans (2015).

Based on the revised source levels and the Level A harassment inputs stated in Table 9 of the *Federal Register* notice, the Level A harassment zones would increase from 1,575 m to 2,249 m for low-frequency (LF) cetaceans, 56 m to 80 m for mid-frequency (MF) cetaceans, and 843 m to 1,204 m for phocids. The shutdown zones also should increase from 1,600 m to at least 2,250 m for LF cetaceans, unless Level A harassment takes are proposed to be included, and from 50 m¹³ to at least 80 m for MF cetaceans. Although the Commission has raised these issues informally with NMFS, it is unclear whether NMFS would authorize Level A harassment takes of LF cetaceans, specifically bowhead whales, and if so, how many takes would be authorized. If NMFS does not intend to authorize Level A harassment takes, it is unclear what the size of the revised shutdown zone would be and whether the entire shutdown zone could be monitored effectively, particularly at night or in low-visibility conditions (e.g., fog).

In addition, the proposed numbers of Level A harassment takes of MF cetaceans and phocids were not estimated correctly in Table 18¹⁴ of the *Federal Register* notice. AGDC's application indicated that it used the ensonified areas¹⁵, the species-specific densities, and the numbers of days of activities to estimate the numbers of Level A harassment takes. However, the Commission cannot replicate the numbers of Level A harassment takes using those parameters. At a basic level, the Level A harassment takes of ringed seals (21 takes) should not be more than half the number of Level B harassment takes (40 takes), when the Level B harassment zone (2,154 m) is nearly three times that of the Level A harassment zone (843 m). Similarly for MF cetaceans, the Level A harassment takes for beluga whales (0.38 takes) should not be more than half the number of Level B harassment takes (0.71 takes), when the Level B harassment zone (2,154 m) is nearly 39 times larger than the Level A harassment zone (56 m). In addition, based on the revised source levels, the Level

¹⁰ NMFS historically has used source levels of larger-sized piles as conservative proxies for smaller-sized piles. The Commission supports such an approach but only if the source levels of the larger-sized piles are *unattenuated*.

¹¹ Or 48-in piles.

¹² And 42-in piles.

¹³ The 50-m shutdown zone was less than the originally estimated 56-m Level A harassment zone.

¹⁴ The column header in Table 18 is labeled incorrectly as Calculated Level B harassment takes rather than Calculated Level A harassment takes.

¹⁵ Based on πr^2 , where r was the originally calculated Level A harassment zone.

B harassment zone would increase from 2,154 m to 3,745 m. It is unclear what the revised numbers of Level B harassment takes during impact installation of 48-in piles would be and how many total takes of each species NMFS would ultimately authorize. The Commission recommends that NMFS (1) increase the (a) Level A harassment zones from 1,575 m to 2,249 m for LF cetaceans, from 56 m to 80 m for MF cetaceans, and from 843 m to 1,204 m for phocids, (b) shutdown zones from 1,600 m to at least 2,250 m for LF cetaceans and from 50 m to at least 80 m for MF cetaceans, and (c) Level B harassment zone from 2,154 m to 3,754 m during impact installation of 48-in piles; (2) revise the numbers of Level A and B harassment takes during impact installation of 48-in piles; (3) include Level A harassment takes of bowhead whales during impact installation of 48-in piles or prohibit AGDC from conducting such activities at night or in low-visibility conditions; and (4) ensure the Level A harassment takes were estimated correctly for MF cetaceans and phocids during all proposed activities.

The aforementioned issues have been ongoing¹⁶ and the lack of consistency and appropriateness of proxy source levels¹⁷ must be addressed. As such, the Commission again recommends that NMFS (1) have its experts in underwater acoustics and bioacoustics review and finalize as soon as possible, its recommended proxy source levels for impact pile driving of the various pile types and sizes, (2) compile and analyze the source level data for vibratory pile driving of the various pile types and sizes in the near term, and (3) ensure action proponents use consistent and appropriate proxy source levels in all future rulemakings and proposed incidental harassment authorizations. If a subset of source level data is currently available (i.e., vibratory pile driving of 24-in steel piles), those data should be reviewed immediately and used—the data should not be retained until the other vibratory source levels are finalized.

Use of sound attenuation devices

NMFS indicated that AGDC does not plan to use a bubble curtain or other sound attenuation device due to the difficulty in deploying bubble curtains in shallow water and the likelihood that significant sound reduction may not be achieved (85 Fed. Reg. 43406). NMFS did not address any other types of sound attenuation devices. As part of its review of AGDC's marine mammal mitigation and monitoring plan, the peer review panel (PRP) recommended that AGDC use a sound attenuation device to decrease the size of the Level A and B harassment zones. NMFS

¹⁶ For example, see the Commission's recent [29 June 2020](#), [5 June 2020](#), [20 April 2020](#), [23 March 2020](#), [10 February 2020](#), [3 February 2020](#), [23 January 2020](#), and [9 January 2020](#) letters, even though this issue dates back to at least the Commission's [29 August 2016](#) letter.

¹⁷ The Commission reiterates a previous point that it is inappropriate to use simple logistic regressions to estimate source levels of piles for which data are lacking or scant. This could unnecessarily underestimate source levels for smaller-sized piles and overestimate source levels for larger-sized piles where data are lacking. Generalized linear models that include the relevant contributing factors (e.g., pile diameter, pile type, substrate type, etc.), exponential regressions that are the inverse of a logistic regression, or simple assumptions that source levels of the next larger-sized pile be used in lieu of available data (i.e., source levels of 24-in piles used for 18-in piles, otherwise referred to as binning) would be more appropriate methods. Interpolation also could be used if sufficient data are available for piles smaller and larger than the pile size with scant data (i.e., interpolation between the linear medians of 24-in and 36-in piles could be used for determining source levels of 30-in piles). If NMFS uses any of these other three approaches instead of using its historical method of binning, acoustic experts must be consulted in the process. Further, NMFS must ensure that its proxy source levels do not include duplicate data (e.g., source levels from two different hydrophones for the same pile or intermittent pile driving within and across days) for the same pile. All data associated with a given pile should be analyzed based on the various median metrics before medians are taken across numerous piles.

did not include in the *Federal Register* notice the PRP's recommendation in its summary of, and response to, the PRP's report (85 Fed. Reg. 43408). The Commission recommends that NMFS determine whether any type of sound attenuation device could be effective in the shallow-water conditions of the proposed project site and address the PRP's recommendation in the notice for authorization issuance.

File driving at night

NMFS indicated that pile installation would occur 24 hours a day. Although AGDC would be conducting the majority of its pile-driving activities in the open-water season, when visibility is generally good during long daylight periods, there may be times when visibility is inadequate for effective monitoring of the entire Level A harassment zone. Daylight hours also will decrease dramatically as the project extends into the fall, with the sun below the horizon at least 12 hours per day by late September. AGDC has proposed to test night-vision and/or infrared devices to evaluate their effectiveness at detecting marine mammals at varying distances and under different visibility conditions. However, night-vision devices have yet to be deemed as reliable as visual monitoring in daylight and are not expected to be effective at monitoring the entirety of the revised Level A harassment zones at night or in low visibility conditions. Although operators are generally able to complete the installation of a pile if visibility becomes limited due to nightfall or deteriorating weather conditions¹⁸, NMFS does not typically allow pile driving to occur 24 hours a day in its authorizations. It is not clear whether AGDC has discussed its plans to conduct pile driving at night with local communities, as no reference was made to nighttime pile driving in the outreach materials provided in the POC. Concerns have been raised by Native Alaskan communities about activities occurring "all night long" for other projects¹⁹. Restricting pile driving to daylight hours would help to ensure that AGDC is effecting the least practicable adverse impact on affected species. The Commission recommends that NMFS include in the final authorization the requirement that AGDC conduct pile-driving activities during daylight hours only.

Pile driving during contingency period

NMFS has proposed that AGDC's authorization include pile driving as a contingency from February to April 2023, in the event that pile-driving activities are not completed in 2022 (85 Fed. Reg. 43406). This could involve the disturbance of ringed seals that use the ice for birthing lairs. NMFS stipulated that AGDC must begin pile driving prior to March 1 to "discourage seals from establishing lairs near pile-driving activities" (85 Fed. Reg. 43406). NMFS also indicated that it would require AGDC to have a subsistence advisor survey areas where the water depth is greater than 3 m to identify potential seal structures before activity begins and would require construction crews to avoid identified seal structures by a minimum of 150 m (85 Fed. Reg. 43406). However, as noted herein, neither the requirement to use a subsistence advisor to detect ringed seal lairs nor the requirement to avoid ringed seal lairs at a given distance were included in the draft authorization.

The use of local subsistence advisors to detect seal lairs has been identified as a need by community members in meetings regarding other planned projects on the North Slope²⁰. However,

¹⁸ See, for example, 85 Fed. Reg. 40983.

¹⁹ See the POC prepared for the Crowley Kotzebue Dock Upgrade (July 2020).

²⁰ See, for example, the POC for Hilcorp's North Slope Areas (July 2019).

proposed²¹ and final authorizations²² for those projects have instead required ‘environmental specialists’ to detect and monitor seal lairs, with no requirements for those personnel to have subsistence hunting experience. Seal lairs are difficult to detect (Kelly 2005) and the use of subsistence advisors/seal hunters with previous experience locating seal structures, coupled with the possible use of trained dogs, is more likely to be successful than personnel with minimal wildlife training, recognizing that even experienced hunters may not be able to locate all seal lairs within the project area. Local subsistence advisors also could assist in keeping communities informed regarding the ongoing construction activities. To ensure that seal lairs in the construction area are identified and avoided as proposed, the Commission recommends that NMFS include in the final authorization the requirement that AGDC (1) use an experienced subsistence advisor, and consider the use of trained dogs, to detect seal lairs before construction activities begin and (2) require construction crews to avoid seal lairs by at least 150 m.

It is unclear whether AGDC has discussed winter construction activities, potential disturbance of seals and seal lairs, and the use of subsistence advisors to detect seal lairs with local communities, subsistence groups, or Alaska Native co-management organizations, specifically the Ice Seal Committee—NMFS’s co-management partner for the conservation and management of ice seals in Alaska²³. No reference was made regarding a contingency for pile driving in winter of 2023 in the outreach materials provided in the POC. The Commission recommends that NMFS require AGDC to (1) meet with ice seal subsistence hunters in Nuiqsut and other North Slope communities and with members of the Ice Seal Committee to discuss its proposed construction activities in the winter of 2023 and the use of a subsistence advisor (as well as the possible use of trained dogs) and (2) revise its mitigation and monitoring measures as necessary to minimize disturbance of seals and subsistence hunting activities, based on input received.

Tally of takes

It is unclear from both the preamble and the draft authorization whether AGDC will keep a running tally of the total Level B harassment takes, including observed and extrapolated takes²⁴. It is imperative that AGDC do so to ensure that the takes are within the authorized limits, and the authorized numbers of takes are not exceeded, to implement effectively condition 4(h) in the draft authorization. In addition, since some action proponents have been unable to extrapolate takes appropriately, NMFS must include explicit conditions (i.e., condition 6(b)(xix)) in the final authorization and should provide action proponents a simple example of how to extrapolate and report takes properly. For example, if a PSO is only able to observe consistently out to 1 km (or an area of 1.5 km²) and two PSOs are expected to be monitoring a total ensonified area of 6 km², then the number of *observed takes* should be multiplied by two²⁵ to estimate the number of *total*

²¹ See, for example, 84 Fed. Reg. 3004.

²² See, for example, 84 Fed. Reg. 70313.

²³ <https://www.fisheries.noaa.gov/alaska/marine-mammal-protection/co-management-marine-mammals-alaska>

²⁴ The Commission agrees with NMFS that it is not appropriate to use distance sampling methods to extrapolate takes for AGDC’s activities (85 Fed. Reg. 43409) and that AGDC should extrapolate takes based upon the number of observed takes and the percentage of the Level A or Level B harassment zone that was not visible (see condition 6(b)(xix) in the draft authorization). Specifically, it is not appropriate to apply vessel-based, line-transect distance sampling methods to shore-based, point observations.

²⁵ The PSOs would only be able to monitor 3 km² of the 6 km² ensonified area.

*takes*²⁶. This simple method is consistent with NMFS's assumption that densities are uniform in its take estimation method and should be used absent information denoting otherwise. Action proponents also should not assume that the same detection range applies across species. Detection ranges vary depending on species or group (e.g., up to 1 km for pinnipeds and 2 to 3 km for mysticetes for land-based PSOs). The Commission recommends that NMFS (1) reinforce that AGDC keep a running tally of the total takes, based on observed and extrapolated takes, for Level A and B harassment consistent with condition 4(h) of the final authorization, (2) include condition 6(b)(xix) in the final authorization, and, if necessary, (3) provide AGDC a simple example of how to extrapolate takes to estimate the number of total takes.

Proposed one-year authorization renewals

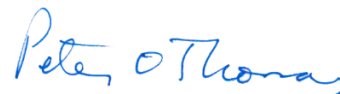
The Commission has raised ongoing concerns regarding NMFS's renewal process in the past few years²⁷. NMFS responded generally to those concerns just recently. The Commission has not yet had time to consider fully whether and how it plans to respond. For purposes of this letter, the Commission recommends that NMFS refrain from issuing a renewal for any authorization unless it is consistent with the procedural requirements specified in section 101(a)(5)(D)(iii) of the MMPA.

General concerns

As the Commission has articulated informally and formally in numerous letters over the past several years, particularly those involving construction activities, NMFS's review processes (including its early review team meetings) are not adequately identifying and evaluating whether appropriate source levels, Level A harassment inputs, modeling methodologies, Level A and B harassment zones, densities, group size estimates, take estimates, shutdown zones, etc. have been proposed. The Commission recommends that NMFS make a concerted effort to review applications, *Federal Register* notices, and draft and final authorizations more thoroughly to minimize inaccuracies and ensure transparency for the public. In this instance, the information provided to the PRP was not accurate and the panel's review of AGDC's monitoring plan as required under section 101(a)(5)(D)(ii)(III) may have been compromised. NMFS should provide the PRP with the revised Level A and B harassment zones and shutdown zones and allow for additional review and comments before issuing any incidental harassment authorization to AGDC. NMFS also should consider whether the inaccuracies are sufficient to warrant revision and re-publication of the proposed incidental harassment authorization.

Please contact me if you have questions regarding the Commission's recommendations.

Sincerely,



Peter O. Thomas, Ph.D.,
Executive Director

²⁶ If the number of observed takes was 10, the number of extrapolated takes would be 10 and the number of total takes would be 20.

²⁷ Some of which can be reviewed in the Commission's [10 February 2020](#) letter.

References

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