



DETERMINATION OF ADMINISTRATIVE PENALTY

September 17, 2026

File: 2026-18
LNGCAN_20240054_AP001
E15-01

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LNG Canada Development Inc.
PO Box 100, Station M
Calgary, AB T2P 2H5

Attention: LNG Canada Development Inc.

RE: Final Determination of Administrative Penalty

Further to the Notice Prior to Determination of Administrative Penalty ("Notice") and accompanying Penalty Assessment Form ("PAF") issued to you on May 4, 2026, and your Opportunity to Respond ("OTR") respecting the alleged contraventions, I have now made a Determination of Administrative Penalty ("Determination") in this matter.

After reviewing the information available to me, I have concluded that LNG Canada Development Inc. has contravened Section 6(2) of the *Environmental Assessment Act* [SBC 2018] ("EAA") in respect of which an administrative penalty is being imposed pursuant to Section 60 of the EAA and the Administrative Penalties (EAA) Regulation ("APR"). The amount of the penalty, reasons for my decision, payment, and appeal information are provided in the attached decision document.

The detailed reasons for my decision are provided in the attached PAF.

Final Penalty Assessment

TOTAL: \$ 50,000

Reasons for Decision

In making this Determination, I have considered all of the information available to me, including the OTR Submission provided by LNG Canada Development Inc. In reaching this Determination, I have carefully considered all the arguments, relevant documents, evidence, and submissions before me, whether they are specifically referred to or not. My reasons for decision include a consideration of the contravention as well as the matters listed in Section 2(1) of the APR, as applicable.

Due Date & Payment

Payment of this administrative penalty is due within thirty (30) calendar days after the date of service of this Determination of Administrative Penalty. Payment via cheque or money order, made payable to the Minister of Finance, can be mailed to Corporate Services:

Environmental Assessment Office
Finance Department
PO Box 9426 Stn Prov Govt
Victoria, BC V8W 9V1

Please do not mail cash. A 30-dollar service fee will be charged for dishonoured payments. If payment has not been received in the 30-calendar day period, interest will be charged at three percent plus prime lending rate of the principal banker to the Province per month and the amount payable is recoverable as a debt due to the government.

Publication

Seven days after the date of service, this Determination will be published on the Natural Resource Compliance and Enforcement Database ("NRCED") Website: <https://nrccd.gov.bc.ca/>

If you have any questions with regards to this Determination, please contact me at 778-622-6908 or Stephanie.Little@gov.bc.ca.

Sincerely,



Stephanie Little
Delegate of Chief Executive Assessment Officer, *Environmental Assessment Act*

Attachments:
2026-18 Final Penalty Assessment Form

cc: EAO Compliance & Enforcement
eao.compliance@gov.bc.ca

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Name of Party

LNG Canada Development Inc.

Contravention or Failure**Contravention of the *Environmental Assessment Act* (“EAA”) Section 6(2) (Requirement for environmental assessment certificate)**

6(2) Despite any other enactment, if an environmental assessment certificate has been issued for a reviewable project, a person must not, except in accordance with the certificate,

- (a) undertake or carry on any activity that is authorized by the certificate, or
- (b) construct, operate, modify, dismantle or abandon all or part of the project facilities that are authorized by the certificate.

Date of Contravention

- May 16 to 20, 2023
- May 22 to 30, 2023
- June 2 to 4, 2023
- June 6 to 7, 2023
- June 18 to 20, 2023
- June 22, 2023

Background

1. LNG Canada Development Inc. (“LNGC”) is a joint venture company comprised of five global energy companies with substantial experience in liquefied natural gas (“LNG”). LNGC operates an LNG processing plant and marine export terminal located near Kitimat, British Columbia (“BC”).

[\[LNG Canada\]](#)

2. Please refer to the [Summary of Relevant Facts](#) for further information related to this administrative penalty (“AP”), including Noise and Receiving Environment information.

Environmental Assessment Certificate E15-01

3. The environmental assessment process evaluates potential environmental, economic, social, cultural and health effects (the five pillars) that may occur during the lifetime of a major project are thoroughly assessed, develops mitigations to address adverse effects caused by the project, and attaches these mitigations as legally binding conditions to approvals issued under the EAA.
4. Environmental assessments are administered by the EAO. The EAO follows a clearly defined process in the EAA.

5. On June 17, 2015, the EAO issued Environmental Assessment Certificate E15-01 (“EAC”) for the LNG Canada Export Terminal Project (“Project”).

[EAC E15-01]

6. The Project includes the construction and operation of a liquefaction facility for exported LNG as well as a facility for LNG storage, power generation and a marine terminal for LNG-shipping by carriers. Once completed, the Project (Phases I and II) is estimated to produce approximately 26 million tonnes of LNG per year. Phase I of construction was completed in 2025.

7. Schedule B of the EAC includes a Table of Conditions for an Environmental Assessment Certificate. Condition 5, Marine Mammals, states:

“The Holder must develop, in consultation with DFO [Fisheries and Oceans Canada] and OGC, [Oil and Gas Commission] a marine mammal management and monitoring plan applicable during Construction that must:

...

The Holder must implement the plan to the satisfaction of EAO.”

8. On November 29, 2022, the EAC was amended to allow for a tug berth facility and supporting infrastructure.

[EAC E15-01 Amendment 4]

9. Any other amendments are not relevant to this AP assessment.

10. Please refer to the [Summary of Relevant Facts](#) for more details of the marine mammal management and monitoring plan (“MMP”).

PENALTY CALCULATION

2026-18: EAA 6(2) (Requirement for environmental assessment certificate)

The Contravention or Failure – Findings:

11. Section 6(2) of the EAA requires LNGC to only undertake or carry on any activity authorized by the EAC in accordance with the EAC. On November 29, 2022, the EAC was amended to allow for a tug berth facility and supporting infrastructure.
12. Schedule B, Condition 5, of the EAC requires that LNGC must implement the MMP to the satisfaction of the EAO.
13. The MMP requires that:
 - During execution of the piling program, two recorders be deployed with telemetry capabilities at 10 m near the source and at the expected location of the Marine Mammal Exclusion Zone (“MMEZ”). (Section 6.8.2.1)
 - At the start of piling, vessel-based underwater acoustics monitoring be conducted to confirm an appropriate MMEZ. If underwater noise measures greater than 160 dB at the initial 1.9 km MMEZ, the MMEZ will be extended to the distance at which 160

- dB is identified. If underwater noise measures less than 160 dB at the initial 1.9 km MMEZ, the MMEZ will remain in place while data is collected closer to piling activities. Once enough data has been collected to set a MMEZ with confidence, the MMEZ will be moved from 1.9 km to the new distance. (Section 6.8.1.1)
- Bubble curtains be deployed during piling and ground improvement activities. (Section 6.8.1.1)
 - The boundary of the Marine Mammal Monitoring Zone (“MMMZ”) be 20% longer than the MMEZ. (Section 6.8.1.1)
 - During piling and ground improvement activities, Marine Mammal Observers (“MMOs”) be strategically positioned with line of sight to the perimeter of the MMEZ, with another vessel-based MMO stationed within the MMMZ. (Section 6.9.2.2)
 - Should an observed marine mammal continue into the MMEZ, adaptive management strategies be enacted, including suspension of pile driving. (Section 6.9.6)
14. From May 16 to June 22, 2023, LNGC conducted piling using a vibratory hammer for the tug berth facility.
15. On the following 23 dates, LNGC contravened Section 6(2) of the EAA, when it failed to comply with the EAC by not fully implementing the MMP, specifically by failing to monitor underwater acoustics at the predicted boundary of the MMEZ, deploy bubble curtains during all piling activities, use acoustic monitoring to set an MMMZ and have multiple MMOs deployed:
- May 16 to 20, 2023
 - May 22 to 30, 2023
 - June 2 to 4, 2023
 - June 6 to 7, 2023
 - June 18 to 20, 2023
 - June 22, 2023
16. Based on the information provided above, an administrative penalty was being considered for contravention of Section 6(2) between May 16 and June 22, 2023.
17. LNGC submits that the penalty is founded on a series of interrelated errors. At para 56-57 of the OTR Submission, it detailed its submission which is summarized as follows:
- Failure to recognize the activity-specific and adaptive nature of the MMP
 - Misinterpretation of the structure and purpose of the MMP
 - Failure to account for the adoption of vibratory piling as a mitigation measure
 - Over-reliance on form rather than function in assessing compliance
 - Mischaracterization of monitoring practices
 - Technical misunderstanding of the acoustic thresholds for potential effects
 - Incorrect understanding of the EAO’s subsequent acceptance
18. LNGC submits that it fully complied with Schedule B, Condition 5. At para 58-103 of the OTR Submission, it detailed its submission which is summarized as follows:
- “Nothing in Condition 5 requires that the MMP prescribe, in advance, activity-specific exclusion zones or monitoring configurations for every construction method. Rather, it requires the development and implementation of a framework that identifies areas of potential effect and applies monitoring and mitigation measures sufficient to

prevent injury and reduce behavioural disturbance. The MMP met that requirement.” [para 68]

- “The Penalty Assessment does not meaningfully engage with the fact that LNGC adopted vibratory piling as a mitigation measure. Instead, it applies an impact-piling monitoring framework to a materially different and demonstrably lower-risk activity.” [para 73]
- “The issue raised by the Penalty Assessment is therefore not whether LNGC failed to protect marine mammals. Rather, it is whether LNGC should have sought additional regulatory confirmation before implementing measures that it understood to be consistent with the objectives of Condition 5, the MMP, and the amended FDS [Federal Decision Statement]. That is a procedural question, and not something that should give rise to administrative enforcement.” [para 78]
- “The measures implemented by LNGC were effective in preventing adverse effects (as supported by the monitoring records and post event hydroacoustic assessment), and were subsequently accepted as appropriate by the EAO in the approved revisions to the MMP, which includes an exclusion zone of only 10 m for pinnipeds. In those circumstances, it cannot reasonably be maintained that the requirements of Condition 5 were not met.” [para 81]
- “The use of acoustic monitoring and bubble curtains referenced in the MMP were always meant to apply specifically to impact pile driving, not vibratory pile driving.” [para 89]
- “The acoustic monitoring carried out in 2023 was sufficient to confirm the appropriate MMEZs, as validated by the post event modelling and the EAO’s later approval of the revised MMP, which set MMEZs of 200 m for cetaceans and only 10 m for pinnipeds, during all future vibratory piling work.” [para 92]
- “The MMP requires that monitoring be sufficient to ensure that the full extent of the applicable monitoring zone is observable, with the number and location of MMOs to be adjusted based on the activity and site conditions. The monitoring configuration implemented by LNGC was consistent with that requirement.” [para 97]
- “Critically, even under the impact-piling assumptions relied upon by the EAO, the seal would still have been outside the 150 m pinniped exclusion zone and would not have triggered a shutdown under the MMP for impact pile driving. Accordingly, there was never any factual basis for suspending piling operations, regardless of which exclusion zone framework is applied.” [para 101]

19. The environmental assessment regime relies on approved plans being implemented as approved. Where a certificate holder wishes to alter requirements, the appropriate course is to seek approval of a revised plan before implementing those changes.
20. I acknowledge that LNGC relied upon technical work and regulatory engagement undertaken through the Federal Decision Statement amendment process when developing its approach to vibratory piling. However, regardless of whether LNGC’s interpretation was reasonable, the approved Construction MMP remained in force during the 2023 piling program and had not been amended or replaced. The subsequent revision and approval of the MMP in 2025 does not alter the requirements of the approved MMP that was in force during the 2023 piling program.
21. I do not accept LNGC's submission that this matter is merely procedural in nature or that it is simply a question of whether additional regulatory confirmation should have been sought. Schedule B, Condition 5 required LNGC to implement the approved MMP. Schedule B,

Condition 5 did not require LNGC to implement monitoring and mitigation measures that it considered sufficient or technically preferable; it required LNGC to implement the approved MMP. While LNGC may have believed its alternative monitoring and mitigation approach was appropriate for vibratory piling activities, the approved MMP remained in force unless and until it was amended. While LNGC submits that the alternative measures it implemented achieved the objectives of the MMP and adequately protected marine mammals, compliance with Schedule B, Condition 5 must be assessed against the approved MMP that was in force at the time of the activities, not against a retrospective assessment of whether an alternative approach may have achieved similar outcomes. The issue before me is therefore not whether LNGC intended to protect marine mammals, but whether LNGC implemented the approved monitoring and mitigation framework required by the EAC. I find that it did not.

22. The flexibility and adaptive management provisions within the MMP did not authorize LNGC to unilaterally replace approved monitoring and mitigation requirements with alternative measures before obtaining EAO approval.
23. Based on the information provided above, I find that LNGC contravened Section 6(2) between May 16 and June 22, 2023.
24. The maximum penalty allowable under the APR for each contravention of Section 6(2) of the EAA is \$250,000.

Factors to be Considered in Penalty Calculation:

BASE PENALTY

The base penalty reflects the seriousness of the contravention or failure, based on the following two factors:

Factor a): Nature of the Contravention or Failure

25. **Moderate.** Generally, this category refers to a failure to comply with operational requirements that at a minimum creates a risk to the 5 pillars. It includes:
 - Failure to perform required tasks or actions such as properly installing or maintaining equipment, construction works, or meeting operational standards or requirements
 - Failure to conduct required sampling or studies
 - Failure to undertake monitoring
 - Failure to develop or follow plans
 - Not adequately consulting Indigenous Groups, other government agencies, or stakeholders
26. LNGC failed to conduct marine mammal monitoring according to the specifications provided in the MMP. These operational requirements are in place to protect marine mammals. The risk of harm to the environment will be considered in more detail below in Factor b).
27. The nature of the contraventions was proposed as moderate.

28. LNGC submits that the nature of the contraventions is minor. At para 115-121 of the OTR Submission, it stated:

“For the reasons already outlined above, there was never any question that appropriate mitigation and monitoring was carried out. This was at worst a “contravention of an operational requirement that related to low-risk activities”, which the EAO’s Policy indicates would be a “minor” contravention. The specific mitigation and monitoring plan developed and carried out was sufficient to ensure that no marine mammals were ever at risk of harm or disturbance.

The EAO’s characterization of the alleged contravention is founded on a misunderstanding of the MMP and the activity to which it was being applied. The Penalty Assessment treats the MMP as imposing a single set of fixed requirements applicable to all construction activities. In doing so, it fails to account for the fact that the MMP was developed using impact pile driving as a worst-case scenario and was intended to operate as a risk-based framework responsive to the activity undertaken and the associated risk profile.

The Penalty Assessment acknowledged that the EAO Assessment Report from May 6, 2015 confirmed that “alternative pile installation methods would be investigated and applied, if necessary, to prevent the exposure of marine mammals to underwater noise exceeding defined thresholds.”

However, the Penalty Assessment quotes only selectively from the EA, omitting the context that makes it clear that the EAC was based on impact pile driving and vibratory pile driving was a possible mitigation. The complete passage from the EA (p. 5.8-72) states:

“As outlined in Mitigation 5.8-10, LNG Canada will measure the underwater sound levels produced during pile installation. Based on these measurements, marine mammal exclusion zones will be defined and monitored for marine mammals to prevent them from being exposed to underwater noise above thresholds. LNG Canada will also investigate the use of alternative pile installation methods, such as vibratory pile installation, which has been shown to reduce pile installation noise by up to 25 dB (SELs of 10 to 15 dB lower) (Illingworth and Rodkin Inc. 2007; McCauley and Salgado Kent 2008).”

This clearly shows that vibratory piling was expressly identified in the EA as a potential mitigation measure, and the MMP was developed accordingly. The MMP used impact pile driving to model for a worst-case scenario. Vibratory piling was subsequently adopted as the primary piling installation method because it fulfilled the EA commitment to investigate and apply alternative methods to reduce underwater noise exposure to marine mammals.

The EAO’s reliance on the 1.9 km MMEZ as the applicable threshold for vibratory piling further illustrates why a “moderate” characterization overstates the nature of the non-compliances. Section 6.8.1.1 of the MMP expressly states that the acoustic modelling underlying the 1.9 km MMEZ was completed for impact pile driving. Impulsive sources (impact piling) and non-impulsive sources (vibratory piling) require fundamentally different acoustic modelling methodologies. The Penalty Assessment applies the 1.9 km MMEZ to vibratory piling without acknowledging that the MMP itself confirms that

threshold was never intended to govern vibratory operations. The 1.9 km MMEZ was not a requirement that LNGC failed to follow as it was a threshold that was never scientifically applicable to vibratory piling in the first place.

In this context, characterizing the non-compliance as “moderate” overstates what actually occurred. LNGC was not ignoring the MMP; the MMP was simply never developed to address vibratory piling. LNGC developed and implemented the appropriate MMEZs and monitoring program for vibratory piling based on best practices and supported by current science.”

29. I have considered LNGC's submission that the contraventions should be characterized as minor because vibratory piling was adopted as a mitigation measure, the MMP was intended to operate as a flexible and adaptive framework, and the monitoring and mitigation measures implemented were, in LNGC's view, appropriate for the activity being undertaken.
30. I acknowledge that the MMP contains language regarding flexibility, scalability, and adaptive management. However, the approved MMP in force at the time of the contraventions also contained specific monitoring and mitigation requirements that had not been amended or replaced. LNGC implemented an alternative monitoring and mitigation approach without first obtaining approval of revisions to the MMP.
31. The contraventions therefore involved failures to undertake monitoring in accordance with the approved MMP and failures to follow an approved management and monitoring plan. These are operational requirements established through the environmental assessment process and align with the policy description of a moderate contravention.
32. After considering the relevant information above, the nature of the contraventions is confirmed as moderate.

Factor b): Real or Potential Adverse Effect

33. **Low to none** real or potential adverse effect does not result in a significant adverse effect and the potential to do so is low.
34. Medium real or potential adverse effect interferes with the EAO's capacity to protect the five pillars, or has the potential to do so, but does not result in a significant adverse effect or the potential to do so is moderate. Any effect is localized, short-term and can be mitigated or damage repaired within a reasonable timeframe.
35. Section 2(1)(b) of the APR requires that I must consider the real **or potential** adverse effect of the contraventions. A finding of potential adverse effect of the contraventions is enough to apply this factor.
36. Acoustic monitoring reports identified that the peak sound pressure levels were recorded 8 to 13 m away from the piling. Maximum sound levels recorded are summarized in [Table 1](#). Between May 16 and June 22, 2023, there were 20 days on which the sound level exceeded the prescribed 160 dB. On 16 of these days, the sound level exceeded 173 dB. The highest sound level recorded was 207.7 dB.
37. However, because acoustic monitoring was not conducted at the expected MMEZ boundary in accordance with the approved MMP, the extent to which those sound levels propagated

away from the source could not be verified through the monitoring framework set out in the approved plan. LNGC did not use the acoustic verification process described in the approved MMP.

38. At the time of the dates of contravention, the National Oceanic and Atmospheric Administration (“NOAA”) reported that non-impulsive sounds louder than 153 dB generated by vibratory pile drivers may cause marine mammals such as porpoises to experience temporary hearing loss. Non-impulsive sounds louder than 173 dB may cause permanent hearing loss.
39. While there is a potential for adverse effects from the piling, it is unknown if actual effects have occurred. While no obviously distressed or deceased mammals are documented in the Marine Mammal Monitoring Reports, LNGC did not monitor beyond the 300 m immediately adjacent to the piling.
40. The real or potential adverse effect of the contraventions was proposed as medium.
41. LNGC submits that there was no risk of adverse effects. At para 43-48 of the OTR Submission, it stated:

“Following receipt of the Inspection Record, LNGC engaged Stantec Consulting Ltd. (“**Stantec**”) to undertake a Hydroacoustic Assessment based on the acoustic monitoring conducted during the 2023 piling program.

That assessment concluded that there was no adverse effect on marine mammals during the 2023 piling program. The assessment found that sound pressure levels (“**SPLs**”) of 160 dB re 1 μ Pa (the behavioural threshold for cetaceans) were not predicted to extend beyond 20 m from the pile during H-pile extraction and not beyond 120 m during production pile installation; and SPLs of 180 dB re 1 μ Pa (the behavioural threshold for pinnipeds) were only predicted within 10 m of the pile during both H-pile extraction and production pile installation. Stantec concluded that:

“no marine mammals were exposed to SPLs above their respective thresholds over the course of the [2023 tug berth expansion] Project”.

The monitoring results and subsequent acoustic analysis confirm that the mitigation and monitoring measures implemented during the piling program were effective in ensuring that no marine mammals were ever exposed to adverse effects of underwater noise.

Following receipt of the Notice and Penalty Assessment, LNGC retained Andrea Ahrens, M.Sc., R.P.Bio., a Principal with Stantec Consulting Ltd., a National Technical Lead for Marine Ecosystems, and a marine mammal subject matter expert, to review the technical and scientific assumptions underlying the Penalty Assessment. Her opinions are set out in her report dated July 10, 2026.

Ms. Ahrens reviewed the Penalty Assessment together with the relevant acoustic monitoring information, marine mammal monitoring records, and project documentation. In a report dated July 10, 2026, she opined that the Penalty Assessment does not adequately account for the fundamental differences between impact and vibratory pile driving, improperly equates acoustic thresholds that measure different phenomena and

serve different biological purposes, and applies assumptions developed for impact pile driving to a materially different and lower-risk construction activity.

Ms. Ahrens further opined that the monitoring and mitigation measures implemented during the 2023 tug berth piling program were scientifically appropriate for the risk profile associated with vibratory pile driving and were supported by the available acoustic and monitoring data. Her evidence is discussed further below in relation to the technical assumptions underlying the Penalty Assessment.”

42. LNGC submits that the real or potential adverse effect of the contraventions is low to none. At para 122-144 of the OTR Submission, LNGC detailed its submission which is summarized as follows:
- Modelling using the acoustic data recorded in 2023 “confirmed that sound pressure levels were constrained and, most significantly, that marine mammal presence was in fact monitored at a greater distance than the limit at which elevated SPLs would have extended.” [para 124]
 - The available acoustic evidence demonstrates that marine mammals were never at risk [para 125-126]
 - The PAF relies on an invalid comparison of acoustic thresholds [para 127-135]
 - The monitoring records confirm that no marine mammals were exposed to harmful sound levels [para 136-137]
 - Comparable decisions demonstrate the classification and penalty is excessive [para 140-144]
43. LNGC has compared the base penalty proposed at Notice to other penalties issued under the *Environmental Management Act* (“EMA”). The EAA and EMA have differing penalty maximums and differing base penalties; the two cannot be compared. However, what may be appropriate to note in the compared files is that confirmed mammal mortalities resulted in a “very high” real or potential adverse effect where the potential to cause lethal or sublethal effects to aquatic organisms resulted in medium and low to medium real or potential adverse effect for those files.
44. I have considered LNGC's submissions, including the Stantec Hydroacoustic Assessment, the expert opinion of A. Ahrens, the acoustic monitoring reports, and the subsequent revision and approval of the MMP. The additional information indicates that underwater noise associated with the vibratory piling activities likely attenuated over a shorter distance and suggests that the area potentially affected by elevated sound levels was more limited than originally assessed. I also note that no marine mammal injuries or mortalities were documented during the piling program.
45. On balance, I find that the information provided through the OTR process substantially reduces the likelihood that the contraventions resulted in adverse effects to marine mammals. While some uncertainty remains because the approved monitoring regime was not followed, the evidence before me does not support a moderate likelihood of adverse effects.
46. After considering the relevant information above, the real or potential adverse effect of the contraventions is reduced to **low to none**.

47. The base penalty is therefore confirmed at \$50,000 as adjusted above.

APPLICATION OF PENALTY ADJUSTMENT FACTORS

The following factors reflect the unique circumstances of this file, including what happened before, during, and after the contraventions.

Factor c): Previous contraventions or failures, penalties imposed, or orders issued (+):

- 48. There are no previous contravention or failures, penalties imposed or orders issued.
- 49. No adjustment was proposed for this factor.
- 50. This factor was not disputed in the OTR Submission.
- 51. After considering the relevant information above, I confirm no adjustment is applied under this factor.

Factor d): Whether contravention or failure was repeated or continuous (+):

- 52. The contraventions were repeated on 23 dates.
- 53. Separate penalties for each contravention described in this administrative penalty are possible since there were multiple contraventions between May 16, 2023 and June 22, 2023; however, for this AP only, these contraventions will be treated as repeated.
- 54. An increase of 20% of the base penalty (+ \$20,000) was proposed to account for the repeated nature of the contraventions.
- 55. LNGC submits that there is no basis for an increase. At para 146-150 of the OTR Submission, it stated:

“This all arose from a single, consistent interpretive position, applied throughout a discrete five-week piling program. LNGC did not vary its approach from day to day; each date of piling was a continuation of the same conduct arising from the same interpretive error. Quantity should not be conflated with culpability.

The EAO declined to assess separate penalties for each of the 23 dates, recognizing the conduct as a single course of repeated conduct. If the conduct does not warrant separate penalties, it equally should not attract the maximum repetition adjustment.

If a contravention occurred, it was based on an honest and reasonably held belief that LNGC was acting in line with the EAC and MMP to implement mitigative measures and ensure appropriate safeguards were in place to protect marine mammals.”

- 56. I have considered LNGC’s submission that the contraventions arose from a single interpretive approach rather than a series of unrelated compliance events. However, the approved MMP was not implemented during piling activities on 23 separate dates between May 16 and June 22, 2023.

57. I considered at Notice whether to impose separate penalties for each date on which the contraventions occurred. I have considered it again when preparing this Determination. In the circumstances of this file, I have elected to address the repeated nature of the conduct through an adjustment under this factor, rather than through separate penalties.
58. While the contraventions arose from a common approach, that approach was repeatedly applied over the course of the piling program. I therefore find that an upward adjustment remains appropriate
59. After considering the relevant information above, I confirm an increase of 20% of the adjusted base penalty (+ \$10,000) is applied for the repeated nature of the contraventions.

Factor e): Whether contravention or failure was deliberate (+):

60. When considering deliberateness, I find that knowledge, willfulness, and intent are indicators of deliberateness.
61. The MMP set out the initial MMEZ and MMMZ for piling, as well as requirements for MMOs, bubble curtains and actions to be taken if an observed marine mammal continued into the MMEZ. The MMP did not provide for different criteria for vibratory piling.
62. LNGC appears to have been operating under the belief that the requirements could be modified for vibratory piling and that it was following best practices. Implementing the MMP is a requirement of the EAC. However, I am not aware of any evidence that LNGC deliberately failed to comply with the requirements of the EAC.
63. No adjustment was proposed for this factor.
64. LNGC submits that the contravention was not deliberate. At para 17-22 of the OTR Submission, it stated:

“The MMP was developed on the basis of impact piling as the governing construction method, which at the time of the environmental assessment (the “EA”) was the anticipated construction method. Impact pile driving also represented the worst-case, conservative assumption used to assess potential effects on marine mammals. In line with the EA, the MMP contemplated the use of mitigative measures to reduce the potential effects.

The stated objectives of the MMP were to:

- Develop a framework for the receiving environment monitoring program...that is suitable for the activities of the Project, and is flexible and scalable;
- Set the framework for developing trigger values and compliance values which reflect the natural variability of the ecosystem and provide a basis for measuring and demonstrating compliance with the respective permit and approval conditions; and
- Support the environmental monitoring adaptive management strategy. (emphasis added)

The MMP set Marine Mammal Exclusion Zones (“MMEZ”) *for impact pile driving* of 1.9 km for cetaceans and 150 m for pinnipeds.

The initial version of the MMP had been approved by the EAO on June 21, 2018. Shortly after that, on August 17, 2020, LNGC applied to amend the FDS to “bring the requirements of Condition 3.9 in line with the exclusion zones contemplated by the provincially approved Marine Monitoring Plan”. LNGC sought to amend Condition 3.9 of the FDS to allow for taxonomy-specific exclusion zones for cetaceans and pinnipeds based on different construction activities.

With its application for the amendment, LNGC submitted to the Impact Assessment Agency of Canada (“IAAC”), a Stantec report that confirmed the specific MMEZs for different activities, including 300m for cetaceans during vibratory pile driving and 150m for pinnipeds during both vibratory and impact pile driving, with differing response requirements. The following chart was included in the 2020 application.

Table 1. LNGC Marine Mammal Exclusion Zones for Specific Construction Activities

Construction Activity	Species	Marine Mammal Exclusion Zone	LNGC Response
Pile driving Vibro-hammer	Cetaceans	300 m	Prohibit non-essential traffic, slow to no-wake speed, avoid marine mammals
	Pinnipeds	150 m	Prohibit non-essential traffic, slow to no-wake speed, avoid marine mammals
	All	Immediate vicinity	Shut-down
Pile driving Impact hammer Single site operation	Cetaceans	1,900 m	Shut-down
Pile driving Impact hammer Dual site operation		3,040 m	Shut-down
Pile driving Impact hammer	Pinnipeds	150 m	Shut-down
Dredging	Cetaceans	300 m	Prohibit non-essential traffic, slow to no-wake speed, avoid marine mammals
	Pinnipeds	150 m	Prohibit non-essential traffic, slow to no-wake speed, avoid marine mammals

The Minister of the Environment approved the amended FDS on April 6, 2021, allowing for the different MMEZs based on the specific construction methods.”

65. LNGC submits that the contravention was not deliberate. At para 152 of the OTR Submission, it stated:

“The EAO characterizes LNGC as operating “under the belief that the requirements could be modified for vibratory piling.” That framing understates LNGC’s position. As noted earlier, the MMP was developed based on impact pile installation modelling; vibratory piling was not contemplated in the EA at the time the MMP was developed. Vibratory piling was subsequently adopted as a mitigation measure to reduce underwater noise. When it was identified as a feasible piling installation method, LNGC implemented a monitoring program it understood to be appropriate for vibratory operations, consistent with the amended FDS. This was not a unilateral modification of the MMP, but rather an appropriate adaptive management response for vibratory piling.”

66. After considering the relevant information above, I confirm no adjustment is applied under this factor.

Factor f): Economic benefit derived by the party from the contravention or failure (+):

67. LNGC has likely derived economic benefit from not conducting acoustic monitoring at the boundary of the MMEZ, not having additional Marine Mammal Observers as required by the EAC, and by not having to shut down the piling when marine mammals were in the area. However, this economic benefit would be entirely speculative and not defensible. This specific economic benefit has been considered but will not be pursued in this AP assessment.
68. No adjustment was proposed for this factor.
69. LNGC submits that it did not derive economic benefit. At para 153 of the OTR Submission, it stated, “Any theoretical economic benefit would have been negated by the cost to investigate and implement a mitigative secondary piling methodology.”
70. After considering the relevant information above, I confirm no adjustment is applied under this factor.

Factor g): Exercise of due diligence to prevent the contravention or failure (-):

71. No adjustment was proposed for this factor.
72. LNGC submits that the MMO deployed had full visibility and the monitoring program was responsive and effective. At para 34-37 of the OTR Submission, it stated:

“LNGC deployed a Marine Mammal Observer (“**MMO**”) who maintained full visibility of the 300 m monitoring zone (and beyond) for the duration of the piling program, and monitoring was conducted continuously prior to and during piling activities.

While the formal monitoring zone for vibratory piling was established at 300 m, the MMO was not limited to that distance and continued to monitor and scan the broader harbour environment, recording marine mammal presence beyond the defined zone, including observing and recording a marine mammal at 700 m.

Monitoring and mitigation measures were responsive to site conditions, including the application of additional measures where required such as bubble curtain deployment based on sound levels in the immediate vicinity of the piling work.

The monitoring records confirm that no marine mammals were observed in distress during the piling program. Only one marine mammal (a harbour seal) was observed at approximately 170 m from piling during active works and outside the 150 m zone for pinnipeds. The animal was beyond any applicable disturbance threshold.”

73. LNGC submits that it exercised due diligence. At para 104-111 of the OTR Submission, it stated:

“To establish mistake of fact in the strict liability context, LNGC must demonstrate on a balance of probabilities that its mistake was: (1) honestly held; and (2) objectively reasonable, meaning that a reasonable person in the same circumstances would have

made the same non-negligent factual mistake and taken all reasonable steps to ascertain the true state of affairs.

The key to the defence of mistake of fact is reasonableness. Due diligence is about reasonable conduct, not perfection:

The accused bears the burden of establishing on a balance of probabilities that he or she acted reasonably in the circumstances. “An accused may absolve himself on proof that he took all the care which a reasonable man might have been expected to take in all the circumstances or, in other words, that he was in no way negligent.”

A. LNGC Adopted a Good-Faith, Scientifically Supported Interpretation

LNGC honestly believed that the MMP provided for mitigative measures, such as vibratory piling and, when implemented, the use of specific mitigations. This was supported by the submission made to IAAC on the amended FDS, where LNGC confirmed the use of separate monitoring zones for vibratory piling back in 2020. It would not have done so if it understood the MMP required further revision to allow for this.

The 1.9km MMEZ was derived from Condition 3.9.2 of the original FDS, which used impact piling as the basis for the acoustic modelling underlying that threshold. Before the tug berth piling work commenced, the FDS was amended to account for separate MMEZs by species and type of work, including vibratory piling. LNGC did not update the MMP at the same time because it reasonably understood its monitoring program to already be consistent with the MMP. The amended FDS provided the rationale for the program being applied.

At the time, LNGC reasonably understood that the use of vibratory piling as a mitigation measure, together with the monitoring program implemented in accordance with the amended FDS, was consistent with the MMP framework and did not require formal amendment prior to implementation. If that was a mistake, it was an honest one and reasonably held.

B. The Subsequent Approval of the Revised MMP Confirms Reasonableness

The subsequent approval of the revised MMP further confirms the reasonableness of LNGC’s approach and demonstrates that it was consistent with standards ultimately accepted by the EAO. The revised MMP was circulated to regulators, Indigenous Nations, and other stakeholders for consultation, and the feedback received was incorporated into the final approved version. Significantly, the Department of Fisheries and Oceans – the federal regulator with primary responsibility for the protection of marine mammals - raised no concern with the exclusion zones ultimately approved for vibratory piling (200 m for cetaceans and only 10 m for pinnipeds).

C. The Mistake Did Not Result in Any Adverse Effect

Significantly, LNGC’s failure to implement the MMP requirements for impact pile driving, did not result in any adverse effect. The mistake resulted in administrative consequences only. LNGC took all reasonable care to protect marine mammals. LNGC

adopted a lower-risk construction method, implemented all necessary monitoring and additional mitigation for that activity (based on scientific support), and caused no harm to marine mammals.”

74. Due diligence requires reasonable steps to prevent the contravention before it occurs. The EAO approval process exists precisely so that proposed changes to approved plans can be reviewed and approved before implementation. While LNGC later obtained approval for revisions to the MMP, that does not establish that all reasonable steps were taken to prevent the contraventions that occurred in 2023. In my view, a reasonable step available to LNGC would have been to seek approval of the revised monitoring and mitigation framework before implementing it.
75. After considering the relevant information above, I confirm no adjustment is applied under this factor.

Factor h): Efforts to correct the contravention or failure (-):

76. No adjustment was proposed for this factor.
77. LNGC submits that efforts were taken to correct the contraventions. At para 155-157 of the OTR Submission, it stated:

“As soon as LNGC was made aware of the EAO’s different interpretation of the MMP (as indicated in the Inspection Report), LNGC amended the MMP to clarify what had already been consulted on and included in the FDS amendment application in 2020, and provided the amended MMP to the EAO for acceptance.

The EAO’s subsequent approval of the further revised MMP in December 2025, means that operationally there is nothing that needs to be done differently to correct the alleged contravention or failure. In other words, there is no need to implement a 1.9 km MMEZ for vibratory piling work. All that LNGC needed to do was address the perceived ambiguity in the prior version of the MMP.

Accordingly, LNGC took immediate steps to “correct the contravention of failure” by ensuring that carrying out any future vibratory piling, following the exact same monitoring that was done in 2023, could not be considered to be a contravention. Accordingly, a reduction to the penalty is warranted.”

78. The contraventions in this case related to monitoring and mitigation activities that occurred during piling operations between May and June 2023. Once those activities were completed, the contraventions could not be retrospectively corrected. The revision to the MMP is more appropriately considered under Factor i), below.
79. After considering the relevant information above, I confirm no adjustment is applied under this factor.

Factor i): Efforts to prevent recurrence of the contravention or failure (-):

80. In response to 20240054_IR001, LNGC stated that it would consider updating the MMP language if further piling becomes necessary. On November 27, 2025, LNGC issued a revised version of the MMP for review with changes to the initial MMEZ distances and different distances for impact versus vibratory piling. At the time of the Notice, I was unaware of any approval of the revised MMP by the EAO.
81. A decrease of 10% of the base penalty (- \$10,000) was proposed for efforts made to prevent recurrence of the contraventions.
82. LNGC submits that a greater reduction is warranted. At para 49-53 of the OTR Submission, it stated:

“On December 1, 2025, LNGC submitted a comprehensive revision to the MMP to the EAO, which included clarification around the different taxonomy-specific MMEZs relating to different activities, including vibratory piling.

The Penalty Assessment proceeds on the incorrect factual assumption that the EAO had not accepted revisions to the MMP prior to the issuance of the Notice. In fact, the EAO confirmed its acceptance of Revision 4 of the MMP on December 9, 2025, several months before the Notice was issued on May 4, 2026. and indicated that no further revisions were required.

This error is material, as it underpins the characterization of LNGC’s conduct as a departure from an applicable and fixed standard, when the relevant framework had already been reviewed and accepted by the EAO at the time the Penalty Assessment was issued.

The approved revision established exclusion zones for vibratory piling of 200 m for cetaceans and only 10 m for pinnipeds for vibratory piling, reflecting the EAO’s acceptance that the risk profile associated with vibratory piling is materially different from that associated with impact pile driving. The monitoring and mitigation measures implemented by LNGC during the 2023 piling program were consistent with, and in several respects more conservative than, the approach subsequently approved by the EAO under the revised MMP.

The immediate vicinity exclusion zone for pinnipeds at only 10 m, is particularly notable given that the only pinniped observed during the 2023 piling program was recorded at approximately 170 m from the piling activity.”

83. At para 159 of the OTR Submission, LNGC further stated:

“The revised MMP was approved by the EAO on December 9, 2025, prior to the issuance of the Notice on May 4, 2026. The thresholds and mitigation measures set out in the approved MMP revision are consistent with the monitoring program LNGC implemented during the 2023 piling program, confirming that LNGC’s approach was substantively appropriate for marine mammal protection and mitigation implementation. For those reasons, and based on the position taken in the Penalty Assessment, it appears a greater reduction is appropriate.”

84. I find that LNGC not only revised the MMP in response to the issues identified through the inspection process, but completed the review and approval process and obtained EAO

acceptance of the revised plan. The approved revisions provide greater clarity regarding the monitoring and mitigation requirements applicable to vibratory piling activities and reduced the likelihood of similar issues arising in the future. I therefore find that LNGC took meaningful steps to prevent recurrence of similar contraventions.

85. After considering the relevant information above, I confirm a decrease of 20% of the adjusted base penalty (- \$10,000) is applied for efforts made to prevent recurrence of the contraventions.

Factor j): Any other relevant factors (+/-):

86. Local Indigenous Nations have concerns about effects on marine mammals from the Project. Marine resources are considered a valued component in part due to their importance to Indigenous groups whose cultures and traditional resource harvesting activities are deeply connected to the marine environment. Key issues of concern raised during stakeholder and Indigenous engagement were issues related to fisheries, marine species mortality and effects on habitat, and alteration of fish and mammal behaviour.
87. The contravention in this matter relates to the implementation of mitigation and monitoring measures intended to address those concerns during construction activities. While no specific adverse effects to Indigenous Nations have been confirmed, the failure to implement the approved MMP undermined the safeguards relied upon in the environmental assessment to manage potential impacts on marine mammals and associated Indigenous interests.
88. These considerations inform the overall gravity of the contraventions and the importance of compliance with certificate conditions.
89. No adjustment was proposed for this factor.
90. LNGC submits that additional relevant factors exist. At para 160-163 of the OTR Submission, it stated:

“The Penalty Assessment proposes no adjustment under this factor, citing concerns regarding potential effects on marine mammals and suggesting that LNGC's conduct undermined safeguards relied upon during the environmental assessment. With respect, that conclusion is inconsistent with the evidence. As discussed above, the monitoring records, post-construction hydroacoustic assessment, expert evidence, and the EAO's subsequent approval of less conservative monitoring and mitigation measures all confirm that marine mammals were not exposed to harmful sound levels and that the potential for adverse effects was, at most, very low.

The Penalty Assessment also refers to Indigenous Nations' interests in relation to marine mammal protection. LNGC recognizes the importance of those interests. However, there is no evidence that those interests were adversely affected or placed at risk. Indigenous Nations were consulted on both: (i) the 2020 amendment to the Federal Decision Statement, which confirmed activity-specific and species-specific exclusion zones, including vibratory-piling exclusion zones; and (ii) the subsequent Revision 4 amendments to the MMP approved by the EAO in 2025. The exclusion zones and monitoring measures ultimately approved by the EAO for vibratory piling were equal to or less restrictive than those implemented by LNGC during the 2023 piling program. In

these circumstances, there is no evidentiary basis to conclude that Indigenous interests were adversely affected or that the environmental safeguards relied upon during the assessment process were compromised.

The EAO Policy also identifies a number of additional considerations that support a further reduction:

- a) Although the matter was not self-reported, LNGC was fully cooperative throughout the inspection, investigation, and enforcement process, and promptly provided the information requested by the EAO.
- b) The alleged contravention did not result in any costs to government, remediation requirements, environmental response measures, or other tangible impacts requiring intervention by public authorities.
- c) A penalty is not required to motivate future compliance. Following the inspection process, LNGC revised the MMP to address the interpretive issues identified by the EAO and obtained approval of Revision 4. The revised MMP, which has been accepted by the EAO, confirms that less extensive mitigation and monitoring measures are appropriate for vibratory piling than those implemented during the 2023 program.

The evidence establishes that LNGC acted in good faith, cooperated fully with regulators, caused no environmental harm, created at most a minimal potential for adverse effects, and has already addressed the issues identified by the EAO through an approved revision of the MMP. In those circumstances, no penalty is necessary to achieve the objectives of deterrence, future compliance, or environmental protection.”

- 91. I have considered LNGC's submission that its cooperation throughout the inspection and enforcement process, the absence of documented environmental harm, and the approval of the revised MMP support a further reduction. I do not find that they warrant an additional adjustment under this factor. Cooperation with regulatory inspections is an expected obligation of certificate holders and does not, on its own, warrant a reduction. Arguments around environmental harm were considered under Factor b) and the approved revised MMP under Factor i).
- 92. While the contraventions did not result in costs to government, the absence of public expenditures is not, in itself, a basis for reducing an AP in this file.
- 93. I have also considered the nature of LNGC as a major project proponent and a joint venture comprised of large international energy companies with substantial regulatory and operational experience. Such proponents are expected to understand and operate within the environmental assessment framework, including the requirement to implement approved management plans unless and until revisions have been approved by the EAO. While LNGC maintained that its alternative approach was technically appropriate, the environmental assessment regime depends upon approved plans being followed rather than unilaterally modified by certificate holders. In the circumstances, I do not find that any further adjustment is warranted under this factor.
- 94. After considering the relevant information above, I confirm no adjustment is applied under this factor.

Penalty Calculation Table:

Factors to be considered in penalty calculation:	Notice	Final Determination
Gravity Penalty		
a) Nature of contravention or failure	moderate	moderate
b) Real or potential adverse effect	medium	low to none
Base Penalty:	\$100,000	\$50,000
c) Previous contraventions or failures, penalties imposed, or orders issued	\$0	\$0
d) Whether contravention or failure was repeated or continuous	+ \$20,000	+ \$10,000
e) Whether contravention or failure was deliberate	\$0	\$0
g) Exercise of due diligence to prevent the contravention or failure	\$0	\$0
h) Efforts to correct the contravention or failure	\$0	\$0
i) Efforts to prevent recurrence of the contravention or failure	- \$10,000	- \$10,000
j) Additional relevant factors	\$0	\$0
Total Gravity Penalty	\$110,000	\$50,000
Application of multiplier: No	N/A	N/A
Economic Benefit Penalty		
f) Economic benefit derived by the party from the contravention or failure	\$0	\$0
Gravity Penalty + Economic Penalty	\$110,000	\$50,000
Total Penalty:	\$110,000	\$50,000

Total Penalty:

95. After determining a gravity penalty of \$50,000 for these contraventions, the penalty is established at \$50,000.

Summary of Relevant Facts

96. On October 29, 2024, the EAO conducted an inspection to verify compliance with the EAC. On January 20, 2025, the EAO issued Inspection Record 20240054_IR001 and found LNGC out of compliance with a number of EAC requirements, including Condition 5. The outcome of 20240054_IR001 was determined to be a Referral for an AP.

[EAO Inspection Record (Oct 29, 2024)]

97. The “Inspection Details” in 20240054_IR001 assessing compliance with Condition 5 (failure to monitor underwater noise) stated:

“This inspection assessed whether the Certificate Holder complied with the above in relation to the piling associated with the tug berth facility.

On October 23, 2024, in response to an information request from the EAO, the Certificate Holder provided the EAO with four weekly acoustic monitoring reports and two monthly acoustic monitoring reports (Appendix 4). The reports show that piling using a vibratory hammer occurred from May 16 to June 22, 2023. The reports also include summaries of the acoustic conditions encountered during piling.

During piling, underwater acoustic measurements were taken 8 to 13 metres (m) away from the piles. Section 1.3.1 in the monthly acoustic monitoring reports states that the measurement locations varied from the planned 10 m location because of safety concerns or the availability of suitable equipment deployment locations.

During the installation of all 18 production piles, the reports show that noise levels exceeded 160 decibels (dB). The Marine Monitoring Plan requires that, during piling, the location at which the noise level drops below 160 dB is to be the boundary of the Marine Mammal Exclusion Zone (the MMEZ).

Contrary to Marine Monitoring Plan sections 6.8.1.1 and 6.8.2.1, there is no evidence to indicate that vessel-based underwater acoustics monitoring was conducted at the predicted boundary of the MMEZ. This finding is supported by the monitoring reports, which state that no hydroacoustic monitoring occurred at the 1900 m location, which was the predicted boundary of the MMEZ, in either May or June 2023, as no impact piling occurred. How the initial 1900 m location was set is irrelevant to the compliance finding as the requirement was for the Certificate Holder to monitor acoustics 10 m from the source and at the predicted boundary of the MMEZ.

The Plan above requires the MMEZ and the Marine Mammal Monitoring Zone (the MMMZ) to be set by acoustic monitoring whenever piling occurs. It does not state that acoustic monitoring at the predicted boundary of the MMEZ will only occur when impact (emphasis added) piling occurs. As the Certificate Holder did not monitor underwater noise at the predicted boundary of the MMEZ during vibro-hammer piling, the Certificate Holder is non-compliant with Condition 5.”

[Underwater Acoustic Monitoring Reports]

98. The “Inspection Details” in 20240054_IR001 assessing compliance with Condition 5 (failure to deploy bubble curtains) stated:

“The acoustic monitoring reports in Appendix 4 show that piling using a vibratory hammer occurred from May 16 to June 22, 2023. During this time, the reports state that bubble curtains were only deployed once and that was on June 6, 2023, when underwater noise levels exceeded the 190 dB Sound Pressure Level (SPL) peak trigger value specified in the LNG Canada (LNGC) Environmental Work Plan (EWP). Details on this incident, as reported in the June 2023 Acoustic Monitoring Summary (Appendix 4), are as follows:

“Underwater noise levels exceeded the 190 dB SPL peak trigger value specified in the LNGC EWP during vibratory pile installation of production pile #K3 and #K2 on June 6, 2023. Once noise levels exceeded the trigger value during #K3 pile installation, the

Environmental Monitor (EM) immediately requested bubble curtain deployment to mitigate noise levels. However, #K3 pile installation ended two minutes after the exceedance was first noted and the bubble curtains did not end up being deployed.

With additional pile installation (#K2) planned for the day, the EM preemptively requested a bubble curtain to be deployed and operated around the pile. Underwater noise levels exceeded the 190 dB SPLpeak trigger value threshold again with the single bubble curtain, at which point work was paused and two additional bubble curtains were deployed and operated. Once work restarted, the EM noted a hydroacoustic data point (207.7 dB SPLpeak) exceeding the compliance criteria (207 dB SPLpeak) for vibratory pile installation and work was requested to stop so that mitigation measures could be evaluated. In the process of the stop work request being relayed to relevant crew members, noise levels reduced to compliant values. The EM evaluated the noise mitigations in place (three bubble curtains) with the reduction in noise to compliant levels and determined that mitigation measures were sufficient to continue vibratory pile installation works. An incident report was logged to capture the occurrence. After pile installation ended for #K2, the EM searched the area for dead or distressed fish and did not observe any.”

LNGC EWPs are not reviewed or approved by the EAO and do not negate the need for the Certificate Holder to comply with their EAC.

The requirement above states that bubble curtains will be deployed during piling activities. It does not state that bubble curtains will be deployed only when the noise levels generated by piling exceed the 190 dB SPL peak trigger value specified in the LNGC EWP. The Certificate Holder did not deploy bubble curtains during all piling activities as required by the Marine Monitoring Plan. As such, they are non-compliant with Condition 5.”

99. The “Inspection Details” in 20240054_IR001 assessing compliance with Condition 5 (failure to monitor for marine mammals within specified distances) stated:

“Piling for the tug berth facility occurred from May 16 to June 22, 2023.

During single site operations, sections 6.8.1.1 and 6.9.2.2 of the Marine Monitoring Plan require the initial MMEZ to be 1.9 kilometres (km) and the MMMZ 2.28 km away from the piling. During simultaneous operations, these distances were to be greater. The distances were required to be varied once underwater acoustic monitoring confirmed where they should be located. The MMEZ was to be the area where noise exceeded 160 dB and the MMMZ was to be 20 percent longer than the MMEZ.

On October 23, 2024, in response to an information request from the EAO, the Certificate Holder provided the EAO with the marine mammal monitoring reports in Appendix 5. In section 1 of the May 2023 report, it states “*Specific to piling activities in the LNG Canada Tug Berth construction project, a Marine Mammal Monitoring Zone (MMMZ) was established at 300m for all marine mammals. For all marine mammals, the exclusion zone is immediately adjacent to the piling activities, as there is imminent risk of physical harm from direct contact or elevated noise emissions.*” Similar wording is found in section 1 of the June 2023 report.

As evidenced by the above and the findings for Requirement #3, the Certificate Holder varied the MMEZ and the MMMZ from the initial distances set in the Marine Monitoring Plan without supporting evidence from acoustic monitoring. In Section 1 of the May and June 2023 Marine Mammal Monitoring Reports, it states *“For all marine mammals, the exclusion zone is immediately adjacent to the piling activities...”*, yet the acoustic data in the monitoring reports (Appendix 4) show that the noise levels 8 to 13 m away from all production piles exceeded 160 dB, which is the threshold for the MMEZ. As no acoustic monitoring occurred farther than 8 to 13 m away from the piles, it is unknown where the final boundaries of the MMEZ and the MMMZ should have been.

As the Certificate Holder did not determine the distance at which underwater sound levels dropped below 160 dB, the MMEZ and the MMMZ were required to have been at least 1.9 km and 2.28 km as per section 6.8.1.1 of the Marine Monitoring Plan.

The above demonstrates that the Certificate Holder only monitored the 300 m adjacent to the piling for marine mammals, not the 2.28 km required by the Marine Monitoring Plan. The 2.28 km was to be monitored until acoustic monitoring confirmed where the MMMZ was to be. Because the Certificate Holder did not use acoustic monitoring to set a MMMZ, they were obligated to monitor at least 2.28 km. They did not do that. As such, they are not compliant with Condition 5.”

[Marine Mammal Monitoring Reports]

100. The “Inspection Details” in 20240054_IR001 assessing compliance with Condition 5 (failure to deploy marine mammal observers) stated:

“Piling for the tug berth facility occurred from May 16 to June 22, 2023. During this time, the Certificate Holder was required by the Marine Monitoring Plan to have trained Marine Mammal Observers (MMOs) monitor for marine mammals in the vicinity of the piling. The MMOs were to take specific actions if marine mammals were sighted within the MMMZ and the MMEZ (see Requirement #7 for more information).

In Section 2 of the May and June 2023 reports (Appendix 5), it states that *“Monitoring efforts involved a single MMO deployed upon the Bridgewater Driver Barge at a height of 4 metres, on top of the refueling platform. This platform generally allowed a 360° view of the 300-metre MMMZ during vibratory pile installation. The MMO surveyed for marine mammal presence for 30 minutes prior to commencement of pile driving and for the duration of piling activities...”*.

However, Section 6.9.2.2 of the Marine Monitoring Plan states that *“During piling and ground improvement activities, MMOs will be strategically positioned with line of sight to the perimeter of the MMEZ, with another vessel-based MMO stationed within the MMMZ.”*

During piling, the Certificate Holder did not have multiple MMOs as required by the Marine Monitoring Plan. As such, they are non-compliant with Condition 5.”

101. The “Inspection Details” in 20240054_IR001 assessing compliance with Condition 5 (failure to enact adaptive management strategies) stated:

“Piling for the tug berth facility occurred from May 16 to June 22, 2023. During this time, the Certificate Holder was required by the Marine Monitoring Plan to have trained MMOs monitor for marine mammals in the vicinity of the piling (see Requirement #6).

During single site operations, sections 6.8.1.1 and 6.9.2.2 of the Marine Monitoring Plan require the initial MMEZ to be 1.9 km and the MMMZ 2.28 km away from the piling. During simultaneous operations, these distances were to be greater. See Requirement #5 for more details.

On October 23, 2024, in response to an information request from the EAO, the Certificate Holder provided the EAO with the marine mammal monitoring reports in Appendix 5. In section 1 of the May 2023 report, it states *“Specific to piling activities in the LNG Canada Tug Berth construction project, a Marine Mammal Monitoring Zone (MMMZ) was established at 300m for all marine mammals. For all marine mammals, the exclusion zone is immediately adjacent to the piling activities, as there is imminent risk of physical harm from direct contact or elevated noise emissions.”* Similar wording is found in section 1 of the June 2023 report.

As evidenced by the above and the findings for Requirement #3, the Certificate Holder varied the MMEZ and the MMMZ from the initial distances stated in the Marine Monitoring Plan without supporting evidence from acoustic monitoring.

As the Certificate Holder did not determine the distance at which underwater sound levels dropped below 160 dB, the MMEZ and the MMMZ were required to have been at least 1.9 km and 2.28 km as per section 6.8.1.1 of the Marine Monitoring Plan.

Section 2 of the May and June 2023 reports (Appendix 5) states *“Monitoring efforts involved a single MMO deployed upon the Bridgewater Driver Barge at a height of 4 metres, on top of the refueling platform. This platform generally allowed a 360° view of the 300-metre MMMZ during vibratory pile installation. The MMO surveyed for marine mammal presence for 30 minutes prior to commencement of pile driving and for the duration of piling activities...”*

The marine mammal monitoring reports show that on the dates piling occurred, the MMO observed marine mammals within 700 m of the piles, which is within the default 1.9 km MMEZ. The Marine Monitoring Plan, section 6.9.6, states *“Should the marine mammal continue into the MMEZ, adaptive management strategies will be enacted, including suspension of pile driving”*.

Therefore, whenever a marine mammal was within 1.9 km of the piling, adaptive management strategies should have been enacted, including the suspension of pile driving.

However, as stated in section 4 of the May and June 2023 reports, marine mammal sightings within the LNG Canada MMMZ, which extended 300 m from the piling, did not result in any stoppage of work as sightings were not immediately adjacent to the piling activities.

The inspection findings demonstrate that, during piling, the Certificate Holder did not comply with Condition 5 in regard to enacting adaptive management strategies, including suspension of pile driving, as detailed in the Marine Monitoring Plan.”

102. On December 17, 2024, LNGC provided a response to a preliminary version of 20240054_IR001. In the 20240054_IR001 response to Condition 5 (failure to deploy bubble curtains), it stated:

“Per Table 9 of the Marine Activities Plan, LNG Canada used vibratory piling as a mitigation for limiting underwater noise during in water piling while constructing the Tug Berth Facility. Hydroacoustic monitoring during the work scope did not exceed the thresholds outlined in the MMP supporting documents, therefore an additional mitigation such as a bubble curtain was not applied. LNG Canada followed the Mitigation Best Practices outlined within the application for Permit #00 – Decision Statement – CEAA Document Number L001-09800-AA-5753-3052 LNG Canada appended Summary of current mitigation measures for marine mammals during in-water pile installation, and supporting rationale for a pinniped-specific exclusion zone. Stantec Consulting Ltd. Technical Memorandum – July 2020.

If impact pile driving is to occur, the following additional mitigation measures are recommended:

- Conduct hydroacoustic monitoring during impact pile driving to monitor underwater noise thresholds
- Implement a sound attenuation device (e.g., bubble curtain) to reduce sound levels outside of the bubble curtain
- A qualified marine mammal observer (MMO) will establish and monitor the prescribed marine mammal exclusion zone
- Monitor for marine mammals within the marine mammal exclusion zone for at least 30 minutes prior to the start of pile driving. If a marine mammal enters the marine mammal exclusion zone, temporarily suspend pile driving until the individual has left the exclusion zone or has not been sighted for 30 minutes
- Confirm no marine mammals have been observed for 30 minutes prior to initiating piling. For vibratory piling, initiate a noise from the hammer at 40-60% reduced energy, followed by a 1-minute waiting period prior to commencing works. For impact hammering, provide an initial set of three strikes from the impact hammer, followed by a 1-minute waiting period, then two subsequent three strike sets.”

[LNGC response to preliminary IR (Dec 17, 2024)]

103. In the 20240054_IR001 response to the other Condition 5 non-compliances, LNGC stated:

“Section 6.8 of the MMP states “In accordance with CEAA Decision Statement, Condition 3.9, LNG Canada has established a marine mammal exclusion zone for all construction activities where underwater noise levels are anticipated to exceed 160 dB at a reference pressure of 1 micropascal (refer to Section 6.8.1.1 and Figure 6.8-1).” In 2021, CEAA Decision Statement Condition 3.9 was amended to provide further clarity on and alignment with the exclusion and safety zones described in the Marine Monitoring Plan.

Within the amendment application for Permit #00 – Decision Statement – CEAA Document Number L001-09800-AA-5753-3052 LNG Canada appended *Summary of current mitigation measures for marine mammals during in-water pile installation, and supporting rationale for a pinniped-specific exclusion zone.*

The MMP and memorandum outlines that the modelled radius for the MMEZ, dictated by condition 3.9 of the CEEA 2012 Decision Statement, was based on the 95th percentile radius (R95%) zone of disturbance from **impact pile** installation (unweighted root mean square [rms] sound pressure level [SPL] of 160 dB re 1 µPa) and extends to 1,900 m (JASCO 2015). Based on this modelling, LNGC established a cetacean MMEZ to prevent disturbance from impact piling, and further established a pinniped MMEZ to prevent injury from impact piling (Table 6.8-2 of the MMP) The supporting document for the amendment expands on the different exclusion zones for impact vs vibratory piling defined in consultation with stakeholders and Indigenous groups (Table 1).

Both the environmental assessment and MMP used the most conservative assumption (use of impact pile installation primarily) in its prediction of potential effects to marine mammals and in the development of proposed mitigation measures. As a result, the current cetacean MMEZ zones of 1,900 m (LNGC only) and 3,040 m (both LNGC and Rio Tinto) are conservative predictions of the 160 dB cetacean exclusion zone based on acoustic modelling of impact pile installation in the environmental assessment. However, since the issuance of the provincial EAC and federal Decision Statement, and the development of the MMP, construction plans have been refined and LNGC has modified its construction methods to use predominantly vibratory piling methods as a mitigation to reduce underwater noise levels during construction. With regards to the monitoring at 10m, per Section 6.8.1.1 this monitoring is for the protection of fish and has a limit of 30 kPa. Specifically for the tug berth piling, this was refined by a *DFO Letter of Advice October 3, 2022* which recommended “Hydroacoustic monitoring should be conducted continuously to verify that underwater peak sound pressure levels do not exceed the 207 dB re: 1µPa beyond 10 m from the pile to prevent injury to fish”. The hydroacoustic monitoring was conducted as close to 10m as feasible given safety considerations, and was assessed against a limit of 207 dB re:1µPa for exceedances (not 160 dB re:1µPa).

Based on the process followed for developing the MMP, LNG Canada’s interpretation is that no hydroacoustic monitoring is required for vibratory pile driving. The recommended Marine Mammal Exclusion Zones as outlined in Table 1 were monitored for presence to avoid disturbance or injury to marine mammals during all ongoing vibratory piling activities.

LNG Canada acknowledges that the wording in the MMP could be clarified. Although piling activities are complete for Phase 1 of the LNG Canada project, LNG Canada will consider updating this language if any further piling becomes necessary.”

104. On May 4, 2026, the EAO issued a Notice and accompanying PAF to LNGC via email. The Notice recommended one penalty:

- 2026-18: \$110,000 for contravention of Section 6(2) between May 16 and June 22, 2023

105. In the Notice, LNGC was offered an OTR and given thirty (30) days to request an OTR.

106. On May 5, 2026, LNGC confirmed receipt of the Notice and PAF via email.

107. On May 15, 2026, LNGC requested an OTR.

108. On May 20, 2026, the EAO acknowledged LNGC's request for an OTR, confirmed the OTR would be by written submission, and set a due date of June 22, 2026.
109. On June 9, 2026, LNGC requested an extension to the due date for the OTR submission.
110. On June 9, 2026, the EAO granted the request for an extension and set a new due date of July 17, 2026.
111. On July 17, 2026, LNGC provided the OTR Submission to the EAO.

Marine Mammal Plan

112. On August 29, 2019, LNGC issued the MMP, revision 2.

[Marine Monitoring Plan rev 2]

113. Section 6.8.1.1 of the MMP, Underwater Acoustic Monitoring, Potential Effects, Defining Zone of Injury and Zone of Influence, stated:

“Bubble curtains will be deployed during piling and ground improvement activities. ...

At the start of piling, vessel-based underwater acoustics monitoring will be conducted to confirm an appropriate MMEZ. If underwater noise measures greater than 160 dB at the initial 1.9 km MMEZ, the MMEZ will be extended to the distance at which 160 dB is identified. If underwater noise measures less than 160 dB at the initial 1.9 km MMEZ, the MMEZ will remain in place while data is collected closer to piling activities. Once enough data has been collected to set a MMEZ with confidence, the MMEZ will be moved from 1.9 km to the new distance.

LNG Canada has also established a Marine Mammal Monitoring Zone (MMMZ) outside of the specified MMEZ for the purposes of monitoring for presence of marine mammals that may enter the MMEZ. ...

MMMZ distances are defined as the MMEZ + 20% distance.”

114. Section 6.8.2.1 of the MMP, Underwater Acoustic Monitoring, Field Program, Methodology, stated:

“During execution of the piling program, two recorders will be deployed with telemetry capabilities. These recorders will be deployed at 10m near the source and at the expected location of the marine mammal exclusion zone.”

115. Section 6.9.2.2 of the MMP, Marine Mammal Monitoring, Field Program, Methodology, Piling and Ground Improvement Activities, stated:

“During piling and ground improvement activities, MMOs will be strategically positioned with line of sight to the perimeter of the MMEZ, with another vessel-based MMO stationed within the MMMZ. Monitoring will be implemented before, during and after impact and/or vibro-hammer piling and/or ground improvements occurs. There will be direct communication between MMOs in both zones, and direct communication between MMOs and the pile driving team.

Two scenarios have been developed; single (LNG Canada only) and simultaneous (LNG Canada and Rio Tinto) site operations. For the purpose of mitigation, the dual site scenario assumes simultaneous operation.

As per Section 6.8, for single site operations, the MMEZ will be set at 1.9 km radius from the construction zone. For simultaneous operations, this zone extends to 3 km. These areas include the rms SPL threshold for disturbance to marine mammals at 160 dB re 1 μ Pa.”

116. Section 6.9.6 of the MMP, Marine Mammal Monitoring, Data Management and Reporting, stated:

“If marine mammals are observed within the MMMZ, information will be relayed to marine mammal coordinator and ICs regarding presence and activity. Should the marine mammal continue into the MMEZ, adaptive management strategies will be enacted, including suspension of pile driving.”

117. On September 19, 2019, the EAO issued a letter to LNGC that noted that the EAO approved the revised MMP on August 30, 2019.

[LNGCanada_MMP_DEMP_EAO Approval Letter_2019]

118. On November 27, 2025, LNGC issued revision 4 to the MMP. Included in this revised version are changes to the initial MMEZ distances and different distances for impact versus vibratory piling as shown in Table 6.10-1 below. On December 9, 2025, EAO approved the revised MMP.

Table 6.10-1: Hydroacoustically-Defined Marine Mammal Exclusion Zones for Impact and Vibratory Piling

Zone	Initial (pre-verification) Distance (m) ¹	MMEZ Boundary Acoustic Threshold ²	Description
Impact Piling Cetacean MMEZ (CMMEZ)	500	160 dB rms	This exclusion zone radius will be set at the distance from source where sound levels attenuate to the 160 dB rms SPL threshold. The radius will initially be set at 500 m (based conservatively on Phase 1 sound field verification studies) but will be adapted in-field (larger or smaller) based on acoustic measurements taken during the Phase 2 in-field verification program and at the discretion of the QP. The CMMEZ for impact piling will not be reduced to below 200 m.
Impact Piling Pinniped MMEZ (PMMEZ)	100	180 dB rms	This exclusion zone radius will be set at the distance from source where sound levels attenuate to the 180 dB rms SPL threshold. The radius will initially be set at 100 m (based conservatively on Phase 1 sound field verification studies) but will be adapted in-field (larger or smaller), based on acoustic measurements taken during the Phase 2 in-field verification program, and at the discretion of the QP. The PMMEZ for impact piling will not be reduced to below 10 m.
Vibratory Piling CMMEZ	200	160 dB rms	This exclusion zone radius will be set conservatively at an initial fixed distance of 200 m from source. The radius will then be adapted in-field (larger, as necessary) to reflect the distance from source to the 160 dB rms SPL threshold, based on acoustic measurements taken during the in-field verification program and at the discretion of the QP. The CMMEZ for vibratory piling will not be reduced to below 200 m.
Vibratory Piling PMMEZ	10	180 dB rms	This exclusion zone radius will be set conservatively at a fixed distance of approximately 10 m from source ³ . The radius will then be adapted (larger, as necessary) to reflect the distance from source to the 180 dB rms SPL threshold, based on acoustic measurements taken during the in-field verification program and at the discretion of the QP. The PMMEZ for vibratory piling will not be reduced to below 10 m.
Notes: 1. Initial MMEZ distances apply at the outset of piling and will be revised to reflect in-field values as part of the acoustic sound source verification program. 2. In keeping with IAAC Decision Statement Condition 3.9.2 and 3.9.3, exclusion zones will only be defined for activities that meet Condition 3.9.1 (i.e., CMMEZs will only be defined for activities that generate underwater SPLs greater than 160 dB rms, and PMMEZs will only be defined for activities that generate underwater SPLs greater than 180 dB rms). 3. Safety conditions do not allow for acoustic monitoring closer than 10 m. Hydrophones will be installed as close to 10 m as possible, accounting for human safety and equipment constraints.			

[Marine Monitoring Plan rev 4]

Noise

119. At the time of the dates of contravention, the NOAA “Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0)” stated that non-impulsive sounds, such as those generated by vibratory pile drivers, louder than 153 dB may cause marine mammals such as porpoises to experience a Temporary Threshold Shift (“TTS”), which is a temporary hearing loss. Non-impulsive sounds louder than 173 dB may cause a Permanent Threshold Shift, which is a permanent hearing loss.

[NOAA - Effects of sound on marine mammals (Version 2.0)]

120. In 2024, NOAA released an updated “Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0)”. Version 3.0 states that

non-impulsive sounds, such as those generated by vibratory pile drivers, louder than 161 dB may cause marine mammals such as porpoises to experience a TTS. Non-impulsive sounds louder than 181 dB may cause an auditory injury.

[[NOAA - Effects of sound on marine mammals \(Version 3.0\)](#)]

Receiving Environment

121. On May 6, 2015, the EAO issued the “LNG Canada Export Terminal Project Assessment Report” (“EAO Assessment Report”). Section 5.6.2 of the EAO Assessment Report, Marine Resources, Potential Project Effects and Proposed Mitigation Described in the Application, stated:

“Baseline Context– Marine Habitat and Species

Marine habitat in the LSA [local study area] is characterized by turbid surface layers, estuarine circulation, and typically low oxygen (hypoxic) deep waters, and has been subject to a variety of human disturbances associated with past and present industrial operations. The RSA is a nursery area and migration corridor for Pacific salmon and herring and a feeding ground for marine mammals, and is characterized by abundant benthic invertebrate stocks. Marine mammals, particularly humpback whales, are found year-round and seasonally along the shipping RSA [regional study area]. CRA [commercial, recreational and Aboriginal] fisheries may have historically affected fish populations in the RSA.

...

Marine mammals are abundant on the north coast of BC, and many species are found year-round and seasonally within the shipping RSA. Baleen whales commonly observed in the region include humpback, grey, fin and minke whales. Toothed whales that frequent the shipping RSA include northern resident and Bigg’s killer whales, Pacific white-sided dolphins, Dall’s porpoise and harbour porpoise. Harbour seals, Steller sea lions and sea otters are also found within the shipping RSA.

Species at risk listed on Schedule 1 of SARA [*Species at Risk Act*] potentially occurring in the facility and shipping LSA are: blunt nose sixgill shark, green sturgeon, longspine thornyhead, northern abalone, Olympia oyster, rougheye rockfish, tope, yelloweye rockfish, humpback whale, fin whale, grey whale, northern resident killer whale, Bigg’s killer whale, harbour porpoise, Steller sea lion, and sea otter.

...

Effects and Mitigation – Injury or Mortality of Fish and Marine Mammals

...

The Application stated that the expected number of marine mammals that could potentially be exposed to noise capable of causing permanent auditory damage is likely to be low, largely due to the low numbers of marine mammals modelled to be near construction activities. Endangered and threatened species (e.g., humpback whales, fin whales, Bigg’s and northern resident killer whales, harbour porpoise, and Steller sea lion) are expected to be present in low numbers within the facility RSA. Dredging and DAS [disposal at sea] activities would not create underwater noise that could cause harm to marine mammals. Mitigation measures, such as marine mammal exclusion zones, would

reduce the potential for marine mammals to be exposed to underwater noise above the injury threshold during pile installation.

The Application stated that the following key mitigation measures would be implemented to reduce the potential for injury or mortality to fish and marine mammals during construction, including:

...

- For marine pile installation, the Proponent would proactively manage pile installation with noise measurement and active monitoring of marine mammal exclusion zones. Additional sound dampening methods and/or alternative pile installation methods would be investigated and applied if necessary, to prevent the exposure of marine mammals to underwater noise exceeding defined thresholds.

Effects and Mitigation – Change in Behaviour to Fish and Marine Mammals

BSA [basin study areas] 2 and 3 overlap with DFO recognized important habitat for humpback whales. Marine mammal behavioural responses to underwater noise could include increased stress and disrupted communications, disrupted migration and foraging patterns, and changes in surfacing and diving behaviour.”

[LNGC Assessment Report (May 6, 2015)]

122. Section 18 of the EAO Assessment Report, Common Concerns Raised by Aboriginal Groups, included the following excerpt from Table 18-1.

Issue	Aboriginal Group	EAO Response
Effects on marine mammals	Haisla Nation Kitselas First Nation Kitsumkalum First Nation Gitxaala Nation Gitga’at First Nation Metlakatla First Nation Lax Kw’alaams Band	Effects on marine mammals are considered in section 5.6. Accidents or malfunctions are considered in section 10. EAO proposes a condition that would require the Proponent to develop marine mammal management and monitoring plans applicable during construction that would identify where and when sensory disturbance or injury to marine mammals from shipping may occur, and to support the mitigation of any effects to marine mammals.

123. Section 5.6 of the EAO Assessment Report, Marine Resources, states:

“Marine resources was identified as a VC [Valued Component] because of its ecological importance, importance to local fisheries and communities, and importance to Aboriginal Groups whose cultures and traditional resource harvesting activities are deeply connected to the marine environment. The marine waters surrounding Kitimat provide diverse habitats supporting many species that contribute to the ecological, cultural and economic well-being of the region.

The Marine Resources VC assessment focused on potential effects on marine species with the Application reporting on four potential project effects:

- Change in fish habitat;

- Harm to fish and marine mammals;
- Change in fish health as a result of toxicity; and
- Change in behaviour of fish and marine mammals due to underwater noise or pressure waves.

Key issues of concern raised during stakeholder and Aboriginal engagement were issues related to CRA fisheries, marine species mortality and effects on habitat, and alteration of fish and mammal behaviour.”

Tables

Table 1: Acoustic Monitoring Summary

Date	Maximum (dB)	Date	Maximum (dB)	Date	Maximum (dB)
2023-05-16	141.32	2023-05-25	186.4	2023-06-04	175.1
2023-05-17	145.9	2023-05-26	185.16	2023-06-06	207.7
2023-05-18	180.76	2023-05-27	184.84	2023-06-07	184.35
2023-05-19	181.26	2023-05-28	184.35	2023-06-18	163.2
2023-05-20	178.49	2023-05-29	180.6	2023-06-19	165.26
2023-05-22	189.22	2023-05-30	187.47	2023-06-20	155.42
2023-05-23	187.7	2023-06-02	188.49	2023-06-22	167.65
2023-05-24	188.53	2023-06-03	170.95		

Dated this 17th day of September, 2026.