2. The DPEIS's Marine Mammal Effects Analysis for Seismic Activities Lacks Scientific Integrity and Relies on Inaccurate Assumptions

An EIS must rely upon "high quality" information and "accurate scientific analysis." 40 C.F.R. § 1500.1(b); *Conservation Nw. v. Rey*, 674 F. Supp. 2d 1232, 1249 (W.D. Wash. 2009); *Envtl. Def. v. U.S. Army Corps of Eng'rs*, 515 F. Supp. 2d 69, 78 (D.D.C. 2007) ("Accurate scientific analysis [is] essential to implementing NEPA."). It also must have "professional integrity, including scientific integrity" and may not rely on "incorrect assumptions or data" or "highly speculative harms" that "distort[] the decisionmaking process." *See Theodore Roosevelt Conservation P'ship v. Salazar*, 616 F.3d 497, 511 (D.C. Cir. 2010); 40 C.F.R. § 1502.24; 73 Fed. Reg. 61,292, 61,299 (Oct. 15, 2008) (CEQ regulations require "high quality" information and "scientific integrity").[9] To be sure, courts have invalidated EISs that did not meet these standards, that were based on "stale scientific evidence . . . and false assumptions," or that failed to disclose the "potential weakness" of relied-upon modeling. *See, e.g., Seattle Audubon Soc'y v. Espy*, 998 F.2d 699, 704 (9th Cir. 1998); *Or. Nat. Res. Council Fund v. Goodman*, 505 F.3d 884, 897 (9th Cir. 2007). As set forth below, the DPEIS fails to meet these rigorous standards because it wrongly omits any consideration of mitigation measures and relies on flawed and biased modeling.

a. The effects analysis improperly ignores mitigation measures

NEPA requires an EIS to address "any adverse environmental effects which cannot be avoided," which necessitates an analysis of available mitigation measures. 42 U.S.C. § 4332(C)(ii) (emphasis added); *see Robertson*, 490 U.S. at 351-52, 353. However, the DPEIS turns this statutory mandate on its head by evaluating speculative adverse effects that can be (and are already being) avoided through the implementation of mitigation measures. In fact, these mitigation measures are an integral part of the proposed actions evaluated in the DPEIS. *See, e.g.*, DPEIS at 1-3, 1-4 (proposed action includes BOEM authorizations of G&G activities and NMFS incidental take authorizations, both of which must include mitigation measures). Nonetheless, the DPEIS expressly declines to evaluate the countervailing beneficial effects of the very mitigation measures that are integral to the proposed actions. *See* DPEIS at 1-16 ("The modeling is conservative because it did not apply any of the 19 different mitigations analyzed in [the DPEIS]."); *id.* at 1-19 ("The modeling effort in Appendix D does not, for example, take into account any mitigation measures incorporated into the alternatives because the effect of those measures cannot be quantified with statistical confidence at this time."); *id.* at 4-14 (mitigation measures not considered as part of effects analysis).

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[9] *See also CBD v. BLM*, 937 F. Supp. 2d 1140, 1155 (N.D. Cal. 2013) (principle that reasonably foreseeable environmental effects may not include "highly speculative harms" is equally applicable to direct and indirect effects); *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 964 (9th Cir. 2005); *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005).

BOEM's election to ignore the beneficial effects of mitigation measures is particularly arbitrary because BOEM knows—unconditionally—that the mitigation measures would substantially decrease any adverse effects postulated by the overly conservative exposure modeling. As addressed below, there are no demonstrated adverse effects on any marine mammal populations (in the GOM or the Arctic) resulting from mitigated seismic survey activities. In addition, Appendix D itself demonstrates the effectiveness of currently employed mitigation measures. Specifically, in Phase I of the exposure modeling described in Appendix D where various modeling methods, inputs, and assumptions are assessed, Sections 6.5.3 and 6.5.4 consider the effects of incorporating mitigation measures and aversive responses into the exposure modeling. Tables 40 and 44 show that the implementation of shutdowns may reduce the number of estimated Level A exposures by 10% to 80%.[10] Similarly, the effect of modeling aversive responses by marine mammals also shows potentially large reductions in the percentages of animals exposed above Level A criteria (40% to 85% for the peak sound pressure level ["SPL"] criteria and 14% to 20% for the root-mean-square ["rms"] SPL).

Despite these demonstrations of significant and meaningful reductions in the number of estimated exposures as a result of mitigation measures and aversive responses, and the fact that both are likely to occur under all of the alternatives considered in the DPEIS, they are inexplicably not included in the final (Phase II) modeling used to estimate exposures for the impact assessments and ultimately not considered as part of the effects analysis. Although there are uncertainties associated with including these measures in the modeling process, those uncertainties are not substantially different than uncertainties associated with other inputs to the modeling process and they should not be disqualified from use for that reason.

BOEM's refusal to incorporate the known benefits of mitigation measures, many of which are standard best practices that the seismic industry already implements, is arbitrary, unsupported, and contrary to well-established NEPA principles.[11] An agency cannot simply ignore certain effects of an action because they "cannot be quantified with statistical confidence" (DPEIS at 1-19), particularly when it chooses not to ignore admittedly incorrect assumptions that inaccurately estimate impact levels. This is the very definition of "arbitrary and capricious" agency action. Rather, BOEM must evaluate all reasonably foreseeable effects that will be caused by the proposed action, including the offsetting effects of mitigation measures, perform a

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[10] The effectiveness of mitigation varies by species as it is related to the probability of detecting each species; however, those species that form large groups and/or are most abundant are the ones for which mitigation is most effective. Thus, the percent reduction in estimated exposures is likely greatest for the species with the highest absolute estimated exposures.

[11] These standard best practices are the mitigation measures that have been employed for many years in the GOM under Joint Notice to Lessees ("NTL") No. 2016-G02 (previously NTL No. 2012-G02 and NTL No. 2007-G02) and are represented in Alternative A. In this comment letter, we refer to these measures as the "Standard Mitigation Measures."