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On Behalf of the International Association of Geophysical Contractors

Written Testimony on

"Examining Deficiencies in Transparency at the Department of the Interior"

Before the

United States House of Representatives Natural Resources Committee

Subcommittee on Energy and Mineral Resources

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Chairman Lamborn, Ranking Member Lowenthal, and Members of the Subcommittee:

On behalf of the International Association of Geophysical Contractors (IAGC), I appreciate the opportunity to testify on data and scientific transparency in agency decision making. Congressional oversight of the regulatory process for offshore and onshore energy development is more important than ever, as we witness increased restrictions based on non-transparent and unscientific decisions issued by the Administration.

I am the Americas Chapter Chair and a Board Member of the IAGC. The IAGC is the international trade association representing the industry that provides geophysical services (geophysical data acquisition, processing and interpretation, geophysical information ownership and licensing, associated services and product providers) to the oil and natural gas industry. IAGC member companies play an integral role in the successful exploration and development of offshore and onshore hydrocarbon resources through the acquisition and processing of geophysical data.

Seismic and other geophysical surveys have been safely conducted in the U.S. and around the globe for over 50 years. These geophysical surveys are the critical first step to better understanding the resource base of the Outer Continental Shelf (OCS) and providing policy makers and regulators with the information they need to make informed decisions about oil and gas development based on the best available data. Surveys do not necessarily lead to oil and gas development. In fact, surveys determine both areas that are *and are not* likely to have recoverable oil and gas resources. However, unless the surveys can commence, that information will never be available to policy makers and the public. It is important to point out that seismic survey activities are temporary and transitory; they are the least intrusive way to explore the earth's geology and its dynamic processes which impact human lives.

In my capacity as Director of Marine Acquisition for TGS, an IAGC Governing Member company, I have experienced first-hand, the detrimental impacts of non-transparent decision

making on the geophysical industry. TGS provides global geoscientific data products and services to the oil and gas industry to assist with licensing rounds and the preparation of regional data programs. TGS invests in multi-client data projects in frontier, emerging and mature markets worldwide that make up a [data library of seismic imaging](#), well data and interpretive products and services. We have acquired 2D and 3D multi-client seismic data in North and South America, Europe, Africa, Asia Pacific and the Arctic. TGS is one of five IAGC member companies pursuing issuance of a permit to conduct seismic surveying in the Atlantic OCS, a process that started seven years ago when TGS first filed a permit application with then-Minerals Management Service.

After extensive environmental review at the programmatic level, the Bureau of Ocean Energy Management (BOEM) published a Record of Decision in July 2014, authorizing consideration of permits for geophysical surveys. Since then, pending permit applications have been subjected to a regulatory process plagued with continued delays and uncertainty. The most recent delays are primarily due to difficulties acquiring Incidental Harassment Authorizations (IHAs) from the National Marine Fisheries Service (NMFS) for the incidental take of marine mammals pursuant to the Marine Mammal Protection Act (MMPA).

According to NMFS, much of the delay in issuing IHAs, in order for the Bureau of Ocean Energy Management (BOEM) to issue seismic permits, is due to recently published data from Duke University that was unavailable to the public until very recently. Further, NMFS just released a third draft of the acoustic criteria without peer-review and an unacceptably short comment period, guidance which will likely lead to additional delay in the Atlantic and other OCS areas. Excessive delays, in violation of statute, should not continue and we appreciate this Committee's oversight in ensuring Federal agencies are making transparent decisions and relying on the best publically available science.

While we recognize this hearing is focused on 'Examining Deficiencies in Transparency at the Department of the Interior' our testimony extends to the National Oceanic Atmospheric Administration (NOAA) Fisheries as the permitting process for offshore exploration stems from many decisions by agencies in both Federal entities.

Development of Atlantic PEIS Transparency Concerns

The Outer Continental Shelf Lands Act (OCSLA), mandates the "expeditious and orderly development" of the OCS "subject to environmental safeguards." 43 U.S.C. § 1332(3). As part of fulfilling this mandate, in July 2014, BOEM published its Record of Decision (ROD) for Proposed Geological and Geophysical Activities in the Mid- and South Atlantic, culminating a four-year review evaluating the assumed environmental effects of seismic and other geological and geophysical (G&G) survey activities proposed on the Atlantic OCS.

The Programmatic Environmental Impact Statement (PEIS) undermines OCSLA's mandate, as well as the requirements of other applicable laws, such as the MMPA, in a number of ways. In general, a fundamental flaw with the PEIS is its establishment of an unrealistic scenario in which exploration activities are projected to result in thousands of incidental takes of marine mammals,

which BOEM admits will not actually occur. The supposed effects of this “worst case” hypothetical scenario are then addressed in the PEIS with mitigation measures, many of which are similarly unrealistic because they mitigate inaccurately presumed effects. This approach is contrary to both the best available scientific information and applicable law.

Many of the mitigation measures recommended in the PEIS are infeasible, will impose serious burdens on industry, will likely discourage exploration of the Atlantic, and result in no benefits to protected species (because they address unrealistic effects). The overly restrictive recommended measures include:

40km buffer zone

The PEIS recommends an expanded 40-km buffer zone between concurrent seismic surveys “to provide a corridor between vessels conducting simultaneous surveys where airgun noise is below Level B thresholds and approaching ambient levels.” PEIS at 2-37. The agency’s stated scientific basis for this proposed measure is, at best, ambiguous: “New information suggests that, in some circumstances, airgun noise can be detected at great distances from the sound source, such as across ocean basins (Nieuwirth et al., 2012), yet it is unknown if detection of sound at these distances has any effect on marine mammals or other marine species.” PEIS at 2-38. No other scientific evidence, no published studies, and no other rationale are provided for this proposed measure, which is given a half-page explanation in an appendix to the PEIS.

In the PEIS, BOEM acknowledges that there is “uncertainty about [the] effectiveness” of a 40-km buffer requirement. Neither BOEM nor NMFS has yet to provide any scientifically supported rationale for the proposed 40-km buffer. Instead, the PEIS concluded the measure “would only potentially slightly reduce acoustic impacts on marine mammals, sea turtles, and other marine biota,” but even then, the effectiveness of the measure is uncertain. ROD at 6.

Dolphin Shutdowns

The PEIS recommends a mitigation measure calling for the shutdown of operations if a dolphin enters the acoustic exclusion zone, unless the dolphin is determined by the observer to be voluntarily approaching the vessel. PEIS at 2-11. There is no scientific evidence demonstrating that active acoustic seismic surveys result in any incidental takes of dolphins. This proposed measure is contrary to the best available science, impractical, and otherwise unsupported. The proposed dolphin shutdown mitigation measure would broadly and substantially impact seismic operations without any corresponding environmental benefit and without any scientific support.

60-minute “all clear” Requirement

The PEIS recommends that monitoring of the exclusion zone shall “begin no less than 60 min prior to start-up” and that restarting of equipment after a shutdown “may only occur following confirmation that the exclusion zone is clear of all marine mammals and sea turtles for 60 min.” PEIS at C-29. As explained in our comments on the PEIS, this proposed measure is unprecedented and without factual or scientific support. Specifically, IAGC provided numerous examples confirming that the routine, and proven-to-be-effective, practice is to require 15- and 30-minute “all clear” periods—for marine mammals and for ESA-listed species. *See* IAGC PEIS Comment Letter § II.B.3. In its ROD, BOEM provides no substantive response to this

indisputable information. Indeed, since the ROD was issued, additional MMPA incidental take authorizations that include 15- and 30-minute “all clear” periods have been proposed by NMFS.

IAGC members can and will support mitigation measures that are well supported by the best available science, consistent with existing practices that are proven to be effective and operationally feasible, however, the agencies must recognize existing legal requirements and develop regulations in a transparent manner unlike what we have witnessed in the Atlantic.

A wealth of data and information demonstrates that seismic surveys will have no more than a temporary, localized, and negligible impact on marine life. BOEM should proceed with approving the pending permit applications and to work with NMFS to ensure that only reasonable, well-supported, and effective mitigation measures are included as conditions of the permits and the related federal authorizations.

Permitting Delays for Seismic on the Atlantic OCS

The last seismic surveys of the Atlantic OCS for acquisition of data of potential hydrocarbon presence, were conducted over 30 years ago. However, seismic surveys for ‘scientific research’ have been conducted fairly regularly in the Atlantic OCS, with one recent survey occurring between September and October 2014. The survey collected data along 3,000 miles of trackline in the area of the Outer Banks, of North Carolina. This survey used the same technology that is used for oil and gas exploration. Another recent ‘scientific research’ seismic survey to record sea level change and its impact on the New Jersey coastline was completed in July 2015 off the New Jersey coast.

The ROD formally triggered BOEM’s consideration of permits for G&G activities, building on a multi-agency effort that started in 2009.

TGS, among many other G&G companies filed applications in mid-2014 for permits to implement seismic surveys, part of the process consists of NMFS issuing IHAs under the MMPA. The MMPA establishes clear deadlines for the processing of IHA applications. MMPA Section 101(a)(5)(D) states that the “Secretary shall publish a proposed authorization not later than 45 days after receiving an [IHA] application” and request public comment. 16 U.S.C. § 1371(a)(5)(D)(iii) (emphasis added). After holding a 30-day comment period, the Secretary “shall issue” the IHA within 45 days of the close of the comment period, so long as the required MMPA findings are made. *Id.* These deadlines are particularly important because IHAs are issued for a period of only one year and planning for offshore surveys is complicated and very time-sensitive. Here, the IHA applications were submitted in 2014 (with some of them updated in the summer of 2015), and the first 45-day statutory deadline has already been surpassed by a substantial period of time. NMFS’s own website acknowledges that following an adequacy and completeness review of two to six weeks, a full application process should last six to nine months. Our company and at least three others have now waited nearly two years for IHAs.

To further illustrate the inconsistencies present in the BOEM permit and NMFS IHA process for the Atlantic, BOEM provided unprecedented 45 and 60 day public comment period on pending

geophysical permit applications and NMFS added an unprecedented 30 day comment period on IHA applications. To our knowledge, neither comment period has ever been required for a permitting process or IHA process before.

Further delay from the agencies is unacceptable and has no support in the plain language of the MMPA or the mandate of OCSLA.

Transparency Lacking in Reliance on Duke Model

The Duke Model is a compilation of habitat-based density models for marine mammals in the U.S. Atlantic and Gulf of Mexico. The model is intended to provide density maps with seasonal distributions based on 23 years of aerial and shipboard surveys compared to satellite environmental remote sensing data and ocean circulation models. It is important for the Committee to note that the Duke Model, which NMFS is using to estimate incidental take from proposed surveys, predicts likelihoods of finding animals at particular places and times and is not actual counts of animals. In other words it is a model forecast of marine mammal distribution, not actual data on animal abundance. It has been common to see the Duke Model and its outputs referred to as “Duke data”, but in fact the numbers produced by the Duke Model are statistical hypotheticals.

IAGC was first made aware of the Duke Model through a letter from Duke University to BOEM explaining development of ‘a comprehensive set of marine mammal density models for the U.S. east coast and Gulf of Mexico’, dated April 29, 2015. Subsequently, members of the seismic industry learned that NMFS had encouraged BOEM to use the Duke Model as early as November 2014 in development of the Atlantic PEIS for G&G activities. The Duke Model remained unavailable to the public, including IAGC throughout 2015, in contradiction to legal requirements stating federal agencies must rely upon the best available scientific information in decision making processes. NMFS was, however, providing the model to permit applicants as early as February 2015, and strongly encouraging amendment to their applications under threat of further delays in IHA issuance if the applicant did not use the Duke Model to calculate their requested MMPA “takes” for their proposed survey activities.

In a letter dated December 9th 2015, industry expressed serious concerns in response to efforts that have been made by certain advocacy organizations (such as NRDC) to impede and delay the permitting processes for the proposed Atlantic OCS surveys. For example, in an October 26th 2015 letter, NRDC identified an unpublished study (the previously referenced Duke Model), as a basis for arguing that BOEM and NMFS should substantially delay the permitting processes, even though both NMFS and BOEM had been in possession of the Duke Model for almost a year already. Around the same time, NMFS informed our members that it was planning to delay the issuance of proposed IHAs under the MMPA for many months as a result, in part, of the NRDC letter and meetings with NRDC.

The lack of transparency in how NMFS has applied the use of the Duke Model to consider IHA applications in the Atlantic is a prime example of the unwarranted and excessive uncertainty in the NMFS and BOEM permitting processes and a government run amok. The agencies have

disregarded long-standing guidance by CEQ and others about proper procedures for incorporating best available science in decisions and ensuring that adequate expert and public review is provided throughout the process. The MMPA provides no basis for delaying the processing of an IHA application so that NMFS can wait for the best “possible” information to become the best “available” information. Indeed, there is considerable legal precedent for dealing with the continuous process of scientific discovery during science-based regulatory decision making. Waiting more than a year for new information to attain a form that can be published in a peer-reviewed journal is not an acceptable reason for delay.

For the past year, IAGC repeatedly requested access to the Duke Model and continued to be met with stonewalling by NMFS only to finally see the paper, *Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico*, (Roberts J., et al, Scientific Reports 2016) (Duke Paper) published in March 2016 validating the scientific acceptability of the Model’s methodology. We understand that NMFS contributed federal funding to the development of the Duke Model, as have the US Navy, leading to further questions of whether a federal agency should be withholding information that is being used for decision making, which is being funded, in part, by taxpayers.

NMFS likely violated multiple policies by not making the Duke Model and its work products immediately available to the public (otherwise, it is not “available”) when it recommended its use in development of the PEIS and certainly when IHA applicants were asked to amend their permits. NOAA’s Scientific Integrity Policy states that NOAA must “ensure public access to . . . information and supporting data” used in decision-making. Additionally, the President has directed that “if scientific and technological information is developed and used by the Federal Government, it should ordinarily be made available to the public” and that “there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking” (Memo on Scientific Integrity March 9, 2009). In the NEPA and ESA contexts, courts also mandate the public disclosure of important decision documents and data. *See, e.g., Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1150 (9th Cir. 1998) (EIS arbitrary and capricious because “NEPA requires that the public receive the underlying environmental data from which a Forest Service expert derived her opinion”); *Idaho Farm Bureau Fed’n v. Babbitt*, 58 F.3d 1392, 1403 (9th Cir. 1995) (setting aside listing of hot spring snail because “provisional draft [report] should have been available for public review so that its accuracy could have been verified before the FWS made a decision relying, to a large extent, on information contained in the report”).

Finally, we understand that the information utilized in the Duke Model has been modified at least four times since it was provided to BOEM and the IHA applicants, so that what NMFS encouraged BOEM and the applicants to adopt in their environmental risk analyses might include information that has still not been peer-reviewed, published and made publicly available. It is far from certain whether the Duke Model has been sufficiently vetted for use in important regulatory decision-making processes as it was not available for a thorough public review process. While the Duke paper peer reviewed and validated the methodology of the Duke Model, the work products of that model, including predictions of animal abundance, distribution density, and likelihood of encountering exposure to a seismic survey, remain un-validated. Indeed, the initial predictions of the Duke Model for such basic information as species

abundance have been found to differ as much as 800 to 8000 percent from numbers that NMFS has used for the past 5 years or more in all aspects of that agency's resource management responsibilities, including but not limited to allocation of marine mammal bycatch to fisheries, permitting of US Navy training and military readiness activities, and a wide range of commercial whale watching and scientific research activities.

Models like the Duke model need to be validated with follow-up observations to confirm model predictions, especially when the model predicts numbers that are 80, 30 or 12 times the previous values used by NMFS in all aspects of its legal obligations to protect and manage marine mammal stocks. Peer-review of the reasonableness of the model assumptions is not sufficient for the additional step of applying model predictions in critical regulatory decision making processes. . Further verification is usually expected in the form of future data collections to confirm or deny the model predictions. Not only has NMFS not done this, they have provided no plan for data collection for Duke Model verification and modification. Yet this is a standard 'best practice' for all such models, including such common and widely used models as the NOAA weather forecast models. Without additional verification the Duke Model could result in further unnecessarily exaggerated estimates of incidental take for proposed Atlantic seismic surveys.

We encourage the Committee to request a plan by NMFS to address discrepancies between the Duke Model outputs and the official Stock Assessment Reports (SARs). Those SARs are required by law (MMPA) and are required to form the foundation of NMFS' management of marine mammals, including progress toward recovery of depleted or ESA listed species and the maximum allowance of takes in a year for fishery bycatch and other activities. If NMFS is recommending the use of Duke numbers that may be half of the NMFS official SAR numbers or ten times the NMFS SAR numbers, then the population status may also need to be re-evaluated and the allowable take numbers should also be adjusted accordingly.

NMFS Acoustic Criteria

As part of the regulatory and decision making process, NMFS is obliged to provide applicants with guidance about thresholds of acoustic risk for estimating MMPA takes. The existing NMFS guidelines are woefully out of date and not supported by science.

Specifically for the geophysical industry, NMFS models the sound output of a seismic survey based on acoustic thresholds to estimate the sound exposure to marine mammals. The current acoustic threshold criteria of 180 dB rms (the mean, or rms, sound level in deciBels) for injury (or "Level A take") and 160 dB rms for behavioral disturbance (or "Level B take") have a well-documented trail of criticisms since their introduction in the mid-1990s for being unsupported by any sort of scientific rationale, and for using incomplete reference units for the sound level (i.e. rms needs to refer to some time period or energy value over which the sound is averaged). In spite of a tremendous amount of new science, benchmarked multiple times in 2007 by Southall et al, in 2012 by Finneran and Jenkins, and more recently in 2015, NMFS has failed to correct the current outdated and unsupported guidelines.

The Current regulatory thresholds of 180 dB SEL are now known to overestimate risk by a considerable degree, and the commonly applied mitigation shutdown range of 500 meters or more (based on the 180 dB rms criterion) is correspondingly over-protective by several hundred yards. Much has been made by environmental groups and the media of the estimate for as many as 138,000 Level A (potentially injurious) “takes” in the BOEM PEIS for the Atlantic. Using a more realistic risk criterion based on the above peer-reviewed research, and taking into account standard monitoring and mitigation practices employed by the seismic industry, the more likely estimate of risk of small hearing loss (not mortality or serious injury) is zero or a comparably small single digit number; again, consistent with past experience in the Gulf of Mexico and other locations globally.

After completing a set of new guidelines in July 2015, complete with external expert review and an extended public comment period, NMFS again failed to implement new guidelines. Then unexpectedly on March 16th 2016, NMFS released a third draft of proposed revised acoustic criteria. The third draft did not receive external expert peer review and provided for only a 14 day public comment period. Within the short time allowed for review the experts within the seismic industry concluded that there are egregious errors in how NMFS calculated sound impacts on marine mammals. In an apparent attempt to appease special interest groups inside and outside the agency, NMFS created a biologically unrealistic ‘precautionary’ large whale hearing function and selectively removed data from the large whale and seal hearing literature to better support a modified hearing curve that specifically targeted low frequency sound sources like seismic survey sounds. If the guidance proceeds with these errors, seismic surveys will be severely restricted and face excessive delays without any corresponding environmental benefit to marine life.

Now, more than six weeks after the hurried 14 day comment period it still remains unclear if, when or how NMFS plans to apply these revised criteria and more specifically, which criteria NMFS will apply to their analysis of proposed Atlantic seismic surveys.

Conclusion

After more than 50 years of continuous seismic survey sound in many places around the world, including the Gulf of Mexico, and after a decade of intense scientific and environmental advocacy group scrutiny, there is still **no** scientific support for statements that seismic sound kills or injures animals, causes them to beach themselves or disrupts their behavior to the extent that it affects the health and well-being of the individuals or the populations of which those individuals are a part. This, however, does not mean that our industry plans to discontinue our active search for any and all potentially undetected risks through our support of independent, third-party research, nor does it mean that we will reduce our diligence in monitoring, mitigation and documentation of our activities and their environmental effects. This is despite the added cost and logistic burdens imposed by such voluntary efforts to forestall any possible risk from the sounds we use for geological imaging. The preponderance of evidence against the possibility of environmental effects from our activities does, however, mean that irresponsible and unsupported speculations of what “could, might, or may” potentially occur will be subjected to

the same high standards of scientific verification and validation that would be expected of our own industry-funded research.

As BOEM stated in its August 22, 2014 Science Note, “To date, there has been no documented scientific evidence of noise from air guns used in geological and geophysical (G&G) seismic activities adversely affecting marine animal populations or coastal communities. This technology has been used for more than 30 years around the world. It is still used in U.S. waters off of the Gulf of Mexico with no known detrimental impact to marine animal populations or to commercial fishing.”

IAGC finds it unacceptable for seismic permit applicants to have to wait two years for issuance of a simple IHA when all the requisite environmental analysis, based on the best available science, has long since been completed. While recognizing the Duke Model may well add to the best available scientific information, we adamantly disagree with the less than transparent process by which NMFS used the frequently changing Duke Model over the past many months when considering the Atlantic IHA applications. We ask this Committee to urge NMFS to proceed as required by the timelines set forth in the MMPA and issue IHAs without further delay. The development of regulatory mechanisms for the Atlantic OCS and the Gulf of Mexico by DOI and related agencies such as NMFS has become a regulatory abyss, a black hole in which the necessary and sufficient conditions for obtaining a permit are obscure and constantly changing without sufficient notice or adequate review. The lack of transparency and reliance upon scientifically questionable regulation and policy cannot continue if our country intends to continue to chart our own energy future.

According to a recent report from the U.S. Energy Information Administration, within the Department of Energy, global energy consumption will nearly double by 2040. Many experts have noted that even the most ambitious schedule of renewable energy development will still require adequate supplies of oil and gas for at least the next 20-30 years, if not longer.

It is important to note that the recent decision by the Administration, to drop the Mid- and South Atlantic planning areas in the Draft Proposed OCS Oil and Gas Leasing Program for 2017-2022 does not diminish the need for new data and should not be used to excuse the agencies from carrying out their legally required duties.

We urge congress to review the MMPA and pass meaningful reform that will rectify the existing limbo for pending seismic survey IHA applications. Streamlining the permitting process along with reducing the ability for outside special interest groups to obstruct energy exploration is a necessary first step to ensure our continued development for future generations.

Thank you for the opportunity to testify here today.