

Subcommittee on Energy and Mineral Resources

Doug Lamborn, Chairman

Hearing Memo

July 10, 2015

To: All Natural Resource Committee Members

From: Majority Committee Staff
Subcommittee on Energy and Mineral Resources (x5-9297)

Subject: Oversight Hearing on “The Fundamental Role of Safe Seismic Surveying in OCS Energy Exploration and Development.”

The subcommittee will hold an oversight hearing on “*The Fundamental Role of Safe Seismic Surveying in OCS Energy Exploration and Development*” on **Tuesday, July 14th, 2015 at 10:00 a.m. in Room 1324**. This hearing will focus on the cutting edge technology currently used in the field of seismic surveying to ascertain data on potential offshore energy resources. The hearing will also focus on the important role seismic research plays in moving forward with future offshore energy development in the Atlantic OCS and provide an update into the federal permitting process for seismic surveying.

Policy Overview

- Seismic surveying technology has evolved significantly, and for decades has been used to safely ascertain data on our nation’s outer Continental Shelf (OCS) for a wide variety of purposes – from dredging, to renewable energy development, to oil and gas exploration.
- Seismic research helps reduce the footprint of offshore energy development by allowing experts to determine which lease blocks have significant resource potential.
- The Bureau of Ocean Energy Management (BOEM) as well as independent research has found that there is no scientific evidence of noise from air guns used in geological and geophysical (G&G) seismic activities adversely affecting marine animal populations or coastal communities.
- In January 2009, the Department of the Interior first initiated the regulatory process to allow seismic surveying in the Atlantic OCS; and over *six years later*, not a single permit has been granted.
- The current bifurcated regulatory process at BOEM and NOAA to permit this safe, scientific activity in the Atlantic is riddled with bureaucratic delays and lacks transparency – and has the potential to drive companies away from our shores and to other countries like Canada and Mexico.

Witnesses Invited

Panel I

Dr. Robert “Bob” Gisiner
Director of Marine Environment - Science and Biology
International Association of Geophysical Contractors
Houston, Texas

Jim White
President
ARKeX Inc
Houston, TX

Richie Miller
President
Spectrum Geo, Inc.
Houston, TX

Abigail Ross Hopper
Director
Bureau of Ocean Energy Management
U.S. Department of the Interior
Washington, D.C.

Douglas P. Nowacek, Ph.D.
Repass-Rodgers Chair of Marine Conservation Technology
Nicholas School of the Environment & Pratt School of Engineering
Duke University
Beaufort, NC

Hearing Focus

In 2008, the moratoria prohibiting the development of new outer Continental Shelf (OCS) acreage for oil and gas exploration and development was lifted – giving new promise to areas like the Atlantic seaboard for responsible offshore energy development. In recognition of the fact that no new seismic data had been collected in that area since the 1970s, the federal government in January 2009 initiated the regulatory process to allow for seismic surveying in the Mid and South outer Continental Shelf Planning areas.

To date, *over six years later*, not one seismic surveying permit has been granted by the federal government – despite the fact that the Bureau of Ocean Energy Management’s own Chief Environmental Officer has found that there is no evidence of “seismic activities adversely affecting marine animal populations or coastal communities.”¹

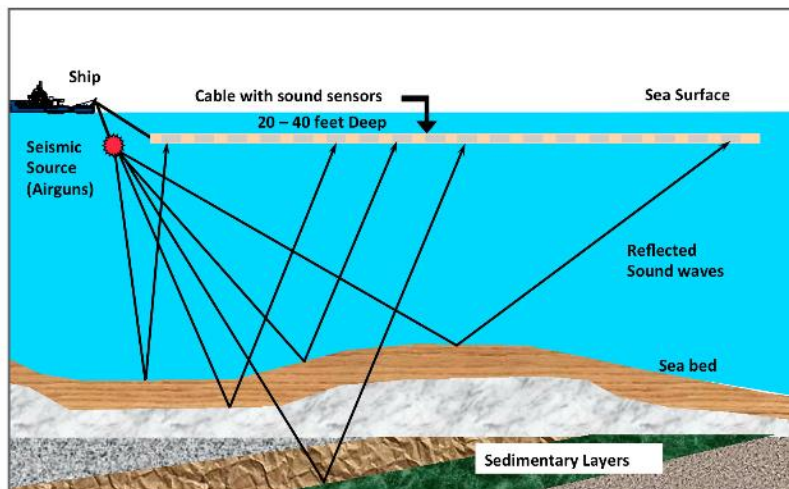
¹ <http://www.boem.gov/BOEM-Science-Note-August-2014/>

While federal agencies have permitted seismic activities by research institutions as recently as May of 2015^{2,3}, private companies interested in conducted seismic surveying for the purpose of ascertaining oil and gas resources have encountered increased mitigation measures, bureaucratic delays, and lack of transparency throughout the permitting process with still no results.

This hearing will focus on the science, technology, and engineering behind the process of seismic data acquisition including the geophysicists who conduct this research. The hearing will also touch on the decades of environmental research compiled on the impacts this scientific research has on marine mammals. Finally, the hearing will explore the fundamental importance of safely acquiring this scientific data in order to better understand the subsea strata and update our limited knowledge of the potential resources that may exist on federal lands off our coasts.

Background

Seismic surveys have been used for decades in order to assess not only the location but also the size of oil and natural gas reservoirs both onshore and offshore. The process for offshore seismic testing is largely different from that of onshore, as it involves service vessel which tows, at roughly 5 nautical miles an hour, air guns – a metal cylinder that is several feet



long that produces an expanding, high-pressure air bubble in the water. In addition to the air gun, which is the seismic source, the vessel also tows multiple cables (called streamers) that are several miles long, upon which are located groups of hydrophones or sound sensors that receive data. In offshore seismic analysis, pulses of seismic energy, in this case an air gun, reflects off

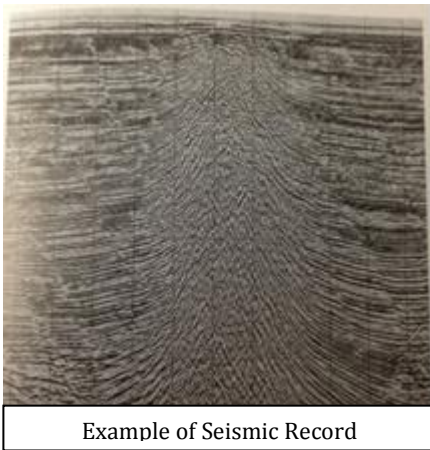
subsurface rock layers, and this reflected sound energy then returns to the surface to be recorded and further analyzed. While many different companies may have similar seismic records, each company can determine that seismic data differently – which in some cases results in a variety of lease bids clustered together on different blocks, because a company may see the position of a reservoir differently than another company.

² <https://www.ldeo.columbia.edu/research/blogs/enam-seismic-experiment>

³ <http://geology.rutgers.edu/slin3d-faqs>

While seismic surveying has been conducted for decades in the Gulf of Mexico and worldwide, there has been no known evidence of seismic research resulting in the physical or auditory harm of any marine mammal. Nonetheless, companies permitted to conduct seismic exploration in federal waters are required to comply with specific criteria aimed at minimizing any impact on marine mammals. For instance, in the Gulf of Mexico [under current BOEM regulations](#), trained marine observers are employed during a seismic operation to visually monitor for protected species – in accordance with the Endangered Species Act and the Marine Mammals Protection Act. If a protected species, such as a whale, is encountered, the operation must be shut down to allow for the mammal to clear out of the zone in which the seismic surveying is being conducted.

On January 21, 2009, the Minerals Management Service (MMS) at the Department of the Interior issued a Federal Register notice (Figure 1) of intent to prepare a Programmatic Environmental Impact Statement (PEIS) for seismic permitting in the Atlantic OCS. The area covered only includes the Mid-Atlantic and South Atlantic Planning Areas (as seen at right). On October 30, 2009, the Department of the Interior, Environment, and Related



Example of Seismic Record

Agencies Appropriations Act, 2010 was signed into law. Having seen no progress on this PEIS in months, conferees included language in the Conference Report directing the MMS at the Department of the Interior to conduct this PEIS to evaluate the potential significant environmental effects of multiple geological and geophysical activities in the Atlantic OCS – and provide a timeline for completion of the PEIS within 90 days of enactment (Figures 2 and 3). At the time, MMS responded with a timeline that estimated completion of the PEIS by April 2012 (Figure 4).

Over three years after the initial notice of intent to prepare the PEIS, the Bureau of Ocean Energy Management, the new agency tasked with seismic permitting post-MMS reorganization, finally published a notice of a draft PEIS in March 2012. The public comment period for this notice was scheduled to be 60 days, though was eventually extended to a total of 94 days.

On July 18, 2014, BOEM issued a final record of decision and PEIS – which put into place a framework for permitting seismic activity in the Mid and South Atlantic OCS Planning areas. Unfortunately, the framework included mitigation measures vary greatly from those

currently used in the Gulf of Mexico – and offered little scientific data on why such exorbitant measures were incorporated into the final decision. For instance, all seismic vessels must always have a Protected Species Observer (PSO) on the vessel that has passed a training program that meets specific BOEM-issued criteria⁴. Should a PSO detect a marine mammal within 500 meters of the vessel, the vessel is then required to shut down operations. The vessel is then required to wait 30 minutes before ramping up operations (Figure 5).

New requirements in the Atlantic double that time to 60 minutes and also require operations to shut down for non-protected species. No scientific data was provided by the Department of the Interior to support the need for this increase in shutdown time – which casts doubt on the measurable impact this mitigation technique will have on marine mammals. However, companies estimate that doubling the shutdown time and increasing the opportunities for more shutdowns will increase the time it will take to conduct a seismic survey and therefore increase the entire cost of the operation. The average daily cost of a survey is about \$1.5 million – and companies expect multiplying 1.5 hour average shutdown by 26,000 shutdowns could lead to 39,000 hours of shutdowns – about 1,625 days – which measures out to roughly \$2.5 billion in extra costs.⁵

Aside from compliance with new mitigation measures as described briefly above, companies who wish to move forward with seismic surveying in the Atlantic must go through a complicated permitting process through BOEM and the National Oceanic and Atmospheric Association (NOAA). The BOEM permitting process, outlined in Figure 6, includes coordination with the Department of Defense and National Aeronautics and Space Administration (NASA).

Companies must also apply for an incidental harassment authorization (IHA) from the National Marine Fisheries Service (NMFS). Under the Marine Mammal Protection Act (MMPA), the “taking” of a marine mammal is prohibited – which is defined as: “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal” (16 U.S.C. 1362). However, the MMPA allows, upon request, the incidental take of small numbers of marine mammals by U.S. citizens who engage in a specified activity, other than commercial fishing, within a specified geographic region. Common activities that require IHAs from NMFS include military training exercises, oil and gas development, pile driving associated with construction projects, and geophysical (seismic) surveys.

Under MMPA, applications must demonstrate that the take will only affect a small number of marine mammals, have no more than a negligible impact on marine mammal stocks, and not have an un-mitigatable adverse impact on species for subsistence uses. NMFS estimates that IHAs generally take between six and nine months to process.⁶ The process includes

⁴ http://www.nmfs.noaa.gov/pr/pdfs/permits/boemre_appendixb.pdf

⁵ <http://www.api.org/~media/files/news/2014/14-may/atlantic-seismic-fpeis-comments.pdf>; p. 15.

⁶ <http://www.nmfs.noaa.gov/pr/permits/incidental/>

coordination with individual coastal states through the Coastal Zone Management Act (CZMA) as well as an Endangered Species Act (ESA) consultation prior to the final IHA permit decision, and includes a public comment period once the proposed IHA is published in the Congressional Record. BOEM cannot issue their seismic permit until a company has been granted an IHA by NMFS (Figure 6). Many seismic companies began their process to apply for a permit including initial consultations with BOEM over two years ago – and still await the issuance of a permit.

Presently in July 2015, the Department has 9 pending applications for seismic surveying in the Atlantic OCS and not a single permit has been issued. NMFS currently has 5 IHA applications related to seismic surveying in the Atlantic – three of which were initiated last Fall. Meanwhile, seismic permitting is moving forward in the Canadian Atlantic as Canada ramps up offshore oil and gas production off the coast of Nova Scotia – where seismic permits can generally be acquired in six months.

Without seismic surveying, there is little incentive for companies to move forward on the prospect of offshore energy development in the Atlantic OCS. Given that BOEM has signaled the potential for one offshore sale off the coast of the Atlantic in the next 5-year offshore oil and gas leasing plan, it is imperative that the federal government move forward in permitting new seismic surveying in order to better understand and prepare for the possibility of future offshore lease sales in the Atlantic OCS.

Figure 1

The screenshot shows the Federal Register website interface. At the top left is the seal of the National Archives and Records Administration. The main header reads "FEDERAL REGISTER" and "The Daily Journal of the United States Government". A blue navigation bar contains the word "Notice". The main content area features the title "Geological and Geophysical Exploration (G&G) on the Atlantic Outer Continental Shelf (OCS)" and a sub-header "A Notice by the Minerals Management Service on 01/21/2009". There are social media icons for Twitter and Facebook. The notice is categorized as "ACTION" and "SUMMARY". The "ACTION" section describes a "Notice Of Intent (Noi) To Prepare A Programmatic Environmental Impact Statement (Peis) And Call For Interest For Future Industry G&G Activity On The Atlantic Ocs." The "SUMMARY" section begins with "Pursuant to the regulations implementing the procedural provisions of the National Environmental Policy Act (NEPA), MMS is announcing its intent to prepare a PEIS to evaluate potential environmental effects of multiple GG activities on the Atlantic OCS." On the right side, there are navigation links for "Previous Article" and "Next Article", a "LEGAL DISCLAIMER" box, "Font Controls" with plus/minus and font size icons, and a sidebar with "PDF", "DEV", and "PRINT" options, along with "Publication Date: Wednesday, January 21, 2009", "Agencies: Department of the Interior, Minerals Management Service (mms)", and "Dates: Comments should be submitted".

Figure 2

H.R.2996 [111th] HOUSE SENATE LAW Print Subscribe Email/Save Share from THOMAS

Latest Title: Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010
Sponsor: [Rep Dicks, Norman D.](#) [D-WA-6] (introduced 6/23/2009) **Cosponsors:** (none)
Committees: House Appropriations; Senate Appropriations
House Reports: [111-180](#); **Senate Reports:** [111-38](#); **Latest Conference Report:** [111-316](#) (in Congressional Record [H11871-11983](#))
Related Bills: [H.RES.578](#), [H.RES.876](#)
Latest Major Action: 10/30/2009 Became Public Law No: 111-88 [[Text](#), [PDF](#)]
Note: Division A is the Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010. Division B is the Further Continuing Appropriations Resolution, 2010, continuing appropriations through 12/18/2009.

Figure 3

MINERALS MANAGEMENT SERVICE

ROYALTY AND OFFSHORE MINERALS MANAGEMENT

The conference agreement includes \$175,217,000 for Royalty and Offshore Minerals Management, as proposed by the Senate instead of \$174,317,000 as proposed by the House. The detailed allocation of funding by program area and activity is included in the table at the end of the statement.

In addition, the use of \$166,730,000 in receipts and cost recovery fees is included, as proposed by both the House and the Senate. The conference agreement includes \$900,000 to continue the Center for Marine Resources and Environmental Technology project in Mississippi.

The conferees support the Administration's efforts to secure a balanced energy portfolio that carefully weighs what is in the best interest of our energy-dependent nation with what is in the best interest of our natural environment. Future coordinated efforts to pursue additional oil and gas resources in the Outer Continental Shelf (OCS) must include the opportunity to apply advanced technologies, be based on the best available science, and take into account the potential environmental impacts of such potential development. Therefore, the conferees direct the Minerals Management Service, pursuant to the National Environmental Policy Act, to conduct a Programmatic Environmental Impact Statement (PEIS) to evaluate potential significant environmental effects of multiple geological and geophysical activities in the Atlantic OCS and provide a detailed timeline for completion of the PEIS no later than 90 days after enactment of this Act. The conferees believe this request is consistent with the Department's stated desire to fill in information gaps relating to resource potential in the OCS.

Figure 4



**Minerals Management Service
Atlantic Geological and Geophysical
Programmatic Environmental Impact Statement**

Timeline

<u>Milestone</u>	<u>Dates</u>
Begin Scheduling Public Scoping Meetings	January 28, 2010
Federal Register Notice Published Opening 45-Day Public Comment Period for Scoping and Announcing Scoping Meeting Locations	March 15, 2010
Scoping Meetings Held	April 7 – April 23, 2010
45-Day Public Comment Period for Scoping Ends; Begin Preparing Draft PEIS and Biological Assessment for Endangered Species Act Consultation	April 30, 2010
Endangered Species Act Consultation Initiated	August 2, 2010
Endangered Species Act Consultation Completed	January 7, 2011
Draft PEIS Completed	July 15, 2011
Initiate 60-Day Public Comment Period for Draft PEIS and Begin Essential Fish Habitat Consultation	September 1, 2011
Public Meetings to Solicit Comments on Draft PEIS	September 15 – October 5, 2011
60-Day Public Comment Period Ends	October 31, 2011
Essential Fish Habitat Consultation Completed	January 11, 2012
Final PEIS Completed	February 1, 2012
Record of Decision Issued	April 13, 2012

Figure 5

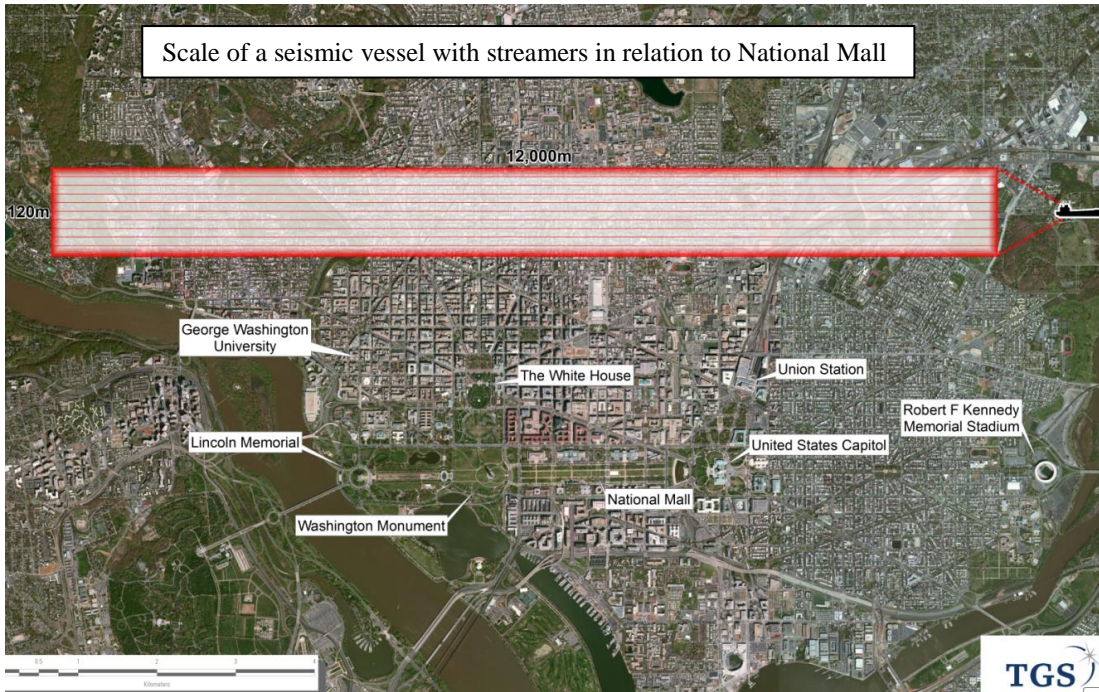


Figure 6

