Methane Hydrate Advisory Committee (MHAC) Meeting
May 7, 2015
1:00 – 3:00PM (EDT)
Via Teleconference

MEETING SUMMARY

Attached are the meeting agenda and the list of attendees; a quorum of Committee members was present.

DFO Welcome and Introductions - Paula A. Gant, DFO

The meeting was called to order at 1:00PM EDT by Paula A. Gant, Deputy Assistant Secretary (DAS) for Oil and Gas within the U.S. Department of Energy (DOE) and Designated Federal Officer (DFO) for the Methane Hydrate Advisory Committee (MHAC). She thanked members for their continued participation in the MHAC and stressed its importance to DOE. The DFO mentioned that despite recent accomplishments, the challenges facing the program remain significant. DFO Gant noted that Secretary Moniz recognizes these challenges and stresses the importance of gas hydrates research. Additionally, DFO Gant mentioned that the Department's primary objective going forward is conducting field work to establish the resource potential of methane hydrates via a sustained, long-term production test in the Arctic.

DFO Gant reminded the Committee that on May 1, the MHAC members were advised of the Quadrennial Technology Review (QTR) and invited to review and comment on the draft of the Gas Hydrates Science and Technology Assessment section of it. Comments are due to DOE by May 12 and the Committee members were encouraged to participate in this peer review. The member's expertise and insights will be most beneficial to DOE.

Regarding the FY 2016 budget, the FY 2016 Appropriations bill is now being marked in Congress. The House Mark is complete and it recommended $12.5 million for the Methane Hydrates Program.

The DFO then asked the Committee to consider some framing thoughts/questions during their committee discussion:

- Can production designs be developed that will meet the environmental and commercial expectations of the public?
- The large volume of gas hydrate resources corroborates the importance of methane hydrates research.
- The need for increased state, federal and international research collaboration.
- Recognizing the dichotomy of views between production of natural gas resource and climate implications, the Department will re-evaluate the federal government role in the methane hydrate research program. In March 2015 the Secretary requested that the Secretary of Energy Advisory Board (SEAB) form a Task Force to review this issue.

DFO Gant noted that she was anxious to hear the report to the Committee from Dr. Flemings and his team on the results of their meeting with DOE Under Secretary for Energy and Science, Dr. Lynn Orr. After brief discussion to clarify the SEAB tasking and the federal role in methane hydrates research, Lou Capitanio moved to start Committee business.

Committee Business - Lou Capitanio, Committee Manager

Lou Capitanio, Committee Manager, outlined committee business. He informed the Committee that no public comments were received in advance of the meeting nor has anyone requested to address the committee at the meeting. Mr. Capitanio reminded the group that all federal advisory committees are open to the public and deliberations must be done openly and transparently; minutes will be published in 2-3 weeks.

Mr. Capitanio made an announcement stating that membership appointments will expire in October, and discussed member interest in continuing on the committee via another appointment. He then opened the floor for recommendations of potential new appointees; but there were none. Members were asked to advise Mr. Capitanio of their desire to seek a new appointment by the following week (May 12). The recommendations for the Secretary must be completed this month so that the Departmental review process can begin by June to make timely appointments by the October deadline.

Mr. Capitanio informed members that the agenda order will change so that Dr. Peter Flemings will present his report before Rick Baker updates the committee on program activities. The presentations will be published on the committee website when the meeting minutes are available.

Report to the Committee on Meeting with Dr. Franklin Orr, Under Secretary of Energy – Peter Flemings, Chair & Miriam Kastner, Vice-Chair

Dr. Peter Flemings, MHAC Chair, and Dr. Miriam Kastner, MHAC Vice-Chair, presented their report to the committee from their meeting with Dr. Franklin Orr, DOE Under Secretary for Energy and Science. The meeting was held on April 10. In the meeting with Dr. Orr, the recommendations presented in May 21, 2014, MHAC letter to the Secretary of Energy, Ernest Moniz, were discussed. A copy of the May 21, 2014, letter is attached. Recommendations for a 10-year investment effort were presented which included a long-term production test in Alaska to demonstrate the technical feasibility of producing methane hydrates, and subsequently, a marine production test.

The recommendations made to the Secretary of Energy call for DOE to support the following:

1. Onshore production test within 4 years in the Arctic. Alaska has set aside unleased onshore state lands for a potential gas hydrate production test. Estimated project cost $40-$60 million.
2. Characterize hydrate concentration at sea within 4 years. The gas hydrate concentrations in sands deep in the Gulf of Mexico and Atlantic margin have been inferred from logging, but have never been directly sampled. Sampling and resource characterization is required. Estimated project cost is $30-$50 million.

3. Perform production test at sea within 10 years to determine if resources are technologically recoverable and to identify the optimal production technology. Estimated project cost is $100-$200 million.
4. Maintain U.S. leadership position in methane hydrates research. Continue commitment to supporting U.S. technological development and leadership in methane hydrate research. This is to include model, experimental, and climate change analysis. Also, increased outreach and education via post-doctoral scholar programs is a priority. Estimated cost is $10-$20 million/yr.

Dr. Flemings presented the enormous gas hydrate resource estimate figures for onshore Alaska and even greater resources in the Gulf of Mexico and Atlantic margin. Dr. Flemings noted that methane hydrates are a clean and efficient bridge fuel that is important to energy security in the U.S. and abroad in countries with limited fossil fuels. Environmental considerations were discussed including warming and destabilization of near surface gas hydrates potentially leading to ocean acidification especially in the Arctic and at mid-latitudes.

In summary, Dr. Flemings concluded that:

- The discussion with Under Secretary Orr demonstrated that Dr. Orr is well informed and supportive of the methane hydrate research efforts.
- A main concern is that no funding is requested in the FY16 budget. Although the House Mark for FY16 is promising, FY17 is unknown since the federal role in methane hydrate research is being revisited.
- The Committee has recommended that the current (FY15) $15 million budget should be incremented by $10 million in each of the next 4 years to achieve goals. However, it appears that the Department simply cannot support the funding that is needed for the Program. The current approach of utilizing available appropriations to leverage large investments from international partners is poor, but acceptable, alternative.

Committee Discussion

Dr. Peter Flemings, Committee Chair, led the discussion which centered on what, if any, next steps or recommendations that the MHAC should be making. DFO Gant noted that the Committee is doing what DOE expects of it – continue to review the program and make recommendations that will advance the science of gas hydrates. Members of the Committee generally feel they can be more proactive in making incremental contributions to methane hydrates research. The overall consensus is that the MHAC is effective.

Dr. Flemings noted Dr. Orr's apprehension when the representatives presented their cost estimate for a marine production test. This effort will have to leverage nominal DOE funds with significant cost-sharing by its partners. The lack of financial commitment to gas hydrate research by the federal government is of major concern to the Committee. The Committee does recognize the ongoing conflict between additional natural gas production and environmental issues; however, this resource is too large an important for national security to ignore.

International gas hydrate research programs were also discussed. While investments in gas hydrates are being made in Japan, South Korea, India, Germany and China, it is the U.S. that still holds the leadership position and scientific expertise to make development and production of hydrate resources feasible.

The Alaska Department of Natural Resources continues to work with the DOE and Japan to try to facilitate a long-term production test in the Arctic. In addition to the unleased lands that the ADNR has set aside, it is re-engaging with operators on some leased lands on the Alaska North Slope.

Finally, Dr. Miriam Kastner noted that for the U.S. to keep its leadership position, DOE should increase communication and outreach via both the fellowship program and education. There was a general consensus among committee members that additional outreach efforts are needed for the gas hydrates program. The Committee provided the following recommendations:

- There was no new fellowship offered in FY14. Methane hydrates fellowship funds are available in FY15, and a new fellow needs to be selected. Funding depends on education level of applicant (Masters, PhD, etc.). If possible, multiple fellowship opportunities should be provided.
- Investigate funding for participation in the Society of Petroleum Engineer's Distinguished Lecture Program. Dr. George Moridis noted that this program was very beneficial in educating the public on gas hydrate issues when he made many presentations as a Distinguished Lecturer several years ago. DOE should explore how to facilitate a lectureship program in hydrates.

Presentation: DOE's Natural Gas Hydrates Program – Rick Baker, National Energy Technology Laboratory

Rick Baker, Methane Hydrate Project Manager at NETL, presented program activities updates for the DOE's natural gas hydrates program. He reviewed the most important research and development issues facing the program: energy source potential, geohazards, and the effects of hydrate research on global environment. There is international interest in methane hydrate research and the U.S. needs to continue its own research in addition to collaborating with other countries to move the science in a positive direction, and make sure resources are available and accessible while also assuring that potential geohazard and global environmental implications are fully understood.

Mr. Baker reviewed the Program's approach and noted that the federal role in gas hydrate science and technology development is widely accepted. The primary goals and the next steps for the Program are clear and the groundwork well-laid for the following:

- Monitored production tests (Alaska first, then marine);
- Sampling and analysis of marine occurrences;
- Resource confirmation in other U.S. OCS areas;
- Refinement/field calibration of exploration technologies; and
- Integration of gas hydrates science into climate change models.

These program goals are well-aligned with the current recommendations of the Committee.

Mr. Baker then discussed the results of the FY 2014 Funding Opportunity Announcement. One project was awarded for marine hydrate characterization and scientific assessment in the Gulf of Mexico (GOM). The performer for this project is the U. of Texas at Austin. Mr. Baker provided a rather detailed summary of this new project, what activities it is to include and what it expects to accomplish.

The presentation gave an overview of several field and lab projects including the closeout of Chevron GOM project, the past ConocoPhillips project on the Prudhoe Bay Unit in 2011-2012, and the status of the potential Arctic testing program, including the current status of efforts with JOGMEC. He stated that field projects require significant funding and that project budgets, under likely program funding scenarios, will need to be spread across several years. Mr. Baker concluded with a review of DOE's outreach efforts.

Closing Remarks

Dr. Flemings, MHAC Chair, noted that each member of the MHAC is individually invited to participate in peer review of the QTR-2015 by conducting a detailed, written review of the Gas Hydrate Science and Technology Assessment. Contributions must be submitted by May 12.

DFO Paula Gant thanked members for their participation, and reminded the committee to submit their new member nominations to Lou Capitanio. She also reminds the committee to submit their comments for the QTR-2015 by the May 12 deadline. Finally, the DFO asked the committee members to participate in the SEAB task force if they are requested to do so.

Methane Hydrate Advisory Committee Meeting

May 7, 2015 1:00pm – 3:00pm (EDT)

Public Access
U.S. Department of Energy
Forrestal Building, Room 3G-043
1000 Independence Ave., SW
Washington, DC 20585

Teleconference Access
Call-in: 202-287-6592

AGENDA
May 7, 2015 1:00pm – 3:00pm (EDT)

Time	Discussion Item	Speaker
12:45pm – 1:00pm	Registration	All
1:00pm – 1:10pm	DFO Welcome and Introductions	Paula Gant, DAS for Oil and Natural Gas, and Designated Federal Officer (DFO)
1:10pm – 1:15pm	Committee Business	Louis Capitanio Committee Manager
1:15pm – 2:00pm	Program Activities Update	Rick Baker Project Manager, National Energy Technology Laboratory
2:00pm – 2:45pm	Report to the Committee on Meeting with Dr. Franklin Orr, Under Secretary of Energy; Committee Discussion	Peter Flemings, Chair Miriam Kastner, Vice-Chair Methane Hydrate Advisory Committee
2:45pm – 2:50pm	Concluding Remarks	Paula Gant, DAS for Oil and Natural Gas, and Designated Federal Officer
2:50pm – 3:00pm	Public comments, if any	Paula Gant, DAS for Oil and Natural Gas, and Designated Federal Officer
3:00pm	Adjourn	

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APPROVED: Paula A. Gant Date
Designated Federal Official

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Table 1: List of Attendees

Attendee	Role
Dr. Thomas Blasingame Texas A&M University Department of Petroleum Engineering	Committee Member
Mr. Richard Charter Co-Chair, National OCS Coalition The Ocean Foundation	Committee Member
Mr. Robert Swenson retired formerly Alaska Department of Natural Resources	Committee Member
Dr. Peter Flemings Bureau of Economic Geology The University of Texas at Austin	Committee Chair
Dr. David Goldberg Lamont Doherty Earth Observatory Marine Geology and Geophysics Department	Committee Member
Dr. Miriam Kastner Professor Scripps Institute of Oceanography University of California, San Diego	Committee Vice Chair
Dr. Carolyn Koh Colorado School of Mines Chemical Engineering Department	Committee Member
Dr. Michael Max Chief of Research Hydrate Energy International, Inc.	Committee Member
Dr. Robert Harris College of Earth, Oceanic, & Atmospheric Sciences Oregon State University	Committee Member
Ms. Sarah M. Forbes Senior Associate World Resources Institute	Committee Member

Dr. George J. Moridis Head, Hydrocarbon Resources Program Lawrence Berkeley National Lab University of California, Earth Sciences Division,	Committee Member
Paula A. Gant Deputy Assistant Secretary for Oil and Gas U.S. Department of Energy	DFO
Lou Capitanio Committee Manager U.S. Department of Energy	DOE Staff
Joy Frye ADS	DOE Support
Rick Baker National Energy Technology Laboratory Morgantown, WV	Speaker
Guido DeHoratiis Associate Deputy Assistant Secretary for Oil and Gas U.S. Department of Energy	DOE Staff
Rick Elliott Div. Dir. Advanced Supply and Facilities, Oil and Gas U.S. Department of Energy	DOE Staff
Paul Decker Alaska Department of Natural Resources	Other