

Methane Hydrates Interagency R&D Conference



MMS



Demonstrating the power of working together

Renaissance Washington, DC Hotel
March 20-22, 2002

Contents

Disclaimer

Foreword

Agenda

Participants List

Papers and Presentations

General Presentations

Methane Hydrates Issues

Arctic Region Projects

West Coast Projects

East Coast Projects

Gulf of Mexico Projects

Disclaimer

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference therein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed therein do not necessarily state or reflect those of the United States Government or any agency thereof.

Foreword

The Methane Hydrates Interagency R&D Conference was held in Washington, D.C. on March 20 to 22, 2002. This collaborative conference was sponsored by six organizations from five federal agencies:

- Department of Energy (DOE) Office of Fossil Energy (FE) and National Energy Technology Laboratory (NETL) through the Strategic Center for Natural Gas (SCNG);
- Department of Commerce (DOE) National Oceanic and Atmospheric Administration (NOAA);
- Department of Defense (DoD) Naval Research Laboratory (NRL);
- Department of Interior (DOI) Minerals Management Service (MMS)
- Department of Interior (DOI) U.S. Geological Survey (USGS); and
- National Science Foundation (NSF).

The National Methane Hydrate R&D Act of 2000 resulted in growing interest in and higher levels of federal funding for hydrates R&D. The National Methane Hydrate R&D Program, mandated by the Act, is now well under way. The Act established the DOE Office of Fossil Energy (FE) as the lead organization in the Program. FE ensures that the federal agencies involved in hydrates research communicate effectively with each other, and is also responsible for establishing and chairing the advisory committee for methane hydrates research. DOE, through the SCNG, awards grants, contracts, and cooperative agreements on a competitive, merit-review basis. The goal of these awards is to conduct basic and applied R&D to develop methane hydrates as a source of energy.

The purpose of the conference was to present the results of and future plans for methane hydrate research by each of the agencies. Topics included (1) a review of assessments of the scale at which hydrates occur; (2) a discussion of the connections between hydrates, global climate change, the world's oceans, and newly discovered chemosynthetic life forms; and (3) a discussion of the potential production of methane from hydrates. Each agency presented their research efforts by geographical region—Arctic, West Coast, East Coast, and Gulf of Mexico.

Over 100 participants attended this first interagency conference on methane hydrates. The participants represented the collaborative agencies as well as other government organizations, industry, academia, professional organizations, and research institutions. U.S. Senator Daniel Akaka of Alaska presented the keynote address. The papers and presentations in this proceedings were received in electronic form from the authors; they have not been edited. For more information on methane hydrate R&D activities, please visit our website at www.netl.doe.gov/scng/hydrate/index.html

Brad Tomer

Product Manager

Gas Exploration, Production & Storage

Strategic Center for Natural Gas

Papers and Presentations

General Presentations

Methane Hydrates Interagency R&D Conference—Brad J. Tomer, National Energy Technology Laboratory

The Curiosity of Gas Hydrates—William P. Dillon, U.S. Geological Survey (Emeritus) and Hydrate Energy International

Methane Hydrates Issues—Moderator: Edith Allison, U.S. Department of Energy

Methane Hydrate Issues – Resource Assessment—Timothy S. Collett, U.S. Geological Survey

Hydrates – Hazards/Safety Issues—Robert P. LaBelle, Minerals Management Service

Role of Methane Hydrates in Climate Change: Compelling evidence and debate—James P. Kennett, University of California Santa Barbara

Chemosynthetic Communities—Barbara S. Moore, National Oceanic and Atmospheric Administration; and Patricia Sobecky, Georgia Institute of Technology

Methane Hydrate Research at NRL—Bhakta B. Rath, Naval Research Laboratory

Arctic Region Projects—Session Chairs: Timothy Collett, U.S. Geological Survey; and Tom Mroz, U.S. DOE, National Energy Technology Laboratory

Prospects for Development of Alaska Natural Gas: A Review—Kirk W. Sherwood, Minerals Management Service

Resource Characterization and Quantification of Natural Gas-Hydrate and Associated Free-Gas Accumulations in the Prudhoe Bay – Kuparuk River Area on the North Slope of Alaska—Robert B. Hunter and Scott A. Digert, BP Exploration (Alaska), Inc.; Mary Poulton, Robert Casavant, Charles Glass, and Roy Johnson, University of Arizona; Shirish L. Patil, Godwin A. Chukwu, Abhijit Y. Dandekar, Santanu Khataniar, and David O. Ogbe, University of Alaska Fairbanks; and Timothy S. Collett, U.S. Geological Survey

Methane Hydrate Production from Alaskan Permafrost—Thomas E. Williams, Maurer Technology, Inc.

Overview of Gas Hydrate Research at the Mallik Field in the Mackenzie Delta, Northwest Territories, Canada—S.R. Dallimore, Geological Survey of Canada; T.S. Collett, U.S. Geological Survey; T. Uchida, Japan National Oil Corporation; M. Weber, GeoForschungZentrum Potsdam; H. Takahashi, Japex Ltd.; T. Mroz, National Energy Technology Laboratory; and the Mallik Gas Hydrate Research Team

Preliminary Studies of Gas Production from Methane Hydrates in the Eileen Area, Alaska—George J. Moridis, Lawrence Berkeley National Laboratory; and Timothy S. Collett, U.S. Geological Survey

West Coast Projects—Session Chairs: Joseph Gettrust, Naval Research Laboratory; and Richard Poore, National Science Foundation

Gas hydrates on the Oregon continental margin: recent results and plans for ODP drilling—Anne M. Trehu, Oregon State University

Marine Gas Hydrates on the Northern Cascadia Margin—Roy D. Hyndman, Geological Survey of Canada and University of Victoria

Sampling Tools and Downhole Measurements for ODP Leg 204—Frank R. Rack, Joint Oceanographic Institutions

East Coast Projects—Session Chairs: Deborah Hutchinson, U.S. Geological Survey; and Andrew Shepard, National Undersea Research Center

Recent seismic results from the Blake Ridge Hydrate Province: Implications for direct detection, gas injection, and methane escape—W. Steven Holbrook, University of Wyoming; Ingo Pecher, Institute of Geological and Nuclear Science; and Daniel Lizarralde, Georgia Institute of Technology

Anatomy of a Gas Hydrate Province: Linking Physics and Biology on the Blake Ridge—Carolyn Ruppel, Georgia Institute of Technology

Biological communities at Blake Ridge seeps: Faunal distributions and trophic interactions—Cindy Lee Van Dover, College of William & Mary

High-Resolution Studies of Hydrates on Blake Ridge—J.F. Gettrust, Naval Research Laboratory

Exploration of a Major Methane Hydrate Province in the Hudson Canyon Region: An Ocean Frontier Adjacent to the New York-New Jersey Metropolitan Area—Peter A. Rona and J. Frederick Grassle, Rutgers University; Mary I. Scranton, State University of New York at Stony Brook; and James M. Robb, U.S. Geological Survey

Gulf of Mexico Projects—Session Chair: George Dellagiario, Minerals Management Service

Characterizing Natural Gas Hydrates in the Deep Water Gulf of Mexico—
Emrys H. Jones, ChevronTexaco Exploration & Production Technology Company

A Sea-Floor Monitoring Station in the Northern Gulf of Mexico—Thomas M. McGee,
J. Robert Woolsey, and Robin C. Buchannon, The Center for Marine Resources and
Environmental Technology, The University of Mississippi

U.S. Geological Survey Gas Hydrate Studies in the Northern Gulf of Mexico—
Patrick E. Hart, Alan K. Cooper, and Thomas D. Lorenson, U.S. Geological Survey

*Methane Hydrate Formation and Stability along the Texas-Louisiana Shelf, in the
Gulf of Mexico*—Richard Coffin, Kenneth Grabowski, David Knies, and John Pohlman,
Naval Research Laboratory; and Luis Cifuentes, Texas A&M University

*The Gulf of Mexico: A Natural Laboratory for studying Gas Hydrate Formation and
Dissociation*—Ian R. MacDonald, Texas A&M University, Geochemical and
Environmental Research Group

*Gas Hydrate Deposits in a Complex Geologic Province (GOM): Linkage to Fluid-Gas
Expulsion*—H.H. Roberts and J.M. Colman, Louisiana State University; J.L. Hunt and
W.W. Shedd, Minerals Management Service; and S. Sassen and A. Milkov, Texas A&M
University