# Metadata Citation Information

| | |
|---|---|
| **Title:** | **Mallik Gas Hydrate Production Research Program<br>Weekly Science Report #4<br>February 12 - 18, 2008** |
| **Author:** | **Scott Dallimore** |
| **Status:** | **Final report** |
| **Affiliation:** | **Natural Resources Canada<br>9860 West Saanich Road<br>P.O. Box 6000<br>Sidney, BC<br>V8L 4B2** |
| **Prepared for:** | **General distribution** |
| **Submission date:** | **February 18, 2008** |
| **Review status:** | **R. Bowen/S. Dallimore<br>Unedited technical report as provided by lead NRCan scientist. It is included here as background program documentation only.** |
| **Distribution:** | **Public** |

JOGMEC
Natural Resources Canada
Ressources naturelles Canada
MALLIK GAS HYDRATE PRODUCTION RESEARCH PROGRAM
WEEKLY SCIENCE REPORT 4
FEBRUARY 12-18, 2008
AURORA RESEARCH INSTITUTE

## PROJECT STAFF ON SITE

### INUVIK

**NRCAN-** M. Nixon, S. Dallimore

**JOGMEC-** M. Yasuda, M. Numasawa, J. Tomomoto, K. Fujii
Y. Morikami, P. Primierio, K. Suzuki,
N. Sakiyama

**AURORA -** A. Applejohn, A. Taylor, A. Jenks
D. Ashford, K. Martin, G. Serrano, J. Kanngeiser,
L. Bueno, M. O'Byrne

### MALLIK SITE

**AURORA-** J. McEachern , W. VanderBurgh

+54 hearty souls at weeks end in our main drill camp undertaking rigless operations and rigging up Nabors rig.

## WEEKLY WEATHER

Avid readers will remember that we left off last week's science report with news that 1,000,000 lbs of Mallik field equipment was en route to Mallik… but the weather was again presenting a significant challenge with the Dempster Highway and our link to southern Canada closed with blizzard conditions. Fortunately the weather cleared on February 12th and 7 trucks stalled at Eagle Plains followed the Government of Yukon and NWT snow clearing equipment through the high passes of the Richardson Mountains. Weather during the past week at Mallik has been variable with temperatures ranging from a ridiculously warm -11 to more seasonable -32°C. Southerly winds have been the main challenge with several blustery days limiting visibility on the Mallik ice road and causing some heavy snow drifting.

## FIELD OPERATIONS

This week marked the long awaited transition from construction activities on the Mallik lease, to mobilization for full field operations. By mid week, after hauling and spreading more than 10,000 cubic metres of water, E. Grubens Transport successfully established a 20 to 40cm thick ice pad allowing placement of the main camp and space for operations at Mallik 2L and 3L-38 (including the all important flare pad where we will eventually deal with our produced gas). The 62 person Akita drill camp was assembled on site from February 12 to 15th. After the containers making up the camp were weather proofed, the next activity was to power it up and bring in catering personnel and provisions. Safety is an overarching priority for all participants and by the end of the week two medics were on site and our first aid facilities were in place. The medics also serve as the radio operators and oversee our journey management protocols. Each trip from Inuvik or Tuktoyaktuk to Mallik is logged and monitored with radio contact throughout. All personnel must have PPE (personal protective equipment), emergency equipment in the vehicle they are traveling in and undergo safety briefings. Protection of the environment is also critical and again precautions are taken to regularly inspect all equipment and to brief all personnel who are handling fluids on proper procedures.

*Our IPM brain trust running the show this week in Inuvik (the leadership baton was passed from Kevin to Doug at the end of the week.. well done Kevin!)*

R&D Contact: Scott Dallimore, Geological Survey of Canada
E-mail: sdallimo@nrcan.gc.ca Phone: 867-777-3298, ext. 27 Cell: 867-678-5346

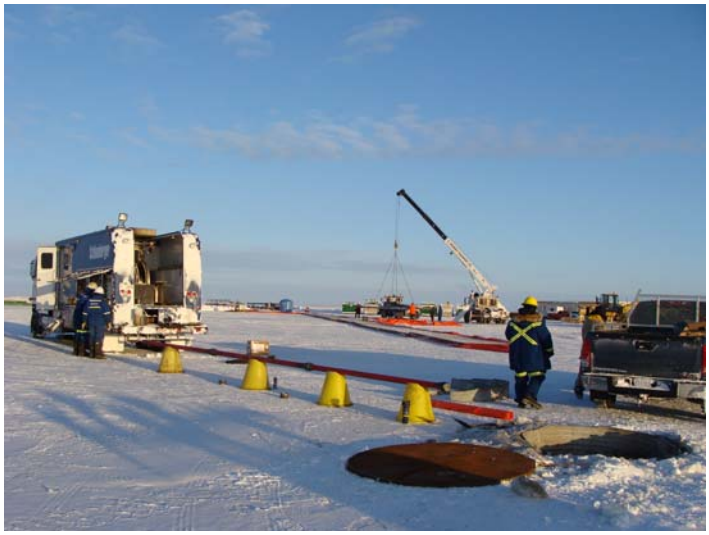
**Just in time management… with the emphasis on '<u>on time</u>'**

As one can imagine timing has been everything this week, the camp had to be operational in order to receive incoming drill and operations crews who were arriving daily as the week progressed. Operational crews had to have equipment and supplies on site to begin their work, power had to be established on site, and boilers had to be fired up to provide heat. The coordination and supervision of all operations tasks is the responsibility of our Inuvialuit Oil Field Services (IOFS …OK also referred to as Schlumberger) program management team acting for Aurora College our operator. For most the week the Inuvik and well site team consisted of Kevin Martin (site manager), Gerardo Serrano (logistics), Bill VanderBurgh (well site supervisor) and Lorena Bueno (QHSE). Much credit is due to these folks who managed very well even with the added pressure of a hockey tournament in Inuvik occupying every hotel room available and therefore leaving no room for error in the comings and goings of various participants.

**Rigless operations on Mallik 3L-38 water injection well:**

To save time and reduce cost, the first well activities this field season were planned to be undertaken without a drill rig by using a crane (mounted on a picker truck) and slick line unit (truck mounted winch). In 2007 Mallik 3L-38 was established as a water injection well by deepening an old well drilled in 2002 and perforating three water injection horizons from 1224 to 1274m. Our short term goal this week was to re-occupy the Mallik 3L facilities. While rigless operations were considered by our planning team to be relatively straight forward, our main concern was that if problems were encountered our ability to undertake countermeasures was limited without a drill rig. Setting up the drill rig on Mallik 3L was not something we wanted to do as it would take time away from Mallik 2L activities and our planned production testing.

On February 17th , after just 9 hrs of slick line operations, the Mallik 3L-38 injection well was re-entered, the suspension plug retrieved and the tubing cleaned to bottom of the lower injection zone. Three short injection tests were undertaken by Schlumberger well services pumping at 5 different rates to simulate performance at different water production rates. .All activities went smoothly and by week's end we had achieved our goal to re-establish our water injection well and it had been done well ahead of schedule! Well done IPM staff including Luis Johnson who is our engineer behind the scenes and who has worked so hard on designing the program!



*Slick line unit setting up for operations on Mallik 3L-38 water injection well. During well operations the crane on the picker truck in the background was used to access the well*

**Mallik 2L-38: Rig up of Nabors Service Rig:**

On February 17th the main components of the Nabors service rig were mobilized to Mallik and by February 18th they had been spotted over the Mallik 2L well head. With a few hiccups and some very close supervision by Jerry McEachern, the History Channel, Ice Road Trucker film crew documented the rig move along the ice road following the Mackenzie river and tributaries to Mallik. Again with close supervision, plans call for the these folks to film rig up activities.

**End of week summary**

- Construction completed on time
- Camp in place and operational
- 3L rigless activities successful
- 2L rig up in progress
- Darn good week!

## INTRODUCTION TO MALLIK STEERING COMMITTEE

Program oversight and direction of the research and development activities for the Mallik program is the responsibility of a management Steering Committee with membership from the Japan Oil, Gas and Metals National Corporation (JOGMEC) and Natural Resources Canada (NRCan). Mr. K. Ohno is the senior representative for JOGMEC, the agency tasked with fulfilling the research goals of the Japanese national gas hydrate program referred to as MH21 ("methane hydrate for the 21st century"). Japan is working with Canada to advance their research interests in the offshore of Japan where methane hydrates are abundant in the Nankai Trough. Sandy Colvine is the senior representative for Natural Resources Canada. While Canada does not (as of yet) have a national gas hydrate program, NRCan's Earth Sciences and Energy Sectors have supported gas hydrate research in northern and offshore Canada for more than 20 years. The present JOGMEC/NRCan/ Aurora Mallik program is the third collaborative research and development initiative led by Canada and Japan at Mallik with previous programs in 1998 and 2002. The goal of this year's program is no less than establishing 'proof of concept' that gas production can be sustained by depressurization of gas hydrates. The Steering Committee is ultimately responsible for our achievement of this goal.

Perhaps modeled after the United Nations, the Mallik Steering Committee has admirably strived for consensus in decision making. In this regard they rely on advice from a Technical Committee made up of JOGMEC and NRCan science leaders and operations specialists. Similarly our operator Aurora College has been very active in program planning with support from the Government of the NWT. To date the Mallik program has had more than a dozen Steering Committee meetings at various locations in Canada and Japan. Perhaps the most important contribution overall to the program design however has been two major planning workshops held in Japan in the fall of 2006 and 2007.

While the Mallik Steering Committee has very noble goals to accommodate all, it has been asked and indeed it has been considered… what if consensus cannot be met? The situation in this case is that JOGMEC, as the main financial investor, has authority to make the final decisions on the research and development program in its entity. However, having said this, Aurora College is our operator and in this capacity they are responsible on our behalf to ensure our project abides by the pertinent laws and regulations for oil and gas operations in Canada. In regards to safety and the environment, Aurora College is our authority.


*Ohno-san (centre) leads 'after hours' consensus building exercise at recent Calgary Steering Committee meeting*

### Identification of Critical Points in Program

At the Calgary Steering Committee Meeting in December, a number of critical points were established to measure the accomplishment of the field program vs. scheduling and cost realities. It was agreed that after each critical point, the progress of the program (time and cost) would be gauged and evaluated. The following 6 critical points were established.

1)ESTABLISHMENT MALLIK ICE ROAD
2)ESTABLISHMENT OF MAIN AKITA DRILL CAMP
3)ESTABLISHMENT OF 3L INJECTION WELL
4)ESTABLISHMENT OF 2L PRODUCTION WELL
5)COMPLETION OF PRODUCTION TESTING PROGRAM

6)ABANDONMENT OF WELLS AND TERMINATION OF FIELD PROGRAM

## NEXT WEEK AT MALLIK

Mallik 2L-38 activities to begin in earnest!

Mallik Steering Committee to arrive in Inuvik to prepare for a critical planning meeting. The Steering Committee will evaluate progress against critical points and decide the duration of the planned gas hydrate production testing program

## Inuvik Contact Info

Land lines

ARI Mallik Operations 867-777-3298 Ext 27 and 29

IPM Mallik Operations 867-777-3298 Ext 33

Fax 867- 777-5328

Cellular phones

Al 867-678-0854; Doug 867-678-5341;

Scott 867-678-5346; Fred 867-678-5344