

The Ohmsett Gazette

Leonardo, New Jersey

Train with oil. Test with oil.

Spring/Summer 2002

U.S. Minerals Management Service Awards Ohmsett Contract to MAR

On January 28, 2002, the Department of the Interior, Minerals Management Service announced the award of the contract to operate Ohmsett (from February 2002 through 2005) to MAR, Incorporated.

MAR is a professional services firm based in Rockville, MD. The company specializes in engineering, marine services, biotechnology, facilities management, and information technology.

This is the third successive time that MMS has awarded MAR a contract to operate the Ohmsett facility. MMS also awarded MAR the contract to operate Ohmsett for 1992 through 1996, and 1996 through January 2002.

Ohmsett, the National Oil Spill Response Test Facility, is located in Leonardo, NJ. The facility consists of a large test basin (667 feet long by 65 feet wide by 8 feet deep), offices, maintenance shop, and classrooms.

Ohmsett was originally built and maintained by the EPA. Shortly after the EPA discontinued the operation of the facility, the Department of the Interior contracted MAR in 1991 to refurbish and continue operation of the facility.

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Weather Report: Ice, Ice, and MORICE



The MORICE skimmer awaits testing at the edge of the Ohmsett test basin.

One cool day last January, researchers and technicians surveyed enormous blocks of ice floating in the water of the Ohmsett test basin.

Blocks of ice in the water are not a usual sight at the Ohmsett test basin. Researchers were, in fact, conducting a first time ever winter test at Ohmsett with MORICE, a skimmer designed to recover oil in ice infested waters.

Oil recovery in ice infested waters can be difficult. Conventional booms and skimmers just push the oil out of the way along with the ice.

The MORICE (for Mechanical Oil Recovery in Ice Infested Waters) skimmer moves pieces of ice out of the way, then recovers the oil left behind.



Spray jets wash the ice chunks clean of oil as they move along a conveyor.

The ice pieces themselves are “washed” to recover the oil coating them.

The MORICE skimmer is lowered into the water between two pontoons, like a catamaran. As the skimmer moves through the

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MORICE

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water, it pulls the pieces of oily ice (some weighing as much as a thousand pounds) onto a belt like a hay bale conveyor.

Jets of water clean the oil off the ice as the chunks move along the conveyor, and the clean ice is propelled out the back of the skimmer into the water.



Hans Jensen, project manager, watches as the ice passes on the conveyor.

With the ice out of the way, a recovery unit under the conveyor picks up oil that was between the ice chunks. That oil, and the oil sprayed off the ice, is recovered by brushes on the bottom of the skimmer and pumped into tanks.

The Ohmsett MORICE tests marked the first time Ohmsett's test basin has been used during the winter months, and the first time the MORICE unit has been tested with oil in broken ice in the controlled conditions of an outdoor test basin.

Previous MORICE prototype tests took place at a smaller indoor tank in Hamburg, Germany and in Prudhoe Bay, Alaska.

The results of the MORICE prototype tests were "encouraging", according to Joseph Mullin, MMS's senior technical advisor for oil spill response research.

MORICE's development has been the result of a multinational effort involving Norwegian, Canadian, American and German researchers.

Hans Jensen, from SINTEF Applied Chemistry, is the project manager. SINTEF Applied Chemistry, a research organization based in Trondheim, Norway, specializes in environmental engineering and helped design and test the original MORICE unit.

Currently, the MORICE project is funded by the US Department of the Interior Minerals Management Service, Alaska Clean Seas, the Prince William Sound Oil Spill Recovery Institute, BP Exploration Alaska, Phillips Alaska, Inc., Store Norske Spitsbergen Kulkompani, and Norsk Hydro.

MORICE researchers initially developed ten concepts with the potential to recover oil in ice, and evaluated these concepts at laboratories in Trondheim, Norway and Hamburg, Germany in 1996.

Between 1997 and 2001, researchers tested various configurations and prototype recovery systems in Norway, Germany, and Alaska.

Testing of the full-scale prototype and two internal recovery systems (the MORICE unit and the LORI brush skimmer) at Ohmsett in January 2002 was the culmination of five years of international research.

Testing at Ohmsett allowed all MORICE subcomponents to be integrated and tested together with oil and ice for the first time.



Joe Mullin of MMS, Andre Chen of Exxon-Mobil, and Bill Schmidt, Ohmsett program manager, on site at the MORICE tests

The tested prototypes showed potential for development into efficient oil-in-ice recovery equipment.

While testing did not indicate how severe ice conditions might be handled, scaling up the concepts tested could increase the capacity to process ice and recover oil, as well as work in more severe ice conditions.

Results of the MORICE tests were presented in June 2002 at the Arctic and Marine Oil Spill Technical Seminar (AMOP), and will be presented at the International Oil Spill Conference (IOSC) in Vancouver, Canada in April 2003.

The Big Chill: Preparing for Cold Water Testing

The ice blocks used in the MORICE tests were created at the US Army Corps of Engineers Cold Regions Research and Engineering Lab (CRREL) in Hanover, New Hampshire.

It takes four or five days to "grow" a sheet of ice at the CRREL basin. When the sheet destined for Ohmsett was the right thickness, it was cut into slabs weighing 480 pounds each.

The slabs were then stacked, wrapped, and loaded onto a refrigerated tractor-trailer for shipment. Upon arrival at Ohmsett, the ice was forklifted into refrigerated containers.

Meanwhile, Ohmsett staff got to work cooling the test basin water.

A 525-ton portable chiller was installed. Basin water taken from the filter discharge was piped through the chiller and returned to the tank. Within a few days, the system cooled the water to 0 degrees centigrade.

Ohmsett technicians adjusted the chiller temperature daily. Despite unusually warm air temperatures, the water temperature consistently remained around 0 degrees centigrade.

Getting the ice into the test basin was the next challenge. The ice slabs were loaded onto a specially designed platform fitted to a forklift, and taken to the side of the test basin.

There, Ohmsett staff chopped the slabs into 2-foot by 2-foot chunks, and smashed some slabs into smaller pieces.

Finally, the mix of ice pieces was lifted and tipped onto a steel chute--sliding, at last, into the Ohmsett test basin water.



Making a splash ... ice chunks slide down a metal chute into the test basin.

“Real Life. Real Problems. Real Solutions.”

BP Alaska Trains at Ohmsett

In April 2002, BP Alaska oil spill responders (along with a student from Alyeska Pipeline Service Co.) came to New Jersey for a five-day spill response training in the Ohmsett test basin.

The course curriculum was modified to meet the needs of BP Eastern Operational Area and Western Operational Area staff who specialize in both inland (pipeline and rivers) and ocean (buffered and open seas) oil spills.

This course offered students hands-on training with full-scale skimming equipment in the test basin using light and heavy oils, as well as classroom lectures.

equipment that skimmed light oil did not work on heavy oil and it was great to physically demonstrate this.”

Some students particularly appreciated that this customized course included a lecture by NOAA officials, and a tour of the Clean Harbors Coop.

“The NOAA lecture was very interesting,” commented a student. “And the tour to the Clean Harbors facility was awesome.”

The Ohmsett staff thank these students for making that work week so much fun. We encourage interested parties to contact us for information about training at Ohmsett.



As part of the hands-on training portion of the course, BP Alaska students set up a pump...



Assembling a hydraulic power pack

“The hands-on oil spill experience was great. The equipment that skimmed light oil did not work on heavy oil and it was great to demonstrate this.”

- BP Alaska student



... and get to work pumping oil out of a boomed area.

The course also included a field trip to the Clean Harbors Cooperative in Linden, New Jersey.

Ohmsett runs customized training courses of this type on a regular basis. Feedback from students is invaluable when planning the curriculum for future training courses. Ohmsett staff are always interested to hear students’ reactions to the training classes.

In this case, BP Alaska responders said that just getting into the test basin with real oil, real waves, and real equipment provided a great experience.

“The ability to utilize the wavemaker while skimming oil in the tank was beneficial,” commented one student. “Flat water is ideal for skimming, but that’s not always reality!”

“The hands-on oil spill experience was great,” said another student. “There is real value in doing both light and heavy oil. The

Train at Ohmsett!
Next five-day session:
September 23 through 27,
2002

- Hands-on training in the Ohmsett tank
- Classroom lectures and review of student performance
- End-of-session spill scenario

Sign up now! A dispersant training class is also under consideration.
Call the Ohmsett training coordinator at (732) 866-7183 or check our website at www.ohmsett.com.

During a test or training session, the Ohmsett facility is alive with activity. Here's a glimpse at what goes on

Behind the Scenes at Ohmsett

Maintenance

Keeping the facility in top shape is an on going project. A computer software program that dictates what maintenance must be done, and when, helps.



Ohmsett technician John McCall, IV removes the test basin water filter leaves for cleaning.



The test basin is emptied of water so Ohmsett staff can make repairs and clean the tank walls.

Test Preparation

Before a test can begin, Ohmsett staff must calibrate instruments, monitor test basin conditions, and receive, inspect, and set up equipment for the test.



Dave Knapp, Ohmsett technician, readies a skimmer belt drive pulley for a test.



Ohmsett technician mixes a salt solution to adjust salinity.



h activity. But that's only part of the story.

ff install and
basin water quality,
ipment shipped to



Technicians Bob Stewart and Don Snyder
brine to adjust the test basin water

When testing is over,
technicians recycle
the used oil, remove
and power-wash the
equipment, and filter
the test basin water.

Technicians hoist a skimmer
above the test basin with the aid
of a crane.

Community Outreach

From tours of the facility and mentorship
programs for high school students...



Ohmsett program manager Bill
Schmidt conducts a facility tour for
junior high school students.



Frank Arban, an Ohmsett
mentorship student, talks about oil
spills to a class.

... to making presentations at marine and oil spill
conferences and exhibitions around the world...



Joe Mullin, from MMS, and Bill
Schmidt, Ohmsett program
manager, man the Ohmsett booth
at the Interspill 2002 Trade Show
in Brest, France.

... Ohmsett staff regularly move outside the
realm of the facility into the community.

Dispersants Tested in Cold Water

In February and March, following the MORICE testing, researchers took advantage of the icy waters of the Ohmsett test basin to run cold water dispersant tests.

There are concerns that dispersants may not be effective on oil spills, especially those that could take place in the colder months. Oil spills in cold water/ice prone environments pose particular challenges.

Concern over the safe exploration, production and transport of oil in Arctic environments has led to increased interest in the use of dispersants for spill response.

Between February 25 and March 14, 2002, the US Minerals Management Service and Exxon-Mobil Research and Engineering Co. contracted SL Ross Environmental Research Ltd. of Ottawa, Canada to conduct a series of dispersant tests at Ohmsett.

The purpose of the tests was to evaluate the effectiveness of Corexit 9500 and Corexit 9527 dispersants on Hibernia and Alaska North Slope (ANS) crude oils in cold water/broken ice conditions. These oils are commonly transported in cold waters, and thus likely to be the type of oil involved in a cold water spill.

Small scale test results show that dispersants should be effective on Alaska North Slope crude oil even in the cold waters of Prince William Sound in winter months. Results from small scale testing, however, do not incorporate sufficient real-world situations.

Controlled field studies, while valuable for realism, are expensive and often very difficult to implement because of regulatory barriers.

Large scale tank studies, conducted at Ohmsett, provide a critical link between small-scale laboratory and field studies because they can simulate real-world exposures without the cost and consequences of a field experiment.

In the Ohmsett experiments, both crudes were evaluated in a fresh state (0% evaporated) and at two weathered conditions. The evaporations were prepared using air sparging. Oil was discharged and dispersant sprayed in a single pass of the main bridge. Water temperature was maintained at 1 degree centigrade.

The Ohmsett tests were significant because they demonstrate that Corexit 9500 and Corexit 9527 are effective in dispersing Hibernia and ANS crude oils in cold water and verify the results from laboratory and small scale tests.

Final results were presented in June 2002 at the Arctic and Marine Oil Spill Technical Seminar in Calgary, Canada and will be presented at the International Oil Spill Conference in Vancouver, Canada in April 2003.



Nozzles are positioned for applying dispersants during testing.



The dispersants are sprayed on the oil slick.



Ohmsett test basin waves mix oil with dispersants.

Contract Award

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According to Joseph Mullin, Senior Technical Advisor for the MMS Oil Spill Research Program, "MAR prepared a superior technical proposal."

"That, and their successful track record in managing the Ohmsett facility for the past ten years, were crucial in the decision to award a third successive five-year contract to MAR," said Mullin. "They were the clear choice."



Mike Norcio, MAR chairman and CEO, with Bill Schmidt, Ohmsett program manager, at the contract award dinner.

Under the new contract, MAR will continue to conduct oil spill response technology evaluation, research, and training for private companies, government agencies, and universities.

The Ohmsett facility plays a critical role in developing the most effective response technologies as well as preparing responders with the most realistic training before an actual spill.

Testing and research at Ohmsett provides the opportunity to evaluate oil recovery and containment capabilities, sea keeping abilities, and performance of various oil spill response equipment in repeatable conditions.

Information derived from Ohmsett tests is used in making regulatory decisions pertaining to permit and plan approvals, safety and pollution inspections, enforcement actions, and training requirements.

Interested in learning more about the facility? Contact Bill Schmidt, Ohmsett's program manager, at (732) 866-7183, or by e-mail at ohmsettnj@monmouth.com.

News Briefs

NOAA/MMS Conduct Oil Weathering Workshop

On April 17 and 18, 2002, representatives from the U.S. Department of the Interior Minerals Management Service, along with representatives from the Office of Response and Restoration of the National Oceanic and Atmospheric Administration, conducted a joint workshop on longer term weathering behavior of oil slicks.

Joining MMS and NOAA at the workshop were representatives from government agencies, universities, and private companies. Spill experts from the US Environmental Protection Agency, Fisheries and Oceans Canada, Environment Canada, the Skidaway Institute of Technology, Louisiana State University, Exxon-Mobil, Payne Environmental Consultants, AEA Technology, and Innovative Ventures participated.

Recently, as the oil and gas industry rapidly expand operations into deep waters, government and private agencies have become aware that more attention must be paid to what would happen in the event of a deepwater spill.

The MMS/NOAA workshop served to initiate discussion among participating spill experts about the behavior of large open water slicks, what is known about long term weathering predictions, and prioritizing research.

Through panel discussions, experts discussed such issues as emulsion formation, photo-oxidation, biodegradation, and contamination of shores and wetlands.

The two days ended with discussion of workshop research recommendations.

The Ohmsett Gazette is published by Ohmsett--The National Oil Spill Response Test Facility--to update our readers on activities at the facility. For more information, call: (732) 866-7183.

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Ohmsett Facility Wins NJDEP Environmental Excellence Award

The Ohmsett facility received a New Jersey Department of Environmental Protection (NJDEP) Environmental Excellence Award in recognition of the comprehensive oil spill cleanup training and research conducted there.

Ohmsett was one of five New Jersey organizations receiving the award at a ceremony held on November 13, 2001 at the Eco-Complex in Columbus, New Jersey. NJDEP commissioner Robert Shinn presented the awards.

A team of high level managers from the NJDEP selected award winners based on how well the organizations' efforts met the NJDEP's goals for open space, clean air and water, and effective government.



NJDEP commissioner Robert Shinn presents the Environmental Excellence Award to Ohmsett program manager Bill Schmidt.

MMS Renovates Ohmsett Building for Expansion

Minerals Management Service has agreed to fund renovation of a building at the Ohmsett facility complex to provide Ohmsett with expanded working and storage space. The project, which is funded in part by the US Navy, includes an upgraded conference center.

In late 2001, the Navy gave Ohmsett full use of building R-24 at the Naval Weapons Station Earle, (as well as use of a boathouse and the land around the test basin.)

In a May 14, 2002 meeting, MMS okayed plans for renovations to be performed by Ohmsett staff and outside contractors. Funding also includes the purchase of new, high-tech, multi-media equipment.

The extensive renovations include expanding the current conference and training room, building a new kitchen area, installing an HVAC system, renovating bathrooms, and re-doing the floors. In addition, new windows will be installed, the roof will be replaced, and the building will be painted inside and out.

Work will commence in early July and is expected to be completed by early Fall. Visit our website at www.ohmsett.com for news of the unveiling celebration, or stop by for a tour of the refurbished building.

Ohmsett Goes to France

Ohmsett recently was one of more than 800 organizations participating in the Interspill 2002 Trade Show and Exhibition in Brest, France.

The show, which took place from March 11 to 16, 2002, is an international exhibition for the marine industry. Ohmsett staff members Kathleen Nolan and Bill Schmidt, along with Joe Mullin of Minerals Management Service, attended. Joe Mullin presented a scientific paper on in-situ burns.

This was the second such event organized by SYCOPOL, the French Oil Spill Control Association, in association with BOSCA, the British Oil Spill Control Association and NOSCA, the Norwegian Oil Spill Control Association.

The next Interspill is scheduled for 2004 in Trondheim, Norway.

Catch Us At These Conferences!

Clean Gulf 2002
November 5 and 6, 2002
Galveston, Texas

International Oil Spill Conference
April 7 - 10, 2003
Vancouver, BC



Ohmsett: The National Oil Spill Response Test Facility

Unique training opportunities

Cold water testing

Research and development

**For more information call (732) 866-7183
Or visit our web page @ <http://www.ohmsett.com>**

Test with oil

Train with oil

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