

The *Ohmsett Gazette*

Leonardo, New Jersey

Train with oil. Test with oil.

Fall/Winter 1999

Dispersant Testing Study Underway

Ohmsett is currently conducting a Minerals Management Service funded study to explore the feasibility of using its test tank to test dispersants. Ohmsett personnel, along with SL Ross Environmental Research, Ltd., are conducting the research.

Added to oil spills, dispersants break the oil down into smaller droplets. Combined with wind and wave action, dispersed oil biodegrades into the water column, eliminating the threat of shoreline impact.

The Ohmsett test tank would be the ideal place to test dispersants. In the Ohmsett tank, ocean conditions can be closely simulated on a large scale in a controlled environment.

Dispersants have been tested in ocean field trials with good results, but those tests are very costly and the results are only valid for the narrow range of conditions experienced in the trials.

The feasibility study at Ohmsett seeks a cost-effective method to remove dispersed materials and/or a way to keep dispersed oil and dispersant segregated from the rest of the tank water during testing.

Continued on page 4

New Ohmsett Oil Purification System Up and Running



NWS Earle Executive Officer Caudill, CINC owner Kevin Costner, and Ohmsett Program Manager Bill Schmidt pause to pose on demonstration day.

The installation of a new oil purification system at Ohmsett culminated in a demonstration for the Coast Guard in March. The new system enables Ohmsett to more effectively recycle the oil used in Ohmsett tank tests.

The Costner Industries Nevada Corporation (CINC) V-10 oil separator is a crucial part of the purification system. Ohmsett Program Manager Bill Schmidt and Engineer David DeVitis had been looking for a more effective oil purification system when they learned about CINC at an oil spill conference.

Kevin Costner and his brother Dan established Costner Industries in 1993 after they became interested in cost-effective oil/water separator technology. The Costners are committed to supporting environmental solutions. They were particularly concerned with technology that would enable oil spill cleanup crews to collect spilled oil as effectively as possible.

After some research, Schmidt invited CINC to Ohmsett for a demonstration. CINC maintains a mobile demonstration unit that can be hooked up to a facility's own system.

Continued on page 2

What's Inside

Exxon comes to Ohmsett page 2

Ohmsett staff making waves page 3

Coast Guard in the fast (water) lane again page 5

Train, Train, Train page 6

Purification system

Continued from page 1

DeVitis says he was impressed with the separator's simple design, performance, and liquid-liquid separation.

"We bought the CINC separator because it does a good job," says DeVitis. "It can process influent ratios from one hundred percent oil to pure water without compromising effluent quality. That's a big advantage over other systems."

The Coast Guard was also interested in the CINC separator. During oil spill cleanup, skimmers pick up water along with the recovered oil. That oil and water mixture is sent to the vessels' holding tanks. When the tanks are full, operations must cease while the tanks are emptied.

The CINC separator looked like a promising prospect to solve the problem. If the water were to be separated from the oil first, only the oil would have to be held in the tanks. Tanks would not fill up as quickly, and skimmers would have more time for oil recovery.

During the demonstration, CINC owners and representatives, Ohmsett staff, and Coast Guard personnel watched the system in action.

Since the purchase, the CINC separator has worked efficiently through Ohmsett's 1999 summer testing and training season.

DeVitis is still impressed. "It has handled oil/water separation tasks with ease and minimal downtime," he says.

Another good thing about the new separator? Easy clean-up. "Its internal clean-in-place rotor allows us to purge sediment built up in the rotor without dismantling the whole unit," says DeVitis.

For more information on CINC, visit:
<http://www.cinc-co.com>

See us at these conferences

ASTM F-20	October 25-27, 1999 New Orleans, Louisiana
Clean Gulf	November 8-10, 1999 Galveston, Texas
Society of Petroleum Engineers	June 26-28, 2000 Stavanger, Norway

Exxon's Research Put To The Test With Oil and Waves



Hugh Brown of Imperial Oil and Andrie Chen of Exxon observe testing.

In November of 1998, the Exxon Corporation chose Ohmsett for large scale testing of their newly developed fast-current oil boom prototype. This is the first time in recent years a private oil corporation has used Ohmsett for testing.

Minerals Management Service funded a substantial part of the testing cost.

When mathematical modeling and laboratory testing conducted by Exxon researchers suggested the system could work at current speeds of three knots or more, Exxon retained Applied Fabric Technologies, Inc. of Orchard Park, New York to design, fabricate and test a full-scale prototype.

Applied Fabric Technologies collaborated with SL Ross Environmental Research of Ottawa, Canada to evaluate porous barrier materials and develop and carry out the test protocol.

According to Exxon, the multiple porous barrier boom system allows oil to be contained in fast currents where conventional



Exxon's high current oil containment barrier in the Ohmsett tank

booms fail, such as in rivers or tidal areas. Exxon's boom can also be used to increase the capacity of sweep systems, allowing them to be towed at a higher speed.

Conventional booms typically fail at current speeds between one half and one knot. This is known as entrainment—oil droplets beneath the oil slick are swept away by the high velocity water current passing under the bottom edge of the boom.

Exxon's prototype avoids entrainment by slowing the velocity of current approaching the boom. To achieve this, a series of porous booms, or screens, are placed ahead of the main boom, effectively slowing the current velocity to a manageable speed before it reaches the actual containment boom.

Tests were conducted first without oil to quantify velocity reductions, then with three different oils to observe barrier behavior and to establish speed thresholds for entrainment. Testing was conducted under calm water, regular wave, and harbor chop conditions.



Dave Knapp, Ohmsett technician, installs pressure sensors on boom.



Technician Rich Naples takes water current measurements at boom apex.

MMS Presents Ohmsett With Safety Management Award

From October 1997 through March 1999, a period of seventeen months, no accident-related lost workdays were incurred by Ohmsett staff.

In April 1999, recognizing Ohmsett's exemplary safety record, Paul Martin, Chief of MMS Engineering and Research Branch and Bob Brown, MMS Assistant Director of Administration and Budget of Minerals Management Service, presented Ohmsett staff with a Safety Management Award.

Bill Schmidt, Ohmsett Program Manager, Rich Naples, Ohmsett On-Site Health and Safety Specialist, and Bernie Fontaine, Corporate Health and Safety Officer, accepted the award. The entire Ohmsett staff attended the award presentation, which was held at the Ohmsett facility and followed by an informal luncheon.

Ohmsett's Bill Schmidt Receives Corporate Leadership Award

Bill Schmidt, Ohmsett Program Manager, was presented with a 1998 Corporate Leadership Award at an April 1999 Minerals Management Service awards ceremony in Houston, Texas.

The award was in recognition of Schmidt's achievements in improving the safety, efficiency, and environmental sensitivity of operations at the Ohmsett facility.

Coming Tests and Trainings

U.S. Coast Guard

- VOSS training (3 sessions)

University of New Hampshire

- Bay Defender evaluation

NOAA

- Dispersant training

Goo Gobbler

- Advancing skimmer test

Submarine Camel

Autonomous Marine Booster Pump

Meet the People Who Make Ohmsett Work

Start with the premier oil spill equipment testing facility. Add the people who make every aspect of it work, and you have real leadership in oil spill response equipment testing and training.

In Ohmsett's "tower", which houses the newly renovated office space and an instrumentation area, you'll find **Program Manager Bill Schmidt, Administrator Joyce Rosenberg, Instrumentation Technician Don Backer, and Technical Writer Kathleen Nolan.** Look in the laboratory for **Chemistry Technician Sue Cunneff.**

If you can't find **Test Engineer/Director David DeVitis** in the tower, chances are he's out at the test tank, along with **Health and Safety Specialist/Technician Rich Naples, Technicians Dave Knapp, Mark Wrong, and John McCall, Jr.**

Stephen Schmidt splits his time between assisting the instrumentation technician and assisting the tank technicians.

Craftsman John McCall, Sr. does carpentry and metalwork wherever it's needed at the facility.



Front Row, Left to Right: Paul Martin (MMS), S. Cunneff, D. Backer, J. Rosenberg, B. Schmidt, K. Nolan, Bob Brown (MMS), and R. Naples. Back Row, Left to Right: J. McCall (Sr), D. DeVitis, D. Knapp, John Buck (MAR), Bernie Fontaine, J. McCall (Jr), and M. Wrong. Not shown: S. Schmidt.

ASTM Votes on Boom Testing Protocol

It was the last step in a year-long effort to establish an industry-wide boom testing protocol. In February 1999, Ohmsett's Bill Schmidt, David DeVitis and Kathleen Nolan presented a final draft of a boom testing protocol to the American Society for Testing Materials (ASTM) F20.11 oil boom subcommittee. The draft was reviewed and approved (with minor changes), and sent in mid-August to subcommittee members for balloting.

The ASTM develops voluntary standards to which a variety of products and procedures may be held. ASTM standards exist for everything from children's toys to engines. Until recently, no ASTM protocol existed for testing oil booms in a controlled environment.

It became clear that such a standard is necessary. Ohmsett is the leading site for testing oil booms, so it was fitting that Ohmsett's program manager Bill Schmidt

and Ohmsett engineers David DeVitis and Phillip Coyne appeared before the ASTM oil boom subcommittee in April 1998 to make a case for the need.

With the subcommittee's approval, Ohmsett developed a draft protocol which the subcommittee reviewed. The subcommittee recommended changes and sent it back to Ohmsett for revision. Presentation of the draft once more in February 1999 met with conditional approval from the subcommittee.

Now, the subcommittee votes on final approval of the protocol. "The balloting is in process, with a closing date of September 27, 1999," says Steve Potter, ASTM subcommittee chair. Potter will collect the ballot results and comments for presentation at the subcommittee's October meeting.

For more information on the ASTM, go to: <http://www.astm.org>

Goo-Gobbler—It's Not a Drum Skimmer

In August, Goo-Gobbler, Inc. put their cylinder oil skimmer in the Ohmsett tank, testing it with viscous Sundex, Hydrocal and diesel oil.

Goo Gobbler, Inc. designed and built the skimmer to recover spilled oil in coastal and offshore waters and oil pits.

What is unique about the skimmer is that, unlike a drum skimmer, oil is collected on both the outside and the inside of a rotating cylinder.

For the test, the skimmer was kept stationary in a 20 by 30 foot boomed-off section of the test basin and tested on slicks created with various oils.

To maintain a constant slick thickness, the oil was replenished as it was recovered by the skimmer. Ohmsett technicians off-loaded the recovered oil directly to tanks, where volume measurements and collection times were noted.

Testing suggested that the skimmer was effective on a variety of oils, especially highly viscous oils like Sundex.

"Test results showed that the skimmer did effectively remove Hydrocal at varying cylinder speeds," says David DeVitis, Ohmsett Test Engineer/Director.

"While removing Sundex, the skimmer was so effective, the recovered oil overflowed the collection troughs."

Goo Gobbler, Inc. plans to return to Ohmsett in the near future to test their skimmer as an advancing-type skimmer.



Goo-Gobbler gobbles up Hydrocal during testing in the Ohmsett tank.

Dispersant study

Continued from page 1

Findings from the study so far suggest that dispersant testing at Ohmsett is a strong possibility.

Research has shown that a number of dispersant tests can be done in sequence without concern that the concentration of dispersant in the tank is affecting results.

It also appears that relatively low concentrations of dispersant in the tank will not obscure underwater viewing of experiments.

How much and how quickly the dispersed oil and dispersant can be removed will have an impact on how many tests can be done.

Presently, Ohmsett personnel are experimenting with filtration materials that will absorb the dispersant chemicals and can be



MMS Director Walter Rosenbusch and SL Ross researcher Ian Buist talk about dispersants at Ohmsett

used in conjunction with the current filtration system. The project is still in progress.

For more information on dispersants, go to: <http://www.mms.gov/tarp/os2.htm>

Boomer and Dr. Skimmer answer your questions...



What kind of oil is used for testing at Ohmsett?

--Joe B., Houston, Texas

Dr. Skimmer: There are four kinds of oils that are usually used for testing at Ohmsett: Sundex, Hydrocal, Calsol, and diesel. These oils in particular are used because their properties—level of viscosity, water content, and density—don't change significantly during the test.

"Viscosity" refers to how resistant to flow the oil is. The four oils range from highly viscous (Sundex) to low viscosity (diesel). Using oils of varying viscosity provides us with a good picture of how equipment will perform on various oils.

Boomer: Because these oils don't change, we can reuse them over and over-with the help our fancy new oil/water separator.

What's new in the lab?

--Jody H., Los Angeles, California

Dr. Skimmer: We recently purchased a Haake Rheometer which can measure viscosity at controlled shear rates and temperatures. This enables us to make viscosity measurements on emulsions in the lab under conditions like those in the test tank.

We have also acquired a Visco-Alpha titrator, a Buck Scientific IR Spectrophotometer, and a Dell computer with all accompanying software to interface with the new line of instruments.

How do you make waves in the Ohmsett tank?

--Carl W., Mobile, Alabama

Boomer: A wave flap. No, that's not a new way to do the wave at sports events. It's a giant, motorized flap at one end of the tank.

We can control how wide the flap swings are and how fast it flaps. There's an artificial beach at the other end of the tank and when the beach is raised, it dampens the waves. We lower the beach for harbor chop type waves. And when we want to surf, we just turn the wave flap on full speed!

Coast Guard Returns to Ohmsett for Fast Water Oil Skimmer Evaluations

As part of its Innovative Response Techniques project, the Coast Guard Research and Development Center has set out to identify effective new technology for oil spill clean-up in fast water situations.

Seventy percent of oils are transported on waterways where currents of more than one knot are not unusual. Unfortunately, spills are not unusual on these waterways, either.

Complicating matters are the particular challenges in recovering oil in fast water. Oil mixes with water to entrain under booms and skimmers. Deploying and maneuvering equipment in fast currents can be difficult and dangerous.

Historically, spill response efforts in rivers and coastal areas have been hindered by the lack of effective oil recovery systems and a shortage of trained, experienced personnel. Research and development for effective fast current oil recovery has been scant.

The Coast Guard hopes to change that.

In a mid-May through July testing series, Coast Guard representatives came to Ohmsett to develop a fast water test protocol and evaluate four promising fast-water skimmers.

“There were two objectives for performing these tests,” says Kurt Hansen of the U.S. Coast Guard Research and Development Center.

“First, we wanted to verify the testing protocol that Ohmsett uses to ensure we could obtain the correct data,” says Hansen. “We verified the protocol. In addition, we were trying to advance the state-of-the-art in fast water containment and cleanup.”

Evaluated were the Slickbar JBF DIP600 Skimmer, the Vikoma International FasFlo skimmer, the NOFI Current Buster (Tapered Channel) Recovery System, and the Erling Blomber Combi Hydrodynamic Circus.

“The skimmers tested were identified in a previous report as having the potential of performing in currents of three to five knots,” says Hansen. “We were hoping to identify their operation and performance.”



Ohmsett Technician Dave Knapp adds air to a JBF skimmer pontoon.



The NOFI Tapered Channel Recovery System



The JBF Skimmer is lowered into the tank basin.



Vikoma FasFlo skimmer doing its job



The JBF Skimmer at work



The Erling Blomber Combi Hydrodynamic Circus

The systems were set up according to the manufacturer’s specifications and tested at speeds of two knots or greater, in calm and harbor chop waves on oils of varying viscosities.

“Each system’s recovery capabilities were quantified in optimum conditions,” says David DeVitis, Ohmsett Test Director. “And each system was pushed to its limit in increasingly difficult conditions.”

“This fast water series was beneficial for all parties,” says DeVitis. “The USCG sponsors were able to identify the difficulties associated with fast water recovery systems, and the equipment manufacturers had an opportunity to modify and adjust their equipment to improve performance.”

For more information on Coast Guard research, visit:

<http://www.rdc.uscg.mil>

Coast Guard NSF Personnel Go Over the Top at “Boot Camp”

USCG National Strike Force (NSF) oil spill response personnel went to “boot camp” at Ohmsett this year during two five-day training programs.

An April training session covered oil spill equipment operator training, and a September session included lightering training and spill equipment operator training.

This was the first time the lightering component has been presented at Ohmsett. Emergency lightering operations might take place when liquid fuel, primarily oil, must be offloaded from a stranded vessel to either refloat the vessel or remove dangerous liquids from the scene.

Ohmsett provided two primary instructors for the lightering training. Christine Burk, currently of the National Strike Force, and Alex Alenitsch, retired Strike Team member, were also asked to help write the courses.

In Ohmsett’s classroom, NSF personnel learned pumping system basics and practiced creative problem solving techniques. NSF personnel were presented with “over the top” (loading into vessels and tank

trucks) lightering scenarios for which they devised strategies which included plans for building a lightering rig and transferring the oil.

Ohmsett staff members were on hand to help set up equipment stations, conduct the training, operate the tank, and clean and re-pack the equipment at the end of the training session.

Ohmsett’s half-hull ship model was set up in the Ohmsett facility lot and instructors demonstrated how to rig equipment with the USCG’s Vessel of Opportunity Skimming System (VOSS). NSF personnel later used the VOSS in the tank.

The Ohmsett tank met the Coast Guard’s need to ensure that the skimmer and fast-sweep boom system could be towed at speeds of at least three quarters of a knot. NSF personnel experienced recovery conditions in both calm water and waves.

The courses are designed to accommodate up to sixteen students at a time. The Coast Guard awarded NSF personnel with certificates at the completion of the training course.



Students practice deploying a V-Sweep oil boom...



...and a team sets up a mobile oil barge unit.

Navy Stays Home for Spring Training

United States Naval Port Services personnel didn’t have to go far for oil spill training in March of this year.

In fact, they stayed right at home at the Earle Naval Weapons Station in Leonardo, New Jersey—where Ohmsett is located. Why go anywhere when the premier oil spill training facility is in your backyard?

Ohmsett’s Health and Safety Specialist Rich Naples, and Health and Safety Officer Bernie Fontaine, conducted the training. Fontaine, a consultant from the Windsor Group in New Jersey, is an OSHA certified instructor.

On the first day of the three day course, Ohmsett staff and Navy Port Services personnel rigged a Marco skimmer in the Ohmsett tank.

The second and third days consisted of confined space entry training and use of the

Navy Marco skimmer in the tank.

Confined space entry training is essential for personnel who may be required to do everything from inspecting a tank to rescuing crew from a shipboard engine room fire. Navy personnel learned the procedures for entering a confined space, including testing the air for oxygen content or presence of dangerous fumes, and the use of respirators.

In the oil spill recovery component of the training, personnel viewed Marco skimmer operation videos in Ohmsett’s classroom before practicing with the skimmer in the tank.

During the third day of the training, Navy personnel had plenty of opportunities to familiarize themselves with the operation of the skimmer in calm and harbor chop wave conditions using two different types of oil.



Practicing confined space entry



Using the Marco Skimmer

Spill Response Managers Go Back to School With Texas A & M

Instructors from the Texas A & M University National Spill Control School arrived at Ohmsett in June 1999 and again in September to train Minerals Management Service and U.S. Navy personnel with oil spill response management responsibilities.

The training was intended to help spill response managers become even better at what they do.

MMS staff responsible for preparing oil spill contingency plans or environmental assessments of spill response options were encouraged to take the training.

Topics covered in a classroom session included a review of the National Interagency Management Systems Incident Command (NIMS). The US Coast Guard is adopting the NIMS nationwide.

Texas A & M instructors covered management topics such as assigning roles and responsibilities to response staff, how to establish a command post, spill discovery and notification procedures, and personal liabilities of the qualified individual.

Classroom session topics also included: physical and chemical properties of oil, alternate response techniques (such as in-situ burning), ecological impacts of oil spills, National Pollution Fund, and oil spill movement, containment, control and disposal.

The classroom session was capped off by table-top exercises in which personnel developed a response plan to an imaginary oil spill scenario.



Students pump oil out of the containment boom during Texas A&M's hands-on training session

Personnel put what they had learned to good use as they incorporated an oil spill response contingency plan, assigned staff roles, identified environmental and economic resources at risk, and developed a demobilization plan.

It all became real when everyone went out to the Ohmsett tank to participate in booming and skimming exercises.

Oil boom was towed in a "U" configuration so personnel could observe how oil is corralled with towboats.

Boom configured in a reverse "U" simulated water movement in an inlet or chan-

nel. Boom was also placed to demonstrate oil recovery in current, and set up in a "J" boom configuration to show how oil can be moved to a recovery site.

Skimming practice wrapped up the tank session. Personnel operated a variety of skimming systems, including a Vessel of Opportunity Skimming System hydraulic system, in current and harbor chop conditions.

For more information on training with Texas A&M, go to:

<http://www.ohmsett.com/training.htm>
<http://www.sci.tamucc.edu/nscs>

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.

Editor Laurie Holland
Technical Editor Phillip Coyne
Coordinator Kathleen Nolan
Administrator Joyce Rosenberg



Train With The Experts!
Texas A&M Corpus Christi's National Spill Control School
Leading specialists in hazardous material spill training

- Hands-on training in the Ohmsett tank
- Classroom training and review of videotaped student performance
- 40-Hour HAZMAT training certificate included
- Five-day sessions planned for spring and fall 2000

Sign up now! Call Dr. Steve Barnes (361) 825-3333
or email nscs@tamucc.edu

The opinions, findings, conclusions, or recommendations expressed in this report are those of the authors, and do not necessarily reflect the views or policies of the MMS. Mention of trade names or commercial products does not constitute endorsement or recommendation for use. This document has been technically reviewed by the MMS according to contractual specifications.

Ohmsett Leads The Way

Testing, evaluation
and burning of
fireboom



Train with oil and full
scale equipment



Fastest tow tank speeds
for testing full size
skimmers and boom with
waves and oil



Largest full scale
oil spill test facility
in North America



For more information about testing or training at Ohmsett, call

Bill Schmidt, Program Manager

Jim Lane, Project Officer, MMS

Phone: (732) 866-7183

Phone: (703) 787-1065

Fax: (732) 866-7189

Fax: (703) 787-1549

E-mail: Ohmsettj@monmouth.com E-mail: James.Lane@mms.gov

Visit our web page @ <http://www.ohmsett.com>

Test with oil

Train with oil

Ohmsett Facility
MAR, Inc.
PO Box 473
Atlantic Highlands, NJ 07716