

The *Ohmsett Gazette*

Leonardo, New Jersey

Train with oil. Test with oil.

Spring/Summer 2003

Ohmsett Goes to the IOSC, Hosts Customer Event

In April 2003, Ohmsett staff headed off for a week in beautiful Vancouver, BC to participate in the 2003 International Oil Spill Conference (IOSC.) Ohmsett's program manager Bill Schmidt, test engineer Dave DeVitis, and technical writer Katie Nolan, manned Ohmsett's booth there.

The U.S. Minerals Management Service (MMS) was represented at the conference by Sharon Buffington, David Moore, James Lane, and Joseph Mullin from the Herndon, Virginia offices; Rusty Wright, Alton Bates, and Liz Peuler from the New Orleans, Louisiana offices; and Craig Ogawa, Daniel Knowlson, and David Panzer from the Camarillo, California offices.

The MMS staff helped man the Ohmsett booth, gave presentations, chaired conference sessions, and organized the conference film festival.

For Ohmsett, one of the highlights of the IOSC was a customer welcoming event hosted by MMS, MAR Incorporated, and Ohmsett staff, held April 9th in the scenic Cypress Suite of the Pan Pacific Hotel, site of the IOSC.

MMS and Ohmsett scheduled the cus-
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U.S. Minerals Management Service Continues Ohmsett Dispersant Testing



Observers watch the dispersant test in progress

Scientists, spill responders, and regulators assembled at the Ohmsett test basin on a cold, snowy day in February, 2003, to observe a series of cold water dispersant effectiveness experiments.

The objective of the experiments funded by the U.S. Minerals Management Service (MMS) was to evaluate the effectiveness of Corexit 9527 dispersant on five different Alaska crude oils--Alaska North Slope, Cook Inlet, Endicott, Point McIntyre, and Northstar—in cold water and wave conditions.

The February experiments were part of a four-year MMS effort to develop a dispersant testing protocol at the Ohmsett test basin.

Large-scale test basin research at Ohmsett is an important link between small-scale laboratory experiments and field studies.

"The Ohmsett experiments simulate real-world conditions without the high cost and regulatory difficulties of at-sea trials," says Joe Mullin, MMS senior technical advisor for oil spill response research.

From their vantage point on the deck of the Ohmsett test basin, observers of the February, 2003 dispersant experiments could see crude oil applied to the water within a boomed area, followed by a dispersant application a few seconds later.

Observers watched the interaction between the oil slick and the dispersant, then

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Filtration System for Dispersant Removal Tested

Feasibility studies have shown that realistic dispersant testing is possible at Ohmsett—but what happens to the test basin water after dispersant testing is also important.

In March, 2003, researchers continued to address how best to remove the dissolved dispersants from the test basin water in a series of experiments with three powdered activated carbon (PAC) treatment chambers.

Until recently, the time and cost to remove dissolved dispersants from the basin water after dispersant testing led to the decision to conduct dispersant tests only at the end of the testing season.

The basin water is relatively cool by the end of the testing season—fine for cold water dispersant testing. However, there also has been interest in testing dispersants in warmer water. This would require that residual dispersant be removed from the water prior to subsequent testing.

In July, 2002, SL Ross researchers conducted pilot-scale tankside experiments with Ohmsett test basin water and found that PAC removed 90% of the dissolved dispersants (see Ohmsett Gazette, Fall/Winter 2002.)

A PAC treatment system was installed in the Ohmsett test basin to remove dissolved dispersant following the February, 2003 cold water dispersant experiments.

The prototype chamber system design is based on lab experiments conducted at SL Ross' laboratory in Ottawa, Canada, and the July, 2002 carbon based filter tests conducted at Ohmsett.

The aim was to develop a simple, inexpensive system that would remain in passive operation 24 hours a day.

Dispersed oil was removed from the test basin water with the Ohmsett filtration system using a filter medium comprised of cellulose and the conventional diatomaceous earth.

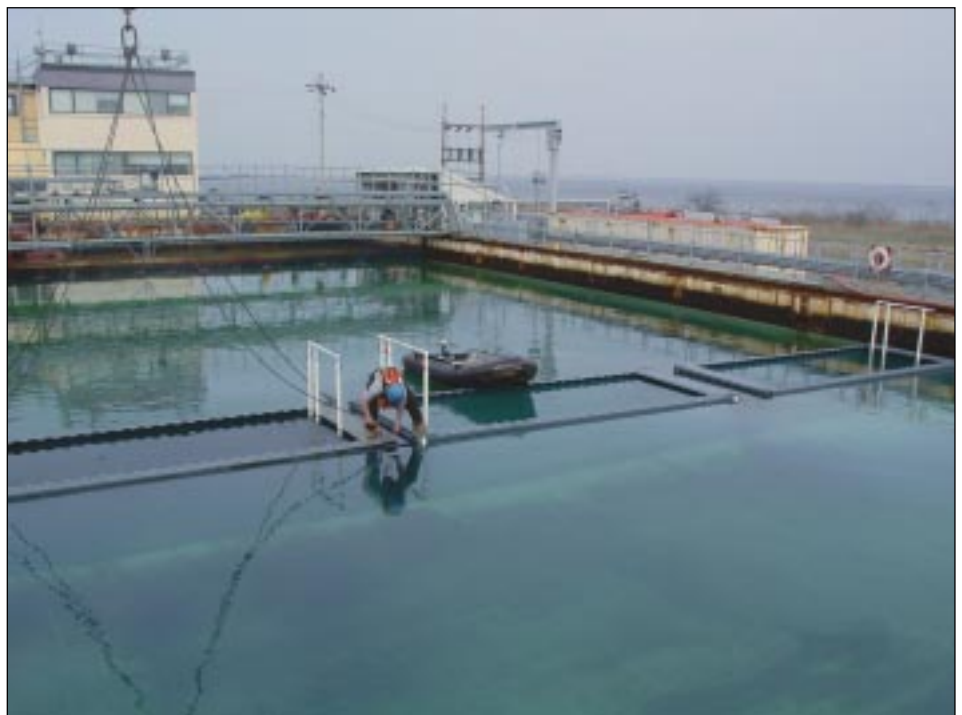
Then, three PAC treatment chambers were constructed and installed width-wise across the tank. The chambers were then dosed with an experimentally determined amount of PAC kept in diffuse suspension.

As water passes through the filter cloth of the chamber walls, the retained PAC suspension absorbs organic matter, including dispersant, from the solution in the water.

Preliminary test results indicated that the dispersant was reduced from approximately



Dispersant filter chambers are lowered into the basin



Final adjustments are made

10 ppm to below the detection level of one ppm within 72 hours.

An ancillary benefit to the study was the creation and practical proofing of a quantitative analytical technique for dispersant-Corexit, in this case-in salt water.

This analysis is based on internally standardized interfacial tension of test water versus mineral oil data.

The analytical technique overcame the traditional interference difficulties experienced in other direct analyses for dispersant.

Dispersant

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saw wave action disperse the oil into the water column. Wave generation ceased after thirty minutes, and technicians herded and collected the remaining floating oil.

The observers' consensus was that these experiments accurately simulated real-world conditions.

To determine dispersant effectiveness, researchers measured the amount of oil remaining on the water's surface after dispersant application. Particle-size analyzers and fluorimeters quantified oil droplet size and oil concentrations.

In a test in which no oil remains on the surface, the dispersant is considered to be 100% effective—similarly, 30% of the oil remaining yields a 70% dispersant effectiveness result.

Preliminary data analysis revealed that high dispersant effectiveness levels were achieved in a number of the tests.

Dispersant effectiveness varied with the type of oil and its level of weathering, suggesting that Corexit 9527 is effective on certain oils in cold water and wave conditions.

"The success of a dispersant operation will depend on the oil type, as well as the prevailing sea and weather conditions," says Joe Mullin.

"MMS hopes the results from these ex-



Oil is applied to the water surface prior to dispersant application.

periments will assist United States regional response teams to make science-based decisions on the potential use of dispersants as a response tool."

These experiments also demonstrated that standardized testing conducted in the

Ohmsett test basin is a reliable way to measure dispersant effectiveness.

MMS is developing a long-term program to use the Ohmsett facility for further dispersant effectiveness testing and other dispersant related research and development.

Ohmsett Participates in NWSE Earth Day Fair

Since its inception in 1970 to raise national environmental awareness, Earth Day has been celebrated every April 22nd in many ways throughout the nation.

Naval Weapons Station Earle, where Ohmsett is located, observed Earth Day this year with a fair--and Ohmsett was there.

The event, housed in a gymnasium on base and open to all base personnel and their families, featured displays by The New Jersey Department of Tourism, the Monmouth County Park Service, several local water companies, and others.

Technical writer Katie Nolan and technician Bob Stewart ran the Ohmsett display. They discussed the significance of oil spill response research and talked about how re-



Bob Stewart at the Ohmsett display.

sponse groups handle a spill. Bob also showed fair-goers how different types of oil float on water, and appropriate spill response gear.

High School Group Tours Facility

In April, Ohmsett hosted student tours for the Monmouth Junior Science Symposium.

Science students from nearby Holmdel High School were escorted by Ohmsett program manager Bill Schmidt, who showed them around the facility from the bridge to the basin.

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Alaskans Return to Ohmsett for Another Training Session

BP Alaska personnel enjoyed a successful training session at Ohmsett in April 2002 (See “BP Alaska Trains at Ohmsett”, *The Ohmsett Gazette*, Spring/Summer 2002.)

In May 2003, another group of Alaskan spill responders came for a five-day spill response training session at the facility.

The course curriculum included work in the test basin with skimmers in varying sea states and with varying types of oil.

Classroom lectures on alternate response technologies and a tabletop exercise were also part of the curriculum.

The week culminated with a field visit to the Clean Harbors Cooperative in New Jersey.

In post-training critiques, students said they found the hands-on test basin exercises using real oil and skimmers in moving water most beneficial. Students also felt the instructors were very well informed.

At least one student, however, appeared to find the weather objectionable. “Please cancel the wind,” he wrote.



Students listen to a lecture.



Operating a skimmer in the test basin.



Uncoiling a skimmer discharge hose.



Observing from the bridge.

Coast Guard Evaluates Osprey Buoy Sampler

The U.S. Coast Guard hopes to one day more accurately pinpoint who is responsible for an oil spill with a device that can collect a spilled petroleum product for “fingerprinting”.

Analysis of a collected sample may yield data that can be used as legal evidence when tracking responsibility for a spill—but only if a continuous chain of custody is established. This means that a retrievable sampler must be used so that the collected

sample is never, at any time, out of the custody of authorities.

The U.S. Coast Guard Research and Development Center came to Ohmsett to evaluate the Osprey, a retrievable sampler, in April 2003.

The device was tested in three tanks set up on the deck of the Ohmsett test basin.

The U.S. Coast Guard R & D Center Marine Safety Laboratory in Groton, Connecticut developed the Osprey in conjunction with the University of Connecticut.

The Osprey comes in a large 12 inch-long size, and a small 6-inch length. The device is designed to float horizontally on the water’s surface when deployed. Surface-borne petroleum products adhere to a fine Teflon mesh within the device, capturing the sample.

It sounds simple...but the key is the nylon “leash” attached to the Osprey. The leash allows deployment and retrieval of the sampler while constantly in the custody of

the sampling personnel. The sampler can be tossed into the water and retrieved from a platform such as the shoreline, a vessel, or bridge...or it can be tossed and retrieved from a hovering aircraft.

When a continuous chain of custody is maintained, the collected sample can be submitted as legal evidence. Thus, this simple technology has the potential to become a very important tool in the regulation of petroleum discharges in our waterways.



A researcher pours oil into the tank.



Testing in one of the basin-side tanks.

IOSC

Continued from page 1

customer event to thank their existing customers for their loyalty, and to introduce current and potential customers to the facility's new capabilities.

The event included brief speeches by Ohmsett's Bill Schmidt, MMS' Jim Lane, and MAR's Mike Norcio, while a powerpoint presentation on Ohmsett was displayed in the background.

MMS and Ohmsett staff were on hand to answer questions about the facility.

The event was well-received, and Ohmsett gathered valuable feedback from current and potential customers.

Many customers commented on the support and cooperation of Ohmsett's staff, and the wide range of the facility's capabilities. Ohmsett will use customer responses from the event when considering facility upgrades and the implementation of new capabilities.

Mike Crickard, of the U.S. Coast Guard NSFCC said, "The MAR contractor (Ohmsett) staff are always willing to work with their customers to make the tank available and provide outstanding support during training events. The tank itself is most valuable...(in particular) its ability to operate our CG response equipment systems and train CG responders...in 'real' oil recovery operations."

Jim Clark, of Exxon/Mobil, liked "the ability to test dispersants, ability to test at a range of wave energies, and the cold temperature capabilities have been a plus."

Steve Reilly, of Slickbar, said that "excellent simulation of real conditions tested in real oil...shows what works."

In all, the event was a success, and Ohmsett and MMS staff enjoyed meeting with current and potential Ohmsett customers.



MMS' Jim Lane at the customer event.



Ohmsett program manager Bill Schmidt, facility manager and mechanical test engineer Dave DeVitis, and technical writer Katie Nolan at the Ohmsett booth.



A favorite Vancouver tourist attraction.



MMS' Sharon Buffington and Joe Mullin pose with "Oscars" presented at the IOSC film festival.



Vancouver view--with maple leaf.

Ohmsett Hits the Road for School Presentations



Frank chooses a volunteer from the audience....

Ohmsett technicians Frank Arban and Bob Stewart took their show on the road recently when they presented oil spill response demonstrations to two local New Jersey schools.

Ohmsett's display at NWSE's Earth Day fair prompted a teacher at Conover Road Primary School in Colts Neck to invite Ohmsett staff to the school to speak to a group of second graders.

The "Frank and Bob Show" arrived at the school on May 28th equipped with a slideshow, safety equipment, and clear plastic boxes containing dyed vegetable oil.

The Ohmsett technicians were met with

enthusiasm, and students eagerly asked and answered questions.

The highlight of the presentation was when a second grade volunteer from the audience got to dress in full oil response gear and clean up the "oil" (dyed vegetable oil) with a dispersant (dishwashing detergent.) Don't try this at home, kids.

The next day, May 29th, Bob and Frank, along with Ohmsett technician John McCall IV, traveled to Howell Middle School North to participate in a Project WET fair. Project WET (Water Education for Teachers) is an international project to



... to try out the latest in response gear.

educate teachers and students about water management and conservation.

The Ohmsett station one of sixteen stations at the fair. Howell Middle School sixth graders rotated every fifteen minutes to a new station to learn about water pollution, management, and conservation.

The Ohmsett station included photos of recent oil spills, spill response safety equipment, and a demonstration of how oil sticks to feathers and sorbent pads.

Students learned how oil is collected from water, how different oils behave on the water, and what happens to wildlife after a spill.

Happy Retirement, Paul!

MAR, Incorporated and the Ohmsett staff would like to send their best wishes to Paul Martin, chief of the U.S. Minerals Management Service Engineering and Research Branch in Herndon, Virginia.

Mr. Martin has been instrumental in the support, operation, and maintenance of the Ohmsett facility.

He will be retiring early this fall after 34 years of service to the federal government.

We wish him all the best!



Program manager Bill Schmidt bids Paul Martin, left, goodbye

The Ohmsett Gazette is published by Ohmsett--The National Oil Spill Response Test Facility--to update our readers on activities at the facility.

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THEN and NOW: SEND US YOUR BEST!

Send us your best or favorite Ohmsett photos, from recent history to the design and building of the tank (personnel, testing/training, equipment, etc.) Select photos will be included in the next edition of the Ohmsett Gazette.

Please include equipment or personnel name, company and title, date of photo, and a return address if you would like the photo returned. High quality digital or 35 mm are best.

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