

The *Ohmsett* Gazette

Leonardo, New Jersey

Testing · Training · Research

Spring/Summer 2011

BOEMRE Director Visits Ohmsett



BOEMRE Director Michael Bromwich practices skimming oil during USCG training.

On May 10, 2011 Ohmsett was bustling during the U.S. Coast Guard Oil Spill Response Technician training with a

Continued on page 3

What's Inside

Advancing Boom System page 2

Equipment Testing page 3

ConocoPhillips Corporate Training page 4

RME Tests Wave Energy Converter Prototype page 5

Evaluation of Advancing Boom System

Applied Fabrics Technologies Inc. / Desmi Ro-Clean (AFTI/DRC) recently evaluated a prototype advancing boom system at Ohmsett. The Speed Sweep boom is designed to exploit the effects of flow inhibiting netting to reduce relative flow velocities in the boom apex.

Speed Sweep's cross netting is designed to reduce the relative current speed downstream of each net to achieve a near quiescent contained area within the apex.

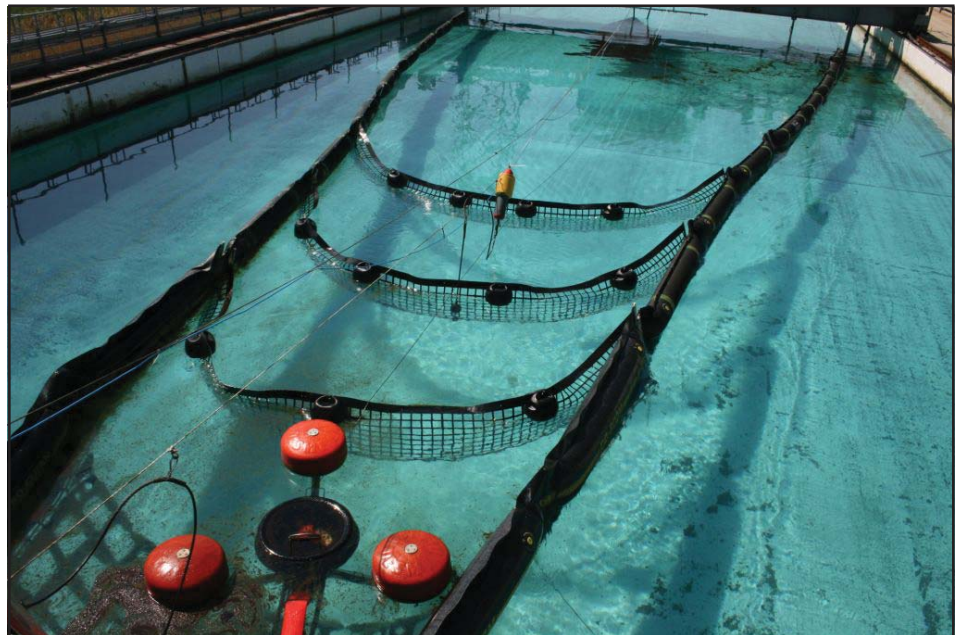
The objectives of the test at Ohmsett were two-fold: 1) to determine first loss tow speed, the speed at which the first signs of oil visually escape the boom, as well as gross loss tow speed, the speed at which large volumes of oil visually escape the boom; and 2) determine the throughput efficiency of the Speed Sweep as a system.

The Speed Sweep was tested in calm water and waves using medium viscosity test oil. First loss tests were performed by bringing the system to a speed below where first loss may occur and then increasing the speed in incremental amounts until first loss was identified visually using underwater cameras targeting the apex containment area of the boom. Throughput efficiency tests were performed by advancing the system at a constant speed while encountering the equivalent of a 0.5mm thick slick.

According to Peter Lane, president of AFTI, the data collected from the Ohmsett tests helped with further development of the Speed Sweep prototype that enabled them to conduct testing at sea.

"Results in the field have corroborated our

Continued on page 2



Speed Sweep's cross netting is designed to reduce the relative current speed downstream of each net to achieve a near quiescent contained area within the apex.

OilShaver Prototype Advancing Boom System Test

After many years of design experience using unique approaches to oil spill recovery, HUSEN AS of Norway developed a high seas advancing boom system prototype. Using an advanced rigging and bridle design, the OilShaver is towable at full speed from one common towing point. With a wide

width sweeping recovery system, the design is extremely beneficial for rapid deployment with minimal ancillary equipment necessary.

During the last week in November 2010, the OilShaver skimmer endured rigorous performance testing in the Ohmsett test tank. The test series began in calm water condi-

tions while encountering an oil slick that was created from the Ohmsett main bridge storage tank ahead of the system and was adjusted to ensure 100% of the oil was encountered by the OilShaver. The system was also tested in wave conditions to document its performance in terms of wave conformance and recovery.

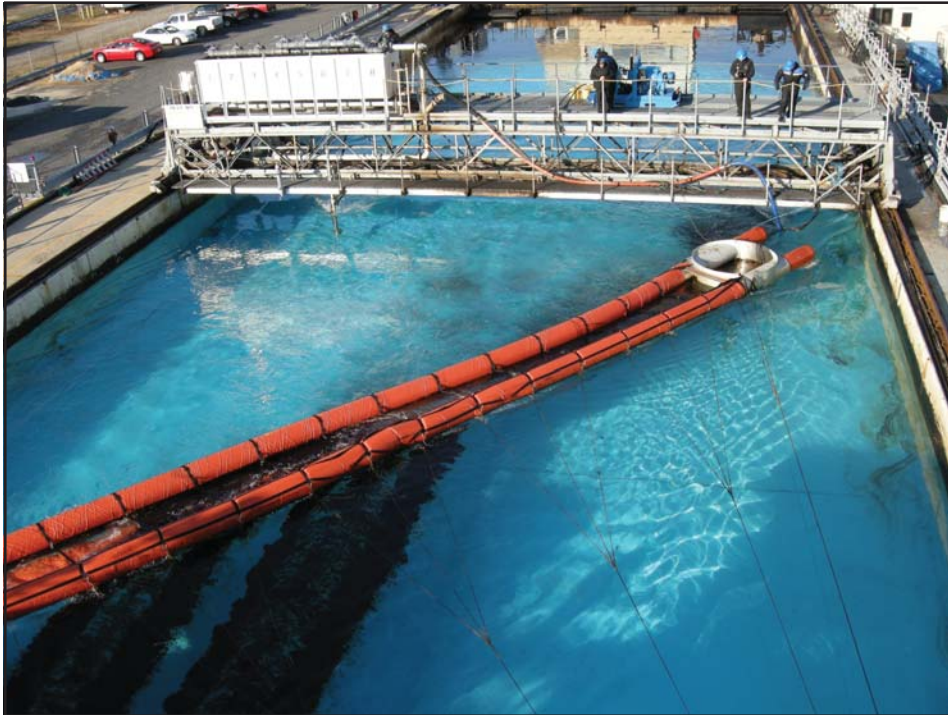
After performance measurements were collected with the skimmer in its original configuration, changes were made to spacing, ballast weight and vent size. Testing resumed measuring the effects that each change in design parameter had on performance.

"The Ohmsett test experience opened our eyes to both challenges and possibilities. We are now in a much better position to take on the task of optimizing the system for full industrial functionality thanks to the clear tank water, facilitating under-water video, and many good tips from the refreshingly helpful staff," stated Dr. Ingvar Huse, designer of the OilShaver.

With the test data collected at Ohmsett, the system will be refined to maximize the efficiency of the skimmer.

OilShaver is one of the 10 finalists in the Wendy Schmidt Oil Spill Cleanup X CHALLENGE.

For more information about the Oil Shaver and video of the Ohmsett test, visit www.oilshaver.com



The OilShaver prototype is tested with oil in calm water conditions in the Ohmsett test tank.

Advancing Boom

Continued from page 1

test tank results and we are optimistic that our system will result in a viable system which will allow sweep speeds at 3 knots or more," stated Lane. "We are also considering a fireproof version using our Pyroboom system to enable faster sweep speeds with that product as well."

Applied Fabric Technologies brought the Speed Sweep boom prototype to Ohmsett for performance testing to determine first loss, gross loss, and throughput efficiency.



Equipment Testing: an Important Step to Ensure Efficiency and Reliability

On April 11-22, 2011 the Lamor Corporation evaluated four of its oil spill clean-up skimmers at the Ohmsett facility. Lamor chose to conduct its equipment testing at Ohmsett because it has the broadest selection of simulated oil spill response testing, training and research equipment.

"The opportunity to test our skimmers at Ohmsett was remarkable and a fantastic experience since its facilities offer a realistic simulated controlled marine environment for oil spill equipment e.g. the use of real oil in a wave/tow tank. Based on the outstanding offering of services coupled with the great cooperation and flexibility of its staff, Ohmsett will become an integral part of Lamor's vetting process, now and in the future," says Fred Larsen, CEO Lamor Corporation.

The Lamor Minimax 12 skimmer, Lamor Multimax 50 skimmer, Lamor Side Collector (LSC) and a few next generation prototype skimmers were tested during a 10-day period. The skimmers were tested with Lamor's new patented Aquatread principle using Alaska North Slope (ANS) crude oil. All skimmers, with the exception of the advancing LSC, were tested in accordance with the *ASTM F 2709 - Standard Test Method for Determining Nameplate Recovery Rate of Stationary Oil Skimmer Systems*.

Larsen notes, "The ANS in Arctic Alaska remains potentially a major contributor to the U.S. domestic energy source reducing reliance on imports. As such, we believe our oil response equipment can operate in these Arctic conditions effectively and efficiently."

"Brooks Range, the geographical region of the northern part of Arctic Alaska covers an area from the Canadian border on the east to the Chuckhi Sea (Outer Continental Shelf) on the west. We need to ensure that our equipment is ready and available for any potential incident and Ohmsett has the perfect facilities to conduct in-depth assessments as close to reality as possible on a global scale," says Larsen.

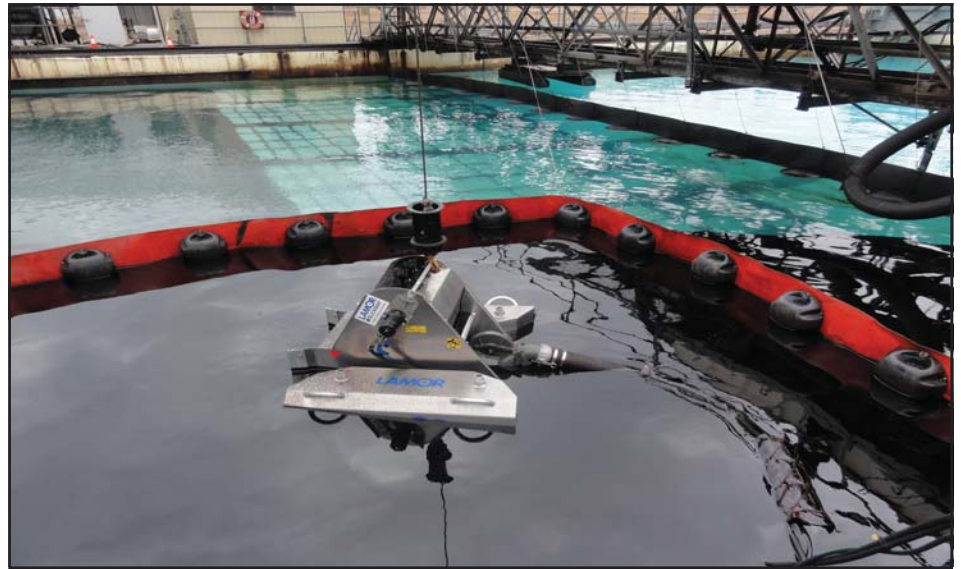
The Aquatread principle is based on modules, which are easy to retrofit onto existing skimmer systems. "Already existing skimmers with proven track records in collecting

heavy oils can now be retrofitted and also collect light oils," explains Larsen. "The capacities exceeded those of earlier tests."

"Ohmsett is truly a professionally planned testing ground for the oil spill recovery cluster industry. The staff at the facility was flexible and very knowledgeable, which made our job run smoothly and gave us valuable

feedback and new information. This is the place to come to conduct any vetting tests of equipment and we definitely will adopt Ohmsett's test program as part of our commissioning for our new technological innovations and solutions for oil spill recovery and clean-up operations," says Larsen confidently and emphatically.

(Source: Thomas Barbieri, Lamor NewsReel)



The Lamor Multimax 50 is tested with ANS crude oil in accordance with the *ASTM F 2709 - Standard Test Method for Determining Nameplate Recovery Rate of Stationary Oil Skimmer Systems*.

Schedule a Test Today!

**If you would like to test your skimmer system to the new ASTM Protocol, please call us at
732-866-7285**

**Visit our website at
www.ohmsett.com
to view the Ohmsett testing and training schedule.**

BOEMRE Director Visit

Continued from page 1

visit from VIPs and the media. Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) Director Michael Bromwich, NWS Earle Commanding Officer Captain David Harrison, U.S. Coast Guard Assistant Commandant for Marine Safety Rear Admiral Paul Zukunft, two congressional staffers, and two media representatives were greeted by facility manager Bill Schmidt. During the visit the guests received an overview of Ohmsett and a tour of the facility where they had the opportunity to observe USCG training.

Corporate Tactical Oil Spill School Provides Hands-on Training

ConocoPhillips' primary objective for spill preparedness is making sure plans and processes are in place for response efforts, and that spill response teams

are trained to respond to significant incidents. As part of this training, ConocoPhillips assembled members from its global Incident Management Assist Teams

(IMATs), as well as various Tier 1 response teams, at Ohmsett for their annual Corporate Tactical Oil Spill School in June. The group was made up of personnel from various ConocoPhillips facilities in the United States, Ireland and Australia, as well several members of the U.S. Coast Guard.

According to Marty Cramer, ConocoPhillips' emergency response coordinator, "Training with oil in the wave tank at Ohmsett is critical in providing the students with an appreciation for the limitations and difficulties in implementing various mechanical recovery and containment options in real world conditions."

During the three-day training program, the team members participated in classroom and field activities. In an effort to maintain engagement and enhance training effectiveness, students alternated between classroom and hands-on tank exercises in two-hour shifts.

The classroom activities included: presentations on dispersants; containment/booming strategies; mechanical recovery (skimming, sorbents, etc.); shallow water and inland response strategies; and demobilization and decontamination. Instruction was led by Marty Cramer and Mitch Istre of ConocoPhillips, John Sweeny and Mike Steinfeld of MSRC, Dennis McCarthy and Rick Case of Clean Harbors Cooperative (CHC), Tim Nedwed of ExxonMobil, and Mark Ploen of Qualitech.

In the Ohmsett tank, students participated in hands-on field exercises using real oil with full-scale equipment provided by CHC and Ohmsett. During these exercises, CHC, ConocoPhillips, MSRC, and Ohmsett staff guided students through various skimming and booming technologies and strategies. This gave the students an opportunity to put information they learned during the classroom training to practical use.

"One of the highlights of the training was a competition to see who was the most efficient at recovering oil in calm and wave conditions in the tank. This not only underscored the difficulties in recovering oil in even small wave conditions but also added a bit of levity to the training," said Cramer.

After the three days of Ohmsett training, students traveled to Linden, N.J., to participate in two days of various field exercises at the ConocoPhillips Bayway Refinery and CHC facilities.



Hands-on skimming exercises become competitive as students see who is most efficient in recovering oil.



Students practice with various skimmers during Tactical Oil Spill training.

Resolute Marine Energy Tests a Second-Generation Wave Energy Converter Prototype at Ohmsett

Resolute Marine Energy, Inc. (RME) returned to Ohmsett the week of June 6, 2011 with a new wave energy converter (WEC) prototype it is developing that captures energy primarily from the surge motion of ocean waves. The SurgeWEC™ prototype is a bottom-mounted oscillating wave surge converter, which was designed and built with the help of computer modeling tools developed by RME over the past year.

"The very first step for cost effective development of WEC devices is through the use of computerized simulation tools that can predict WEC performance in a variety of operating conditions," explained Bill Staby, CEO of Resolute. "We designed and built the SurgeWEC prototype using this information and brought it to Ohmsett where we could verify our computer models by running a series of experiments using different wave conditions in Ohmsett's controlled testing environment."

The experiments were designed to investigate the effects of several parameters on the SurgeWEC performance. The half-scale prototype was positioned in the Ohmsett test tank near the underwater viewing windows in order to allow the RME team to clearly see the device and better understand how it was



A large crane is used to lower the SurgeWEC into the Ohmsett test tank.

reacting to waves. During the test, the team collected data with instrumentation that was attached to the device to measure its performance. They also used sensors, attached to a custom built strut mounted on the Ohmsett main bridge, which measured wave period and height, as well as water particle motions and turbulence.

"We had a wonderful week and collected all the data we needed. The Ohmsett crew was most helpful in enabling these tests," commented Staby. "We were pleased to

have visitors from FERC [Federal Energy Regulatory Commission] and DOE [Department Of Energy] to observe the tests so they could become more familiar with these new renewable energy devices that we hope will be deployed in the near future."

The RME team is in the process of compiling and analyzing the data collected during the Ohmsett tests. According to Staby, the next step will be to conduct ocean trials which he said "will be the ultimate test of the commercial viability of this particular device."



Resolute Marine Energy and Ohmsett built a special-purpose spar to house the instruments needed to measure wave height, wave period, water particle motion, etc., during the evaluation of the SurgeWEC prototype.

MHK Testing Protocols Being Developed

In an ongoing project between the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) and the Department of Energy's National Renewable Energy Laboratory (NREL), the Ohmsett staff is developing a set of standard operating procedures to provide guidance in the testing and scale-up of Marine Hydrokinetic (MHK) devices. The result will be a detailed set of interim protocols based on existing experience and methodologies previously developed in wind energy conversion device testing at NREL, and marine testing in test tank environments at Ohmsett. Efforts will be made to lever-

age existing protocols from the European Marine Energy Center, University College Cork, Det Norske Veritas, Germanischer Lloyd and others, as guidance. Additionally, Ohmsett and NREL will take advantage of the practical knowledge gained from previous and future MHK test projects at the Ohmsett Facility. To add to the knowledge base in this effort, Ohmsett has and will continue to consult with personnel from the Applied Physics Laboratory, University of Washington; Stevens Institute of Technology; the Northwest National Marine Renewable Energy Center; and various members of the commercial MHK community.

Architier Prototype Skimmer Faces Challenging Conditions

Architier of Portola Valley, Calif., is developing innovative technology for oil spill cleanup to compete in the Wendy Schmidt Oil Cleanup X CHALLENGE. During the last week in March 2011, Ike van Cruyningen and his team came to Ohmsett to test their devices in the test basin. Testing allowed Architier to obtain performance estimates, as well as refine and optimize their designs to enhance future oil spill cleanup operations.

While overcoming some challenges during testing, which included the weather (everything from rain, sun, and snow) and equipment, van Cruyningen found the Ohmsett facility a huge benefit for testing the skimmer and pump they developed.

"We've tested without oil in San Francisco Bay in California, but you just can't control the conditions to test different tow speeds and waves. Ohmsett's test basin gives you very fine control over these parameters. We were delighted to find Ohmsett's biggest asset is their test team. With all of our challenges, Ohmsett staff's attitude remained upbeat and they were a joy to work with."

While there were mixed reviews on the skimmer performance, the Architier team appreciated the ability to test it in the Ohmsett tank with waves and oil. "We tested with Hydrocal. The controlled environment is fantastic. When tested on flat water, the skimmer did great. However, we need to work

on operating it in waves. We liked that you can start small and build up to the waves, that way you can figure out whether it is the large waves, choppy waves or sinusoidal waves that cause the problems. We found the small harbor chop is the most challenging. There is still much work to be done on the skimmer," stated van Cruyningen.

The pump test had a very positive outcome. Even though it was not tested with oil, its pumping efficiency was more than what the team had expected. According to van Cruyningen, the next step is to work with the pump vendor to optimize the output. "We hope to come back to Ohmsett and are looking for sponsorship from our vendors."

U.S. Coast Guard Member Reenlists During Training

The U.S. Coast Guard was back at the Ohmsett facility during the last week in June 2011 for their third scheduled Oil Spill Response technician (OSRT) session. The week-long training session activities in-

cluded: classroom training focusing on general USCG oil spill response, safety, and specific SORS/VOSS oil spill response equipment systems; hands-on practical training on specific SORS/VOSS equipment systems; and finally, students were divided into groups and rotated through engineering and deck equipment stations.

The training experience was quite unforgettable for one Coast Guard member. Petty Officer Aurea Vazquez, a reservist who transitioned to active duty, officially reenlisted on the main bridge of the Ohmsett tank while her classmates looked on.

"I was not scheduled to attend the class, but at the last minute I came as an alternate. The reenlistment paperwork just happened to come through during the training and we had LCDR [Lance]

Lindgren conduct the reenlistment ceremony," explained Vazquez. "It was nice to do it differently and have such a memorable experience."

USCG Petty Officer Vazquez originally hails from Boston, Mass. She has been in the reserves for six years and has worked on active duty contracts in Sector Boston as the Sea Partner Program Coordinator and in Port Arthur, TX, providing security for Military Outload Operations (MILOPS). She is currently stationed at Sector San Juan, Puerto Rico in the Incident Management Division. "We are the keepers, so to speak, of the VOSS equipment for District 7."

Coming to the USCG training at Ohmsett was her first experience with the hands-on formal training with oil spill equipment. "In San Juan, I've deployed the VOSS equipment, but really didn't have an understanding of what it was. This training gave me the perspective that I needed," says Vazquez.

With her reenlistment and transition into active duty, she will be stationed at Sector San Juan until 2013.



USCG Petty Officer Aurea Vazquez is sworn in by LCDR Lance Lindgren while attending U.S. Coast Guard training at Ohmsett.

News Briefs

Ohmsett Exhibits at the IOSC

The International Oil Spill Conference (IOSC) was held in Portland, Ore., May 23-26, 2011. The conference provided the oil spill response community an opportunity to exchange experiences and knowledge, and to see first-hand the latest capabilities of leading suppliers of services and technologies.

Ohmsett staff met with current and potential customers at their booth on the exhibit floor where they showcased the facility and the capabilities for testing oil spill mechanical devices, dispersants, and sorbents. In addition, Ohmsett staff presented during the poster session and introduced the new Ohmsett video at the Film Festival.



Ohmsett's Program Manager, Bill Schmidt, meets with Ed Thompson of BP Alaska and Steve McCall from Overseas Shipping Group at the International Oil Spill Conference.

EnergyOcean Features Offshore Renewable Energy

Leading experts in the renewable energy field gathered at the EnergyOcean conference in Portland, Maine, June 13-16, 2011 to discuss the promising possibilities of ocean renewable energy. Conference delegates learned of the latest technological advances, investment opportunities, regulatory issues, as well as planned and implemented projects around the world.

Ohmsett staff attended the conference and manned a booth on the exhibit floor to meet with potential new customers to discuss the facility and its marine hydrokinetic testing capabilities.



Ohmsett Engineer, Alan Guarino, meets with Dr. Neal Brown of Float, Inc. at the EnergyOcean Conference.

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

Editor & Graphics Jane Delgado
Technical Editors Dave DeVitis, Alan Guarino,
..... Paul Meyer, Susan Cunneff

Visit Us At
These Conferences!

RETECH 2011

September 20-22, 2011, Washington, DC
Booth #625

Clean Gulf Conference & Exhibition

November 30-December 1; San Antonio, TX
Booth #221

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 BOEMRE. Mention of trade names or commercial products does not constitute endorsement or recommendation for use. This document has been technically reviewed by the BOEMRE according to contractual specifications.



Testing • Training • Research
Ohmsett is managed by a division of the Bureau of Ocean Energy Management, Regulation, and Enforcement through a contract with MAR Incorporated. For more information call (732) 866-7183 or visit our web site at www.Ohmsett.com



Research

Training

Testing

Ohmsett Facility
MAR, Incorporated
PO Box 473
Atlantic Highlands, NJ 07716
(732) 866-7183