

# The *Ohmsett* Gazette

Leonardo, New Jersey

Test with oil. Train with oil.

Spring/Summer 2008

## USCG R&D Center Tests Subsurface Oil Detection Technology

Sinking oils historically account for only a small percentage of spills, but the environmental and economic consequences resulting from heavy oils sinking can be high. When the oil sinks, it can impact shellfish and other marine life populations in addition to causing closure of water intakes at water treatment facilities and power plants. The underwater environment poses major problems such as poor visibility, currents that can make it difficult to track oil spill movement, problems with containment methods and technologies, and problems with the equipment's interaction with water.

The U.S. Coast Guard (USCG) R&D Center released a Request for Information (RFI) to determine if an existing technology was currently available, or if there was an interest in developing a capability for subsurface heavy oil detection and/or removal. The RFI resulted in a variety of responses and many different detection/recovery technology options. As a result, four vendors with their proposed systems were invited to participate in the first phase of evaluation at

*Remote Sensing continued on page 4*

### What's Inside

Spill Responder Training ..... page 3

Engineering Intern ..... page 4

IOSC 2008 Conference ..... page 5

New Storage Building ..... page 6

## Largest Volume Skimmer Systems Ever Tested at Ohmsett

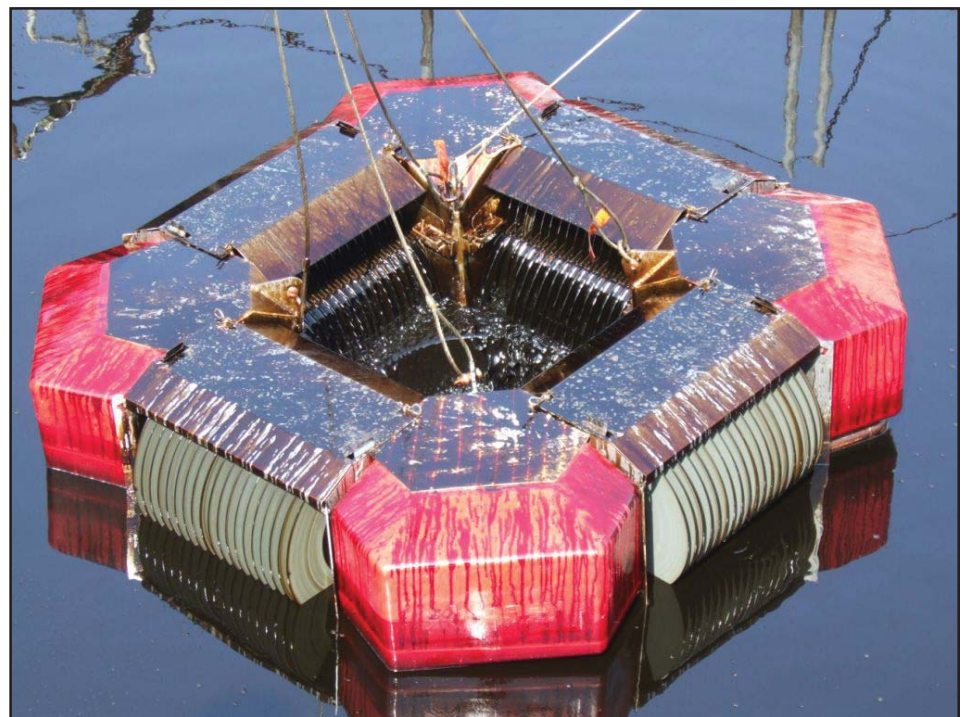
In March of 2008, Tesoro Maritime Company of San Antonio, Texas, came to Ohmsett for a two-week skimmer test, testing to the draft form of the proposed American Society of Testing and Materials (ASTM) Nameplate Capacity Standard. These were the largest volume skimming systems ever tested at Ohmsett.

Tesoro, in conjunction with other shippers for the Prince William Sound, are considering a skimmer testing program to look at ways to enhance the response systems for that region. The shippers include: Tesoro Maritime Company, Sea River Maritime Company,

Alaska Tanker Company, and Polar Tanker. The current skimmers used are FRAMO Transrec 350 skimming systems as part of their response inventory. They came to Ohmsett because of their interest related to effective oil recovery as well as optimizing their response capacity. They currently use a weir type skimming head as the collection device.

The Prince William Sound Shippers tested four different vendor-provided skimming heads for Recovery Efficiencies (RE) and Oil Recovery Rate (ORR). Each skimmer was

*Continued on page 2*



Skimmers were tested using the proposed ASTM Nameplate Capacity Standard.



## Skimmer Systems Tested

Continued from page 1

tested using the draft version of the ASTM Nameplate Capacity test protocol and was tested using fresh Alaska North Slope crude oil (ANS), as well as weathered ANS to simulate the increase in viscosity as spilled oil is exposed to the elements.

"Ohmsett is really a great opportunity for the manufacturers to test their wares," said Eric Haugstad, director of contingency planning and response for Tesoro.



The oil distribution system and recovery tank manifolds were fitted with a six-inch pipes for safe pumping and distribution of oil.

More than 30 representatives from the funding companies of the tests (oil and shipping companies), the purchasers and potential users of the skimmers (oil spill response organizations, consultants, and manufacturers), state and federal regulatory agencies and non-governmental organizations, attended and participated in the two-week test series.

"The shippers are making this as transparent as possible," said Haugstad. "It gives us the opportunity to get feedback for lessons learned. This is the difference between paper and reality."

Before the tests started, special modifications of the Ohmsett oil distribution system and recovery tank manifolds were required to safely pump and distribute the required amounts of crude oils for each test. The Ohmsett engineering and technical staff designed and built a new six-inch diameter oil distribution and recovery tank manifold system. This was quite an engineering job.

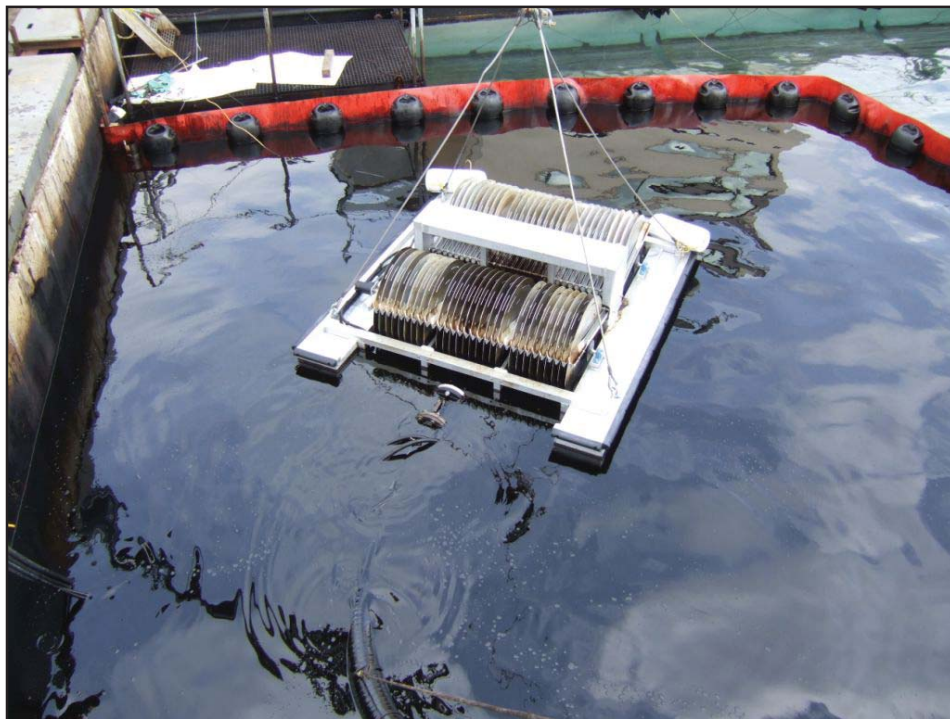
"This is the first time that we have used the six drum configuration in the Ohmsett tank," said Stewart Ellis of Elastec/Ameri-

can Marine, manufacturer of the grooved drum skimmer. "Testing is vital to the understanding of skimmer performance under different conditions, we look forward to testing more skimmers to the new ASTM Protocol."

As directed in the ASTM draft protocol, a 7.3m x 7.3m area was boomed off in Ohmsett's main test tank. Skimmer #1 was rigged in the boomed area so that its cargo line discharged to calibrated recovery tanks located above the skimmer. A total of 4100L of oil was delivered to the test area to create a slick 75mm thick.

During timed runs, the skimmer was operated until it removed approximately 1400L of oil (the equivalent of a 25mm thickness slick). The skimmer was stopped, the test area was replenished with fresh (ANS) so the starting slick thickness was again 75mm, and the test was repeated. When skimmer #1 was finished testing in fresh ANS, it was removed from the tank, along with all its test oil, and skimmer #2 was tested using the same protocol with fresh ANS. Skimmers #3 and #4 were tested in the same fashion. Following the fresh ANS tests, the series was repeated using ANS that had been weathered by heating and air sparging.

"We were pleased to be invited by the shippers to be included in the series of tests," said Wally Landry of Crucial, Incorporated. "This was the first opportunity to test our equipment at Ohmsett. We got some ideas for improvements while watching it in static mode. The improvements should make it more effective in an actual spill situation. We would like to come back to test in the dynamic mode."



One of four skimmers tested to the draft Nameplate Capacity Standard Protocol developed at Ohmsett.

Visit our website at  
[www.ohmsett.com](http://www.ohmsett.com)  
to view the Ohmsett testing and  
training schedule.

To schedule a test at Ohmsett  
call 732-866-7183 ext. 11

# Ohmsett To Offer Two New Oil Spill Training Courses

Ohmsett is the premier training site for spill response personnel from private industry, academia, and government agencies. Ohmsett is an ideal venue for training oil spill responders in the deployment and operation of mechanical oil spill containment and skimming equipment. The Ohmsett Oil Spill Responder course is a comprehensive program that emphasizes classroom exercises and practical hands-on use of full-scale equipment used in conditions that simulate an actual oil spill.

The U. S. Coast Guard (USCG) and Texas A&M National Spill Control School, a recognized specialist in hazardous material spill training, have forged a strong relationship with Ohmsett by making the facility their primary training location. All of Ohmsett courses offer the unique capability to practice collecting real oil, not surrogate materials, with a variety of response equipment.

Two new courses have been added to the schedule this year. In addition to the Ohmsett Oil Spill Responder course and the USCG training, Ohmsett will offer Spanish Language Oil Spill Response and Strategies Training, and Dispersant Training for the Oil Spill Responder.

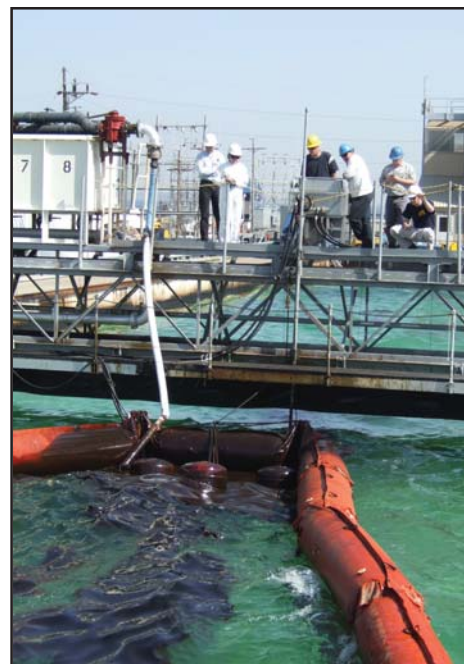
The Spanish language course is a five-day course taught by Texas A&M National Spill Control School instructors. During the training, students will learn the decision-making and responder skills essential to efficient oil spill response/recovery operations. All aspects of the course are taught either in Spanish or with expert interpreters. This course will be taught in August 2008.

The program, along with our regular Oil Spill Management Course, is the only program where students practice hands-on oil recovery operations in the test basin using real oil in waves. It incorporates the National Incident Management System (NIMS) Incident Command System (ICS) training, including Series ICS-100, the Incident Management Handbook and ICS forms, all of which are integrated into a table-top spill response exercise the last day of the training. Upon completion, students will receive FEMA ICS-100 and NIMS IS-700 certifications and the National Spill Control School certificate of completion, which includes the 8-hour HAZWOPER refresher.

The Ohmsett Dispersant Training, which

will be offered in late 2008, is designed to provide responders, planners and government regulators with experience in the basics of oil spill behavior, basic dispersant applications use on spilled oil, and assessing dispersant effectiveness using a range of methods. This two-day course will include experience with on-tank dispersant testing using the Ohmsett protocol and using dispersant effectiveness monitoring methods, particularly fluorometry as in the SMART protocol.

Ohmsett's experience and expertise allows students to increase their recovery proficiency while receiving state of the art training. Increased training options, satisfied students, and the ability to use real oil make Ohmsett unique in the oil spill community. Responder training programs can be tailored to meet client's specific needs. For more information about training courses at Ohmsett, contact the Ohmsett Training Coordinator at 732-866-7183 ext. 12.



**Top:** Students practice skimming oil during the hands-on training in the Ohmsett tank.

**Bottom:** Boom deployment is one of the training exercises during the Ohmsett Oil Spill Responder Training taught by first-class instructors from the Texas A&M University National Spill Control School.

# High Technology High School Student Mentored at Ohmsett

High Technology High School (HTHS), located on the Brookdale Community College campus, has a long



**Intern Brian Shell shoots video footage of a skimmer oil recovery test.**

standing relationship with Ohmsett, bringing students to the facility for tours and providing Ohmsett staff with interns. Most of the interns come here looking for a unique experience - one that is not found in a typical engineering setting.

Brian Shell, a senior at HTHS, came to Ohmsett during the winter and spring months this year with the hopes of learning more about environmental research, specifically oil spill research.

"I had worked with instructors at Rutgers in bioremediation and wanted to expand on that," said Shell. "At Rutgers, I was looking at pollution and doing at-scale research. Here at Ohmsett, I'm looking at oil spill research at full-scale. High Tech High has opened the door for research in an academic setting and a government setting."

During the mentoring program at Ohmsett, he has helped the staff with photographic and video documentation of tests, research of alternative energy, and other tasks. On one particular occasion, Brian was able to

work extra hours alongside the staff during a skimmer oil recovery test.

"I video taped the test and did other odds and ends - whatever I could do to help out," said Shell. "It was good to see a complete full-scale test."

Brian completed his mentorship at Ohmsett in May and will graduate from High Technology High School with an engineering diploma. With an interest of going on to college to earn a degree in environmental engineering, he has been accepted to Johns Hopkins University with a full scholarship.

"This was my first choice school because they have a great department for environmental engineering. There's a good ratio of students to professors," commented Shell. "Research was the qualifier for the scholarship. During the interview I could talk about my experience with Rutgers [University] and here at Ohmsett."

"I got exposed to so many different things here at Ohmsett - it's been a great experience."

## Remote Sensing

*Continued from page 1*

the Ohmsett Facility in late November, early December 2007.

The technologies selected for evaluation included a Multibeam Sonar device, a Laser Line Scan System, a Fluorescence Polarization System, and Real-Time Mass Spectrometry. It is anticipated that a combination of sensors may be needed in order to search and confirm the location of submerged oil.

The objective of the Ohmsett test was to evaluate the capabilities of proposed systems to identify the presence of heavy oil on the sea floor with 80% certainty from at least one meter away, provide real time data, provide data for all sea floor conditions (sandy, rocky, and gravel bottom types; vegetation and shellfish-covered bottoms; and over flat and sloped areas) and operate in fresh and salt water conditions equally as well.

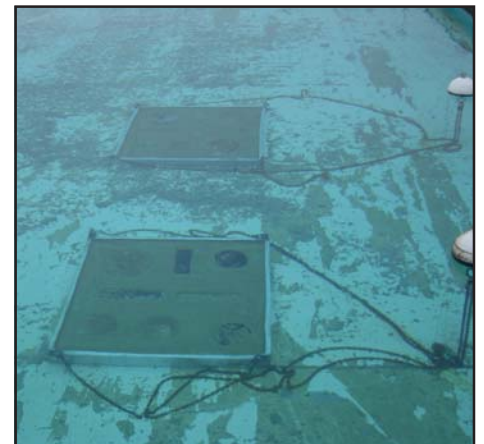
The Ohmsett facility developed a testing environment to meet the needs of the USCG R&D Center by creating six meter-square platforms in which sand beds were placed.

Within the sand beds, numerous sunken oil targets were formed using three different types of hydrocarbons, Sundex (as standard facility refined oil), heavy fuel oil (#6 oil), and a roofing tar. The test oils were modified to increase their specific gravities to approximately 1.2 to behave as sunken oil. This was accomplished by adding barium sulfate (BaSO<sub>4</sub>).

Each instrument was tested from the Ohmsett main bridge, except for the real-time mass spectrometer. Sensing units were mounted from the Main Bridge tow points, which themselves reside on rollers and rails, and the electronics were located in the climate controlled bridge house. The Main Bridge was operated at various speeds ranging from 0.1m/s to 1.5 m/s, simulating a vessel mounted system passing over sunken oil. The mass spectrometer was evaluated in a smaller inside test tank due to its unique configuration.

The oil detection and scanning tests were

reported by each vendor to the USCG R&D Center for development of a possible second phase of research.



**Sunken oil targets were built on platforms and positioned at the bottom of the Ohmsett tank. Sensing units were mounted on the Main Bridge and towed at various speeds over the targets.**

## Ohmsett Attends IOISC 2008 in Savannah, Georgia

The 2008 International Oil Spill Conference (IOSC) opened on May 4, 2008 at the Savannah Trade & Convention Center, Savannah, Georgia, with on-water demonstrations of a variety of vessels, aircraft, and spill response equipment, as well as, the fanfare of a marching band parading down the isles of the exhibition hall.

Supporting the conference theme of "Creating a Culture of Preparedness," over 1,600 people from 53 countries attended the technical sessions and viewed more than 250 exhibits to network and discuss new opportunities in oil spill response, testing and research.

Featured plenary speakers at the conference included U.S. Coast Guard Admiral Thad Allen, and Mr. John Chatterton and Mr. Rich Kohler from the Discovery Channels "Deep

Sea Detectives".

Ohmsett Program Manager Bill Schmidt, Test Director Dave DeVitis, and Marketing Specialist Jane Delgado greeted customers at the Ohmsett booth located on the exhibition floor and provided them with information on testing, training and research opportunities available at Ohmsett. Highlighted this year was the announcement of two new training courses: Spanish Language Oil Spill Response, and Strategies Training and Dispersant Training for the Oil Spill Responder.

The Minerals Management Service (MMS) was not only an important sponsor of the conference, but a leading contributor to almost every facet of the conference. MMS personnel were involved in overseeing the Science and Planning and Preparedness plenary sessions, and assisted session chairman with the reviews of the scientific papers and coordination of their ses-

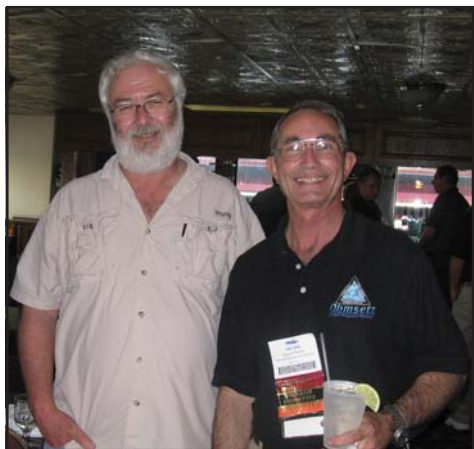
sions. In addition, six MMS-funded oil spill response research projects were presented at the conference.

Of notable mention, MMS was responsible for running the 2008 IOSC Film Festival. At Tuesday's luncheon, Joe Mullin, MMS Oceanographer, presented awards for the best films. The two award winners of the IOSC Film Festival were: Lisa Symons, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, Maryland, for the video entitled: "NOAA's Emergency Response Program - Safe Sanctuaries 2005," and Trond Eliassen, News On Request, Bodo, Norway and Mr. Jan Erik Fester, StatoilHydro, Stavanger, Norway, for the video entitled: "StatoilHydro - Emergency Response 2008."

For Ohmsett, the highlight of the conference was a customer reception hosted by the MMS, MAR Incorporated, and Ohmsett staff. It was a glorious evening cruising along the Savannah River onboard the Georgia Queen Riverboat, as guests and staff had an opportunity to take a break from conference sessions and network with fellow industry representatives about current issues in oil spill response research, testing, and training.

During the reception, MAR Chairman and CEO Mike Norcio introduced new members of the oil spill industry to the Ohmsett facility capabilities and expressed thanks to current customers and friends for their continued support.

The IOSC, in cooperation with the Interspill and Spillcon conferences, is held on a three-year cycle. All three conferences provide a unique opportunity and venues for experts from around the world in spill prevention, preparedness, response, and restoration, to share information.



**Top Left:** Ian Buist, SL Ross Environmental Research Ltd. and Joe Mullin, MMS enjoy the cruise on board the Georgia Queen.

**Top Right:** Bill Schmidt, Ohmsett and Dennis McCarthy, Clean Harbors Coorporative at the customer reception cruise.

**Bottom:** Bill Schmidt, Ohmsett; Joe Mullin, MMS; Jane Delgado, Ohmsett; Sharon Buffington, MMS; Matthew Quinney, MMS at the Ohmsett booth on the exhibit floor.

# Construction of a New Storage Building at Ohmsett

The Ohmsett Facility conducts numerous testing, research, and training programs that require specialized oils and equipment. To protect the equipment and store an inventory of the oils and other materials, the Minerals Management Service (MMS) funded the construction of a storage building to house oil handling equipment, and supporting systems (pumps, hoses, and adapters), various quantities and types of crude oils, as well as dispersants and the associated transfer/application system.

Ground breaking took place in October, 2007 on the Ohmsett compound in the area north of the tank farm. KSI Professional Engineers developed a detailed Engineering Design/Solicitation Package for the construction of the oil and equipment storage building that contained technical specifications and design drawings. Jayeff Construction Corporation was contracted to complete the construction project.

Because of the scope of this project, it was done in two phases. During the first phase, pilings were driven into the ground to support the structure, a grade beam foundation was poured for the HAZMAT Storage Area, rebar installed, a ramp constructed, and the design specifications for specialty doors and windows, lighting and a fire suppression system. Since approximately 25% of the total building area will be allocated to crude oil storage, this area was designed to have explosion proof lighting and fixtures, special ventilation, containment, and fire protection.

Phase two of the construction, which is anticipated to be completed by the end of 2008, will be the final construction of a metal Butler-style building; installation of the heating and lighting, ventilation system, doors, windows and overhead door; and install stone for grading around building, pressure treated stairs, and guard rail for the building.



**Top: A reinforced concrete foundation is poured for the HAZMAT storage area (bottom).**

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to update our readers on activities at the facility.

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## Community Relations

### MMS Director Visits Ohmsett

On April 16, 2008, Minerals Management Service (MMS) Director Randall Luthi, and Chief of Staff, Holly Hopkins spent the afternoon visiting Ohmsett. They were shown a slide presentation of the testing, training, and research conducted at Ohmsett, followed by a tour of the facility by Joe Mullin, oceanographer with the MMS Engineering and Research Branch.

After the tour, Mr. Mullin conducted a power point presentation entitled “Response to Oil Spills in Ice: Current State-of-the-Art.” The overview briefing included the research that MMS is currently conducting to improve oil spill response in broken ice.

**From left: Ohmsett Program Manager, Bill Schmidt; MMS Chief of Staff, Holly Hopkins; MMS Director, Randall Luthi; MMS Oceanographer, Joe Mullin; MAR Incorporated CEO, Mike Norcio.**



### Congressional Staff Tour Ohmsett

On May 29, 2008 Steve Feldgus and Kathleen Benedetto, legislative staff members from the U.S. House of Representative Committee on Natural Resources, and Julie Fleming from the Minerals Management Service (MMS) Office of Congressional Affairs visited Ohmsett for a presentation, tour, and a look at a calm sea dispersant application test.

During the visit, Joe Mullin, oceanographer with MMS, conducted a presentation of the history of Ohmsett and the type of testing, training, and research performed at the facility. After lunch, the guests gathered for a tour of the facility where they had the opportunity to speak with Ken Trudel of SL Ross Environmental Research Ltd. who was conducting an MMS-funded research project on calm sea dispersant application.

The tour was followed by a presentation which highlighted current MMS research on response to oil spills in broken ice and a question and answer period.



**Ken Trudel explains the calm sea dispersant project. From left to right: Ken Trudel, Kathleen Benedetto, Julie Fleming, and Steve Feldgus.**

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