Recent Testing and Research Conducted at OHMSETT

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OSPR-Chevron Workshop
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OHMSETT
The National Oil Spill Response Research & Renewable Energy Test Facility
The OHMSETT Test Facility

- Largest oil spill test tank in North America
- 203 meters (667 feet) long
- 20 meters (65 feet) wide
- 2.4 meters (8 feet) deep
- 10 million liters (2.6 million gallons)
- Open ocean salinity (35 ppt)
Where is OHMSETT?

- Located in Leonardo, New Jersey
- One hour south of New York City
- Nearby airports:
  - Newark
  - LaGuardia
  - JFK
Mechanical Recovery

- Elastec/American Marine
- Lamor
- Maritime Development Group
- NorLense, AS
- Husen Oil Shaver
- Qingdao Sunic-Ocean Marine T&S Co., Ltd
- Norwegian Clean Seas Association for Operating Companies (NOFO)
Elastec/American Marine

- Grooved drum skimmers
  - Magnum 100
  - TDS-136
- Grooved disc skimmer
  - X150
- All three skimmers tested in stationary mode
  - Test oil: Calsol
- X150 tested in advancing mode
  - Tow speeds from 1.0 knots to 3.0 knots
  - Calm and wave conditions
  - Test oil: Hydrocal
• Three systems
  – Minimax 60 skimmer
  – LNXG 100 concept skimmer
  – LNXG 1000 concept skimmer

• Tested in stationary mode
  – System settings were continuously varied during testing
  – Test oil: Hydrocal

• LNXG 1000 concept skimmer also tested in advancing mode
  – Tow speeds from 0.5 knots to 4.0 knots
Maritime Development Group

- MOS Sweeper System
  - Calm and wave conditions
  - Towed at speeds up to 5.0 knots
  - Evaluated:
    - Towing stability
    - Oil recovery rate
    - Recovery efficiency
  - Test oil: Calsol
Norlense Oiltrawl

• Tested recovery efficiency in advancing mode
• Calm and wave conditions.
• Test oils:
  – Sundex 790
  – Hydrocal 300
Husen Oil Shaver

- High speed system
- Performance testing in calm and wave conditions
- Evaluate oil loss in towing speeds of 3 and 4 knots
Qingdao Sunic-Ocean Marine T&S Co., Ltd

• R&D prototype advancing skimmer system
• Combines four technologies:
  – Sunic-Ocean Marine DIP 200 belt skimmer
  – Induction pump
  – Vacuum recovery system
  – Automatic control system
• Evaluated:
  – Oil recovery efficiency in waves and currents
  – Throughput efficiency in wave sand currents
  – Dependability of the automatic control system
  – Reliability of the induction pump
• Test oils:
  – Hydrocal
  – Calsol
Norwegian Clean Seas Association for Operating Companies (NOFO) Skimmer Tests

• Three skimming systems
  – Lamor
  – Desmi
  – Frank Mohn AS

• Evaluated:
  – Oil recovery rate
  – Oil recovery efficiency

• Test oil: Sundex
NOFO: Lamor LFF100

- Stationary Mode
- Advancing in oil
NOFO: Frank Mohn AS
Framo HiVisc 150 Skimmer Head

- Stationary Mode
- Advancing in oil
NOFO: Desmi Octopus

- Stationary Mode
- Advancing in oil
Research & Development

• Remote detection of spilled oil on surface water
  – Ocean Imaging
• Detection and recovery of submerged oil –
  US Coast Guard Research and Development Center
  – Alion
  – Marine Pollution Control (MPC)
  – Oil Stop/AMPOL
Remote Detection of Spilled Oil on Surface Water

- Ocean Imaging
  - Multispectral imagers mounted on the Main Bridge crow’s nest
  - 12 4-ft. sq. targets filled with various thicknesses of oil were placed on the surface of the test tank
U.S. Coast Guard R&D Center
Detection and Recovery of Submerged Oil

• Three systems:
  – Alion
  – Marine Pollution Control (MPC)
  – Oil Stop/AMPOL

• 1600 sq. ft. test plot at the bottom of the testing tank

• Test plot covered with sediment and debris to simulate a sea floor or river bed

• Test plot filled with different quantities and thicknesses of oil (Tesoro Decant Oil and Sundex 790)
Hurricane Sandy Recovery

• Damage Assessment
  – Equipment storage building completely destroyed
  – Newer equipment storage building was heavily damaged
  – Flood water in the electrical room, filter building, machine shop, and lab
  – Tank water down to 2 ft.; crack in a 12-inch filter pipe
Hurricane Sandy Recovery

• Refilling the Test Tank
  – Pump water from Sandy Hook Bay
  – 2.6 million gallons (8 ft. depth)

• Testing Resumed
  – November 26
OHMSETT

The Bureau of Safety and Environmental Enforcement’s (BSEE) National Oil Spill Response Research & Renewable Energy Test Facility

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