



Renewable Energy Testing Capabilities at Ohmsett

Ohmsett, the Bureau of Safety and Environmental Enforcement (BSEE) National Oil Spill Response Research and Renewable Energy Test Facility, is the premier oil spill training facility for response personnel. Testing at Ohmsett strengthens awareness of oil spill pollution prevention and response methods, while providing an environmentally-safe place to conduct objective testing and to develop devices and techniques for the control of oil spills. This is the only facility where full-scale oil spill response equipment testing, research and training can be conducted in a marine environment with oil under controlled environmental conditions (waves and oil types).

BSEE also collaborates with research institutions and industry on testing wave and current energy systems at Ohmsett. Ohmsett is one of the largest outdoor saltwater tanks in North America designed to evaluate the performance of full-scale and intermediate size equipment under realistic environmental conditions. The facility is operated by BSEE through a contract with MAR, Inc. Ohmsett is located on Naval Weapons Station Earle in Leonardo, New Jersey (approximately one hour south of New York City).

Ohmsett provides a facility for testing, research and development of intermediate size equipment for ocean wave and current technologies in a controlled environment. The wave generator creates realistic sea conditions while state-of-the-art data collection and video systems record test results.

Ohmsett has extensive experience working with government agencies, academia and private companies on research projects. This work includes testing concepts for new products not yet in production and studies for innovative technologies. Experienced Ohmsett staff is available to help with performance testing of equipment and provide data that will assist with product improvements.

Facility Features:

- classroom with state-of-the-art multimedia and audio-visual equipment
- machine shop provides a complete range of materials, fabrication and welding services
- ample indoor and outdoor work space to prepare and modify test equipment
- on-site chemistry laboratory
- complete meteorological station for continuous weather measurements
- controlled reproducible conditions
- test protocol development
- data collection and video system
- underwater video/viewing capabilities
- 15,000 pound forklift
- onsite deck crane with a 42 foot reach lifts devices up to 1500 pounds
- offsite 75 ton crane available

Wave Tank:

- large outdoor, above ground concrete test tank
- 667 feet (203 meters) long
- 65 feet (20 meters) wide
- 11 feet (3.5 meters) deep; 8 feet (2.4 meters) nominal operating water depth
- holds 2.5 million gallons (10 million liters) of water maintained at open ocean salinity
- contains a wave generator capable of producing harbor chop waves and wave spectra
- three movable bridges with tow speeds of up to 6.5 knots to simulate ocean current flow
- tow bridges accommodate the torque and forces of the largest current turbines and wave energy converter equipment
- control tower with fully computerized 32-channel data collection system
- sensors and video cameras collect data for synthesis and analysis
- filter system keeps the water clear for sophisticated underwater photography and video imaging during testing
- tank water is clarified through a filter system capable of processing the tank in 24-hours
- an electrolytic chlorinator controls biological activity

Wave Characteristics:

- regular waves as high as 3 feet (one meter)
- simulated harbor chop waves (randomized waves)
- wave generator system can produce standard wave characteristics types
- wind velocity and scale controlling parameters
- Recent wave maker improvements were made to generate realistic waves that can be used by researchers testing the performance of hydrodynamic energy converting devices