

The *Ohmsett* Gazette

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**** Hurricane Sandy Special Edition ****

The Ohmsett Test Tank Holds Up During Superstorm Sandy

While weather forecasters were predicting Hurricane Sandy's path to pummel the New Jersey shoreline on Monday, October 29, 2012, the Ohmsett facility was a flurry of activity the Thursday before the storm as the staff prepared for the worst.

In preparation for the hurricane, the Ohmsett staff arranged for the removal of approximately 30,000-35,000 gallons of oil to higher ground on a concrete pad and in a fenced-in area. The facility was prepared by securing equipment, filling the empty tanks in the tank farm with salt water from the test basin to ballast the tanks to prevent damage from becoming buoyant should the facility flood, and the power was shut down.

The area was evacuated by early Monday, October 29 when water starting rising. "This was the second major hurricane to hit the area in two years," commented Bill Schmidt, program manager at Ohmsett. "We had a plan in place and started the preparations immediately."

The Superstorm

While Hurricane Sandy was classified as a Category 1 storm off the coast of the North-eastern United States, the storm became the



A satellite view of the Superstorm.



The Ohmsett test tank after the hurricane. The water level in the tank was only two feet; full capacity of the tank is eight feet.

largest Atlantic hurricane on record. Early on October 29, Sandy curved north-northwest and then moved ashore near Atlantic City, New Jersey as a "post-tropical cyclone" with hurricane-force winds causing extensive damage all along the East Coast.

Damage Assessment

On Tuesday, October 30, Naval Weapons Station Earle officials notified Mr. Schmidt of significant damage to the facility. Schmidt and one technician were allowed on-site to begin initial damage assessment and start cleaning up the debris. "The damage was quite substantial. The storm completely

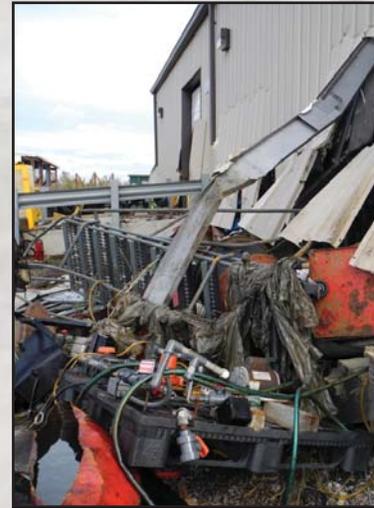
destroyed one of our equipment storage buildings; much of its contents were carried by the seven-foot surge from the Sandy Hook Bay and had to be retrieved from the middle of the road, fence line and marsh area," said Schmidt. "The other, newer storage building was heavily damaged as well. There was flood water in the electrical room, filter building, machine shop, and lab. The classroom and offices were not affected."

Cleanup efforts began that same day, but were hampered by the lack of power and a limited supply of fuel to the whole county. Assessments of the damage included a

Continued



The equipment storage building (Boat House) was completely destroyed by Hurricane Sandy. Ohmsett staff needed to take inventory of salvagable equipment and place orders for new equipment needed to get the facility operational again.



The equipment storage building was also damaged. Staff made use of other buildings to provide a place for equipment.



Ohmsett Technician working on equipment operation as the facility is being opened up.



Building (R24A) was in need of temporary repairs to prevent flooding.



The secondary containment area (Lake Zelman) was flooded due to a crack in a 12-inch filter pipe.



Technician Don Snyder checks the pumping station as the tank is refilled in preparation of re-operations.



The filter room was underwater and an air compressor was ripped off its mounts during the storm.

survey and photographic documentation of the tank, buildings, equipment, and major systems. A cursory inventory was conducted and detailed notes were taken.

Cleanup and Repairs

As more staff was allowed into the facility and cleanup progressed, equipment was moved to a central area so they could conduct an inventory of serviceable equipment. Staff engineers lead a very detailed survey of the major systems. The water in the test tank was down to about two feet and the secondary containment area was filled with water. Once the water was pumped out of the containment area, they were able to inspect the pipes to determine that a crack in a 12-inch filter pipe was the culprit of the tank discharge.

On Wednesday, November 7, after nine days without electricity, power was restored to the facility, just in time to prepare for a Nor'easter which was predicted to hit the area that afternoon. The Nor'easter deposited three inches of snow on the already battered New Jersey and New York area. Ever resilient, the staff was back to work the next day to continue cleanup efforts.

Energy Solutions, LLC was contracted to disconnect, clean, test and reconnect multiple electrical feeder cables for the main bridge drive system, tank farm heater, chiller panel, wave generator, and air compressor. Receptacles in the tank farm that were submerged in the flood were replaced, as well as other electrical components (compressor cooling fan, lighting, and switches) located in the filter compressor building, which was flooded with about six inches of water. In addition, Ohmsett staff began testing electrical circuits in the filter building, isolating circuits damaged when the filter compressor and an HVAC located outside the building were ripped off their mounts. After repairing damaged wiring in the electrical room, the

staff was able to move the main bridge using one of the two motors.

Refilling the Test Tank

As cleanup progressed with the help of a 12 person crew from the Navy base to clear Normandy Road of equipment and debris, and six additional laborers at the Ohmsett facility, it was time to refill the test tank. Arrangements were made for the Navy Crane Service to hoist 1500 feet of hose, a fork lift, hydraulic power unit and associated inline pump onto a section of the Navy pier as Ohmsett staff positioned the equipment for the refill/pumping operation.

Several staff members worked over the weekend to continue rolling out the six-inch lay-flat hose used to draw water from Sandy Hook Bay to refill the test tank. Since the seabed in this region has a fairly shallow pitch, at low tide the water is a considerable distance from shore, the Navy granted Ohmsett permission to use the pier that extends out into the bay. Ohmsett technicians rolled out the hose a quarter of a mile down the pier to reach water deep enough at low tide. They setup a pumping station consisting of a 100 hp diesel powered hydraulic unit to drive an in-line pump. They ran additional hose from the base of the pier to Ohmsett's test tank. By midday on November 10, the technicians were able to start pumping operations to refill the tank. The water level of the tank rose at a rate of one inch an hour. By the end of the day, the tank level was at almost three feet (normal operational depth is eight feet).

On November 15 after five days of the technicians working in two shifts from 7 a.m. to 11 p.m., the test tank water level approached seven feet and was ready to be filtered. The technicians connected a diesel powered air compressor to the air supply line in order to operate the test tank water filter. At the end of the day, the refilling opera-

tion was completed. Now that the tank was refilled, Ohmsett staff continued to repair/rewire the bridge drive, and operate the tank water filtration system.

Testing Resumes

Over the next few days, temporary repairs were made to the damaged storage building to provide a place for equipment. Staff sorted nearly 150 drums of test oil to determine the condition of the drums and their contents, and which drums should be disposed of or retained on site for future use. In the final stretch to re-open for testing, gravel was delivered to fill-in the parking lot; dumpsters were emptied; and customers were notified that testing would resume on Monday, November 26.

"It's amazing what has been accomplished in four weeks. The staff was very dedicated throughout the whole process. Even though they had damage at their own homes, they came in to cleanup and make repairs to get the facility operational again," said Schmidt. "Our vendors, who we have worked with over the years, really came to our aid and made it possible to resume testing in a short period of time."

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