

MassDEP - Storm Stories

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There's an old saying about March – “in like a lion, out like a lamb” – referring to its normally stormy beginnings as winter winds down and a gradual transition to the spring-like days of April. Well, March 2010 was more like “in like a lion, out like lion” as Massachusetts was hit with two 50 year storm and flood events in less than a month. While it's MassDEP's job to “protect the environment,” sometimes this means protecting the environment – from itself! This month, we'll relay a summary of the storm related incidents. And, since April 22 is the 40th Anniversary of Earth Day – we'll give a nod to a couple of interesting alternative energy projects on closed sites and landfills.

WHEN IT RAINED – IT Poured ... AND Poured... AND Poured...

The storms started at the end of February – but the consequences (and the cleanups) were felt well into early April.

February 26-27, NERO was a preview of coming attractions: Emergency Response (ER) activity during the period of February 26-27 was originally said to be “unusually high” due to a winter storm that impacted the eastern portion of Massachusetts. The storm in question was characterized by “high winds and heavy rain.” Some of the events resulting from the storm included:

- Multiple transformer oil releases in the municipalities of Peabody, Revere, Haverhill and Burlington;
- Sewer overflows and/or related issues in the communities of Lynn, Billerica and Lawrence;
- A propane release when a tree hit a 1,000-gallon propane tank at a condominium complex in Rockport;
- Homeowner fuel oil releases in Billerica and North Reading that occurred due to flooding; and,
- A floating drum partially filled with marine engine oil found in the Little Mystic Channel in Boston, believed to have been blown into the water by the heavy wind.

March 11-14, NERO: ER personnel took reports of environmental emergencies, and followed-up on several releases of oil and hazardous materials that resulted from the rain and flooding. The Northeast Region noted that the reports of flood-related emergencies hadn't been as high as anticipated, possibly because the rivers took a day or two to crest, and the affected municipalities had only begun inspecting affected buildings toward the end of the week. Nevertheless, MassDEP logged, responded/provided assistance to several reports each of:

- Sewage overflows;
- Oil sheens in rivers including the Mystic, Concord and Shawsheen;
- Coastal sheening; and
- Oil in flooded basements from the fuel storage tanks.

March 15, Shrewsbury: ER personnel responded to the Shrewsbury Residue Landfill, operated by Wheelabrator, following a release of 450 cubic yards of ash from a slope failure due to heavy rains. The slope failure allowed thousands of cubic yards of ash to flow into a surface water/leachate collection 'pond', causing a large wave of water and ash to flow across the pond, over the access road to the other side, where it continued down a steep embankment into wetlands and a brook. Wheelabrator engaged a Licensed Site Professional (LSP) to assess the release and notified MassDEP of the problem, based on suspected high concentrations of heavy metals likely exceeding the Reportable Quantities for cadmium, lead, and phosphorous. They responded quickly by deploying a silt fence and hay boom to the wetland and using vac trucks to remove the ash from the wetland and surface water. A vac truck also pumped water from the leach pond, since the wave of ash disabled the piping system that normally sends the surface water and leachate from the pond to treatment. The ash is being removed from the access road and embankment back into the landfill. Multiple MassDEP programs coordinated responses for this unusual notification.

March 18, Clinton: ER responded to several residences in Clinton along the Nashua River where severe flooding occurred due to excessive rainfall. Basements were fully or partially filled with water, causing a number of ASTs in the basements to float and overturn, releasing oil into flooded basements. MassDEP retained a state contractor to respond with vacuum trucks and absorbents and to assist the Clinton Fire Department in recovering free phase #2 fuel oil and pumping out the basements. Remaining fuel oil in the ASTs was also removed to eliminate any further threat of release. During the response, an unexploded 90 mm blank projectile cartridge was uncovered in the basement of one of the residences. The State Police Bomb Squad was called to respond and dispose of the cartridge.

March 19, Shirley: ER responded to a call from the Shirley Fire Department for a tipped 275 gallon AST at a mobile home near the bank of the flooded Nashua River. The excessive rainfall caused severe flooding in a neighborhood of mobile homes. In several cases, the flooding caused water to partially fill the homes' first floors. Upon inspection, it appeared minimal #2 fuel oil was recoverable and the Shirley Fire Department deployed absorbents to absorb the available free phase oil. The Fire Department and homeowner made arrangements with a local heating oil company to remove the remaining oil from the tipped AST.

March 23, Freetown: MassDEP met with several State and Federal agencies and Representative Stephen Canessa, bringing together personnel from Lakeville, New Bedford, Taunton, Freetown and Middleborough to discuss the high water and flooding issues in the Assawompsett Pond Complex and Nemasket River. The Representative's office was responding to phone calls from concerned citizens about the high water affecting properties. This meeting allowed discussions between parties to try to identify possible solutions to the flood-related problems.

March 30, Berkley: A citizen called MassDEP due to concerns regarding a neighbor's oil tank and numerous cars, and the possibility that the flood water could cause an oil release. ER responded but found no evidence of a release. Several vehicles were observed partially submerged, but did not appear to be leaking fuel or other petroleum.

March 30, Norton: ER received notification of a release of oil from a 1,000 gal UST. The UST had no fill cap and the heavy rain entered the UST displacing oil. The oil pooled on the ground surface, then flowed onto the pavement and into a nearby storm drain. From the storm drain, the oily-water mix discharged onto a golf course and a small ponded area. Sheen and emulsified oil were observed in ponded water on the golf course. The Fire Department (FD) built two berms to contain the oil and the FD and MassDEP deployed absorbent pads to the pooled water area and booms around catch basins near the ponded water on the golf course. The owner hired an LSP to conduct an Immediate Response Action.

March 31, Middleboro: ER responded to a report of a flooded basement with two floating 275-gallon ASTs and an oil odor. No oil sheen was observed. The yard around the home was completely flooded, so pumping the basement was not an option. ER had to wait for water levels to drop before entering the basement and conducting additional assessment.

March 31, Middleboro: ER received notification of a release of approximately 10 gallons of lube oil leaking from an engine sump located in a CSX rail yard. The sump overflowed as the result of storm water infiltration. The oil impacted an area approximately 6 feet wide by 12 feet long. The PRP hired a cleanup contractor to conduct response actions.

March 31, Worcester: ER received a call for a 50 gallon release of waste oil that occurred when a 1,000 gallon UST for waste oil collection overflowed due to groundwater and surface water runoff from the excessive rainfall. The waste oil and some water flowed out of the UST located under the floor of a building, and onto pavement and soil outside of the building. The PRP attempted to hire several cleanup contractors to clean up the release, but they all reported they were unable to respond due to being overwhelmed with other flood-related oil responses. The company's own personnel deployed absorbents on the impacted pavement and recovered the available liquid waste oil to be potentially reintroduced into the UST. The company was subsequently able to hire an LSP to oversee the remaining cleanup activities.

April 1, SERO - Flood-Related Emergency Response Activities continue:

- **Flood Impacts at Wastewater Facilities:** Bridgewater Wastewater Treatment Plant was at its hydraulic capacity while the river was flooding around the plant. Steps were taken to prevent flooding from overrunning units susceptible to flooding. The Somerset sewer system was hydraulically overloaded, causing overflows resulting in many backups into homes. Somerset received MEMA help for pumping along the sewer system to relieve hydraulic capacity and the potential for further backups into homes. Several facilities were operating at or above their hydraulic capacities and some incurred a number of Storm-Sewer-Overflows (SSOs), including Brockton, Scituate, Fairhaven, Attleboro, Dartmouth, Marshfield, Mansfield, Taunton, Middleborough, and Hull. Brockton and Mansfield had internal diversions of treatment systems; Attleboro, Fairhaven, Hull, Dartmouth, Marshfield and Scituate had SSOs in their sewer systems or at their pump stations, and Taunton used their Combined Storm-sewer Overflow outlet. Two facilities had high flow management plans that went into effect due to high flows or equipment failure. Rockland initiated its emergency plan due to flooded streets and need to evacuate keep flows from backing up into homes or knocking out critical units at the plant.

Cohasset initiated its emergency plan for a short period due to a mechanical failure at the plant.

- **Fall River:** The near 8 inches of rain during the second fifty-year storm in March overwhelmed the city's multimillion dollar storm water connection tunnel system. It was the largest precipitation event experienced since completion of the collection tunnel and drop shaft network. The rapid introduction of so much storm water resulted in extensive damage to some collection appurtenances as well as roadways and sidewalks above them along Mt. Hope Street. The drop shafts were inspected and the underground portions of the system appeared fine. The damage occurred only at the surface (manhole covers, etc.). The tunnel system had to be temporarily shut down and used to divert water from the South Watuppa Pond, through the tunnel and into the Quequechan River. Approximately 3-5 million gallons of water were diverted from South Watuppa Pond to mitigate flooding around South Watuppa. The facility was treating approximately 60 million gallons a day during the storm, versus the normal flow rate of 23 million gallons a day. All discharge water, including water from the Quequechan River, received at least primary treatment prior to discharge.

And finally...

April 1, Lancaster: ER responded to a call from the Lancaster Fire Department for a possible release of up to 100 gallons of oil within a basement flooded for the second time in less than a month. The FD had been to the residence earlier in the month to pump the flooded basement and had observed an oil AST approximately ½ full in the basement. During that first visit, the tenant conveyed information which suggested the use of electric heat *only* in the home. On April 1st, with 18 inches of water in the basement, the tenant called the FD again. During the second visit, it was noted that about half the oil previously in the tank was gone. There were mild oil odors in the basement and some sheen was visible so the FD contacted MassDEP. MassDEP inspected the basement, but found little to no evidence of an oil release. Following further discussions with the homeowner and the tenant, it was determined that the renter *had* been using oil heat and not only electric heat as initially reported. No clean up actions were performed or required.

ALTERNATIVE ENERGY GROWING IN MASS

As some of you may already know, MassDEP is co-hosting the **Green Remediation, Environment - Energy - Economics Conference** at UMass Amherst from June 15 - 17. The conference will address environmental, energy and economic aspects of green and sustainable remediation. The Preliminary Program can be found at:

<http://www.umass.edu/tei/conferences/GreenRemediation/PrelimProgram.html>

Although not appropriate for every site, there are a number of Brownfield sites and landfills that have found new roles contributing to "the grid." One of the first was the 425 kilowatt solar array at a closed Brownfield site in Brockton, now known as the Brockton Brightfield. (Information on this project can be found at: http://www.masstech.org/IS/press/pr_10_26_06_brockton.html or <http://www.brockton.ma.us/docs/BrightfieldBrochure.pdf>)

A similar, more recent solar proposal has been put forth for a photo voltaic installation at a not yet closed landfill in Grafton. The privately-owned site is approximately 7 acres in size, and the proponent will need to include landfill closure requirements into the analyses needed to move the project forward.

As I am writing, the U.S. Secretary of the Interior is announcing the approval of the 130 turbine Cape Wind project. A recent press release from the Executive Office of Energy and Environmental Affairs notes that Cape Cod is *already* home to 17 windmills generating 20,460 kW of clean wind power scattered around the Cape, with several more in the planning stages.

The full article can be reviewed at:

http://www.mass.gov/?pageID=eoeepressrelease&L=1&L0=Home&sid=Eoeea&b=pressrelease&f=100420_pr_cc_wind_map&csid=Eoeea. Maps of wind installations across the state can be found at: http://www.env.state.ma.us/eea/maps/100420/turbine_status_poster_ltr.pdf