



Recycling Tidbits

Life at a Landfill

Dunn County trash being dumped at the landfill in Eau Claire; above.

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Stump the Grump

What is the Mobro 4000 ?



Hint:

On April 17, 1987 Peter Jennings reported on it.

Answer on Page 3.

Rather than a dump, Dunn County's trash goes to a landfill. Believe it or not, there is a difference between the two. A dump is basically an open hole in the ground where trash is buried and animals often swarm. Typically a dump is not regulated nor is there any environmental protection. A landfill, however, is a well engineered and maintained structure, serving multiple purposes.

Today's landfills take years and years of planning before they are built. Before a hole is dug the land must be surveyed so certain planning methods can be executed. The surveys take into account where all water sheds are located, the slope and geography of the land, neighbors, road ways and past history of the land. The landfill must slope in one direction so that the water will all run to this corner when the garbage is inside. Eventually, the liquid generated when such water or other liquids seep down through the trash, called leechate, must be removed

and tested. The leechate is then either treated at a water treatment facility or put back onto the refuse to increase the rate of decomposition.

After the hole is dug the landfill will be layered with sand, gravel, clay, and a geothermal membrane (#2 plastic liner) to keep liquids from seeping into the ground. Pipes are also inserted into the landfill to monitor leechate levels, local ground water, and gasses. Fences and natural barriers such as pine trees surround landfills. Not only do they catch bags and other light material, they also limit access to landfills. Workers clean the fencing and tree lines monthly to keep the litter from spreading.

The landfill is divided into sections called cells with the active cell being the one that is being filled. Large fences are set up around the active cell to reduce the amount of litter that flies out. After each load of garbage is dropped off a large machine will drive over the top to help compact it. At the end

of each working day the landfill operator must cover the garbage with at least 6 inches of topsoil known as "daily cover". Shingles, shredded car fluff or foundry sand may also be used as daily cover and reduces landfill odor, prevents litter and deters wildlife.

Once a cell fills up it must be capped and monitored. Capped cells must meet slope requirements, be covered with a geothermal membrane, topsoil, netting, and native grasses to limit erosion. Once a landfill is completely closed it can be turned into a recreation area. Many closed landfills have become parks with soccer fields and dog runs. Menomonie's dog run is a local example of a closed landfill transformed.



Trash, 7 years after being buried.

America's Largest Landfills

Original article was published by Trash Inc: The Secret Life of Garbage, CNBC. To read the full article go to www.cnbc.com.

Roosevelt Regional Landfill, Washington

Tons Per Day: 8,300
 Established: 1999
 Remaining Life: 51.5 years
 Landfill Gas: Leachate and methane gas are collected throughout the landfill by a system of pipes. The leachate is re-circulated through the landfill prompting rapid decomposition of waste and accelerating methane production. Current methane production supports the generation of 10 megawatts of electrical power. The landfill may eventually generate 52 megawatts of electricity; enough power for roughly 30,000 homes.

Denver Arapahoe Disposal, Colorado

Tons Per Day: 6,000-8,000
 Remaining Life: More than 20 years
 Landfill Gas: Renewable energy projects at the Denver Arapahoe Disposal Site create enough energy to

power more than one million homes. The recovery of landfill gas, coupled with the power generated from the conversion of solid waste in our waste-to-energy plants, saves the equivalent of more than 13 million barrels of oil.



McCarty Road Landfill, Texas

Tons Per Day: 7,200
 Remaining Life: 37.9 years
 Landfill Gas: Gas from Houston's McCarty Road landfill is carried through a six-mile pipeline to the Anheuser-Busch brewery to help generate steam energy for the brewery's power plant. More than 55 percent of the brewery's fuel demand is supplied by this new alternative fuel source.

Newton County Landfill, Indiana

Tons Per Day: 9,100
 Remaining Life: 250-plus years
 Landfill Gas: Newton County produces 1,000 standard cubic feet per minute of landfill gas. Biogas from the landfill to Urban Forest Recyclers for use as an alternative fuel source to manufacture wholesale egg cartons. Once the gas is compressed at the landfill, it is carried through an 1,800-foot pipeline to the facility.

Apex Regional Waste Management Center, Nevada

Tons Per Day: 9,200
 Remaining Life: 31.8 years
 Landfill Gas: Apex Landfill's Renewable Energy Generating Facility is expected to be operating by late 2011. CC Landfill Energy will use gas extracted from a series of wells at the landfill and use that gas in a state-of-the-art turbine-generator to make renewable electricity for NV Energy customers.

Wildlife Visitors

Between the weight and constant compacting of the trash, rodents are not an issue at landfills. Many animals however, do visit. Among them are deer, vultures, gulls, eagles, hawks, and other birds of prey. Check out the pictures taken at the landfill in Outagamie County (near Appleton, WI).



Deer visiting the landfill; above.

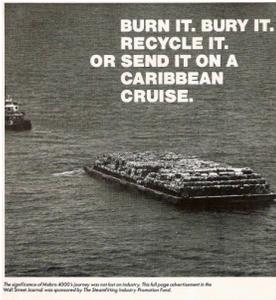


Bald eagles, like the one in the tree, and juvenile bald eagles, bottom left, can be found flying around as well.

Mobro 4000

Dan Rather describes the Mobro 4000 as “the most watched load of garbage in the memory of man.”

The Mobro 4000, a large barge with 6 million pounds of New York garbage, set sail from Islip, New York to Morehead City, North Carolina on March 22, 1987. The trash was to be buried in a landfill and the methane gas from its decomposition was to be captured and turned into energy.



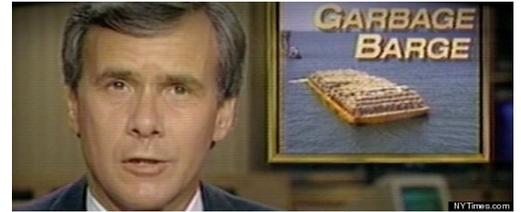
Two months later it was rejected by 6 states and 3 foreign

countries. It was, according to one NBC reporter, "chased away by the warplanes of two nations." It was even referenced by Johnny Carson, during his nightly show, who suggested the Mobro be re-routed to Iran.

After two months at sea, on June 17, the Mobro returned to Brooklyn, where it sat in legal limbo for an additional 3 months.

After much debate the garbage was sent to an incinerator and buried in Islip, NY. The ashes were then buried in Islip, NY's landfill.

According to the Retro Report, “The real reason the Mobro stayed at sea



so long had more to do with the growing pains of the garbage industry, new environmental laws, and a textbook public freak-out.” National attention over the floating garbage barge is credited with kick starting the recycling movement.

I encourage you to watch the New York Times Retro Report, a very well done documentation of the Mobro’s flight. Enjoy!

<http://retroreport.org/voyage-of-the-mobro-4000/>

Landfill Cell Construction Basics



Soil from the new cell area is removed down to liner elevation. This means that the bottom of the cell is 40 feet below the top of the side slope.

Photos Courtesy of Outagamie County Recycling



An inside look at the slope of a cell.



A cell consists of 4’ of compacted clay (on the floor and side slopes) topped with a 60 mil high density polyethylene fabric made of #2 plastic (plastic liner).



The plastic liner adds an additional layer of environmental protection to the landfill once the site is ready to accept waste.



The Seven Mile Creek Landfill in Eau Claire, had to excavate part of an old cell in order to connect the existing liner to the new liner.



Gas wells are used to capture methane gas. The methane is either burned off or captured to make energy.