

BENEFICIAL USE OF BIOSOLIDS ON LANDFILLS

Middlesex County Utilities Authority
Linda K. Hardy

When the Middlesex County Utilities Authority (MCUA) stopped ocean dumping its sludge in 1991, it immediately started using the N-Viro process to recycle its solids into an alkaline stabilized product called Meadow Life. The MCUA expected people to be knocking on their door for their valuable organic, nutrient rich, lime product, however that didn't happen. As a backup the MCUA, which operated the largest landfill in New Jersey, intended to use the Meadow Life for both daily and intermediate cover on their landfill. This however created odors for the neighbors and the perception that the Meadow Life was being landfilled because it was a worthless product. Because of this it took people longer to realize the benefits of Meadow Life and for the MCUA to build up a market demand for the product. Consequently the Landfill was Meadow Life's largest market until 1996 when they developed a large market with the farmers and topsoil manufacturers.

At the same time a demand was growing for biosolids use for landfill capping. In the 1980's the New Jersey Department of Environmental Protection (NJDEP) decided that most of the landfill in the State were not environmental safe and closed about 300 of them, leaving only eleven sanitary landfills for a population of seven and a half million people. The NJDEP landfill people knowing little about the benefits of biosolids, still thought it was safe to use them on landfills because it would only be used to cover other wastes.

In 1993, the Edgeboro Landfill that had served Middlesex County residents for over forty years was closed and a new sanitary landfill owned by MCUA was built right next to it. In the mid 1980's a bentonite slurry wall had been built around the landfill to prevent runoff of leachate. The landfill had accepted construction, municipal, and non-hazardous industrial wastes. Edgeboro was located on 316 acres. The capping consisted of 12 inches of compacted clay, a layer of filter fabric, 12 inches of drainage sand and 12 inches of vegetative cap. Meadow Life was spread on top of the 12 inches and disked into the soil to make topsoil, which could support grass.

At Edgeboro there had been garbage that had been buried in areas that were outside the bentonite cutoff wall. In 1996 the NJDEP decided these areas has to be excavated and had 750,000 cubic yards of garbage reburied on the top of Edgeboro. These excavated areas were filled with dirt and then Meadow Life was spread on the surface and disked 8-10 inches into the soil for a vegetative cap. The portions of Edgeboro that had received this new garbage then had to be capped again and Meadow Life was used for the vegetative layer.

In 1993, one of the MCUA's contractors who was using Meadow Life to mix with clay and sand to make topsoil got a contract used their Meadow Life topsoil got a contract to cap the Lone Pines Landfill. This was a landfill that had been classified as a superfund site. This contractor used their Meadow Life topsoil to cap the entire landfill. The grass came in thick and lush and seven years later it was growing.

The MCUA worked with an industrial area in 1993-94 with a 38-acre piece, which included an old municipal landfill that needed to be vegetated. The Soil Conservation people were concerned about runoff from the landfill without any vegetative cover. They insisted a foot of topsoil had to be brought in because the soil pH was in the twos. Their theory was if the pH of any soil was below 4.5 neither lime or fertilizer could raise the pH high enough to support growth so topsoil was needed. We were able to convince them to use a reclamation rate of Meadow Life to bring the pH up and it worked. The grass came in very thick and is still growing without any additives seven years later. The Soil Conservation people are now sold on Meadow Life and have recommended it for many reclamation projects since, especially when dealing with an acid generating soil.

In 1995 another contractor of MCUA won the contract for capping the Essex Chemical Facility Landfill owned by Dow Environmental, Inc. The landfill was a non-hazardous industrial site, which needed 15,000 cubic yards of topsoil for the cap. The topsoil was made using Meadow Life and dirt from stumps at a yard waste recycling facility. They delivered 1000 cubic yards of topsoil a day to fill the landfill. After five years the grass is growing.

A third contractor of MCUA's won the bid to cap the Cross Street Landfill in 1996. This was a municipal non-hazardous landfill, which needed to be capped. The contractor took almost 20,000 cubic yards of Meadow Life, which they used, for the cap. Some of the Meadow Life was mixed with soil on the site, made into topsoil and spread on the slopes of the landfill. The rest of the Meadow Life was spread on the flat areas and disked into the existing soil.

In 1997, a contractor approach MCUA about using Meadow Life to mix into a topsoil on the site to cap the Lakewood Industrial Landfill. This was a landfill that had been used haphazardly for industrial waste for years and backed up to an industrial park. The garbage had to be buried, covered with fill and capped with topsoil from one of MCUA's contractors and spread it over the landfill which was fairly level.

Most recently, in 1999 – 2000 a neighboring county landfill, still operating, needed to cap one of their closed areas. Again, one of MCUA's contractors used Meadow Life for the cap. The area had previously been capped last year but the cap failed because the slopes were too steep to hold vegetation. Consequently the new engineers specifically asked for Meadow Life because they knew it would make a rich soil that could hold a vegetative layer even on slopes. The contractor brought in previously made Meadow Life topsoil for the slopes and brought in straight Meadow Life to be spread and disked into the top of the landfill in two one-foot lifts. The topsoil was made out of clay, sand and Meadow Life.

Middlesex County's current landfill is 100 acres and was opened in 1992. Meadow Life was originally used for daily cover and intermediate cover. However, because of odor complaints they stopped using it for immediate cover. A six-inch cover of soil is needed to cover garbage dumped each day to help deter litter, discourage rodents and cut down on odor. If an area is not being used for 24 hours that area needs a twelve-inch intermediate cover of soil. The Meadow Life is also blended with leaf compost and sand to make topsoil, which is used on the side slopes so they can be vegetated and won't easily erode. The topsoil is three parts compost, two parts sand, and one part Meadow Life. As sections of the landfill are closed they will also be capped with Meadow Life.

