EARTH-FRIENDLY PUBLIC WORKS

ORGANICS RECOVERY IN EUREKA SPRINGS

EUREKA SPRINGS is a small town in northwestern Arkansas where the only industry is tourism. On a yearly basis, we average 10,000 tourists per day. Aside from the many lakes, rivers and streams, the attractions are mostly the Victorian-era homes, hotels, and bath houses from the town’s heyday as a health resort. During that time, the population of Eureka Springs ran as high as 30,000 residents. The many springs in the area were reportedly responsible for a wide range of cures for ailments ranging from eye problems to cancer cures.

Because of the ecologically sensitive area, Eureka Springs has been at the forefront concerning sustainable waste management. We started a recycling program in the 1980s that has grown into a countywide endeavor. We also have a “pay as you throw” system in place for solid waste, meaning we will pick up recyclables for free or you can throw it all away for your monthly solid waste fee plus $.75 cents/bag. As of 1992, none of Eureka Springs’ biosolids or yard trimmings have gone to the landfill. All has been composted and put to beneficial use.

Until early in 1992, dried sewage sludge was hauled to a landfill at a tipping fee of $12/ton. Since that time, the tipping fee went up to $32/ton and, in addition, a yearly Toxic Characteristic Leachate Program (TCLP) test was required that would have cost the city around $1,000 /test. Another challenge was the requirement for landfills to be lined, monitoring wells to be installed, or be closed down. Hearing this, I concluded as the public works director that the landfill rates would only go higher and higher. Eventually, more than 90 percent of the landfills in Arkansas were actually closed down. As of five years ago, the tipping fees had climbed to $42/ton.

CHANGING BIOSOLIDS MANAGEMENT

Back when the tipping fees were raised from $12 to $32, I decided we needed to change our sludge disposal methods. Lime stabilization with land application was one consideration which, to me, seemed a malodorous and nasty way to go. I recommend composting our sludge mixed with the city’s yard trimmings (a graduating ban on yard trimmings in landfills was being put in place about this time as well), and that this material would then be given back to the community as a soil amendment. Our Mayor and City Council at the time voted in favor of this recommendation which meant our consulting engineers, McClelland Consulting Engineers, Inc of Fayetteville, and I had to learn how to compost. This was also the time I began attending BioCycle Conferences on a yearly basis. I received more help from these Conferences and the people I met during them than anything else I did.

Due to the fact that ours would be the first city in Arkansas that had ever applied for a permit to dispose of our sludge in this manner, we had a very difficult time with the State agencies approving our plans. We ended up with plans for a 60 foot by 120 foot covered pad starting with a 12 inch thick clay
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layer, a layer of plastic, and finally an eight inch thick “fibermesh” concrete pad which was sloped to eventually drain any leachate to a lift station and on to the central sewer system. Due to the pad being covered, leachate has never reached that drain. This pad holds two windrows 12 feet wide, six feet tall, and 80 feet long.

Upon approval of the plans by the Arkansas Department of Environmental Quality (ADEQ), we had the pad and structure built, purchased an 85 horsepower John Deere tractor with a PTO, and a three-quarter cubic yard bucket, a Wildcat brand PTO driven windrow turner, and a Vermeer chipper with an 11 inch throat. While this was going on, the City Council passed a “no burning” ordinance. We had a Town Meeting to inform the residents of the ordinance, and that their yard trimmings would be collected free of charge on a call-in basis. We opted for the windrow Process to Further Reduce Pathogens (FPRP). For the first year, we were required to sample each windrow for various heavy metals and the Most Probable Number of fecal and salmonella per gram (MPN). We then land applied the finished product on our approved “Class B” site, which was “a whole other set of hoops to jump through.” After consistently showing the finished product to be safe, we were finally approved to give it back to the community (with various minor stipulations). In our part of the country, where all is clay and rocks, anything that looks remotely like dirt, and especially if it’s for free, is in great demand. People lined up on the highway to get their allotted pickup load when we let them know a batch of compost was ready to go.

Through these efforts, we divert an average of 425 cubic yards of “dried” sludge (30 percent solids or so) and 635 cubic yards of chipped yard trimmings annually. We still have to test for MPN for each windrow (or set of windrows if they are built at the same time); ADEQ relaxed a bit and let us test for heavy metals quarterly.

As it turned out, the benefits of this method of biosolids recovery for Eureka Springs are many: Our city produces precisely the amount of yard trimmings needed to mix with the biosolids, about a 60 percent mix respectively. The costs, including everything from uniforms to fuel, are approximately half of what it would cost us to merely send sludge to the landfill, and this would not address the yard trimmings issue and we have turned a costly waste into a highly sought after beneficial product as well as saving ever more valuable landfill space.

Composting Food Residuals

Our most recent endeavor will be composting food residuals mixed with chipped yard trimmings by means of Green Mountain Technologies’ Earth Tub. The project started the week of September 13. The mixture of food residuals from a local restaurant consisted of mashed potatoes, beans, potato peels, spaghetti, egg shells, fruits, and vegetables. Wood chips were then added. During the first month, more than 2,300 pounds of food residuals were mixed with 1,700 pounds of chips. Information from a previous study showed that Eureka Springs’ solid waste stream is comprised of 40 percent food residuals by weight. With many thanks to Brian Pugh, Recycling Coordinator for Four County Solid Waste District and directed by Steven Parker, we received a grant for two Earth Tubs through their organization. Earth Tubs come with their own biofilter. Counting the purchase of two Earth Tubs, shipping, and the plumbing and wiring expenses, this grant came to $14,681.33.

We have received approval from ADEQ to conduct a nine-month pilot program with one or two restaurants feeding the Earth Tubs, which can accommodate up to 200 lbs/day. Our long term goal is to separate the majority of the food waste from the waste stream, save the restaurants money on their solid waste fees, produce another beneficial product from what is otherwise waste, and do this without costing this public works department anything. A tall order for certain, but that is our goal nonetheless.

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