

## LET THERE BE LIGHT: FROM SEWER SLUDGE?

The world is beginning to realize that when you flush the toilet the contents therein just don't go away.

Sewer sludge, the bane of municipal engineers, has been building up into a monumental problem over the years. It is now becoming a real financial, administrative and political headache. It can no longer be ignored.

One technological advance that may accomplish the impossible will be given the ultimate field test next year in Houston, Texas. There they hope to get rid of sewer sludge by pumping it into the ground -- 1500 metres into the ground! But it will not be left there. It will come back: as a refined product -- sterile ash -- which looks like sand and can be used as aggregate for concrete or asphalt paving material. Even as ash it will have reduced the volume of solids in the sludge by about 95 percent! How can they do this?

Picture a huge, vertical pressure cooker running more than 4,500 feet (1,500 metres) underground. As the sludge material reaches the bottom, gravity and hydrostatic pressure create heat. Temperatures rise to between 260 and 370 degrees Celsius. This in turn activates chemical reactions which activate an oxidization process. That turns the chemicals and micro-organisms into a concentrated sterile ash. Continued pumping of new, raw, wet sewage sludge into the pressure cooker forces the now harmless inert, ash-like sludge-substance back to the surface. It might even be still hot enough to heat water and generate electricity!

This will be the world's first commercially operated plant, disposing of sewage sludge via a disposal technique known as wet oxidation. It is not the first try. The process has been used for smaller quantities of toxic wastes for about a century but the cost for above-ground containers and the cost of energy to heat the

process was more than commercial operation could bear. Underground, such costs almost disappear.

The Oxidyne Corporation will be building and operating the plant for the city of Houston. This plant is coming just in time for the progressive Texans as their present operation has been oven-drying their sludge into pellets and selling it to Florida for fertilizer. Now the federal Environmental Protection Agency (EPA) is about to stop that game by ruling the procedure illegal. The proposed regulations will affect existing landfill sites as improved capping and sealing systems will have to be implemented. All this adds to the costs of old-style dumping of such materials as sewage sludge.

In The Netherlands a company called Vertech has been operating a similar process, but near the surface, by adding oxygen. They are planning a wet-oxidation process plant for the town of Apeldoorn. The Dutch, due to the most intensive livestock-raising system in Europe, have tons of pig manure on hand. This has been recycled as fertilizer but the smell never made the process a big seller and was regarded a potential health hazard. Pathogens in the re-spread manure could also infect pigs using such fields. Such pathogens are destroyed completely by the wet oxidation process.

In Britain the Water Research Centre is investigating the process for both England and other European areas. Other advantages are that, unlike conventional methods, no emissions are given off and toxic and other hazardous wastes can be treated by this process. Heavy metals, it is believed, will be bound to the ash, but even if this proves not to be the result the savings in volume alone could extend landfill site volume by a factor of 20.

More information: Oxidyne Corporation, 1701 Central, Houston, TX 77017. Phone: 713/928-2011.