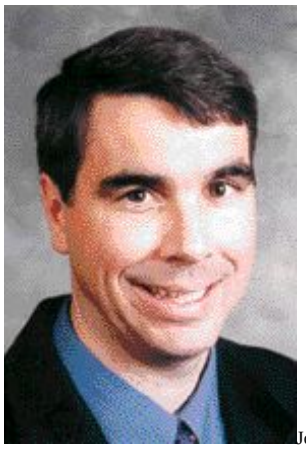 John Nicholson

By: John Nicholson

Waste management lessons from Los Angeles

When the City of Los Angeles, California, began a search of treatment technologies to manage its non-recycled municipal solid waste, it had the laudable objective of identifying alternative waste processing technologies that would increase landfill diversion in an environmentally sound manner, while emphasizing options that are energy efficient, socially acceptable and economical.

It began its in-depth evaluation by looking at 225 waste technologies suppliers offering thermal, biological/chemical, or physical treatment. Only 26 suppliers were able to demonstrate that their systems met the city's screening criteria. To pass the technical screening, each supplier had to demonstrate their technology: has a processing capacity of 200 tons per day (tpd); is in commercial operation or is commercial-ready; produces marketable byproducts; and, is compatible with post-source separated residential waste.

An RFQ was sent to 26 suppliers that met the initial technology screening criteria, of which 17 responded. In order to get short listed, each supplier had to meet further criteria used to rate the performance of each technology. These included waste treatability, conversion performance, throughput requirement, commercial status, and technology capability. The evaluation also included several site visits.

At the conclusion of its process, the city was left with five technology suppliers that were able to pass its two levels of screening. Interestingly, all were thermal treatment -- only one being mass burn waste-to-energy and others that were pyrolysis/gasification. The city subsequently issued an RFP mid-February.

Overall winner

The highest score in the City of L.A.'s evaluation went to Thermoselect technology. Thermoselect is a Swiss company that licenses its technology Interstate Waste Technologies in the United States. In Canada the technology is licensed by Quebec-based 3R Synergy Inc.

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Thermoselect's technology is a high-temperature gasification process that transforms waste into useful materials. Gasification of organic waste residue using pure oxygen takes place at a processing temperature of up to 2,000° C, melting down all inorganic residue waste (glass, ceramics, metal).

The process produces a mixed granulate; the mineral part can be used as a concrete aggregate in construction, for sand blasting or as a raw material in the cement industry. The metallic granulate is almost entirely composed of elemental iron and can be put to metallurgical uses. The result is 99 per cent diversion of incoming waste from landfill.

Thermoselect's oldest commercial plant has been in operation since 1999 in Chiba, Japan processing 104,000 tonnes per year (300 tonnes per day) of industrial waste, sludge, and municipal solid waste. There are six other commercial facilities in Asia ranging in processing capacity from 95 to 555 tonnes per day.

The winner's warts

In an April 2006, Greenaction for Health and Environmental Justice, and Global Alliance for Incinerator Alternatives (two anti-incineration non-governmental groups) released a report raising serious allegations about the safety and reliability of advanced thermal technologies in the treatment of waste. The report *Incinerators in Disguise: Case Studies of Gasification, Pyrolysis, and Plasma in Europe, Asia, and the United States*, included a case study on a Thermoselect facility in Karlsruhe, Germany.

The *Incinerators in Disguise* report claims that Thermoselect's Karlsruhe facility in Germany was forced to close in 2004 due to recurring operational problems. The report makes a number of claims including a statement that the company lost $400 million Euros (over CDN $500 million) in the venture.

Thermoselect contends that the information in the Greenaction/Global Alliance document "is partly not true, partly outdated, partly not complete." Even though it was published in 2006, it refers to information that occurred five to eight years ago. Thermoselect correctly points out that the report fails to mention the successful operation of seven Thermoselect full-scale commercial facilities.

Criticism and conclusions

At a recent presentation given at the Association of Municipal Recycling Coordinators (AMRC), the following viewpoint was offered on gasification technologies: Almost no full-scale gasification plants currently operating; proponent companies are promoting either technical ideas or extrapolating from very small facilities to the large-scale plants that they are proposing to build; and, the promise of gasification has not been matched by the reality of the operations of the technology.

The statements given at the AMRC conference appear to contradict the reality of seven full-scale Thermoselect facilities. A more balanced view on advanced thermal technologies is

given in the City of Los Angeles Summary report that states, "Thermal conversion technologies have been in successful, long-term use around the world, although typically using more homogeneous feedstocks such as coal and biomass. While technical challenges are expected, because of their relatively short operating history using waste as a feedstock, these challenges are judged to be manageable."

Just as there are problems with recycling facilities and composting sites, thermal treatment facilities may experience problems, but they're improving all the time. One can cherry picks examples of unsuccessful waste management systems to "prove" a point, but for environmental professionals, it is critical to weigh all the evidence before reaching a conclusion.

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