



Going Up in Smoke: The Demise of California's Last Commercial Medical Waste Incinerator Has National Ramifications

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Introduction

On December 10, 2001, Illinois-based waste management company Stericycle, Inc. finalized the purchase of Integrated Environmental Systems (IES), an Oakland, California-based medical waste treatment company. Stericycle, the country's largest medical waste hauling and treatment company, closed IES's Oakland facility, including the operation of the last two commercial medical waste incinerators in California.

While this event impacts the local medical waste scene, four major *national* ramifications are also produced by the sale and closure of the IES offsite medical waste treatment facility. An estimated 90% of large-quantity medical waste generators in California send their waste for treatment to nine regional, offsite medical waste treatment facilities such as those operated by Stericycle. With the recent acquisition of IES, Stericycle has a 95% market share of medical waste handling in California. IES represented significant competition to Stericycle by providing an alternative for medical waste treatment to hospitals and small medical waste hauling companies. This competition kept the costs for hauling and treating medical waste in the 16 to 20 cents per pound range. It is too soon to tell if this elimination of competition will have a detrimental impact on the medical waste market in California.

Possible ramifications of the closure of the last two operating commercial medical waste incinerators in California include:

- increasing the determination of some community organizations and environmental groups to close all medical waste incinerators nationally;

- supporting the implementation of hospital Pollution Prevention (P-2) programs;
- eliminating "incinerate only" practices for handling the entire medical waste stream from hospitals; and
- stimulating increased attention to develop alternative medical waste treatment technologies.

Determined Environmental Groups

The California Medical Waste Management Act was enacted January 1, 1991 and allowed all existing offsite medical waste treatment facilities to continue operation but they had to be permitted within a year. Incineration and steam sterilization were the approved treatment technologies recognized by the Act; alternative technologies required approval by the California Department of Health Services (CDHS).

From the very beginning, environmental groups protested the permitting of the IES facility because of its incinerators. A lawsuit filed by a concerned citizen against the CDHS stated the California Environmental Quality Act had not been complied with during the permitting process. The concerned individual did not prevail in Superior Court or in the First District Court of Appeals. During this time community organizations and environmental groups pressured IES, challenging its operational capabilities before permitting authorities and local governments as well as leading protest demonstrations in front of the IES facility.

Groups with an environmental focus, such as the Green Party and the Center for Environmental Health, opposed the renewal of IES's air permits during a series of hearings held by the Bay Area Air Quality Manage-

ment District. Although the permits were renewed, new challenges were expected in early 2002 regarding whether a Title V permit should be issued to IES.

All of this took place even though IES replaced its incinerators during 1996 with two new incinerators that demonstrated the most achievable control technology (MACT) for medical waste incinerators prescribed by the federal Environmental Protection Agency (EPA). After improving its operations and setting the MACT standard for medical waste incinerators that demonstrated low dioxin levels, IES continued to be pressured by community organizations and environmental groups. These groups demanded zero-dioxin emission levels that the incinerators could not achieve.

IES crippled its cause in May 2001 by improperly storing medical waste at its Oakland facility. This led to an investigation by the CDHS that confirmed improper storage of untreated medical waste; containerization, transportation, and tracking documentation in violation of requirements of the Act; improper medical waste spill clean-up; and incineration processing violations. A 30-day temporary suspension pending hearing was issued to IES by the CDHS on June 13, 2001. On September 25, 2001 the CDHS inspected the IES facility and found it to be in compliance with the act. In October 2001 IES and the department established a settlement agreement requiring IES to pay the CDHS \$925,000. Some speculate this damaged IES's image within the community and may have helped solidify the decision to sell the facility to Stericycle.

Stericycle operates incinerators at some of its medical waste treatment facilities. The two closest to California, where it trucks medical waste needing to be incinerated, are in Salt Lake City and Chandler, Arizona. The waste that Stericycle acquired from the purchase of IES that require incineration will be processed at these facilities.

While the IES facility was shut down and the incinerators removed, the waste from the company's customers needing incineration will be trucked hundreds of miles to other facilities that do not match the MACT standard set by IES. In all probability, more dioxins are being created through this process than were being produced during processing at IES. As other incinerators nationally are closed in response to the new federal EPA standards and issues are raised by concerned citizens and environmental groups, increased trucking of medical waste may result as the few remain-

ing incineration facilities are called upon to accept waste from the closed facilities. The initial ramifications will be an increase in the cost of treating waste by incineration as additional transportation charges are added to the medical waste treatment equation.

As the medical waste incineration facilities are closed, another immediate impact occurs—the loss of jobs within the community. The IES closure caused 79 people to lose their jobs. However, there may be a tradeoff, as new facilities that use alternative medical waste treatment open and as additional drivers are hired to transport the waste greater distances to facilities that are able to keep their incinerators in operation.

Environmental groups' success in forcing the closure of IES has had a national impact. The closing of incinerators with the best emission test results may motivate similar groups to force the closure of other medical waste incinerators nationally.

Support for Hospital P-2 Programs

Concerns about medical waste incineration have focused attention on the need for a reduction of the medical waste stream—especially keeping mercury out of medical waste. The EPA and the American Hospital Association signed a memorandum of understanding on June 24, 1998 calling for the elimination of mercury from medical waste streams by 2005, and a reduction of all waste produced by hospitals by 33% by 2005 and by 50% by 2010. Region IX of EPA awarded the Department of Health Services a grant to work with six Bay Area hospitals to implement P-2 programs. As part of the grant, the department worked with representatives from community groups in the Oakland area that were concerned about the IES facility. This group of partners—representatives from community and environmental groups, hospitals, and government agencies—were frequently on different sides of the health care waste and incineration debate but worked together to implement the P-2 program. This partnership received the Region IX EPA Environmental Award for 2001.

The P-2 program first focused on conducting mercury assessments of the participating hospitals and developing a plan for the removal of mercury-containing devices. The program created unanticipated fiscal benefits when systems were studied and improved; waste disposal costs were lowered as waste volumes were reduced or not created in the first place, and some

recycling efforts produced income for the facility.

IES was one of the companies that worked with the P-2 program. It successfully instituted a Food and Drug Administration (FDA)-approved reusable sharps container program that reduced the amount of plastics going into the medical waste stream. The reusable sharps containers are thicker than standard single-use sharps containers and should last for 5 or more years before needing to be replaced. The tops of these containers are locked in place with a special pin; when it is mechanically removed at the treatment facility, a robotic arm removes the container lids. The containers are then mechanically dumped into an autoclave cart for steam sterilization followed by shredding and disposal at a landfill. The empty containers and lids are sent through a washing and sanitizing process and after drying are reassembled for return to the hospital.

A study of a 250-bed hospital that participated in the P-2 program revealed that 13 tons of plastics from the containers would be diverted annually from the medical waste stream through reusable sharps containers. This process is a significant methodology for reducing the medical waste stream; environmental groups were pleased with the reusable sharps container program initiated by IES and are hopeful that Stericycle will continue it.

Nationally, hospitals will find it beneficial to implement P-2 programs to reduce wastes, to eliminate mercury from their waste streams, and to implement system improvements. If the cost of medical waste treatment increases, implementation of P-2 programs and systems improvement efforts will be a prudent course of action for hospitals to take.

Elimination of "Incinerate Only" Practices

Many large-quantity medical waste generators preferred to have their entire medical waste stream incinerated because they did not have to segregate the medical waste to be incinerated from the portion to be treated by some other treatment method.

It is estimated that 3% to 5% of the medical waste stream must be incinerated and that the remainder can be processed using steam sterilization or alternative treatment technologies. The CDHS recently granted approval to the ABB Sanitec Microwave Treatment

System to process soft tissues with general medical waste, reducing the amount of pathology wastes that need to be sent for incineration. The approval was granted after an efficacy test produced satisfactory results showing that soft tissues would be properly treated using the ABB Sanitec Microwave Treatment System. As more attention is focused across the country on medical waste incinerators, the practice of incinerating all of the medical wastes from hospitals will most likely be changed and only medical waste from pathology and recognizable anatomical remains will be incinerated.

Stimulus for Alternative Treatment Technologies

The California Air Resources Board (ARB) implemented stringent dioxin standards for medical waste incinerators in 1990. The ARB identified 146 operating medical waste incinerators in California with approximately 94% of them functioning as onsite treatment systems at hospitals. With the closure of the IES facility, no commercial medical waste incinerators remain in California, with only a handful in operation at hospitals. A similar reduction can be expected nationally in response to EPA's new medical waste incinerator regulations. Few, if any, new incinerators will open.

These facts and the rising cost of treating medical waste are driving interest in developing new, alternative medical waste treatment technologies. Several alternative treatment technologies that will treat pathology wastes are in the final development stages. Some older alternative treatment technologies, such as microwave units, are being put to new use and are able to treat the soft tissue portion of the medical waste stream. No national standard for approval of alternative treatment technologies exists, so companies must seek state approval of their products.

Underwriters Laboratories (UL) has formed a technical committee to develop a new American National Standards Institute (ANSI) standard for approval of alternative medical waste treatment technologies, designated as UL/ANSI 2334. This effort should standardize the approval process for alternative medical waste treatment devices.

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