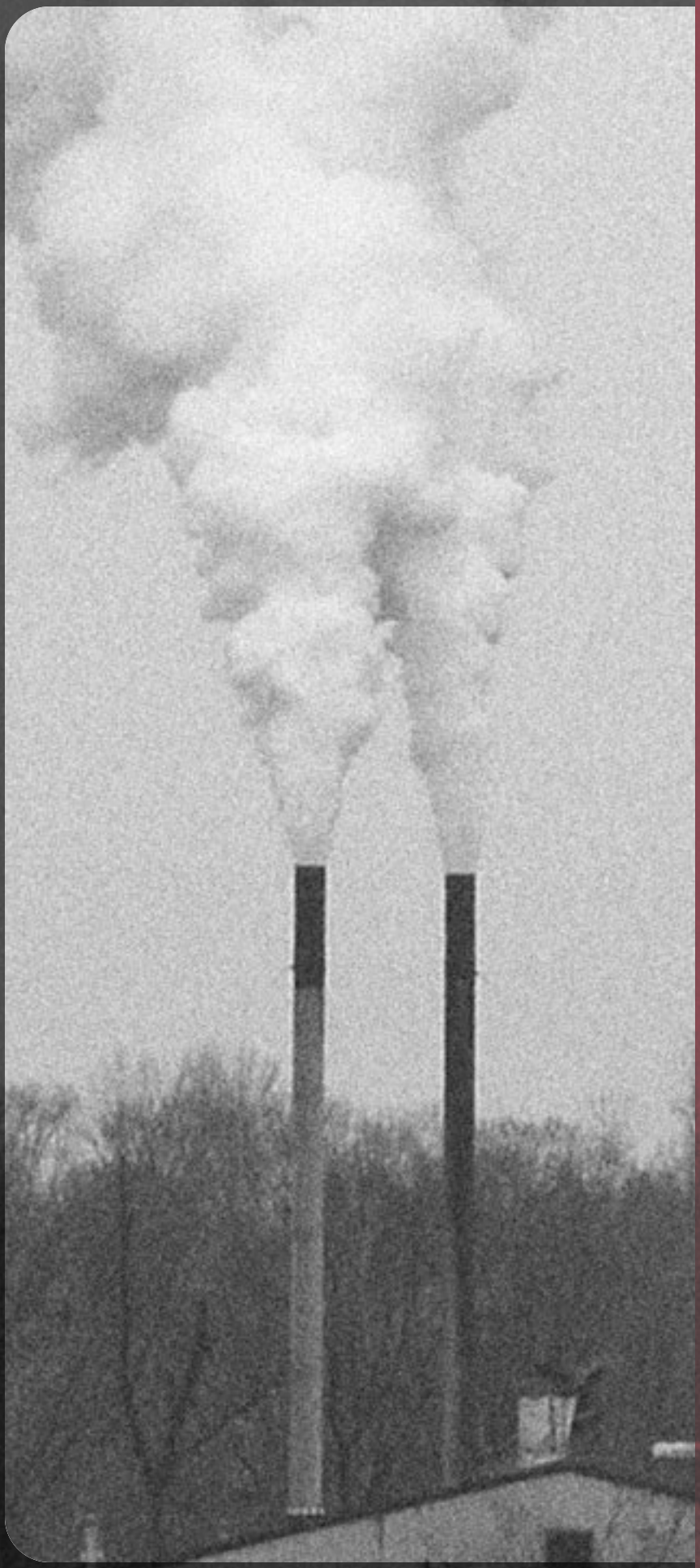

STERICYCLE: LIVING UP TO ITS MISSION?

AN ENVIRONMENTAL HEALTH ASSESSMENT OF THE NATION'S LARGEST MEDICAL WASTE COMPANY

Health Care Without Harm

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Review and comment on this report does not imply endorsement.

Cover Photo: Stericycle, Inc., facility in Haw River, North Carolina, taken February 2, 2001.
Credit: Blue Ridge Environmental Defense League

NOTE: This educational report does not constitute legal or technical advice. Institutions and individuals facing waste disposal needs should, of course, consult legal and technical experts to determine appropriate disposal procedures.

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On April 3, Health Care Without Harm (HCWH) released the report entitled *Stericycle: Living Up to its Mission?*

The report makes four recommendations that could help Stericycle, the nation's largest medical waste management company, live up to its mission to be "dedicated to the environmentally responsible management of medical waste for the health care community:"

- Phase out the use of incineration, a polluting technology known to be a leading source of dioxin, a human carcinogen;
- Improve health and safety programs and disclose health and environmental concerns at its facilities;
- Work more closely with customers to reduce the volume and toxicity of waste; and,
- Minimize the impact of facilities on surrounding communities.

Health Care Without Harm is a coalition of 361 organizations in 40 countries working for environmentally responsible health care. The campaign produced *Living Up To Its Mission* to engage Stericycle in achieving our common mission of protecting the environment and human health. To date, Stericycle's response has been to challenge the accuracy of the report.

Health Care Without Harm would welcome the opportunity to understand and correct any inaccuracies in our report and has communicated that willingness to Stericycle. From media reports, it appears that Stericycle has three concerns with the report: estimates of 1) the percentage of waste which Stericycle incinerates, and 2) the portion of waste that must legally be incinerated; and 3) that the report is based on data from 2000 rather than 2001.

The HCWH report was prepared and printed prior to the publication of the Stericycle 2001 annual report. The two other concerns seem to reflect differences in definitions and terms of measurement rather than inaccuracies. Health Care Without Harm hopes that the distribution of *Stericycle: Living Up to Its Mission?* will lead to discussions with the company that will clarify these terms and result in improved communications and improved outcomes for the company, its shareholders and the health of communities and the environment.

One example of this confusion over terms is the question of how much waste Stericycle incinerates:

Living Up To Its Mission? states that Stericycle incinerated, *by volume*, 27-32% of medical waste received in the year 2000, citing the company's 2000 annual report. Stericycle's 2001 annual report stated the company's incineration *capacity* was 18% in 2001. Volumes of waste burned and waste treatment capacity do not appear to be comparable ways of measuring incineration.

But regardless of whether or not 18% reflects capacity or volume burned, 18% of the estimated 600 million pounds of medical waste the company treats annually (figure from a September 2001 Fortune Magazine article) means the incineration of over one hundred million pounds of waste resulting in dioxin, mercury and other pollution. That is a problem that Health Care Without Harm wants to assist Stericycle in addressing.

As for the issue of how much waste is legally required to be burned, our research indicates that only a few states currently mandate medical waste incineration for a small portion of the hospital waste stream. We are interested in learning the basis for Stericycle's calculation that 8-10% of waste is legally or ethically required to be incinerated. In any event, our report urges Stericycle to phase out the incineration of health care waste because non-incineration technologies exist that are capable of disinfecting all pathological wastes and treating chemotherapy wastes. This is documented in a report by HCWH called "Non-Incineration Medical Waste Treatment Technologies," published in the fall of 2001. To achieve the elimination of incineration, we are asking Stericycle to:

- Immediately end the burning of mercury and polyvinyl chloride (PVC) waste and limit its waste burning to the portion of waste that is legally required as the only treatment method;
- Publicly pledge to phase out incineration;
- Commit to end any burning of treated medical waste residue in solid waste incinerators, cement kilns and other burn facilities; and,
- Advocate changing the laws to allow safer alternatives to incineration.

We hope that the report is helpful and that this letter clarifies some of the issues Stericycle has raised in the media. Please visit www.noharm.org/stericycle for any additional updates. We welcome your thoughts and concerns.

Sincerely,

Charlotte Brody, R.N.
Executive Director

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LIVING UP TO ITS MISSION?

I. The Purpose of This Report

Health Care Without Harm (HCWH), the sponsor of this assessment, is a campaign for environmentally responsible health care. Made up of more than 350 organizations in 38 countries, Health Care Without Harm's mission is to transform the health care industry worldwide, without compromising patient safety or care, so that it is ecologically sustainable and no longer a source of harm to public health and the environment. The campaign's goals include the advocacy of policies, practices and laws that eliminate the incineration of medical waste, minimize the amount and toxicity of all waste generated, and promote the use of safer materials and treatment practices. Health Care Without Harm also works toward the phase out of mercury and PVC plastic in health care, the development of health-based standards for medical waste management and the implementation of just siting and transportation guidelines.

Health Care Without Harm's mission and goals make obvious the rationale for this assessment of Stericycle, already the largest medical waste treatment and disposal company in the United States, and a growing global presence.

According to Mark Miller, Stericycle's chief executive officer, the company is 11 times the size of its next nearest competitor.[1] It is the only company offering medical waste collection, transportation, treatment, and disposal services nationally. Unless Stericycle lives up to its mission, "to be the leading company dedicated to the environmentally responsible management of medical waste for the health care community," Health Care Without Harm cannot achieve its vision of an environmentally sustainable health care industry.

This assessment is the result of a review of news reports, government files, and interviews with health care providers, government and Stericycle officials, and residents of communities in which Stericycle has facilities.[2] Consistent with Health Care Without Harm policies and practices, this report does not endorse any medical waste disposal company, technology or device. Instead this assessment is based on principles of health care waste management that minimize the impact on the health of workers, communities and the environment.

The Principles of Environmentally Responsible Waste Management include:

- Reducing the volume and toxicity of the waste stream through waste segregation to maximize reuse and recycling and to minimize the amount and number of discarded dangerous materials. Purchasing practices should also be aimed at reducing the volume and toxicity of waste.
- Using alternative medical waste treatment technologies in place of incineration. Medical waste incineration is a primary source of dioxin, mercury and other toxic pollutants. In the fall of 2001, HCWH published "Non Incineration Medical Waste Treatment Technologies," a comprehensive evaluation of medical waste treatment technologies. The 2001 report concludes that there are viable alternatives to incineration that are safer, cleaner, do not produce dioxin, and are just as effective at disinfecting medical waste.
- Providing workers with proper equipment and special training in infectious waste handling and the operation of treatment systems to assure that their health and safety and that of the community is protected. All medical waste treatment technologies, including incineration, involve machinery that can and will periodically break down. Disclosure of environmental and worker safety concerns is a key element in designing solutions for these problems.
- Minimizing the impact of waste treatment facilities and adhering to the principles of environmental justice when siting facilities. Many low-income and minority communities are already overburdened with environmental and public health problems. In addition to air and water emissions, residents living near facilities are subjected to increases in traffic, diesel emissions, and the risk of hazardous materials or waste spills.

Living Up to Its Mission? reviews Stericycle's growth and its performance according to each of these four principles and makes recommendations for improvement. The report's goal is to engage in a collaborative effort all current and potential Stericycle customers, stockholders, employees and their unions, and residents and governmental officials in communities that host Stericycle facilities. The goal of this proposed effort is to accomplish the missions of both Stericycle and the HCWH campaign and, in doing so, to improve the health of our communities and the environment we share.

LIVING UP TO ITS MISSION?

II. Assessing Stericycle's Growth into a Medical Waste Giant

Stericycle, Inc., is the largest provider of regulated medical waste management services in the United States, providing medical waste collection, transportation, treatment, and disposal to more than 247,000 customers in 48 states, the District of Columbia, five Canadian provinces and Puerto Rico. It is the only company offering medical waste services nationally. Stericycle also has a growing international presence, with joint ventures or licensing agreements in Argentina, Brazil, Japan, Mexico, Australia and South Africa. In total, Stericycle handles more than 600 million pounds of waste annually.[3]

Stericycle was first incorporated in 1989. In the last seven years, it has grown dramatically through nearly 50 acquisitions[4], including the purchase of all of Browning Ferris Industries' (BFI) medical waste disposal assets for $414 million in 1999[5] (see Appendix 2 for a list of Stericycle acquisitions). *Fortune Magazine* took note of this growth when, on September 4, 2000, it listed Stericycle as one of the top 10 fastest growing companies in the U.S.[6] In the magazine's 2001 company listing, Stericycle ranks 18th.

Stericycle's contracts occupy 22 percent of the $1.5 billion medical waste disposal market. The company is 11 times the size of its nearest competitor, Med/Waste Inc., which has roughly a two percent market share.[7] Another 22 percent of the market is served by smaller hauling companies, and 35-37 percent of hospital waste is disposed of in onsite facilities.

"Size is what makes this business successful," says Frank J. M. Brink, Stericycle's chief financial officer. "The more customers you have per square mile, the lower your cost to treat and pick up the waste."

As of January 2002, the company's assets were worth an estimated $620.6 million.[8] According to CEO Mark Miller, Stericycle has a "current long term goal of becoming a $1 billion company."

Stock price and revenues are also on the rise. The value of Stericycle stock has rocketed from $10 per share in April 1999 to more than $62 per share in December 2001.

The company reported in its March 2001 annual report to shareholders that:

> For the years ended December 31, 2000 and 1999, revenues increased $190.9 million, or 143.7%, from $132.8 million to $323.7 million. Longer-term, revenues have increased from $1.6 million in 1991 to $323.7 million in 2000. Gross profit was $127.4 million, up from $46.7 million at the end of 1999.

Opportunities for Growth

Stericycle's U.S. customer base is expected to continue its growth as increasing numbers of hospitals close their onsite incinerators due to tightened U.S. Environmental Protection Agency (EPA) emission limits (for more information on the EPA's Maximum Achievable Control Technology standards, see box below and page 17). Hospitals generate about 74 percent of the health care industry's waste. According to EPA's estimates of the outcome of their new rules, as many as 80 percent of medical waste incinerators will close, along with some commercial incineration facilities.

EPA Regulations

In September 1997, the U.S. EPA published a set of standards and guidelines, known as the Maximum Achievable Control Technology (MACT) standards, for all new and existing medical waste incinerators. The standards set emission limits for a number of pollutants based on the best performing 12 percent of incinerators in the industry. As a result of these rules, EPA expects the following hospital medical and infectious waste incinerators to close:

- 93 to 100 percent of existing small "non-remote" incinerators,
- 60 to 95 percent of existing medium incinerators,
- up to 35 percent of existing large incinerators.

All 79 commercial units and 114 small hospital units meeting EPA's "remote" and less stringent criteria are assumed to remain in operation.

Although hospitals were the first to sign up for Stericycle's services, the company is increasingly focusing on sales to higher-profit-margin, small-account customers, such as physician and dental offices. Company revenue from small account customers grew from 33 percent in 1996 to 56 percent in 1999. According to Emil Westergaard, analyst with Warburg Dillon Read, profit margins for small accounts can be as high as 50 percent versus about 10 percent for hospitals. Fees from hospitals usually range from $20,000 to $50,000 per year, while each of Stericycle's small customers contribute $700 to $1,000 per year.[9]

International Markets

International growth is another area of major expansion for Stericycle. The company estimates the worldwide market for regulated medical waste management at approximately $3 billion. It presents its entry into international markets as primarily focused on promotion of its electrothermal deactivation (ETD) technology, a proprietary radiowave waste treatment method. It is an open question whether the company will avoid all incineration in its international growth.

Stericycle has developed joint ventures or licensing agreements around the company's ETD technology in Argentina, Brazil, Japan, Mexico, Australia and South Africa. In Canada, it has acquired Med-Tech Environmental, which has five autoclave treatment facilities across Canada and operates in several U.S. states as well. Med-Tech sends its "must-burn" waste to incinerator facilities in the U.S.

In Mexico, Stericycle owns a 49 percent share[10] in MEDAM S.A. de C.V., a joint venture with Controladora Ambiental S.A. de C.V. and the Philadelphia, Pennsylvania-based Pennoi Associates, Inc. MEDAM has constructed a 100-ton-per-day ETD plant in San Juan del Rio, a plant that services a 400-mile radius including Mexico City.[11] This is the country's largest medical waste treatment facility.[12] MEDAM has acquired at least two other medical waste management companies, including Repesa S.A. de C.V., the oldest medical waste service provider in Mexico.[13]

Stericycle has an agreement with SteriCorp Ltd. of Australia, through which Stericycle has licensed to SteriCorp the rights to use its ETD technology in Australia, New Zealand, Malaysia, Indonesia, Singapore and Thailand.[14] SteriCorp, formerly a mining company, reportedly moved into the medical waste manage-

ment business to import Stericycle's ETD technology. Stericycle's Executive Vice President and Chief Technical Operating Officer, Anthony Tomasello, is on the SteriCorp board. SteriCorp plans to "utilize Stericycle's growth strategy," and is negotiating to purchase five Australian medical waste disposal companies.[15] In partnership with the company Totalcare, SteriCorp has built an ETD facility in the Australian city of Canberra. SteriCorp is engaged in discussions with the Hong Kong government, and is developing relationships in the Philippines, Indonesia and Korea.[16] Concerns have been raised that some of SteriCorp's founders were involved with the gold mining company Esmeralda Explorations, whose part-owned mine in Romania was the site of a cyanide spill that killed thousands of fish and threatened the health of two million Hungarians.[17]

Stericycle's involvement in Argentina is more fully described in a case study (see page 30). Stericycle is a partner in MEDAM B.A., SRL, the company formed to own and operate an ETD facility in the small town of Theobald, Argentina. SteriCorp of Australia is also a partner, along with Termogenesis, an Argentinean environmental management company. Stericycle holds a 42.1 percent interest in the company, and SteriCorp a 30 percent interest.[18] MEDAM has completed construction of the plant and, as of January 15, 2002, has received all the necessary permits to begin operation,[19] despite local opposition to the project. According to SteriCorp, MEDAM B.A. plans to establish medical waste treatment plants in Chile, Paraguay and Uruguay.[20]

Stericycle has also entered into agreements in Brazil, Japan and South Africa. In Brazil, it has a licensing and supply agreement with CAVO Group, a subsidiary of Camargo Correa S.A. In Japan, it is partners with Econovation Group of Aso[21], and in South Africa with Evertrade Medical Waste (Pty.) Ltd., the leading provider of infection control services in South Africa.[22] In an interview with Don Sampson, vice president of international development and engineering, published in April 2001, Sampson indicates that Stericycle has already installed one ETD facility in Brazil and two in South Africa. He also says they are working on plants in Japan and Saudi Arabia in 2001.[23]

Potential Limits to Growth: Hospitals May Have Economical Alternatives to Stericycle Services

Health care facilities that close their onsite incinerators may decide to contract with Stericycle or another commercial waste treatment firm. Alternatively, they may choose to install onsite treatment technologies, such as autoclaves, which can be more environmentally sound and cost-competitive than hauling waste to the closest treatment facility.

Disposal of medical waste through waste haulers such as Stericycle may cost hospitals as much as 35 cents per pound—significantly more than the cost of installing onsite autoclave technologies for larger hospitals. For instance, New England Medical Center reports that it spends about eight cents per pound for disposal of waste through its onsite autoclave; others expect autoclaving to cost 11 to 14 cents per pound.

Potential Limits to Growth: Quality of Services

Another limit to Stericycle's growth may be maintaining customer satisfaction as an expanded company. We conducted interviews with Health Care Without Harm member hospitals, and other current and former customers. The interviews included 11 current and two former Stericycle customers from the West Coast, the Midwest and the East Coast. A majority of those we contacted, 9 of the 13, had complaints, some fairly serious, about Stericycle's performance.

The two former customers ended their contracts with Stericycle due to complaints about service, and three others said directly that they would choose not to use Stericycle if they had an alternative. One current customer said, "If there was another vendor, I would recommend to our Materials Management people to contract with it."

A number of those interviewed believe that Stericycle's rapid expansion and market dominance may have led to the decrease in quality of service. As one customer put it, "Without competition, there's no need for the existing compa-

ny to perform adequately." Another said that her hospital's service got noticeably worse after Stericycle purchased BFI and became "the only game in town."

Interviewed customers also had specific complaints about Stericycle's performance. Four people mentioned that waste pick-up was problematic because trucks were consistently late, or would not come when requested. One hospital claimed that, when the trucks did arrive, it was not unusual for them to be dirty, with "blood spills" on the outside of the truck and "crushed boxes" on the inside.

Supply of materials was also an issue for at least four customers. In one example, a hospital could not get enough red bags from Stericycle (the bags apparently were on back order) and, as a result, they discovered that housekeeping had used black garbage bags instead. Another hospital with a contract for reusable sharps containers did not get the supply they needed on numerous occasions and had to use disposable containers. The reusable containers that were delivered were sometimes dirty (they had, for example, blood on the inside) and had to be returned. In a third case, a hospital often received boxes addressed to a different address, or supplies in much greater quantity than they had ordered.

A third problem area was record keeping. Three customers stated this as a concern. One hospital alleged that Stericycle consistently failed to stamp or sign manifests, and did not list final disposal locations. The same customer claimed that Stericycle employees were not helpful in providing tracking details and in locating forms they had lost. In one instance, several loads of waste clearly labeled "incinerate only" were listed as having been sent to a non-incineration facility.

And finally, three customers mentioned billing confusion as another problem, although one reported that the situation had recently improved. Another stated, "Extra charges [were] suddenly applied or [were] even applied before any notification had been sent." This customer also commented that getting incorrect billing adjusted was difficult. A third customer noted that, in a recent development, it had become virtually impossible to understand their invoices.

These complaints of poor customer service, lack of responsiveness to customer needs and requests, and sloppy and potentially harmful practices may have an impact on customer perception of Stericycle. And in markets where Stericycle is the only medical waste management company operating, some customers are growing increasingly frustrated that they have no alternatives.

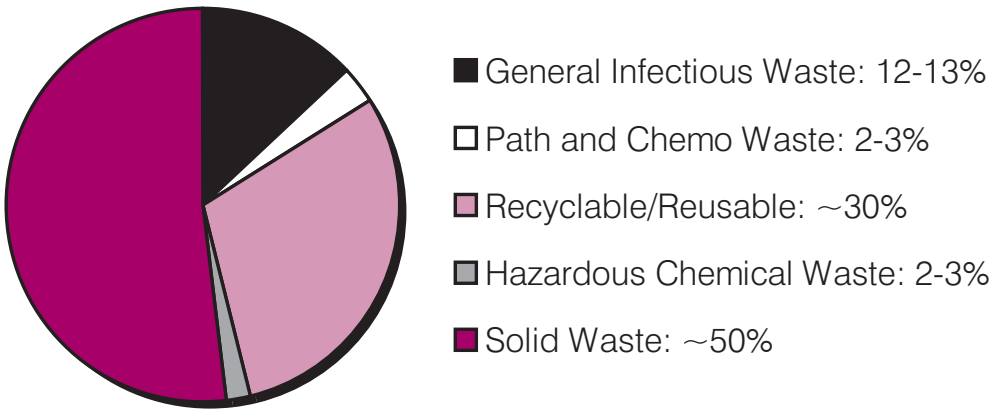
In the short term, Stericycle can continue its expansion by buying out competitors and minimizing health care providers' choice of waste management firms. But in the long term, Stericycle will limit its capacity for growth if it does not balance its efforts to acquire other companies with the provision of services that meet its customers' demand for high-quality, environmentally responsible waste management services.

III. Assessing Stericycle's Efforts to Reduce the Volume and Toxicity of Waste

Since its founding, Stericycle has differentiated itself from other waste treatment companies by focusing on the 2.7 million tons of waste that is annually generated by the health care industry. Hospitals generate about two million tons of waste each year. Other health care facilities produce another 700,000 tons. But only 15 percent or less of all health care waste is considered "Regulated Medical Waste" (RMW). RMW is the portion of the waste stream that has "significant potential to transmit disease" and thus requires special handling, treatment and disposal. RMW is also known as red bag waste, infectious waste, potentially infectious waste, biomedical waste and biohazardous waste. Stericycle's Medical Waste Acceptance Protocol includes eight categories of accepted medical waste: laboratory waste, human surgical specimens, research animal waste, blood and other body fluids and containers with these fluids, isolation waste, trace chemotherapy waste, sharps waste and medical records.[24]

To protect public health, regulated medical waste must be managed so the viruses, bacteria and other disease vectors it contains are

Figure 1. Hospital Waste



Source: *An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities*, ASHES, AHA Catalog No. 057007, 1993.

destroyed. But in many health care settings, the current medical waste management program is harming rather than protecting human health and the environment. This irony comes from treating all of the waste, or much more than the appropriate 15 percent of waste, as infectious. As a result, some hazardous items that require different treatment strategies are discarded with RMW. Other products are red bagged that could be reused or recycled to save money and reduce the volume of waste. In addition to these two problems, inadequate segregation of regulated medical waste also leads to over-treatment and disposal costs that are higher than necessary.

Problems in the Segregation of Hazardous Chemicals

Stericycle ETD and autoclave systems are designed to destroy pathogens, not to render hazardous chemicals harmless. When hazardous materials are placed into these systems or into incinerators, they are easily discharged in the resulting emissions and residues or they generate new harmful substances that are released.

On paper, Stericycle prohibits mercury, radioactive materials and other hazardous wastes from entering treatment and disposal facilities. Customers verify in writing that they have received and understood the company's Medical Waste Acceptance Protocol that sets out 12 categories of "non-conforming wastes that are not accepted by Stericycle."[25] To insure that their protocol is being followed, Stericycle scans incoming waste. The company's 2000 annual report to shareholders states:

> Upon arrival at a treatment facility, containers or boxes of medical waste are scanned to verify that they do not contain any unacceptable substances like radioactive material.

But radioactive material appears to be the only one of the 12 categories of unacceptable waste that Stericycle is currently capable of consistently detecting. A Washington State survey suggests that the company's scanners are not preventing the treatment of mercury in their facilities. The survey — published in October 2000 by the Hazardous Waste Management Program of King County, Washington — found that 28 percent of dental offices within the county are placing at least some of their mercury-containing amalgam waste into red bags sent to Stericycle's Morton, Washington ETD facility. The study estimated that every year at least 53 pounds of mercury are going to the Stericycle facility from King County dentists.

Mercury is an environmental hazard (for more on mercury, see page 14), and an occupational health threat. The King County study noted that mercury wastes that enter Stericycle facilities may vaporize if the conditions are suitable, potentially exposing workers in the plant.

According to the King County report, Stericycle officials asked about this situation said they do not want to receive amalgam from dentists. When interviewed, Stericycle's Chief Technical Officer, Anthony Tomasello, notes that all health care facilities are legally required to separate mercury and hazardous materials and dispose of them according to local, state and federal regulations. If they are not doing so, they are violating the law.

But unlike radioactive waste, Stericycle places the complete responsibility for excluding mercury waste on its customers, with clauses in its contracts prohibiting shipment of hazardous waste to its facilities. Without a monitoring system for mercury amalgam in red bags,[26] violations are identified at the "back door" of the treatment process by heightened levels of mercury in residues or emissions. At that point, the wastes from many customers have been combined, making it virtually impossible to determine the generator.

Discarded mercury products and wastes, including dental amalgam, in many instances may be considered hazardous waste under the federal Resource Conservation and Recovery Act. As Stericycle is not legally permitted to handle hazardous waste, we believe that it has a legal responsibility to make sure that hazardous wastes are not being disposed of in its medical waste treatment systems.

The company is engaged in customer education on this issue. But Stericycle has not employed systematic front-end enforcement, such as requiring customers to demonstrate that they

have the necessary arrangements in place to prevent shipments of hazardous waste in red bags. Stericycle could, for instance, specify in contracts with dental offices that each office must demonstrate the presence of amalgam capture and separation equipment, and that it has entered into a separate contract for disposal of amalgam wastes.

According to Gail Savina, a staff member of the King County Hazardous Waste program, Stericycle has expressed an interest in improving its efforts to segregate mercury-containing waste locally. Stericycle official Anthony Tomasello met with Savina, and according to her account of the meeting, expressed interest in running a pilot program as a full-service operation for dental offices in King County. Stericycle would work with state officials to obtain authorization to pick up both hazardous and non-hazardous waste, segregated properly, and to take the hazardous waste to an appropriate disposal site. Stericycle would also like financial support from the County to undertake this effort.

Mercury monitoring of red bags is also possible. Edward Swain, a research scientist at the Minnesota Pollution Control Agency, says the technology exists for Stericycle to conduct spot checks of incoming red bags for elevated mercury vapor without having to open the bags.[27] A device known as a Lumex mercury vapor analyzer would allow the company to test the air surrounding red bags for mercury vapor. The company would enclose the air around an individual bag, hold it for a period of time, and then test the outer enclosure for mercury vapor. This test is feasible because mercury vapor will penetrate virtually all plastics, given enough time. If the measurement were done after a standard amount of time, red bags with elevated mercury vapor could be identified. Other mercury vapor analyzers are available, but they may not be as sensitive; the Jerome analyzer, for instance, is 1,000 times less sensitive than the Lumex.

Using a Lumex analyzer in a St. Paul, Minnesota Stericycle autoclave facility, Swain found levels of mercury as high as 7,000 nanograms per cubic meter (ng/m3). This is compared with typical levels in outdoor air of 2 ng/m3. While the levels found were within OSHA-accepted limits, according to Swain they are evidence that mercury-containing waste is entering the facility.

Promoting the Use of Less Toxic Health Care Products

Mercury monitoring devices such as the Lumex analyzer would help Stericycle minimize the toxicity of the waste they process. But this goal is more readily achieved through customer education programs that encourage the purchasing of products that do not contain mercury. Polyvinyl chloride plastic (PVC), one of the most commonly used materials in disposable medical devices, also adds to the toxicity of health care waste. Despite the fact that PVC provides chlorine for dioxin formation during incineration, there are no regulations specifically controlling its disposal. Instead, to minimize the burning of PVC-containing wastes, Stericycle customers should be encouraged to purchase products made from alternatives to PVC where they are available.

In cooperation with Health Care Without Harm, and more recently, the Hospitals for a Healthy Environment (H2E), a partnership of HCWH, the U.S. EPA, the American Hospital Association and the American Nurses Association, a number of hospitals have committed to reducing the volume and toxicity of their waste. For example, the Maine Hospital Association has entered an agreement that includes a commitment to continually work toward reducing the use of PVC. More than 600 medical facilities, including the National Institutes of Health, have committed to phase out the use of mercury.

In Stericycle's Waste Management Plan (revised July 15, 2001)[28] the company defines its role as "to assist the generator's (sic) with education, waste minimization and systems aimed at reducing potentially harmful emissions from incineration of hospital infectious medical waste." The plan makes reference to the MACT rule requirement "that a Waste Management Plan be developed to identify both the feasibility of, and the approach for, separating certain components of solid waste from the health care waste stream in order to reduce the amount of toxic emissions from incinerated waste." But the

Stericycle document makes reference to only two environmentally preferable products: the reusable and fiberboard containers that Stericycle uses to "reduce the potentially harmful products that could get into the waste stream."

Stericycle, its customers and the environment would all benefit from the expansion of the list of "potentially harmful products" to include PVC and mercury-containing devices. Customer education programs should be expanded to include more information on the problem of mercury and PVC in the waste stream, the availability of a solution to these problems through environmentally preferable purchasing, and the incentive of contracts that reward this upstream solution.

Promoting Recycling

In addition to its reusable and fiberboard containers, Stericycle markets a third environmentally preferable product—a line of sharps containers manufactured from Steri-Plastic, a recycled material made from source-segregated regulated medical waste treated by the ETD treatment process and then processed through Stericycle's proprietary systems for the automatic recovery of polypropylene plastics. The recovered polypropylene plastics are used by a third party to manufacture a line of "sharps" containers, which are used by health care providers to dispose of sharp objects such as needles and blades. This Stericycle initiative promotes reuse and recycling by source-segregating regulated medical waste and should be maintained and expanded. The Steri-Plastic experience could serve as a springboard for other company initiatives that encourage customers to segregate waste and buy products made from some of the recycled materials.

Contracts to Promote the Reduction of Waste Volume and Toxicity

Historically, the use of disposables at hospitals was part of an industry-wide trend, which assumed it was safer and less expensive to throw away inexpensive items than to sterilize and reuse them. Today, growing environmental awareness and the rising costs of waste disposal challenge this view and argue for progressive waste reduction initiatives in health care waste management.

Health care providers' incentives and abilities to implement waste reduction activities may be affected by the terms of contracts and training/auditing relationships with Stericycle. Looking at the health care industry as a whole, there are various incentives and disincentives for waste reduction depending on the type of disposal contract. Some hospitals have fixed-fee contracts offering a set price to dispose of wastes no matter how much waste a hospital generates. Since there are no savings associated with waste reduction, this approach creates little financial incentive to segregate or reuse materials.

The Tellus Institute recently described a contracting approach that can improve waste reduction incentives for hospitals:

> An emerging contracting mechanism, resource management (RM), is yet another opportunity for advancing waste minimization. …RM contracts are structured to de-couple the quantity of waste disposed from the contractor's profit, and provide financial incentives to waste disposal contractors for efficient material use and recovery. For example, RM contracts may cap disposal costs (based on current costs) and then include a cost sharing arrangement for successful waste minimization programs that are initiated by the contractor. When compensation is tied to the value of material related services (the focus being on prevention, reuse and recycling waste, with disposal as the last resort) rather than the quantities of waste disposed, contractors receive the right price signals and their incentives align with the customer's.[29]

Along these lines, New England Medical Center (NEMC) recently contracted with a consultant on waste reduction. NEMC and the consultant shared the savings from implementation of the contractor's recommendations on a 50/50 basis.

Stericycle has stated in correspondence to HCWH that it is beginning to engage in an approach similar to the one described by NEMC:

> We believe that financial incentives to promote environmental awareness are the most effective means by which we can modify the behavior of our customers. For example, in a number of our most recent

> contracts, we have provided for a sharing of the cost reduction that occurs when the initial waste volume and, consequently our service costs, are later reduced. We believe that this type of approach, which can be customized for each customer, encourages hospitals to reduce and recycle by providing a direct financial reward for their efforts.[30]

Stericycle also offers fee-for-service waste reduction training and consulting to its customers to assist them in reducing the amount of regulated medical waste at the point of generation.[31] These services include training, educational videos and printed materials. In addition, the company will soon be utilizing a computer-based device, which allows quick evaluation of waste reduction and cost saving opportunities as an auditor moves through the hospital. It utilizes a computer to generate a report, area by area, of the hospital. If the fee schedule for these services discourages their utilization by Stericycle customers, health care institutions may be foregoing long-term savings to avoid a short-term cost.

Recommendations for Stericycle's Efforts to Reduce the Volume and Toxicity of Waste

- **Require aggressive waste and toxicity reduction efforts, waste segregation and waste management plans from all customers.** The most important aspects of waste management at health care facilities are proper segregation to ensure that only the infectious waste is being treated, reduction of the overall volume and toxicity of waste, and planning to achieve these goals.
  - Stericycle contracts should provide monetary and other incentives to customers who implement comprehensive waste management plans and who demonstrate progress to reduce waste volumes and reduce/eliminate toxic or hazardous products and chemicals in the waste stream. Ongoing customer education and technical assistance programs on waste volume and toxicity reduction should be a standard provision of Stericycle contracts.
  - Stericycle should also encourage its customers to participate in the national program Hospitals for a Healthy Environment (H2E), whose mission is to eliminate mercury, reduce hospital waste and minimize pollution from the health care industry. H2E is a joint effort between the EPA, American Hospital Association, American Nurses Association and HCWH. For more information, see www.h2e-online.org.
- **Ensure that mercury and other hazardous materials are not disposed of at any Stericycle treatment facility.** Stericycle's ETD and incinerator facilities are not legally permitted to handle hazardous waste. Treating hazardous materials in these systems can result in discharges of these materials in emissions or residues. In addition, the burning of PVC will result in harmful dioxin emissions and toxic residues. To prevent mercury, PVC and other hazardous materials disposal at Stericycle facilities, Stericycle should:
  - Verify that mercury and other excluded hazardous materials are not present in the waste it receives, by requiring customers to demonstrate that they have procedures and technologies to segregate and otherwise dispose of those materials, and by more thorough monitoring of incoming wastes at Stericycle facilities.
  - Explicitly exclude in its contracts dental amalgam, all mercury-containing products and products made from PVC plastic.
  - Implement a clear penalty policy for facilities that chronically do not comply with contract prohibitions on hazardous waste or other excluded wastes.

IV. Assessing Stericycle's Efforts to Eliminate Incineration

Alternative Technologies Available to Stericycle

For the majority of the waste it treats, Stericycle does not use incineration. In fact, alternative technologies were originally the hallmark of Stericycle's medical waste treatment approach. In 2000, the company incinerated 27 to 32 percent of its waste. For the remaining 68 to 73 percent, it used two alternative treatment methods: autoclaving (60-65 percent) and electrothermal deactivation (8 percent).[32]

These non-burn technologies are environmentally superior to the use of incinerators because they create and release fewer toxic substances. To our knowledge, non-burn technologies - operating largely in the absence of oxygen - do not result in the creation of dioxins, nor in the routine dispersion of the high volumes of air emissions generally associated with incinerators.

However, because the non-burn technologies are primarily geared to destruction of pathogens, many highly toxic substances placed into these units can emerge relatively unchanged. Relatively little scientific data are available concerning toxic emissions to air or water from the treatment processes and waste disposal by these facilities. Although Stericycle asserts that its "ETD and autoclave facilities do not generate regulated air emissions like our incinerators, and so are not routinely tested,"[33] our review found evidence of potential for these facilities to receive mercury and other toxic substances. We believe regulators should routinely test for and regulate toxic emissions from these facilities and make this information available to the public. Landfilling of residues also raises concerns about potential leaching of mercury and other toxic materials to ground and surface waters unless the health care facility segregates out these hazardous materials.

Autoclaves

An autoclave uses steam sterilization to disinfect medical waste. Waste is loaded into a chamber and sealed. The temperature and pressure are raised for a specified period of time in order to kill pathogens in the waste. Then the chamber vents the steam, which is usually filtered before being released into the air. Some autoclave units create a vacuum, passing the exhaust air through a high-efficiency particulate air (HEPA) filter, before introducing steam. By using a vacuum, heat is transferred more efficiently to the waste, thereby increasing the level of disinfection. Some autoclaves shred the waste so that it is unrecognizable, then compact it. Because autoclaves involve the use of steam, there is potential for generating extensive contaminated liquid effluent that may be released to sewers or local waterways.

Electrothermal Deactivation (ETD)

Stericycle has developed a proprietary process for medical waste treatment, known as electrothermal deactivation (ETD). The company describes this process as using an oscillating energy field of low-frequency radio waves to heat medical waste to temperatures that destroy pathogens. According to the company, this process is most cost-effective on materials with low electrical conductivity, including all human pathogens. ETD employs low-frequency radio

waves because they can penetrate deeper than high-frequency waves, such as microwaves.[34] Stericycle reports that its ETD process has numerous advantages over the competing process of incineration, including a lack of regulated emissions, lower cost and plastics recycling.

Stericycle's Use of Incineration

When Stericycle acquired Browning Ferris Industries' (BFI) medical waste facilities in 1999, it went from being a largely non-incineration company to owning 18 BFI incinerators across the country. Before the acquisition of its medical waste operations, BFI officials had made a public commitment to close 75% of its medical waste incinerators. Stericycle did not assume that pledge when it purchased BFI.

According to Health Care Without Harm research, as of February 2002, Stericycle operates 40 medical waste treatment facilities. Twelve of the 40 are incinerators, including four that are "combination" sites having both an incinerator and autoclave.

The U.S. EPA identifies medical waste incineration as the third largest known source to the environment of highly toxic dioxin, a known carcinogen that has been linked to birth defects, immune system disorders and other harmful health effects. Incineration is also responsible for about 10 percent of mercury emissions to the environment from human activities. Mercury is a potent neurotoxin that can cause developmental defects and harm the brain, kidneys and lungs. Pollutants from incineration also include furans, acid gases, heavy metals and particulates.

Dangerous Releases from Incineration

DIOXIN. Dioxin is one of the most toxic chemicals known to science. While exposure of the general population occurs through the ingestion of many common foods, children exposed in utero during critical periods of development appear to be the most sensitive and vulnerable to the effects of dioxin. Dioxin exposure has been linked to disrupted sexual development, birth defects and damage to the immune system. The World Health Organization's International Agency for Research on Cancer (IARC), the U.S. EPA and the National Toxicology Program have all classified dioxin as a known human carcinogen. Because of its potential to cause harm, dioxin is one of 12 chemicals to be eliminated under a new United Nations Treaty on Persistent Organic Pollutants (POPs).

MERCURY. Mercury is a potent neurotoxin, which means it attacks the body's central nervous system; it can also harm the brain, kidneys and lungs. It can cross the blood-brain barrier as well as the placenta. If mercury-containing items are sent to an incinerator, mercury will contaminate the air. Airborne mercury then enters a global distribution cycle in the environment, contaminating fish and wildlife and the humans who eat them. Mercury pollution has led to warnings against eating fish caught in some or all of the bodies of water in 41 U.S. states.

HYDROGEN CHLORIDE/HCL. Poorly maintained or designed medical waste incinerators are notorious for emissions of corrosive acids into local communities. The emission of these acids damages local buildings and endangers the health of people in neighboring communities who breathe the fumes, increasing the rates and severity of respiratory problems, including asthma.[35]

OTHER TOXINS. In addition to dioxin, mercury and HCl, medical waste incinerators discharge an array of other pollutants, including numerous toxic organic compounds, metals and in some circumstances, radiation.

TOXIC ASH. Modern incinerators trap some toxic metals in the "fly ash" in pollution-control devices. The better the technology, the more toxic the fly ash. Typically, fly ash requires special disposal in expensive hazardous waste landfills. However, fly ash is often mixed with the resulting bottom ash to "dilute" the toxics so it can pass hazardous waste tests and be disposed of in ordinary dumps or even "recycled" into products such as road materials. The fly and bottom ash contain toxic metals as well as dioxins and furans. A hundred times more dioxin may leave the incinerator in the fly ash than is emitted into the air from the smoke stacks.[36]

Does Stericycle Need Incineration to Manage Waste Safely?

The demand for incineration rose 20 years ago in response to increasing fear of infection from health care waste contaminated with HIV or hepatitis. Incineration created a sense of complacency because the threat of infection was destroyed. But as the threat of environmental pollution and resulting health problems from incinerators became more apparent, environmentalists have encouraged governments to establish stricter regulations on medical waste incineration.

Stericycle appeared to acknowledge the problems with incineration in a letter to Health Care Without Harm from John Vitale, the company's top environmental official:

> I believe we are fundamentally in agreement with the premise that the amount of medical waste that is incinerated should be systematically reduced to the lowest feasible levels. I also believe we both recognize that given the state of current technology there will always be a small fraction of the waste that requires management by incineration. The incineration that must occur should take place in larger, regional plants that incorporate the best available technology in order to reduce any emissions to the lowest possible levels...[37]

Mr. Vitale's reference to a "small fraction" of waste that must be incinerated assuredly refers to pathological and chemotherapy wastes that are estimated to constitute about two percent of the total volume of hospital wastes. Some states have statutes or regulations that currently require the use of incineration to destroy some or all of those wastes. When such legal requirements exist, Stericycle incinerators are providing a legally mandated service. However, Stericycle's incineration capacity far exceeds the amount "required" for this tiny fraction of the overall waste volume.

Chemotherapy ("chemo") wastes include all waste contaminated with chemotherapy chemicals, including plastic tubing, IV bags and disposable gowns. Reducing the chemo waste stream is a challenge for many hospitals because staff members are appropriately cautious about the disposal of these hazardous drugs. There are, however, opportunities to reduce the volume of wastes generated in chemotherapy. For example, uncontaminated disposable gowns or an IV bag that did not contain chemo drugs should be kept apart from the rest of the waste stream (source-segregated). Hospitals should develop procedures and have containers available to source-segregate waste that does not require incineration.

By contrast, the incineration of pathological and anatomical wastes is more of an ethical, religious and cultural issue than a scientifically based requirement. What is the appropriate way to dispose of body parts? The answer must recognize cultural and political concerns with cremation or burial as perhaps the most acceptable alternatives.

The Centers for Disease Control and Prevention (CDC) sets out two alternatives for the proper disposal of pathological waste and other items that require special treatment:

> Hospital wastes for which special precautions appear prudent are microbiology laboratory waste, pathology waste, bulk blood or blood products, and sharp items such as used needles or scalpel blades. In general, these items should either be incinerated *or decontaminated* prior to disposal in a sanitary landfill.[38] [Emphasis added.]

While this CDC recommendation allows for alternatives to incineration, a few states responded to the recommendation by enacting laws or regulations *requiring* incineration for these waste streams. Similarly, some states have regulations requiring incineration for chemotherapy wastes.

According to medical waste technologies specialist Dr. Jorge Emmanuel, non-incineration technologies exist that are technically capable of disinfecting all pathological waste and treating all chemotherapy wastes. In a report released in the fall of 2001 by Health Care Without Harm, "Non-Incineration Medical Waste Treatment Technologies," Emmanuel documents about 50 different technologies currently available for medical waste treatment and disposal. The report concludes that cost-competitive alternative technologies are available that are safer and cleaner than incineration, do not produce dioxin, and are just as effective at disinfecting medical waste.

CASE STUDY:

ST. LOUIS, MISSOURI

A 10-year-old Stericycle incinerator in St. Louis, Missouri has had numerous compliance problems over the years and is facing pressure from a coalition of environmental and community groups (coordinated by the St. Louis Medical Waste Incinerator Group, or MWIG) to permanently shut down.

The facility, originally built by a subsidiary of Browning-Ferris Industries (BFI), is located north of the downtown area in one of the poorest sections of St. Louis. It burns about 9 million pounds of waste per year, releasing approximately 3.5 tons of particulate air pollution in the process.[1] Medical waste from throughout the St. Louis metropolitan area is incinerated, as well as out-of-state waste and international waste from passenger airlines serving the city. Stericycle acknowledged that there would be an increase in the volume of medical waste incineration after upgrades to the facility in August 2000.

In addition to the incinerator, Stericycle has an inactive autoclave onsite. Although Stericycle has stated that it is seeking a permit for operation of the autoclave, the company refuses to limit future medical waste incineration. In a June 2001 public hearing, Stericycle officials reiterated their commitment to incineration even if the autoclave is permitted.[2]

In August 2000, the incinerator was temporarily closed after the facility failed its mercury emissions tests, a failure the company attributed to "faulty new machinery." Emissions tests conducted a month later, however, showed passing mercury levels.[4]

Most recently, in spring 2001, Missouri air pollution officials proposed a $250,000 penalty for alleged operating violations that were discovered during a December 2000 city analysis of the plant's performance. Alleged violations include the input of more medical waste per hour than allowed under the permit. Stericycle temporarily shut down operations in January 2001 due to the allegations.[3] The company is negotiating with the state of Missouri to have the fine reduced.[5]

Regulatory records show that the incinerator is prone to breakdowns, reportedly as often as 10 times per year. When there is a mechanical failure, the facility defaults to a back-up stack that does not have scrubbers.[6] A local newspaper, the *Riverfront Times*, reported that its review of the company's records at the St. Louis Division of Air Pollution Control indicated that under these conditions toxic chemicals can "dodge safety controls for hours on end."[7]

On one occasion, for instance, when the fan was down for an eight-hour repair job, the incident report notes the "estimated quantity of pollutants emitted to the atmosphere (is) unknown."[8]

Due to such incidents, the dangers of incineration, the impacts of the incinerators on an already overburdened community, and weaknesses in existing regulations and enforcement, MWIG activists are calling for the permanent closure of the incinerator. Activists have conducted extensive public outreach, petitioned public officials, called on Stericycle customers to boycott the incinerator, supported local policies that would end incineration, and are considering filing a class action law suit against the company.[9]

A major breakthrough in these efforts came in June 2000 when Washington University Medical Center agreed to stop sending all non-pathological waste (90 percent of its waste stream) to the incinerator, sending it instead to an autoclave in Kentucky.[10]

This decision came on the heels of an announcement by a city alderman that he would sponsor ordinances to strictly control medical waste incineration within the city. Board Bill 23 would require continuous monitoring on the bypass stack emissions and would minimize the quantity of waste allowed to be incinerated. Board Bill 24 would require medical waste incinerators to receive neighborhood

approval before they could be granted a business license. Both bills were reintroduced in 2001.

In June 2001, the Tenant Hospital (formerly the St. Louis University Hospital) closed its medical waste incinerator, pointing to pressure from activist groups in its decision.[11]

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NOTES

1. C.D. Stelzer, "Getting Burned: A North St. Louis Medical Waste Incinerator Has Spewed Dioxin for a Decade. Nearby Residents Say It's Time to Fight the Fire," *Riverfront Times* (St. Louis MO), June 21, 2000.
2. Kathleen Logan Smith, MWIG.
3. William Allen, "State Seeks $250,000 Fine from Medical Incinerators; Facility in St. Louis Now Complies with Pollution Rules, Official Says," *St. Louis Post-Dispatch*, April 20, 2001.
4. Tina Hesman, "Medical Waste Incinerator North of Downtown Is Open Again After Correcting Problems, Mercury Levels in Emissions Were Too High," *St. Louis Post-Dispatch*, September 20, 2000.
5. Kathleen Logan Smith, MWIG.
6. Dan Berg and Edy Kim, MWIG.
7. C.D. Stelzer, "Getting Burned: A North St. Louis Medical Waste Incinerator Has Spewed Dioxin for a Decade. Nearby Residents Say it's Time to Fight the Fire," *Riverfront Times* (St. Louis, MO), June 21, 2000.
8. Ibid
9. Dan Berg and Edy Kim, MWIG.
10. Ibid
11. William Allen, "SLU Hospital Closes Medical Waste Incinerator," *St. Louis Post-Dispatch*, June 10, 2001.

The availability of effective alternatives means that the eventual elimination of all incineration of medical waste is technologically feasible. To do so will necessitate changes in state laws, persuasion of hospital systems of the efficacy and environmental merits of non-burn approaches, public education and acceptance of non-burn technologies, and better segregation and reduction of waste by hospitals.

Are Stericycle Incinerators that Meet the New EPA Standards Safe?

In 1990, Congress passed amendments to the Clean Air Act which included a requirement that the EPA enact standards and guidelines for all new and existing medical waste incinerators (MWIs) by 1992. On September 15, 1997, the EPA published its final standards and guidelines, known as the Maximum Achievable Control Technology (MACT) standards. According to the Clean Air Act, the standards were supposed to establish limits on the emissions of a number of pollutants based on the best performing 12 percent of incinerators in the industry, or "maximum achievable control technology" for existing MWIs. The standards also require training of MWI operators, waste management plans, testing and monitoring of pollutants, equipment inspection requirements and operating parameters.

During the debate over the MACT rules, Health Care Without Harm advocated for stronger standards and lower emissions limits than those proposed by the EPA. According to research and comments by the Natural Resources Defense Council (NRDC), the EPA standards allow as much as 25 times the emissions of particulates and more than 100 times more emissions of dioxins and mercury than the best performing incinerators in the industry can actually achieve.

While Congress intended EPA rules to ensure state-of-the-art controls on medical waste incinerators, it is apparent that current EPA rules apply weaker technology requirements than that Congressional goal. Although federal law currently allows Stericycle to operate its incinerators at the level of pollution control designated by the EPA regulations, recent court rulings suggest that those rules will be made tighter. (See "Court Verdict," page 18.) In the meantime, a more proactive environmental approach by Stericycle would be to shut down incinerators except to the extent needed to service the very small portion of the waste stream for which incineration is legally mandated.

COURT VERDICT:
EPA Rationale for Medwaste Incinerator Rule Is Inadequate

A lawsuit filed by Earthjustice Legal Defense Fund challenging the EPA MACT rule on behalf of the National Resources Defense Council (NRDC) and the Sierra Club was decided in favor of the plaintiffs in a March 1999 DC Circuit Court. The result of this court decision was to require the EPA to provide a better rationale for their guidelines, explaining how they reflect the best-performing 12 percent of all medical waste incinerators. If the EPA cannot do so, it will need to strengthen the rules. The court was highly skeptical of the EPA's use of state regulatory standards and the inclusion of uncontrolled facilities to derive the so-called "top 12 percent" of facilities. For instance, with regard to the use of state regulatory limits to determine the "best performance," rather than the actual measured performance of facilities, the court said that:

> EPA has said nothing about the possibility that MWIs might be substantially overachieving the permit limits. If this were the case, the permit limits would be of little value in estimating the top 12 percent of MWIs' performance.

The court also criticized the use of "uncontrolled" facilities as part of the so-called top 12 percent:

> …. data on which EPA relied strongly suggest that it was irrational to suppose that any of the incinerators in the top 12 percent were uncontrolled — at least for the six pollutants that wet scrubbers control. Data submitted by the American Hospital Association in 1995 indicate that over 55 percent of MWIs in each category were controlled by wet scrubbers…. it is difficult to see how it was rational to include any uncontrolled units in the top 12 percent, at least with respect to pollutants that wet scrubbing controls.

As a result of the court's remand, the challenged MACT guidelines are in effect but it is likely that the EPA will eventually (barring legislative intervention) be forced to adopt more stringent medical waste incineration standards, closer to the proposed NRDC standards. The EPA has not published its revised rationale and the plaintiffs in the case are continuing to monitor any EPA attempt to better justify its regulations.

Incineration of Residues from Other Waste Treatment Technologies

When medical waste is treated using non-incineration technologies, how is it ultimately disposed? All autoclaves and ETD facilities generate solid waste residues. The customary practice is to bury those residues in landfills. But in at least one location, Stericycle is incinerating ETD and autoclave waste residues. This practice, either by Stericycle or its international partners, undermines the categorization of these facilities as environmentally superior alternatives to incineration. The amount of dioxin, mercury, and other harmful releases may be the same as if the medical waste had been sent to an incinerator from the start, particularly without source separation of mercury and chlorine-containing waste.

The company has stated to HCWH that the one location where this is happening is due to a contractual arrangement that requires residues to go to a waste-to-energy facility and that "the majority of our treated back-end waste is disposed of in modern, secure sanitary landfills."[39] However, the company's web site states, in a list of advantages to the ETD technology, "Stericycle has also developed and tested a process in conjunction with a cement manufacturer to utilize treated regulated medical waste as a fossil fuel substitute in cement kilns."[40] Stericycle's Australian partner, SteriCorp, also mentions this as an opportunity at its Canberra ETD plant. SteriCorp's 2001 annual report says:

CASE STUDY:
LAWRENCE, MASSACHUSETTS

On November 16, 2000, Stericycle announced the permanent closure of its incinerator in Lawrence, Massachusetts. The facility was the largest medical waste incinerator in New England, burning 24 tons of waste per day, and was located in a low-income neighborhood of color.

Stericycle's decision followed a year-long grassroots campaign by local residents who sought to close the incinerator due to environmental and public health concerns. Activists from the Lawrence Environmental Justice Council (LEJC) and other Merrimack Valley environmental groups petitioned community members, lobbied public officials, attracted media attention, and proposed a city ordinance geared to shut down the incinerator.

"We spent a lot of time going door to door in bad weather and holding educational events linking the state of Lawrence children's health to medical waste incineration," said Tamara Trejo, former organizer for the Lawrence Environmental Justice Council. "Once people knew that the incinerator was right there, in a low-income and residential area, it was hard to claim that this was not an environmental justice issue."

In the State of Massachusetts, medical waste incinerators must complete a stack test every two years. Stericycle closed the Lawrence facility in November 2000, one month before it was set to have these tests performed. Evidence from the December 1998 stack tests suggests that emissions would not have met the new EPA emissions limits (see MACT standards, page 4).

Residents, including some members of the City Council, recall days when smoke and fire would bellow from the facility's stack. Residents also informed LEJC members that an illegal waste transfer station was being run on an industrial cul-de-sac. Despite these reports, no state fines or violations were imposed on the plant.

Lawrence has a disproportionately high rate of overall health problems, relative to other communities in the state. Lawrence children have the highest lead poisoning rate in Massachusetts—more than five times the state average—and some of the highest childhood asthma rates. Soil samples taken from the incinerator site and the surrounding neighborhoods show high levels of lead contamination in the area.

"We have had six incinerators from Lowell to Haverhill, and we've had enough from those stacks polluting an obviously economically disadvantaged part of the Merrimack Valley,"[1] said Ed Meagher, co-founder of North Andover People for the Environment and member of the Merrimack Valley Environmental Coalition.

In addition, community activists proposed an ordinance to the Lawrence City Council that would set zero emission limits for mercury, lead and dioxin within city limits. Activists provided councilors with copies of similar toxics ordinances adopted by cities in California and Michigan. The Stericycle incinerator could not have complied with these requirements, so the ordinance would have meant a de facto mandate to close the facility.

Lawrence General Hospital and Holy Family Hospital, the two area hospitals, supported grassroots efforts and refused to send medical waste to the incinerator. In a letter to the City Council in support of the toxics ordinance, Lawrence General Hospital president and CEO Joseph S. McManus stated,

> "Lawrence General Hospital has long been an advocate of reducing the sources of airborne toxins that adversely affect the health of citizens of Lawrence and the surrounding area... Over the years, the hospital has been on record as raising serious questions about the wisdom of state government to allow the high concentrations of solid waste incinerators in the greater Lawrence community. ...Lawrence General Hospital is a great supporter of

your efforts to institute this ordinance change within city limits. We hope and wish that other surrounding towns would do the same."

In June 2000, Stericycle threatened to sue the city if council members adopted the ordinance. After the ordinance was proposed, Rich Geisser, Area Vice President for Stericycle, commented, "We're a bit surprised by it all. We probably have one of the best-run facilities in the country — state of the art standards for medical waste incinerators. And our plan is to upgrade it."

While Stericycle continues to deny that the toxics ordinance and local campaign influenced its decision to close the incinerator, these initiatives raised the stakes considerably for Stericycle to continue operating in Lawrence. Citizen efforts meant a high likelihood that Stericycle's costs and compliance hurdles would not stop with adherence to the EPA's weak rules for medical waste incinerators.

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NOTES
1. Correspondence with Tiffany Skogstrom of Health Care Without Harm.

"The treatment plant is both environmentally sustainable and will operate on a low cost basis where 75% of the waste can be used as an alternative fuel source in energy production."[41] The company is "pursuing markets to convert the balance of the waste stream into a RDF (Refuse Derived Fuel) Pellet," according to Don Sampson, Stericycle Vice President of International Development and Engineering.[42]

Factors Influencing Stericycle's Reliance on Incineration

As incinerators across the country are being shut down, Stericycle is also reviewing its commitment to incineration, deciding which incinerators to upgrade and which to close. So far, the company has not indicated its intention to limit incineration to wastes for which burning is legally required, nor to induce its customers to switch from burn to non-burn methods. Factors likely to affect the company's decision about incineration include:

- cost of compliance with existing Environmental Protection Agency regulations,
- costs associated with heightened community opposition to incineration and concerns regarding its facilities, and
- customer demand for incineration or non-burn methods.

Compliance Costs

The costs to Stericycle to comply with the EPA's regulations are high, for both old and newer incinerators, and have made the most outdated and dirty facilities economically impractical to upgrade. Pollution controls, monitoring devices and their calibration, and stack testing are all expenses that have to be assumed. And, as opposition to incineration grows and the EPA continues to tighten allowable emission limits, these costs may rise.

Community Concerns

Community protests against incineration also have an effect on Stericycle and its decision-making. Four case studies included in this section describe local opposition to Stericycle in St. Louis, Missouri; Lawrence, Massachusetts; Haw River, North Carolina; and the Oakland, California facility recently purchased by the company. Activists continue to monitor Stericycle's incineration compliance record and turn violations into press events. Every time a community protests, or seeks to enact new local laws that limit Stericycle's ability to incinerate,

CASE STUDY:
HAW RIVER, NORTH CAROLINA

The Stericycle medical waste incinerator in Haw River, North Carolina is the largest in the state with a permit to burn 3,822 pounds of medical waste per hour. Stericycle acquired the Haw River incinerator as part of its 1999 acquisition of BFI Medical Waste, Inc. Waste from 17 states and the District of Columbia comes to Haw River. Total waste incinerated in 2000 exceeded 13,000 tons, most coming from North Carolina, but more than 5,000 tons was imported from an area extending from New Jersey to Georgia to Michigan.

In November 2000, the state recommended civil penalties for five episodes of excess waste burning at the plant. Stericycle claimed that the computer system that recorded the alleged weight violations was only a "billing tool for accounting purposes," and pointed to hand-written logs that recorded no excess weight. The state's Division of Air Quality (DAQ) chose not to impose a fine on Stericycle.[1]

A month earlier, in October 2000, the company submitted test results to demonstrate compliance with state and federal pollution standards. The DAQ, however, discovered "computational errors" in the report filed by Stericycle in regard to particulate matter (PM) emissions. The incinerator had allegedly emitted PM 5.4 percent above the maximum. Each day of operation over the limit makes the operator subject to a civil penalty of $10,000 per day. In February 2001, the DAQ issued a notice of violation and recommended enforcement. Stericycle repeated the PM test and analysis with the same testing firm in March, at which time tests indicated compliance. The DAQ, after reviewing the data, levied a fine of $4,000.[2]

Blue Ridge Environmental Defense League (BREDL), a non-profit organization, works with the residents of Haw River and the nearby communities of Graham and Mebane in Alamance County to oppose the incinerator. The group launched a public campaign against the plant in April 2001. The campaign has involved engaging the local press, distributing reports and other materials, organizing community meetings, and calling for further testing and verification of emissions from the plant. BREDL also convened a local training session on toxic air pollution testing that uses air samples taken with buckets and air pumps. This "Bucket Brigade" program has put low-cost air testing devices in the hands of community volunteers, and enables incinerator neighbors to do their own community health surveys and air quality sampling.

In response to some of these measures, Stericycle proposed improvements to its air pollution control system, which were approved by the city council. New tests must be completed by March 2002.

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NOTES
1. Louis Zeller, *First, Do No Harm, The Haw River Medical Waste Incinerator,* 2001.
2. Ibid

it imposes costs, delay and uncertainty on the company. While Stericycle officials have expressed a general preference for non-incineration waste treatment technologies, they have not, to date, been willing to commit to phase out incineration, starting with their most polluting facilities.

Customer Demand

Stericycle officials have stated that they are willing to accommodate customer demands for non-burn disposal of wastes that do not legally require incineration in that jurisdiction. Customers will also need to insist on contract terms with Stericycle that ensure non-burn treatment of their wastes.

CASE STUDY: OAKLAND, CALIFORNIA

In December 2001, Stericycle bought most of the assets of Integrated Environmental Systems (IES), a medical waste services company in California. The sale marked the end of IES, a company that had operated two medical waste incinerators in east Oakland, California since 1981. The IES incinerators were located in a predominantly low-income, ethnically diverse area.

Community opposition was the key reason for the sale of IES. The company was under increasing pressure from community groups, environmental advocates, regulators and customers for a very long history of health and safety violations. The company was unable to "demonstrate compliance" with local regulators such as the California Department of Health Services (DHS), the Bay Area Air Quality Management District (BAAQMD), and the Occupational Safety and Health Administration (OSHA). IES's poor compliance record culminated in mid-2001 with a record $925,000 fine from DHS. The company's Title V permit application under the Clean Air Act remained controversial, unresolved, and two years overdue on the day of the sale.

The local coalition of community, labor and environmental groups employed tactics including direct action, vigils and legal challenges to pressure IES. The IES customer base also played a significant role in the company's ultimate decision to stop operations. California hospitals and healthcare systems began to demand that IES stop incinerating its waste and utilize non-burn technologies instead.

The closure of the IES incinerators signals the end of commercial medical waste incineration in California. The IES incinerators were the last of their kind statewide. Stericycle has said privately they will not burn any medical waste in California, relying instead on extensive autoclave capacity in the state and on regional incinerators in Utah and Arizona where the company deems incineration necessary. Stericycle will face opposition if it tries to ship waste out of state as local activists have vowed not to export incineration and its accompanying problems to other communities.

IES has consistently claimed that its incinerators were not only state-of-the-art, but the "best in the world." Community groups say that this demonstrates that even an incinerator with an advanced design cannot be managed and operated safely.

Community groups also maintain that the end of incineration in California offers an opportunity to demonstrate an on-the-ground example of a just transition to safer technologies that maintains good jobs, which are important in every community. Stericycle already has operations and permits in the Bay Area for non-burn treatment technologies. The community coalition, joined by local elected officials, has called on the company to rehire workers laid off from IES with the same or better union contract.

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At present, the demand for incineration facing Stericycle is mixed. Some customers, such as the Veterans Administration, are insistent on using incineration as a "total assured destruction" method of disposal for the entire waste stream. By contrast, other Stericycle customers want the company to focus on non-incineration technologies. For example, at least one major health care provider chose Stericycle in part because of the company's use of a non-incineration technology. After Stericycle purchased the BFI facilities, the health care provider found that some of the waste was nevertheless being diverted to incinerators.

Recommendations for Stericycle's Efforts to Eliminate Incineration

Phase out the incineration of health care waste. Incineration is a public health and environmental threat that can be eliminated because alternatives exist for treating all health care waste streams. To achieve the elimination of incineration, Stericycle should take the following steps:

- Immediately end the burning of mercury, PVC and other chlorine-containing wastes from health care facilities.
- Limit incineration to the relatively small portion of regulated medical wastes for which incineration is legally required as the only treatment method.
- Specify in contracts that only wastes that legally require burning will be incinerated and that the customer must segregate out this waste.
- End the burning of ETD and autoclaved residuals and document disposition of residues. Stericycle should fully and accurately report the role of incinerators, cement kilns and landfills in disposal of residues from its non-burn technologies and end the practice of incinerating residues from non-burn systems.
- Publicly pledge to phase out incineration and advocate changing the laws to allow universal application of non-burn solutions.

V. Assessing Stericycle's Efforts to Protect Workers and Communities From Pathogens

Serious Concerns About Pathogen Containment and Worker Safety

There is the potential for infectious disease and hazardous material releases to the outside air or into the facility during non-burn and burn waste treatment, especially if enclosure systems are poorly operated, poorly designed, or if equipment malfunctions. To date, Stericycle has routinely concealed the operational and emissions problems at its facilities. This practice makes it more difficult to create effective worker education and community outreach programs.

As case studies from Stericycle ETD facilities in Washington State and Rhode Island show, federal and state regulators have raised serious concerns about incidents with potential for pathogen exposures or releases at Stericycle facilities. Poorly maintained equipment and improper treatment of waste led to fines in both cases. Input of excess waste, as has been alleged at multiple Stericycle locations (Woonsocket, RI, page 26; St. Louis, MO, page 16; and Haw River, NC, page 21), can also lead to machine malfunction and shutdown, and increased chance of worker pathogen exposure.

Worker and community safety depend upon a workforce that is properly trained and equipped to handle problems. As Stericycle continues to expand, it must make training of the workforce at newly acquired facilities a priority, rather than assuming that the prior owner has adequately educated all employees. The use of temporary workers also exacerbates the problem of providing ongoing training programs that give employees the skills they need to protect themselves and the surrounding community. Training must be multi-lingual and include the appropriate use of safety gear, and that equipment must be readily available to all workers.

In addition, workers face equipment-related hazards like those found in many industries, as well as exposure to radiation, mercury and contaminated sharps resulting from improperly segregated waste and inadequate protections at the facility. Another major hazard of incinerators to workers and the surrounding community is improperly contained toxic ash, which may spread around the facility and out the door.

CASE STUDY:
WOONSOCKET, RHODE ISLAND

In 1995, the state of Rhode Island and the U.S. Occupational Safety and Health Administration (OSHA) alleged that Stericycle mishandled pathological waste at the company's electrothermal deactivation (ETD) facility in Woonsocket, Rhode Island, knowingly exposing workers to potentially dangerous pathogens.

The 1995 notice of violation by the state of Rhode Island Department of Environmental Management alleged the following:

- On a total of 118 days between October 1992 and March 1994, the company either bypassed the treatment process specified in their license or improperly treated medical waste. "Evidence obtained by the department revealed that at times the vessels containing regulated medical waste were not treated and that at times when the regulated medical waste was put through the radiofrequency (RF) oven, the temperature achieved was falsified to misrepresent proper treatment." The state alleged the company was accepting wastes at a greater volume than its processing capacity and bypassing the treatment process for the excess medical waste.

- From October 1992 to November 1993, Stericycle manipulated the outcome of spore strip analysis, which is used to test the degree to which bacteria or fungi are killed in each load of medical waste run through the treatment system. Under normal circumstances, a "spore strip" that measures the presence of live bacteria is placed with waste in each radiofrequency oven. The ovens are supposed to heat the waste to at least 194 degrees for 7 to 15 minutes.[1] A clean spore strip result would indicate that the waste was thoroughly heated. Stericycle workers placed the test strips in a household microwave oven to kill the spores on the strips.

- The company engaged in falsification of pathogen destruction data records, failure to treat waste properly, failure to sterilize medical waste containers and improper use of equipment.

- These circumstances created a potential for workers to be exposed to pathogens.

- The company consented to a $400,000 fine for the alleged violations and, among other things, agreed to add more stringent spore-strip testing requirements.

- During the same time period, OSHA fined Stericycle $1,400 for safety violations at the plant.

The problems at the Woonsocket facility did not end with the 1995 violation allegations. In December 1999, OSHA conducted another inspection at Stericycle. According to the notice of violation issued April 18, 2000, inspectors found receptacles that had a "reasonable likelihood for becoming contaminated with blood or other potentially infectious materials... [which were] not cleaned on the outside." They also found that "the area where newly received medical waste is fed into the grinder and compactors area" was not labeled.

Stericycle officials assert that any problems identified by the regulators have been remedied, and the company has also denied the accuracy of many of the allegations of investigators and regulators.

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NOTE
1. "State of Rhode Island proposes $3.3 million fine against waste handler," Associated Press, April 4, 1995.

CASE STUDY:

MORTON, WASHINGTON

From May to September 1997, tuberculosis (TB) was diagnosed in three workers at a Stericycle electrothermal deactivation (ETD) facility in Morton, Washington. Stericycle claimed that the community was the source of the TB, rather than the facility, and noted that there were no prior incidents of workers contracting TB other than by person-to-person transmittal.

Upon inspection, however, the facility was cited for the removal of the flaps on the plant's in-feed chute. Inspectors were reportedly concerned that this could lead to the release of infectious agents. The investigators also noted that the strain of TB contracted by one worker was the same as that from a person treated at a facility that sends its waste to Stericycle. The investigation was unable to identify any person-to-person sources of infection for the three cases.

The state's Occupational Safety and Health Division fined the company $1,100 for serious violations found in the investigation, including the flap on the in-feed chute and the alleged failure to enforce an accident prevention program. Such a program would require showering at the end of shifts and use of face shields at all times for operators.

The National Institutes of Occupational Safety and Health (NIOSH) also investigated and found alleged deficiencies in design that resulted in frequent clogging of the process line, forcing employees to come in direct contact with the waste. It noted the use of inadequate airline respirators in the containment room, inadequate employee training, and shortcomings in preventive maintenance. Health Care Without Harm asked both the company and NIOSH for Stericycle's responses to the NIOSH allegations; the Stericycle responses on specific issues raised by NIOSH were treated as confidential by both the company and NIOSH.

Stericycle officials assert that any problems identified by the regulators have been remedied, and the company has also denied the accuracy of many of the allegations of investigators and regulators.

More recently, an October 2000 article in the *Journal of the American Medical Association* concluded that the processing of medical waste at the Morton facility resulted in the transmission of TB to at least one of the three workers who contracted the disease. The authors examined alternative potential causes and sources of TB and concluded that exposure to waste was the most likely source of transmission for at least one of the workers. They also noted that the normal rate of TB occurrence in the general population of Washington State is 5.4 cases per 100,000. In the Stericycle workplace of 32 workers, the expected probability would be .0017 cases of TB annually. In contrast, three cases emerged at the facility in 5 months in 1997.[1]

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NOTE
1. Johnson, Kammy, et al., "Transmission of Mycobacterium tuberculosis from Medical Waste," *Journal of the American Medical Association*, October 4, 2000.

Recommendations to Stericycle to Protect Workers and Communities

Improve health and safety programs and monitor and disclose health and environmental concerns at all Stericycle facilities. Serious issues were raised by the National Institute of Occupational Safety and Health (NIOSH) and state and federal enforcement officials regarding handling and containment of pathogens at Stericycle's ETD facility in Washington State, and by federal and state enforcement officials with regard to the ETD facility in Rhode Island. In addition, there is potential for all Stericycle facilities to receive and treat inappropriate toxic materials, including mercury and other pollutants. Given these concerns, Stericycle should:

- Monitor and disclose health and environmental concerns at all Stericycle facilities.
- Ensure that machines are adequately maintained and used correctly to protect against malfunction.
- Provide ongoing training for all workers.
- Provide all necessary safety equipment, especially for detection of radiation, mercury and other hazardous materials.
- Promote the involvement of workers and their unions in all aspects of these safety and health programs.

VI. Assessing Stericycle's Efforts to Minimize the Impact of its Facilities and Adhere to the Principles of Environmental Justice when Siting Facilities

Many medical waste facilities are sited in communities that are already overburdened with many sources of pollution. Most of these communities are majority low-income or people of color communities—otherwise known as Environmental Justice or EJ communities. In a July, 1999 interview published in the *Earth First Journal*, Clark Atlanta University Professor and environmental justice advocate Robert H. Bullard explains that, "what the environmental justice movement is about is trying to address all of the inequities that result from human settlement, industrial facility siting and industrial development." Bullard defines environmental racism as "any policy, practice, or directive that, intentionally or unintentionally, differentially impacts or disadvantages individuals, groups, or communities based on race or color."

The 1991 Principles of Environmental Justice include a call "for universal protection from … the disposal of toxic/hazardous wastes … that threaten the fundamental rights to clean air, land, water and food." The Principles demand "that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias."[43]

Bullard's definition of environmental racism would certainly apply to any situation in which communities of color are the unwilling recipients of many more tons of medical waste than generated in the service of their health care needs. In 1994, the United Church of Christ, the NAACP and the Center for Policy Alternatives released a report that found that the percentage of people of color is three times higher in areas with the highest concentrations of hazardous waste facilities than in areas without a commercial hazardous waste site. While no similar study exists that compares the race or economic class composition of the areas surrounding health care providers and those surrounding health care waste facilities, limited evidence suggests a similar inequity: richer and whiter communities have more health care facilities while less wealthy, more predominantly people of color communities have more health care waste facilities.

One example of this inequity is the Gila River Indian Community reservation in Arizona, where Stericycle currently operates an incinerator. Concerned about impacts to their health, environment, economy and culture, tribal members are now organizing to demand the closure of the Stericycle incinerator. Despite the concerns of tribal members, Stericycle is moving forward with plans to keep the incinerator open. Stericycle's decision to keep operating incinerators in less affluent and people of color communities such as Gila River and St. Louis (see page 16) raises questions about the company's recognition of the impact of waste

CASE STUDY: THEOBALD, ARGENTINA

Stericycle is a partner in the construction and development of an electrothermal deactivation (ETD) facility in the small town of Theobald, Argentina. As of January 15, 2001, the company had received all permits necessary for operation of the plant.[1] Residents, concerned about the environmental and human health effects of the plant, have been working for two years to prevent this from happening.

Theobald is a town of 300 people located in southern Santa Fe, a province of Argentina. The ETD facility was originally considered for an area near the port of Buenos Aires, a city of 13 million inhabitants. The location was later changed to Theobald.

According to residents, the town itself produces only about 200 kilograms of waste per day, which is currently disposed of in a small town dump. With the waste from the new plant, the area will receive up to 750 times more waste than it currently generates.

The corporation formed to own and operate this facility is MEDAM, B.A. SRL. Construction and development has been funded jointly by three partners: Stericycle, SteriCorp (a medical waste management company based in Australia), and Termogenesis (an Argentinian environmental management company).[2]

To stop installation of the plant, a group of residents, with legal assistance, initiated judicial action similar to a class action lawsuit to prevent construction. They filed a 1,400-page brief in support of their arguments.[3] The presiding judge did not accept the case, and construction of the plant occurred in record time. As of September 2001, construction and validation of the plant was complete.[4] The residents' lawsuit has continued to gather testimony and evidence, and as this report goes to press, it is before the provincial Court of Appeals.

The brief claims that development of the plant goes against the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, a convention to which Argentina is a party.[5] The suit requests that pathological waste be regarded as dangerous from "cradle to grave." It also introduces proof that the facility was constructed 1,500 m from the center of the village when provincial law says that such a facility must be located at least 2,000 m from the town (based on a June 1998 decree).

In addition, residents, together with the University of La Plata, claim that company experts and regulatory officials have not addressed the problems with the treatment of heavy metals, human tissue and other problematic materials, nor have they discussed residents' concerns about worker safety issues. The residents point to prior infractions by the company (a specific incident in Ensenada), which the government did not take into account. And finally, they are calling for an environmental impact assessment.

Also troubling is a move to shift permanent regulation of the plant from the local government to national and provincial authorities. National and provincial regulations are often lax or nonexistent. Residents plan to file another attempt to get local jurisdiction over regulation.[6]

The local community is concerned about the influence that Stericycle and SteriCorp have with the Argentine government, both through the U.S. and Australian embassies, and directly with the Department of Natural Resources and Sustainable Development of Argentina, the entity that granted the company an Annual Environmental Certificate allowing them to operate, and its provincial counterpart (Department of Natural Resources of Santa Fe).

Due to damages the company claims to have suffered as a result of delays in the start-up of the plant, Stericycle has filed a $5 million lawsuit against the government of Argentina (national, provincial and local) in a U.S. court.[7] The lawsuit is based on a bilateral investment agreement between the United States and Argentina.

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1. "STP - Operating Permit Granted in Argentina," Australian Associated Press, January 15, 2002.
2. AAP Company News, STP - Preliminary Final Report, September 21, 2001.
3. Communication with Enrique Zárate, December 12, 2001.
4. Stericycle press release.
5. This argument was dismissed out of hand on the grounds that the Convention only concerns the transportation of pathological residues from the U.S. to Argentina.
6. Communication with Enrique Zárate, December 12, 2001.
7. La Nacion Line, Empresas, "Demandan al Estado en EE.UU.," October 13, 2001.

handling facilities on the surrounding community.

Stericycle's siting criteria for ETD facilities provides another example of this problem:

> ...since the ETD treatment process does not generate liquid effluents or regulated air emissions, this may enable Stericycle to locate treatment facilities near dense population centers, with less difficulty than would be encountered by a competitor attempting to locate an incinerator in the same area.[44]

Assertions such as this, as well as the company's interactions with community representatives documented in the case studies in this report, suggest that the company does not sufficiently acknowledge the effect of its facilities on communities.

In March 2000, the Waste Transfer Station Working Group of the National Environmental Justice Advisory Council, a Federal Advisory Committee to the U.S. Environmental Protection Agency, created a Regulatory Strategy for the siting and operating of waste transfer stations. Their report[45] includes a framework for best management practices, which lists many potential community impacts that should be considered:

1. Planning and siting issues including environmental justice, noise, odors, emissions, including the combined effect of emissions from neighboring zoning restrictions, buffer zones, evaluation of alternative sites, waste volume projections, waste stream characterization, materials recovery and processing, technology selection, and community concerns including public participation.

2. Design considerations including capacity; building design/aesthetics; recycling; traffic patterns and buffer zones; community concerns; adequate space for future expansion; use of closed containers, compactors, balers and other consolidation equipment; wrapping and containerization of waste; and separation of vehicle types and commodities within the facility.

3. Operation and maintenance including equipment operation and maintenance emergency operations, including spill containment, housekeeping, queuing and scheduling of truck traffic, control of fugitive dust and odor emissions, safety of operating personnel, fire-fighting strategies, public access and safety, minimizing truck emissions and noise during deliveries, unloading and loading, site security and control of illegal dumping.

4. Environmental regulation, compliance, and record keeping issues including compliance and record keeping duties, enforcement inspections, and acceptance of appropriate material.

5. Community participation in facility operations including a complaint process, community advisory panels, local hiring and host community agreements.

These environmental justice and siting issues also need to be addressed on the international level. As Stericycle and its partner companies expand globally, they must adhere to the same environmental justice principles appropriate to their expansion in the U.S., particularly in countries that may not have adequate internal regulations to protect low-income citizens. Joint venture companies currently have a presence in Mexico, Argentina, Brazil, South Africa, Japan and Australia, and are potentially looking to expand to Chile, Paraguay, Uruguay, Saudi Arabia, Hong Kong, New Zealand, Malaysia, Singapore, Thailand, the Philippines, Indonesia and Korea.

Judging from Stericycle's interaction with local residents in Theobald, Argentina, however, local concerns do not appear to be a high priority. Despite local objections, Stericycle and its Australian partner SteriCorp have used their influence with the Argentine government to construct and gain operating permits in September 2000 for an ETD facility there. SteriCorp stated in its quarterly report, "The business continues to develop strong relationships with the Argentine authorities who are very supportive of the project. Some local residents have taken legal action against the local council over the granting of Medam's building permit. Management remains confident that with strong governmental support this issue with be resolved positively." In addition, there is now an effort to shift permanent regulation of the plant from the local government to national and provincial authorities.

Recommendations to Stericycle to Minimize the Impact of its Facilities and Adhere to the Principles of Environmental Justice when Siting Facilities

An agreement binding upon Stericycle in Bronx, New York[46] provides one example of how community-siting issues may be addressed. The agreement allows Stericycle to operate a medical waste collection and transfer facility on the site of a former BFI incinerator. In return, Stericycle must institute a pilot program for the use of natural-gas-powered trucks to reduce diesel pollution around the facility and establish a $200,000 fund, known as an Environmental Benefit Program, for projects benefiting the community and the environment. But the Bronx agreement, like the decision to close the Lawrence incinerator, came after years of conflict. To live up to its mission, Stericycle should proactively:

- **Minimize the impact of Stericycle facilities on surrounding communities and respect environmental justice concerns.** Every effort should be made to site facilities in areas not characterized as EJ communities, or other communities not already burdened by cumulative environmental impacts.
  - Involve communities, including grassroots institutions such as non-profit organizations, faith-based institutions, unions, and schools early on in the siting and permit application process. Good starting information on how to analyze burdened communities and engage community organizations can be found in the EPA Guidance for Incorporating Environmental Justice Concerns at http://es.epa.gov/oeca/ofa/ejepa.html.
  - Use extensive environmental mitigation processes, such as pollution controls and use of alternative fuels and/or non-truck based transport, in existing facilities in already polluted communities.

VII. Conclusion

This analysis describes the distance that Stericycle must travel to live up to its mission "to be the leading company dedicated to the environmentally responsible management of medical waste for the health care community." As the dominant force in the medical waste treatment market, Stericycle has a responsibility to its shareholders, customers, workers and the communities in which it has facilities, to operate in a manner that minimizes the impact of medical waste on the environment and human health.

Stericycle will limit its capacity for growth if it does not balance its efforts to acquire other companies with the provision of services that meet its customers' demand for high-quality, environmentally responsible waste management services. Health care providers work hard to improve the health of their communities, and Stericycle has an obligation to help the health care industry meet its pledge to **First, Do No Harm**.

To this end, Health Care Without Harm recommends that Stericycle incorporate the principles of environmentally responsible waste management by implementing the following recommendations:

- **Require aggressive waste and toxicity reduction efforts, waste segregation, and waste management plans from all customers.** The most important aspects of waste management at health care facilities are proper segregation to ensure only the infectious waste is being treated, reduction of the overall volume and toxicity of waste, and planning to achieve these goals.
  - Stericycle contracts should provide monetary and other incentives to customers who implement comprehensive waste management plans and who demonstrate progress to reduce waste volumes and reduce/eliminate toxic or hazardous products and chemicals in the waste stream. Ongoing customer education and technical assistance programs on waste volume and toxicity reduction should be a standard provision of Stericycle contracts.
  - Stericycle should also encourage its customers to participate in the national program Hospitals for a Healthy Environment (H2E) whose mission is to eliminate mercury, reduce hospital waste, and minimize pollution from the health care industry. H2E is a joint effort between the EPA, American Hospital Association, American Nurses Association, and HCWH.
- **Ensure that mercury and other hazardous materials are not disposed of at any Stericycle treatment facility.** Stericycle's ETD and incinerator facilities are not legally permitted to handle hazardous waste. Treating hazardous materials in these systems can result in discharges of these materials in emissions or residues. In addition, the burning of PVC will result in harmful dioxin emissions and toxic residues. To prevent mercury, PVC and other hazardous materials disposal at Stericycle facilities, Stericycle should:

- Verify that mercury and other excluded hazardous materials are not present in the waste it receives, by requiring customers to demonstrate that they have procedures and technologies to segregate and otherwise dispose of those materials, and by more thorough monitoring of incoming wastes at Stericycle facilities.
- Explicitly exclude dental amalgam, all mercury-containing products and products made from PVC plastic in its contracts.
- Implement a clear penalty policy for facilities that chronically do not comply with contract prohibitions on hazardous waste or other excluded wastes.

- **Phase out the incineration of health care waste.** Incineration is a public health and environmental threat that can be eliminated because alternatives exist for treating all health care waste streams. To achieve the elimination of incineration, Stericycle should take the following steps:
  - Immediately end the burning of mercury, PVC and other chlorine-containing wastes from health care facilities.
  - Limit incineration to the relatively small portion of regulated medical wastes for which incineration is legally required as the only treatment method.
  - Specify in contracts that only wastes that legally require burning will be incinerated and that the customer must segregate out this waste.
  - End the burning of ETD and autoclaved residuals and document disposition of residues. Stericycle should fully and accurately report the role of incinerators, cement kilns and landfills in disposal of residues from its non-burn technologies and end the practice of incinerating residues from non-burn systems.
  - Publicly pledge to phase out incineration and advocate changing the laws to allow universal application of non-burn solutions.

- **Improve health and safety programs and monitor and disclose health and environmental concerns at all Stericycle facilities.** Serious issues were raised by NIOSH and state and federal enforcement officials regarding handling and containment of pathogens at Stericycle's ETD facility in Washington State, and by federal and state enforcement officials with regard to the ETD facility in Rhode Island. In addition, there is potential for all Stericycle facilities to receive and treat inappropriate toxic materials, including mercury and other pollutants. Given these concerns, Stericycle should:
  - Monitor and disclose health and environmental concerns at all Stericycle facilities.
  - Provide ongoing training for all workers.
  - Ensure that machines are adequately maintained and used correctly to protect against malfunction.
  - Provide all necessary safety equipment, especially for detection of radiation, mercury, and other hazardous materials.
  - Promote the involvement of workers and their unions in all aspects of these safety and health programs.

- **Minimize the impact of Stericycle facilities on surrounding communities and respect environmental justice concerns.** Every effort should be made to site facilities in areas not characterized as EJ communities, or other communities not already burdened by cumulative environmental impacts. To live up to its mission, Stericycle should:
  - Involve communities, including grassroots institutions such as non-profit organizations, faith-based institutions, unions, and schools early on in the siting and permit application process. Good starting information on how to analyze burdened communities and engage community organizations can be found in the EPA Guidance for Incorporating Environmental Justice Concerns at http://es.epa.gov/oeca/ofa/ejepa.html.
  - Use extensive environmental mitigation processes, such as pollution controls and use of alternative fuels and/or non-truck based transport, in existing facilities in already polluted communities.

Endnotes

1. Interview with Mark Miller, Stericycle CEO, by Diane Mayoros, Editor in Chief WSCR.COM on April 10, 2000; http://www.stericycle.com/ news_04_10_00.htm.
2. Interviews by Sanford Lewis with Stericycle officials Anthony Tomasello, Chief Technical Officer, Stericycle, January 24, 2001 and June 6, 2001; and Richard Cogler, Chief Operating Officer, January 25, 2001.
3. "FORTUNE's 100 Fastest-Growing Companies," Fortune Magazine, September 3, 2001.
4. http://www.stericycle.com/news_acquisitions.htm.
5. Along with obtaining BFI assets, some BFI staff have been appointed to key positions.
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24. "Medical Waste Acceptance Protocol," Stericycle, Inc.
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38. "Infectious Waste" factsheet. Hospital Infections Program, National Center for Infectious Diseases, Centers for Disease Control and Prevention. Atlanta, GA. Updated: January 21, 1997. http://www.cdc.gov/ncidod/diseases/hip/waste.htm.
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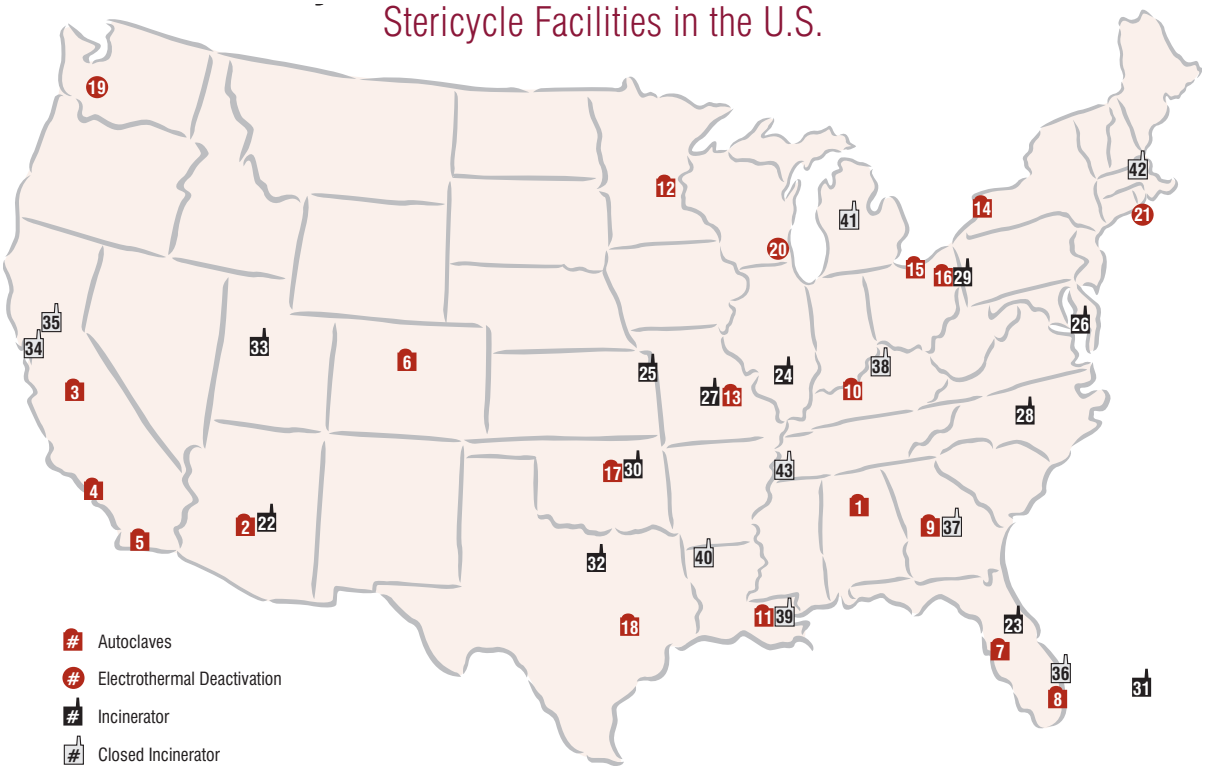
43. http://www.igc.org/saepej/principles.html.
44. http://www.stericycle.com/about_etd_adv.htm.
45. http://es.epa.gov/oeca/main/ej/nejac/wts/rec.html#rc2.
46. The agreement was reached by the prior owner, BFI, in settlement of alleged environmental violations.

APPENDIX I

Stericycle Facilities*

Stericycle Facilities in the U.S.



AUTOCLAVES

1 Birmingham, AL
2 Gila River Reservation, Chandler, AZ
3 Fresno, CA
4 Vernon, CA
5 San Diego, CA
6 Denver/Dacono, CO
7 Eaton Park, FL
8 Miami, FL
9 Lake City, GA
10 Beaver Dam, KY
11 Reserve, LA
12 St. Paul, MN
13 St. Louis, MO
14 Sheridan, NY
15 Toledo, OH
16 Warren, OH
17 Stroud, OK
18 Conroe, TX

There are also 5 autoclaves in Canada (Ste-Catherine, Quebec; Toronto, Ontario; Winnipeg, Manitoba; Edmonton, Alberta; Vancouver, British Columbia)

ELECTROTHERMAL DEACTIVATION

(owned by Stericycle or its joint venture companies)

19 Morton, WA
20 Sturtevant, WI
21 Woonsocket, RI

Also in Theobald, Argentina and San Juan del Rio (State of Toluca), Mexico

INCINERATORS

22 Gila River Reservation, Chandler, AZ
23 Apopka, FL
24 Clinton, IL
25 Kansas City, KS
26 Baltimore, MD
27 St. Louis, MO
28 Haw River, NC
29 Warren, OH
30 Stroud, OK
31 Carolina, Puerto Rico
32 Terrel, TX
33 Salt Lake City, UT

CLOSED INCINERATORS

34 Oakland, CA
35 Rancho Cordova, CA
36 Ft. Pierce, FL
37 Lake City, GA
38 Louisville, KY
39 Reserve, LA
40 Springhill, LA
41 Grand Rapids, MI
42 Lawrence, MA
43 Memphis/Shelby, TN

INTERNATIONAL JOINT VENTURES/LICENSING AGREEMENTS

Argentina - a joint venture company, MEDAM B.A., SRL, in partnership with SteriCorp and Termogenesis; MEDAM has constructed an ETD plant in Theobald

Australia - a licensing agreement with SteriCorp Ltd.; SteriCorp has constructed an ETD plant in Canberra

Brazil - a licensing and supply agreement with CAVO Group, a subsidiary of Camargo Correa S.A.

Canada - ownership of Med-Tech Environmental Ltd., which has five autoclave treatment facilities across Canada

Japan - an agreement for the application of ETD technology with Econovation Group of Aso

Mexico - a joint venture company, MEDAM S.A. de C.V, in partnership with Controladora Ambiental S.A. de C.V. and Pennoi Associates, Inc; MEDAM has constructed an ETD plant in San Juan del Rio

South Africa - a joint venture with Evertrade Medical Waste (Pty.) Ltd.

*This list is based on publicly available information accessed by Health Care Without Harm, on conversations with state regulatory agencies, and on correspondence with Stericycle. Stericycle does not make publicly available a list of specific locations of treatment facilities and the type of technology used. HCWH cannot guarantee completeness or accuracy.

APPENDIX II

STERICYCLE ACQUISITIONS

This list is based on publicly available information accessed by Health Care Without Harm: the company's web site (www.stericycle.com/news_acquisitions.htm) and Stericycle Annual Report (Form 10-K), filed March 21, 2001 (for acquisitions in 2000). HCWH cannot guarantee completeness or accuracy.

Acquisitions (2001)

- Integrated Environmental Services, Inc. (California)
- American Medical Disposal, Inc. (AMDI) (Texas, Oklahoma, Arkansas, Nebraska and Missouri)
- Transmed Inc. (New York City and Long Island)
- Biosafe Inc. (Central Florida)

Acquisitions (2000)

- A & J Medwaste, Inc (Florida)
- Waste Management of New York, Inc. (New York)
- Environmental Solutions LLC (Minnesota)
- Sharps Away (JS Holdings, Inc.) (Minnesota)
- Stick Proof Company (North Carolina)
- Med Tech Environmental Services, Inc. (New York)
- American Medical Waste, Inc. (California)

Acquisitions (1999)

- Browning Ferris Industries (Medical Waste) (United States, Canada and Puerto Rico)
- Allmed-Safewaste Inc. (Massachusetts)
- EcoSolutions Inc. (California)
- Envirotech Services Inc. (Arizona)
- Foster Environmental Service Corp. (New York)
- Environmental Guardian Inc. (Wisconsin)
- Arizona Medical Waste Management, Inc. (Arizona)
- Browning-Ferris Industries - West Texas (Texas)
- Enviro-Tech Disposal (Pennsylvania)
- Medical Express (Pennsylvania)
- Southwest Medecol of Amarillo (Texas, Kansas, Oklahoma)
- Environmental Transloading Services, Inc (California)
- Medical Resource Corporation (New Mexico)
- Medical Resource Recycling Systems, Inc. (Idaho, Oregon, Washington)

Acquisitions (1998)

- Med-Tech Environmental Limited (Connecticut, Massachusetts, Maine, New Hampshire, New York, Rhode Island and Vermont, and provinces of Alberta, British Columbia, Ontario and Quebec in Canada)
- Mid-America Environmental, Inc. (Indiana)
- Medical Compliance Services (New Mexico, Texas)
- Waste Systems, Inc. / 3CI (Arkansas, Alabama, Florida, Georgia, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, Tennessee, Texas)

- Allegro Carting and Recycling (New York)
- Arizona Hazardous Waste Disposal (Arizona)
- Controlled Medical Disposal (New Jersey)
- Mediwaste Disposal Services (Texas)
- Regional Recycling, Inc. (New Jersey)
- Superior Services of Wisconsin (Wisconsin)
- Bridgeview Inc. (Eastern Pennsylvania)
- Medisin Inc. (Eastern Kentucky)
- Browning-Ferris Industries - Arizona (Phoenix, AZ)

Acquisitions (1997)

- Cal-Va (Northern Virginia, Washington DC)
- Phoenix Services Inc. (Baltimore)
- Envirotech (Arizona)
- Regional Carting Inc. (New Jersey)
- Rumpke Container Service Inc. (Ohio)
- Waste Management (Wisconsin)
- Environmental Control Company, Inc. (ECCO) (New York - Metropolitan)

Acquisitions (1996)

- Waste Management (Mid Atlantic, Ohio Valley, Southwest, Mountain regions)
- Doctors Environmental Control, Inc. (Santa Ana, CA)
- Sharps Incinerator of Fort Atkinson, Inc. (Fort Atkinson, WI)
- Bio-Med of Oregon, Inc. (Portland, OR)
- WMI Medical Services of New England, Inc. (Hudson, NH)

Acquisitions (1995 - 1993)

- Safetech Health Care (Valencia, CA)
- Safe Way Disposal Systems, Inc. (Middletown, CT)
- Recovery Corporation of Illinois (Lombard, IL)
- Therm-Tec Destruction Service of Oregon, Inc. (Portland, OR)

APPENDIX III

Correspondence Between HCWH and Stericycle

February 3, 2000

Health Care Without Harm
C/O/ CCHW
P.O. Box 6806
Falls Church, VA 22040
Attn: Monica Rohde

Dear Monica,

Thank you for participating in the first HCWH/Stericycle meeting. We felt both teams presented their organizations' goals in a clear, professional manner. I am encouraged that HCWH and Stericycle agree that the healthcare community has a responsibility to the environment which parallels its responsibility to the patients it serves.

Clearly, there are several opportunities for the healthcare community to reduce the potential impact on the environment. The most significant opportunity is in reducing the emissions generated from the vast number of on-site incinerators. Cost studies often show that incinerators located at the healthcare providers site are not economically viable and that the users should consider safer and more cost effective solutions such as outsourcing. On-site treatment of medical waste at health care facilities accounts for an estimated 35-37 % of the market, and incineration historically has been the dominant on-site technology utilized. By contrast, our incineration units represent less than 1% of the medical waste incineration units in the nation.

As we discussed, there are opportunities to reduce or eliminate items such as PVC, mercury and other heavy metals from the waste stream through focused training efforts. We welcome any training tools you may have that might augment the various training capabilities we can provide to our customers. We support HCWH's goal for reducing or eliminating PVC, mercury and other heavy metals in the waste stream. In addition to our customer support programs, we will be evaluating our suppliers in the new combined company to eliminate or minimize these elements from packaging supplies.

As confirmed to your team during our meeting, we are in the process of evaluating the short and long term requirements of the incineration units which we operate.

After we have completed our internal assessment of our customers' needs, system requirements, and the associated economic analysis, we will communicate material information uniformly to various stakeholders. As you are aware, you (sic) are a public company and we adhere to SEC guidelines on non-preferential disclosure.

In closing, we hope this initial exchange will prove to be fruitful for our respective organizations to achieve our shared goals in assisting the healthcare community in reducing the potential impact on the environment while providing high quality, cost effective care.

Sincerely,
Mike Archer
Corporate Vice President - Sales

July 25, 2000

Mr. Mark Miller
President and Chief Executive Officer
Stericycle, Inc.
28161 N. Keith Drive
Lake Forest, Illinois 60045

Dear Mr. Miller:

We are in receipt of Mike Archer's letter dated February 3, 2000, and would like to thank you and Mr. Archer for having gotten back to us so promptly after the meeting. We appreciate Mr. Archer's assessment that HCWH and Stericycle share a belief that the healthcare community has a responsibility to the environment which parallels its responsibility to the patients it serves. As you know, HCWH exists to ensure that companies like Stericycle act consistent with this belief, and to assist them by providing materials and ideas that facilitate the optimum implementation of environmentally responsible practices.

To that end and as we stated in our February 21 letter, we are interested in continuing our conversation with you. Your concern about SEC regulations notwithstanding, we believe that there are a number of areas for potentially fruitful discussions that would not incur noncompliance with the SEC's selective disclosure rules.

We are particularly concerned about facilities that we believe are poorly operated or located, or that have been a problem in the communities that host them, including the St. Louis, MO and Lawrence, MA incinerators. These facilities are located in predominantly minority communities, and have raised substantial community opposition.

Given the extent of local concerns, we believe that Stericycle should immediately close these two medical waste incinerators and install alternative treatment technologies. Stericycle is uniquely positioned to be able to respond to community concerns about incineration while still providing medical waste treatment capacity to health care facilities. We also believe that the company should create and implement a plan to prioritize and close its remaining medical waste incinerators, as promised by a Browning-Ferris official when they owned the facilities.

Several other items raised in either our meeting or in our previous letter remain outstanding. Any reaction from you to these requests for information or to materials provided by HCWH would be helpful to us as we evaluate next steps. These include:

- **PVC reductions and phase-outs in the medical supply industry.** Stericycle expressed some interest in developing a company position or statement on PVC plastics. Stericycle also expressed an interest in additional customer education on this issue. To begin the discussions, we enclosed a draft statement for the company to consider. We enclose it again with this letter for your review. Is this item under consideration by your management team? We also would like to reiterate our offer to review any materials that you have developed thus far.
- **Medical waste reduction, recycling and management issues.** Both HCWH and Stericycle are interested in helping hospitals lessen their environmental impact through improved waste management, including reduction, recycling and purchasing approaches. Stericycle expressed an interest in improved customer education on these issues. HCWH expressed a willingness to review materials, and also to share with Stericycle materials developed by HCWH. In our previous letter, we included some materials prepared by HCWH. You should also know that HCWH affiliated groups are involved in the development of training materials as part of the American Hospital Association (AHA)/Environmental Protection Agency (EPA) Healthy Hospitals Initiatives. If you don't have these materials already, we'll be happy to forward them to you. We remain interested in seeing existing Stericycle materials.

  Although you addressed this issue in our January meeting, we also would like further clarification of what it means that Stericycle "shares the savings" of waste reduction with its customers. What specific measures are in place to provide positive incentives for waste reduction and conversely to avoid financially penalizing employees and customers who maximize medical facility waste reduction?

- Incineration of ETD Wastes. We have questions regarding the extent to which waste that has been treated by the ETD process is later handled with burn technologies:
  - What is the amount of ETD-treated waste that goes to any type of burn facility? (e.g., municipal solid waste incinerator, cement kiln, waste-to energy)
  - Is Stericyle continuing to develop more waste-burning disposal options?
  - Is Stericycle marketing any treated medical waste as "Sterifuel" to any facilities?
  - What type of facilities are they? And
  - Where are they located?

- **Mercury reduction and elimination programs.** Stericycle agreed to consider offering monetary and other incentives to customers who agreed to a verifiable mercury pollution prevention effort. We are particularly interested in exploring possible incentives the company could offer in contracts with their customers as we believe this would be very effective in mercury reduction. Would Stericycle also consider the possibility of including prohibitions in contract language, with penalties or voiding of contract for repeated violators? What is the financial penalty for an institution that breaks its contract with Stericycle? Stericycle also suggested you could further integrate existing programs into their customer education efforts. In our prior letter, we also enclosed a draft statement on mercury for your consideration. Is this item under consideration by your management team?

We remain interested in your existing waste reduction services and other pollution prevention programs. Similarly, we hope you will share with us whatever emissions testing data from autoclaves or EDT facilities that you may have. Your initial reply did not indicate whether or not you had such data, and if so whether it would be made available to us. We would appreciate a response to this inquiry by August 15th.

HCWH continues to be interested in finding additional common ground upon which we can all move forward. Again, thanks for taking the time to meet with us, and we look forward to hearing back from you.

Sincerely,
Jackie Hunt Christensen
On behalf of Health Care Without Harm

Encl: Proposed statement from Stericycle on PVC

Proposed Statement from Stericycle on PVC

Whereas overwhelming scientific evidence indicates that the production and incineration of PVC can result in the formation of highly toxic persistent byproducts like dioxins and furans,

And whereas alternatives to many uses of PVC are widely available and cost-effective, and

Whereas new non-PVC alternatives are being developed all the time,

And whereas Stericycle has made a public commitment to continued environmental improvement, and places environmental stewardship as a high priority,

And whereas the International Society of Doctors for the Environment (ISDE), an international NGO representing over 30,000 medical doctors in 38 member organizations around the globe has expressed concern about the health effects from the incineration of polyvinyl chloride (PVC) and has urged all health care facilities to explore ways to reduce, with the aim to eliminate, their use of PVC plastics. ISDE also calls on health care professionals to encourage health care institutions with which they are associated to adopt policies that will reduce, with the aim to eliminate, the use of PVC plastics,

And whereas the American Public Health Association, representing 30,000 public health professionals in the United States, has noted that dioxin is toxic in small amounts, that chlorinated medical plastic products, primarily PVC, represent, on a per tonnage basis, the largest and fastest growing class of synthetic chlorinated organic compounds, and that alternatives for many uses are available. Further, APHA has urged all health care facilities to explore ways to reduce or eliminate their use of PVC plastics.

Therefore, Stericycle commits to:

- Urge customers to explore ways to reduce or eliminate their use of PVC plastics;
- Urge customers to adopt policies which will lead to the reduction and ultimate elimination of the use of PVC plastics;
- Offer incentives to customers that take demonstrable steps to reduce their use of PVC plastics; and
- Include educational materials which inform customers about the hazards of PVC.

August 21, 2000

Ms. Jackie Hunt Christensen
Health Care Without Harm
2105 1st Avenue South
Minneapolis, MN 55404

Dear Ms. Christensen:

Mark Miller received your letter dated July 25, 2000 and asked that I respond on behalf of Stericycle. Since our last meeting, Mike Archer has left the company. In order to maintain continuity, Mark has asked that I assume the role of internal contact for all correspondence directed to Stericycle. In the future, please feel free to direct all correspondence to me.

I have carefully reviewed your letter and would like to respond to a number of the points you raise as well as update you with certain data concerning our current treatment practices. As was previously discussed, I believe we are fundamentally in agreement with the premise that the amount of medical waste that is incinerated should be systematically reduced to the lowest feasible levels. I also believe we both recognize that given the state of current technology there will always be a small fraction of the waste that requires management by incineration. The incineration that must occur should take place in larger, regional plants that incorporate best available technology in order to reduce any emissions to the lowest possible levels. Stericycle remains fully committed to insuring that all of our incinerators comply with the strictest guidelines, both now and in the future. We continue, however, to make substantial progress towards reducing the volume of waste or that is incinerated in our treatment network. Since the merger of Stericycle and BFI, we have reduced the percentage of waste we incinerate from 27% of total volume (proforma assuming both companies were combined at the end of 1998) to less than 20% at the current time. Another significant achievement is the number of hospitals who have shut down their older, less efficient incinerators in order to outsource their medical waste needs with Stericycle. Through education and understanding of the real costs associated with on-site treatment, we have been able to convince 37 hospitals in the first half of this year to shut down their on-site plants and contract with us. This accomplishment has surely benefited the environment since we both know that the majority of the existing hospital incinerators are not equipped to reduce their emissions in any way comparable to our larger regional units. We will continue to work diligently to educate hospitals on the cost savings and environmental benefits of outsourcing versus continued operation of their incinerators. We ask for your continued support and assistance in reducing the number of hospitals who practice on-site incineration.

In regards to the matter of waste volume reduction, and reduction and/or elimination of certain materials from our customer's waste stream, we again think that our interests are aligned. However, we are sensitive to our position as an environmentally responsible service provider. We believe that financial incentives to promote environmental awareness are the most effective means by which we can modify the behavior of our customers. For example, in a number of our most recent contracts, we have provided for a sharing of the cost reduction that occurs when the initial waste volume and consequently, our service costs, are later reduced. We believe that this type of approach, which can be customized for each customer, encourages hospitals to reduce and recycle by providing a direct financial reward for their efforts. We are working to finalize a company policy statement that encourages waste reduction and recycling, as well as minimization or elimination of materials like PVC and mercury. It is our intent to incorporate this into educational materials that are communicated to our hospital accounts. The sample statements you provided on mercury and PVC have been helpful as we draft our own comprehensive environmental policy statement. Once finalized and approved internally, we will forward a copy to you for your review.

Lastly, in regards to your questions concerning our ETD facilities, we are currently only using WTE for treated waste disposal in one location. This decision results from a contractual arrangement that requires the waste to go to this particular WTE plant. Throughout our entire treatment plant network, the majority of our treated backend waste is disposed of in modern, secure sanitary landfills. Insofar as emission testing is concerned, our ETD and autoclave facilities do not generate regulated air emissions like our incinerators, and so are not routinely tested.

In closing, we thank you for your continued interest and support in helping us achieve our shared goals of waste reduction and elimination. Working together as partners, using the common ground we share, our respective organizations will make progress in raising environmental awareness in the medical community.

Very truly yours,
John Vitale
President - Environmental Safety and Health

Health Care Without Harm

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