Exhibit SS-1T

BEFORE THE WASHINGTON STATE
UTILITIES AND TRANSPORTATION COMMISSION

In Re Application No. GA-079251 of HAROLD LeMAY ENTERPRISES, INC., ET AL., For an Extension of Certificate No. G-98 for a Certificate of Public Convenience and Necessity	CONSOLIDATED DOCKET NOS. DOCKET NO. TG-040221
In Re Application No. GA-079254 of KLEEN ENVIRONMENTAL TECHNOLOGIES, INC. For a Certificate of Public Convenience and Necessity	DOCKET NO. TG-040248 **PREFILED TESTIMONY OF STEPHEN SHINER**
In Re Application No. GA-079266 of RUBATINO REFUSE REMOVAL, INC. For an Extension of Certificate No. G-58 for a Certificate of Public Convenience and Necessity to Operate Motor Vehicles in Furnishing Solid Waste Collection Service	DOCKET NO. TG-040553

PREFILED TESTIMONY OF STEPHEN SHINER

Stephen Shiner, subject to penalties of perjury of the laws of the State of Washington, declares and states as follows:

1. I hold the position of Manager – Project Engineering with Stericycle, Inc. In this capacity, I oversee the permitting, design, construction, alteration, testing and technical operations of Stericycle, Inc.'s autoclave processing facilities nationwide. My educational qualifications and work experience are detailed in my resume attached hereto as Exhibit SS-2.

2. Stericycle, Inc. currently operates 38 biomedical waste processing facilities in the United States, Canada and Puerto Rico, including 28 commercial autoclave facilities operating 48 autoclave vessels, three (3) facilities employing Stericycle, Inc.'s proprietary Electro Thermal Deactivation ("ETD") radiowave technology, six (6) incinerators and one (1) chem-clave facility. Part of my job is to oversee the implementation of policies, procedures and test measures necessary to ensure that these processing facilities are functioning properly. I oversee testing programs for all of Stericycle, Inc.'s autoclave processing facilities to ensure that they are operating within parameters necessary to achieve the sterilization efficacy levels required to render processed biomedical waste noninfectious according to applicable regulatory standards. In the course of my work in the medical waste industry, I have evaluated most of the available technologies for processing biomedical waste, including the ETD technology.

3. I am familiar with the ETD and autoclave processing facilities and technologies employed at Stericycle, Inc.'s Morton, Washington biomedical waste processing plant and with the tests used and test results obtained to confirm the efficacy of these technologies at Morton. Regular tests are conducted of the sterilization efficacy of the Morton ETD and autoclave facilities with test results confirmed by an independent testing laboratory. As used at the Morton

facility, both processing methods (ETD and autoclave) achieve a sterilization efficacy level of 10 log 6; i.e., a 99.9999% "kill" of *Geobacillus stearothermophilus* (autoclave) and *Bacillus atrophaeus* (ETD) bacterial spores used in standard tests.

4. In my capacity as Manager -- Project Engineering for Stericycle, Inc. and in my prior positions in the medical waste industry, I have regularly evaluated the available technologies for processing biomedical waste. The "hydroclave" technology developed by Richard Vanderwal of Hydroclave Systems Corp., now employed at the Hospital Sterilization Services, Inc. ("HSS") facility in Port Coquitlam, British Columbia, was originally brought to my attention in 1994. At that time, I evaluated the hydroclave technology for potential use in processing biomedical waste. In 1994, I concluded that the Mr. Vanderwal's hydroclave technology offered no advantages over standard commercial autoclave technology for the processing of biomedical waste and had a number of disadvantages. In connection with the present proceeding, I have reviewed the prefiled testimony of Richard Vanderwal and have again evaluated the hydroclave technology, this time in relation to both the ETD and the autoclave technologies employed by Stericycle, Inc. at its Morton, Washington processing plant.

5. All of these processing technologies disinfect biomedical waste by heating it for a sufficient period of time at temperatures high enough to kill pathogens in the waste. The ETD technology also works by directly disrupting the cell structure of pathogens. In bacterial spore tests, the ETD and commercial autoclave processing facilities used at Morton have achieved the same sterilization efficacy level claimed for the hydroclave technology -- 10 log 6 or 99.9999% reduction in the viability of bacterial spores used in standard industry tests. These efficacy levels far exceed the 10 log 4 sterilization efficacy level (99.99% kill) that Mr. Vanderwal's testimony

acknowledges is generally "acceptable for the treatment of biomedical waste." Exhibit RV-2 at Section 6.

6. Although the promotional materials attached to Mr. Vanderwal's prefiled testimony tout the ability of the hydroclave technology to heat waste without the introduction of steam, there is no difference in sterilization efficacy associated with these different methods of heating biomedical waste. The method by which the waste is heated is irrelevant to the issue of sterilization efficacy.

7. The promotional materials attached to Mr. Vanderwal's testimony make certain claims concerning alleged advantages of his hydroclave technology over commercial autoclave technology but Mr. Vanderwal's testimony does not address the ETD processing technology employed at Stericycle, Inc.'s Morton plant. The ETD processing technology used at Morton can also heat waste without the introduction of steam, in the case of ETD by bombarding pathogens and moisture in the waste with low frequency radiowave radiation. The ETD process introduces energy into the waste which turns moisture in the waste to steam and directly disrupts the cellular structure of pathogens in the waste. The ETD process also grinds the waste into small pieces.

8. Mr. Vanderwal acknowledges that the hydroclave process is merely another form of the steam sterilization process on which autoclave technology is also based. Although the ETD process also acts directly on pathogens in the waste, its effectiveness is also related to the conversion of moisture in the waste to steam. The attachments to Mr. Vanderwal's testimony acknowledge that the "hydroclave" method "uses the well-known principle of steam sterilization" as the basis for its process. Exhibit RV-2 (Ex. A) at Section 1 (Introduction). The

"hydroclave" process "sterilize[s] the waste by high temperature and pressure steam, similar to an autoclave . . . ." Id. at Section 2. As Mr. Vanderwal states at p. 2 of his prefiled testimony, "Waste water turns to steam in the Hydroclave which in turn pressurizes the vessel." Thus, in the last analysis, all of these waste processing technologies depend on the production of steam in the heating vessel to heat the waste to the desired temperature. Although Mr. Vanderwal suggests that his hydroclave system will not require the introduction of additional steam into the heating vessel, as a rule this is not true. Because of the low moisture content typical of most biomedical waste, both ETD and hydroclave technologies normally require the addition of moisture to the waste in the form of water to ensure that the waste vessel achieves and holds the desired and temperature required to kill pathogens at the appropriate efficacy level. Mr. Vanderwal himself acknowledges that "if there is not enough moisture in the waste to pressurize . . . an outside source of steam [is] added." Id. Thus, all of these processing technologies (hydroclave, ETD and autoclave) ultimately involve the transfer of heat to the waste via steam and all normally require the addition of moisture to reach and hold temperatures necessary to ensure disinfection to the appropriate efficacy level.

9. Many of Mr. Vanderwal's claims concerning the "efficiency" and other supposed advantages of the hydroclave technology address issues of processing efficiency that, if true, could theoretically affect a waste processor's processing costs but have nothing to do with the technology's ability to kill pathogens or the costs ultimately paid by the generator. Thus, for example, the promotional materials attached to Mr. Vanderwal's testimony indicate that his hydroclave equipment heats the waste "faster" than autoclave technology, presumably allowing the processor to process more batches of waste in a shorter period of time. However, the size of

the hydroclave heating vessel described in Mr. Vanderwal's testimony is smaller than typical commercial autoclave systems, negating any added processing efficiency from faster heating of the waste in the vessel. There are other disadvantages of the hydroclave processing system that would also reduce processing efficiency and increase processing costs, including the likelihood that the internal mixing arms would jam frequently and that melted plastics in the waste would form clumps that would not pass through the small unloading door at the bottom of the heating vessel, in both cases disrupting processing operations and requiring processor personnel to manually extract the waste from the heating vessel. If a jam occurs before the treatment cycle is complete, untreated waste would have to be removed from the hydroclave vessel in order to clear the jam, potentially exposing processing workers to infectious substances. Mr. Vanderwal's description of the "efficiency" and processing capacity of the hydroclave system ignores these issues.

10. As employed at the Morton facility, Stericycle's ETD processing system results in a reduction of the volume of treated medical waste by 85%. After compaction, Stericycle's autoclave processing system produces a volume reduction of 75%. No volume reduction data were provided by Mr. Vanderwal for the hydroclave process. The volume reductions achieved by the ETD and autoclave processes should be equal to or better than any volume reduction that can be achieved through the hydroclave process.

11. The use of double-wall heating vessel, as in the hydroclave system referenced by Mr. Vanderwal, requires application of more steam per pound of waste than is required for a typical single-wall autoclave vessel. This is because in a double-wall vessel, there are two vessels that must be heated, plus the waste, while a single-wall autoclave only requires heating

only a single vessel plus the waste. Thus, although a double-wall vessel may heat up more rapidly, there is no energy savings from the hydroclave process, since more energy is required to bring the waste to the necessary temperature. In the best case scenario for the hydroclave, the steam usage per pound of waste processed would be equivalent to an autoclave.

12. The systems described in Mr. Vanderwal's testimony for loading and unloading the hydroclave heating vessel do not establish any advantages in terms of ease of handling or worker safety over the ETD and autoclave facilities at Stericycle's Morton processing plant.

13. The autoclave and hydroclave processes do not produce emissions of concern except odors. Odors from treated waste are controlled at Stericycle's Morton facility by exhausting air from the autoclave process after treatment of the waste through a special carbon filter. The ETD process does not generate significant odors since it operates at lower operating temperatures. Mr. Vanderwal's testimony does not indicate that air vented from the hydroclave process during dehydration would be filtered to control odors.

14. The moisture content of the processed waste is only an issue relevant to the cost of transporting and landfilling the processed waste, since transportation and landfill costs are often based on weight. This issue could potentially affect the processor's cost to transport and landfill the processed waste. However, because such costs are a minor portion of the total cost of processing biomedical waste, such minor differences would not affect charges paid by the waste generator.

15. As I concluded when I initially reviewed the hydroclave technology in 1994, it is my opinion that the total cost of processing and disposing of biomedical waste using the hydroclave technology would be higher than the costs Stericycle, Inc. incurs using the ETD and

autoclave processes at its Morton, Washington processing facility.

DATED this 15TH day of September, 2004.

Stephen Shiner

EXHIBIT SS-2

BIO
FOR
STEPHEN M. SHINER

Manager - Project Engineering
Stericycle, Inc.

PROFESSIONAL EXPERIENCE

15 years in Medical Waste industry with Browning Ferris Industries (BFI) and Stericycle including responsibility for permitting, design, specifying equipment, construction project management, testing and start-up/operations of medical waste treatment facilities utilizing steam autoclaves in the United States, Canada and Puerto Rico.

Responsible for reviewing/evaluating alternative treatment methods for medical waste.

Responsible for permitting, design, estimating, specifying, construction project management and start-up/operations of industrial biological and chemical wastewater treatment systems.

EDUCATION

1979 Graduate of Texas A&M University
BS in Bio-Environmental Science
Minor in Engineering
Passed Fundamentals of Engineering (FE) exam

PROFESSIONAL AFFILIATIONS

Member, American Society of Mechanical Engineers (ASME)
Professional Engineer Certification Pending

OTHER INDUSTRY ACTIVITIES

Provided Training on Medical Waste Treatment Methods in Thailand
Designed Autoclave Treatment Facility for Sao Paulo, Brazil
Past member of ASME Committee for Medical Waste Treatment
Committee Member for Whatcom County Development of MW Regulations
Past Guest Presenter at Electric Power Research Institute (EPRI) on Autoclaving of Medical Waste