

BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

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May 25, 2010

Donald van der Vaart
Permits Section
NC Division of Air Quality
1641 Mail Service Center
Raleigh, NC 27699-1641

Re: Recommendations to the NC Division of Air Quality on the Title V permit renewal of Stericycle, Inc.

Dear Mr. Van der Vaart:

On behalf of the Blue Ridge Environmental Defense League, we submit to you the following comments concerning the Title V draft permit application for the Stericycle permit renewal. The League is a regional, community-based, non-profit environmental organization with more than 2,500 members and 40 chapters in North Carolina and the Southeast. Our founding principles are earth stewardship, environmental democracy, social justice, and community empowerment.

In your authority as the state regulatory agency certified by the North Carolina Environmental Management Commission to administer federal, state and local air quality regulations, we respectfully request that the Division of Air Quality deny the permit renewal if issued under the current emissions standards for air pollutants instead of the new and more protective EPA standards for air pollutants. Exposing children living in close proximity to the incinerator to levels of air pollutants already determined unsafe by the Environmental Protection Agency (EPA) is not acceptable.

We are requesting that the NC DAQ take immediate action to reduce the harmful impacts of toxic air pollutants released as a by-product of incineration on public health, toxics and pollutants that include mercury, lead, dioxins and furans, cadmium, sulfur dioxide, hydrogen chloride, nitrogen oxide, carbon monoxide, and particulate matter. Please see Table A below showing the current limits for air pollutants from medical waste incinerators compared with the new EPA limits. In every case the limits for each pollutant is reduced, some by as much as 98%.

Table A compares the US Environmental Protection Agency’s new Emission Guidelines with proposed North Carolina emission limits permitted under applicable regulations, NCAC 2D .1206 Limits for Hospital, Medical, and Infectious Waste Incinerators, for Stericycle’s Permit No. 05896T18.

Table A. Comparison EPA and NC Pollution Standards

	Units	NC 2D .1206 (old)	EPA EG (new)	Percent (%) reduction under new EPA standards
Particulate matter	mg/dscm	34	25	27%
Carbon monoxide	ppmv	40	11	73%
Dioxins/furans	ng/dscm	125	9.3	93%
Dioxins/furans toxic equivalency	ng/dscm	2.3	0.054	98%
Hydrogen chloride	ppmv	100	6.6	93%
Sulfur dioxide	ppmv	55	9.0	84%
Nitrogen dioxide	ppmv	250	140	44%
Lead	mg/dscm	1.2	0.036	97%
Cadmium	mg/dscm	0.16	0.0092	94%
Mercury	mg/dscm	0.55	0.018	97%
Visible Emissions	percent	10%	6%	40%

We further respectfully request that in your authority as the state regulatory agency certified by the North Carolina Environmental Management Commission to administer federal, state and local air quality regulations, that the Division of Air Quality along with any other relevant Divisions within the NCDENR, review and revise Stericycle’s permit to maximize waste diversion from incineration to non-incineration alternatives.

Diverting waste from incineration to safer alternatives is more protective of public health and the environment and we believe it should be a priority consideration in this permit renewal. Non-incineration alternatives are already approved by NCDENR for medical and pathological waste. Incineration of medical waste uses an old technology to address a disposal need that is better handled through non-incineration alternative technologies since they do not burn, releasing toxins into the air. Incineration poses substantial risk to public health and the environment, while alternatives offer increased safety and much less risk.

Even with modern pollution control technology, toxic incinerator emissions continue to assault public health and the environment. These toxins include mercury, dioxins/furans, lead, cadmium, acid gases and many others that are not addressed in compliance requirements. New toxins like dioxins are created and hundreds, if not thousands, of other potentially more hazardous chemicals are created from incomplete combustion. Toxic ash with potential to poison our groundwater is shipped to landfill daily.

We believe that most waste currently being incinerated has a feasible, economically viable, non-incineration alternative. We urge you to proactively assign a priority status to the diversion of waste to non-incineration alternatives. Toward that end, we respectfully offer a number of recommendations for your consideration.

<p>Divert Waste to Alternative Non-Incineration Disposal</p> <ul style="list-style-type: none"> ▶ Segregation of plastics. No plastic burning. ▶ Divert all non-regulated medical waste and certain regulated medical waste from incineration. ▶ Plan for pathological waste diversion. ▶ No paper burning with medical waste. ▶ No burning of international garbage. ▶ Pharmaceutical disposal: Burden of proof for safety on industry, clarification of regulations, and targeted inspections. ▶ 'Non-hazardous trace chemotherapy waste' should not be burned in Haw River. 	<p>Strengthen Protection of Public Health and Increase Public Accountability</p> <ul style="list-style-type: none"> ▶ Replace the currently permitted emission standards with the 2009 EPA emission standards. ▶ Bypass events are acute environmental toxic exposure events. Notify the public. ▶ Bypass events should be considered violations with automatic penalties. ▶ Put public compliance data online and accessible to the public. ▶ Express permit limits for pollutant amounts in weight/hour and weight/year. ▶ Conduct unannounced inspections. ▶ Reduce the carbon monoxide compliance limit. ▶ Automatic review of carbon monoxide spikes for potential violations. ▶ Increase stack test frequency to annual for <u>both</u> incinerators. ▶ Require continuous emissions monitoring systems (CEMS) for Lead, Mercury and Dioxins. ▶ Support for new pressure drop monitoring requirement (9) B. ▶ Decrease the opacity limit to 5%. ▶ Annual review by NCDENR of all Stericycle problems.
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Segregation of plastics-no plastics burning.

The NC Division of Air Quality should require the immediate phase-in of plastics segregation in Stericycle's contracts with waste generators and in Stericycle's waste acceptance protocols.

All waste acceptance protocols and relevant contract clauses should be transparent and made public as part of the public's right-to-know.

The NC Division of Air Quality should mandate diversion of plastics to non-burning disposal technologies.

Rationale: We call upon the NC Division of Air Quality to recognize the critical cancer exposure situation that plastics-in-the-incinerator presents. In its 2009 rules, the EPA recognized that plastics should be segregated from medical waste to prevent their incineration. Burning chlorinated compounds and/or plastics, especially PVC plastics, produce dioxins within the incinerator. This is {mostly} preventable if plastics are not burned.

Dioxins are one of the most toxic chemicals known to humankind. Medical waste incinerators are prime sources of dioxin production. Hospital waste contains significantly higher amounts of plastics than regular municipal waste.

Dioxins are present in normal emissions, and have a greater presence in bypass events. In addition to what is emitted from the stacks, pollution control filter materials and ash will contain high levels of dioxins and furans and thus pose hazards in landfills. We can prevent dioxin creation in the first place -- by ceasing to burn plastics.

What makes sense then, simply put, is to "Say 'No' to plastic burning."

Divert all regular medical waste and certain regulated medical waste from incineration.

The NC Division of Air Quality should require Stericycle to divert all medical waste that can be safely autoclaved to that disposal method or to an alternative non-burning method.

Rationale: Incineration is an outdated technology, highly polluting and noxious. It is unnecessary and promotes an inefficient system of medical waste management. Incineration transforms waste into gaseous form, sends it into our air and water, and adds hundreds of new chemical and un-regulated toxins in the process. It produces ash which contains high levels of cancer producing chemicals and heavy metals that pollute our water and groundwater.

Incineration is the most polluting of medical waste disposal options and seriously risks public health and the environment. It fouls our air and makes our children sick.

Stericycle knows all this is true about incineration, yet claims on their website that, "From our beginning, we have championed the use of non-incineration treatment technologies." At the same time, Stericycle reports, "Regular medical waste could be treated in an autoclave, but generators who prefer treatment by incineration send the

waste to the Haw River facility.” This is no small amount since they estimate that ‘regular medical waste’ amounts to 40% of their total volume or 10.52 million pounds in 2008-09. (CHWMEG, 2009) (1) <http://www.chwmeg.org/asp/search/detail.asp?ID=193>

We ask the NC Division of Air Quality to use their power to promote the non-pollution of our air and water. We ask that NC Division of Air Quality revise Stericycle’s permit to reflect diversion of all medical waste that can be safely autoclaved to that disposal method or to an alternative non-burning method.

Plan for pathological waste diversion.

We urge the NC Division of Air Quality to require that Stericycle phase out the incineration of pathological waste within two years.

Rationale: We feel that this time period would provide Stericycle with enough time to plan for and fully implement a non-burning alternative for pathological waste, should it wish to do so. We believe that such an undertaking would not put an undue fiscal burden on Stericycle.

According to Stericycle, pathological waste accounts for 40% of their total volume. This is no small amount since their total volume in 2008-08 was 26.3 million pounds. That makes pathological waste amount to 10.52 million pounds. (CHWMEG, 2009) (1) <http://www.chwmeg.org/asp/search/detail.asp?ID=193>

No paper burning with medical waste.

The NC Division of Air Quality should not allow the incineration of paper (confidential documents generated by healthcare facilities) within the permit renewal.

Rationale: It is common knowledge in the industry that incinerator facilities prefer to burn paper as an additional fuel. Paper as fuel is a win-win situation for Stericycle. It generates revenue as well as savings from the fuel it replaces. But it is a lose-lose situation for the public and the environment. This practice creates pollution while wasting a natural resource that could be reused. Shredding and recycling confidential documents generated by healthcare facilities is best for public health and best for the environment. Burning paper that can be recycled has no place in a medical waste incinerator.

No burning of international garbage.

The NC Division of Air Quality should remove this category of waste from Stericycle’s permit renewal since it is incinerated when it can be disposed of by Stericycle in its own autoclave facility.

Rationale: Stericycle has permission from the USDA/APHIS to treat this garbage in its Concord, NC autoclave. This waste category contains many plastics in wrappers and containers (cruise ship and airline garbage). According to Stericycle, this waste amounts to <1% of the Haw River incinerator’s total volume. But we feel that 1% is no small amount (263,000 pounds based on total of 26.3 million pounds). We call upon Stericycle to use its autoclave voluntarily, but that the NC Division of Air Quality should protect the citizens of North Carolina by removing this category of waste from the list of permitted burn items.

Pharmaceutical disposal: Burden of proof for safety on industry, clarification of regulations, and targeted inspections.

We ask the NC Division of Air Quality and Stericycle to present proof to the public that burning pharmaceuticals is not deleterious to human health and the environment.

Given that the NC Division of Air Quality is likely to allow Stericycle to burn pharmaceuticals before providing scientifically-based evidence on the safety of incineration, we call for the Division of Air Quality and the Division of Waste Management to provide clarity regarding which pharmaceuticals fall into hazardous vs. non-hazardous categories. We believe that the NC Division of Air Quality should require that this information be included in contracts and waste acceptance protocols that Stericycle makes with its waste generators as a part of the required waste management plan.

We are further concerned that state inspections may not be carried out specifically to the issue of proper separation of hazardous from non-hazardous pharmaceuticals. We urge the state to provide inspections targeted to this item.

Rationale: Pharmaceutical disposal in general remains problematic. While disposal into water is most worrisome, there is a concerning knowledge void regarding chemicals emitted from burning and their effects on human health and the environment. We believe that if industry is permitted to burn pharmaceuticals, then the burden of proof for safety and health effects should be on those who advocate and permit incineration.

Only non-hazardous pharmaceuticals may be burned per Stericycle's permit. We are concerned that hazardous pharmaceuticals may be entering the incinerators, given the vast number of waste generators (in the thousands), sometimes coming from as many as 24 different states.

'Non-hazardous trace chemotherapy waste' should not be burned in Haw River.

The NC Division of Air Quality should withhold permission for 'non-hazardous trace chemotherapy waste.'

Rationale: Stericycle claims to incinerate 15-20% of its current volume as chemotherapeutic waste (CHWMEG Report, 2009) which means 4 - 5.3 million pounds burned last year. Included are plastic IV bags, tubing, gloves, etc., along with any remaining trace chemo agents. We are gravely concerned about the volume of plastics that are burned (dioxins), the lack of knowledge of health effects from burning chemotherapeutic agents, the possible inclusion of hazardous chemotherapeutic waste, and the potential cumulative volume of 'trace' chemo agents gathered from facilities along the entire east coast. We believe that the practice of burning trace chemo wastes should be re-examined in consideration of these issues. Sufficient concerns exist that we call upon the NC Division of Air Quality to remove non-hazardous trace chemotherapeutic waste from Stericycle's permit renewal.

Replace the currently permitted emission standards with the 2009 EPA emission standards.

We call upon the NCDENR to reduce the level of toxic pollution of our air by requiring Stericycle to comply with stricter emission standards. We call upon the state to use those standards as specified for specific pollutants by the EPA on October 6, 2009.

Rationale: The 2009 EPA emission standards will significantly reduce the level of allowed pollutant to be emitted into the ambient air. Since this standard will be adopted by the state later this year, we call upon the NCDENR to require these emissions standards for the specified pollutants in place of the currently stated standards in the permit renewal. See Table A (above) for the difference in toxic emissions reductions that these standards will produce.

Bypass events are acute environmental toxic exposure events: Notify the public.

The NC Division of Air Quality should require Stericycle to initiate a timely ‘Bypass Notification System’ on a website, with email notifications to the public, particularly for the five mile area around the facility to include residences, work places, nursing homes, day care centers and schools for all bypass events, regardless of duration.

Rationale: Bypass events (also known as “start-up, shut-down, and malfunctions”) release concentrated, uncontrolled air toxins directly into the air, bypassing all normal pollution controls. The public is completely unprotected from any toxin that is emitted (See Appendix B). Stericycle has had no year of operation without bypass events. The number and duration varies year to year.

We believe that any bypass event is a situation that should be made known immediately to the potentially affected public as they may have been exposed to high doses of multiple toxins in combination (synergistic effects), including dioxins and furans. We are supported by the President’s Cancer Panel Report that calls for providing to individuals and communities “all available information about environmental exposures they have experienced...”

Bypass events should be considered violations with automatic penalties.

The NC Division of Air Quality should include the provision that all bypass events are violations of the permit and that each violation will incur a civil penalty. This would override all related permit sections on bypass events/excess emissions. It is consistent with the 2009 EPA Rules that consider each bypass event to be a violation.

Rationale: Bypass events (also known as “start-up, shut-down, and malfunctions”) release concentrated, uncontrolled air toxins directly into the air, bypassing all normal pollution controls. The public is completely unprotected from any toxin that is emitted. Stericycle has had no year of operation without bypass events.

The 2009 EPA rules make every bypass event a violation. Under the current rules, most of these bypass events are exempt.

Put public compliance data online and accessible to the public.

We urge the NC Division of Air Quality to require that Stericycle place its compliance data for both incinerators online, so that it is available to the public in a timely fashion and that the data is up-to-date within 7 days.

Rationale:

We believe that the NC Division of Air Quality should require all of Stericycle's stack test data reports as well as all reports that are produced for the NCDENR to be posted online as part of the public's right to know. This assures a greater transparency of operations and can inspire more public trust in government as well.

Conduct unannounced inspections:

We recommend the state conduct unannounced inspections during times of normal operating conditions, including night times which seem to be heavy burning times.

Rationale: Currently the state conducts inspections at Stericycle, but inspections are scheduled with the permit holder giving them adequate time to prepare. Unannounced inspections would inspire more confidence in the public.

Express permit limits for pollutant amounts in weight/hour and weight/year.

We recommend that the permit be revised to include the total amounts allowed for each pollutant in time periods of one hour and one year in addition to any expression of limits currently in use.

Rationale: Adding these amounts to the existing specifications makes it clear what absolute level of emissions is allowed and provides more understandable information to the public about emissions.

Reduce the carbon monoxide compliance limit.

We recommend that the NC Division of Air Quality change the CO permit conditions from the current 3-hour rolling average down to a 1-hour rolling average.

Rationale: A concern exists that the CO compliance limit calculated as 40 ppmv using a 3-hour rolling average is too long that allows higher CO emissions and needs to be more stringent with a 1-hour rolling CO average.

The 3-hour rolling CO average at 40 ppmv authorizes more frequent and longer duration CO spikes above 40 ppmv than a 1-hour rolling average would allow.

In addition, the stack tests (2008, 2009) show that Stericycle can meet the CO 40 ppmv limit of a 1-hour rolling average which it appeared to meet throughout the stack tests on both incinerators. This provides an incentive to operate the incinerators better at a more protective CO limit.

Automatic review of carbon monoxide spikes for potential violations.

We request that all CO spikes above the 40 ppmv limit, according to certified emissions data obtained from the carbon monoxide continuous emissions monitoring systems (CEMS), need to be reviewed by the NC Division of Air Quality for potential violations of each incinerator.

Rationale: Even when an incinerator appears to be operating in compliance with the permit limits and Special Conditions, many toxic substances are allowed to be emitted

from the incinerator smokestack. Carbon monoxide levels above the permit limit of 40 ppmv, indicates an inefficiency that allows waste to be unburned. This pollution ends up in the community's air supply, even if people may not smell any odors or see any visible smoke emissions.

Incinerators are not required to identify and measure 100% of unburned toxic chemicals, and yet many of the unburned toxic chemicals can be linked with serious human health end points like cancers, birth defects, lower IQs, developmental challenges, immune system impairments, hormonal disruptions, and more.

Carbon monoxide is a critical measure of the efficiency or lack of efficiency inside the incinerator when medical waste is being burned. The Stericycle incinerator permit indicates a set of toxic air pollutants may be emitted and many are in association with carbon monoxide. Increases in carbon monoxide levels above the 40 ppmv limit indicates the incinerator is not performing efficiently, potentially producing a soup of toxic chemicals that come out the stack into the ambient air.

Automatic review by the NC Division of Air Quality of CO spikes above the 40 ppmv level will help address critical ongoing compliance.

Increase stack test frequency.

We believe that the NC Division of Air Quality should require compliance stack testing for each incinerator unit annually.

Rationale: Stericycle's requirements for stack testing are inadequate at 24-26 months and for one unit only. This allows a unit potentially to go 4 years before repeating a stack test, if then.

Require continuous emissions monitoring systems (CEMS) for Lead, Mercury and Dioxins.

Stericycle should be required to install, calibrate and operate a stack metals continuous emissions monitoring system (CEMS) on each incinerator stack running 24/7/365 for lead and mercury. The EPA has certified lead CEMS. These will assure continuous compliance.

Stericycle should be required to install, calibrate and operate continuous emissions monitoring system (CEMS) on each incinerator stack running 24/7/365 for dioxins.

Rationale - lead and mercury emissions: Stack tests conducted every 24-26 months for lead and annually for mercury does little to demonstrate that continuous compliance is being met 24/7/365 for these critical toxins. Variations in the amounts of lead and mercury emitted will occur due to a number of factors, one being the variable composition of waste being generated from thousands of sources in as many as 24 states. Mercury testing gives us a good example that variation does occur. In Stericycle's 2008 and 2009 stack test comparisons, mercury was measured as follows: 2008= 0.52 mg/dscm vs 2009 =0.01 mg/dscm. The variation here is 52 times more in 2008 vs 2009.

Stack tests are but a ‘snapshot’ in time. Lead and mercury emissions should be measured on a continuous basis or their true levels will remain in ‘the mystery zone’ except for these 12th and 24th month stack tests. Extrapolation from stack tests for amounts emitted is no assurance of continuous compliance.

Lead and mercury are critical to monitor since they have such deleterious effects on children and pregnant women, many of whom live in the immediate area around the facility. Numerous day care centers and schools are located within a crucial 5-mile radius of Stericycle. See Appendix A for health effects of lead and mercury.

In the environment, one gram of mercury is sufficient to contaminate a 20-acre lake with fish consumption advisories from bioaccumulation of methylmercury in the fish food chain.

The NC Division of Air Quality would be acting protectively toward our future generations by requiring Stericycle to install, calibrate and operate continuous emissions monitoring system (CEMS) for lead and mercury. The EPA has certified lead CEMS and mercury CEMS is available.

Rationale - Dioxin emissions: We believe that the current measurement of dioxins and furans in a 4 hour stack test every two years is a grossly inadequate method for measurement. European countries have instituted continuous dioxin monitoring for similar incinerators. A critical study found that their standard 6-8 hour sampling time “underestimated the average [dioxin] emission by a factor 30 to 50.”¹

Dioxins are some of the most toxic chemicals known and cause injury to human health even at minute levels in parts per trillion and lower. Herbicide Agent Orange was contaminated with only 4-5 ppm dioxin and yet caused illness, injury and death to many civilians exposed in Vietnam and also military personnel.

While there is ample literature on dioxins that support our concerns for their exposure to people and the environment (see Appendices A-1, B), we also refer the NC Division of Air Quality to this key interview with Dr. Linda Birnbaum, Director, National Institute of Environmental Health Sciences (NIEHS) and dioxin expert. <http://bredl-medwaste.org/videos.htm#dioxins>

Continuous monitoring of dioxins is crucial if continuous compliance is to be maintained.

¹ De Fre, R., Wevers, M. 1998. Underestimation in dioxin emission inventories. Organohalogen Cpd. 36:17-20.

Support for new pressure drop monitoring requirement (9) B.

We support the NC Division of Air Quality’s new operational requirement that requires Stericycle to continuously monitor the pressure drop across the venturi scrubbers and the charging rate to each incinerator.

Decrease the opacity limit.

The NC Division of Air Quality should decrease the opacity limit to 5% from its current 10%.

Rationale: The current opacity limit of 10% (averaged over a 6-minute period) for smoke particulate matter emissions is too high. Stack tests (2008, 2009) show that Stericycle can meet the 5% opacity limit by operating at 0% opacity throughout the stack tests on both incinerators and provides an incentive to operate the incinerators better than a 10% opacity limit.

Annual review by NCDENR of all Stericycle problems.

The NC Division of Air Quality should perform an annual review of all malfunctions, shutdowns, bypasses, and operating problems at the two incinerators to determine if Stericycle is violating the permit conditions, require Stericycle to address repeated types of operating problems, and indicate how Stericycle can work to improve incinerator operations.

All information on the NC Division of Air Quality's annual review and the full disclosure of details of Stericycle's malfunctions, shutdowns, bypasses, and operating problems at the two incinerators needs to be transparent and posted online.

Rationale: So long as the Haw River incinerators are permitted to operate, it is crucial that they operate in the most efficient manner possible. An annual review, such as is proposed, would add to the improvement of incinerator operations.

Thank you for the opportunity to provide these comments.

Sincerely,

Carolyn Cole and Sue Dayton
Blue Ridge Environmental Defense League/NC Healthy Communities

**APPENDIX A
HEALTH EFFECTS OF REGULATED AIR POLLUTANTS**

Criteria Health Concerns - the most vulnerable to air pollution are the unborn fetus, children, women, the elderly, and people with pre-existing respiratory problems, heart disease, various health impairments and multiple chemical sensitivity.

1. Lead:

Retardation and brain damage, especially in children.
Learning disabilities. Endocrine-disrupting and from reproductive effects, Anemia, Nervous system, Hearing loss, Joint pain, Kidney diseases, Heart, Spontaneous abortions, Vomiting, Weight loss, Nervousness, Irritability, Sudden infant deaths, Decreased thyroid function, Headaches, Immune system damage, Chromosome mutations.

2. Particulate Matter:

Eye and throat irritation, Bronchitis, Lung damage, Increased mortality rates, Increased heart attack risk. Increased respiratory problems, increased asthma, from Increased emergency room visits, increased use of inhalers and medications,

Hazardous Air Pollutants

1. Arsenic:

Cancer, Birth defects, Respiratory problems, Suspected mutagen (DNA damage), Heart problems, Gastrointestinal, Headaches, Impaired memory, Nervous system problems, Sexual dysfunction.

2. Beryllium:

Cancer, Primary lung disease, although also affects Liver, Spleen, Kidneys, and Lymph glands. Enlarged heart, Conjunctivitis, Adrenal gland congestion, Cell mediated immune response, Ricketts, Osteoporosis.

3. Cadmium:

Cancer, Destroys bones by decalcification, Kidneys. Endocrine-disrupting and Reproductive effects. Lung and Gastrointestinal irritation, Behavior problems, Pulmonary edema, Osteoporosis, Immune system problems, Brain and nerve cell damage, Birth Defects, Genetic mutations, Altered libido.

4. Chromium Compounds: Chromium VI

Cancer, Pulmonary problems, Birth defects, Liver, DNA-Chromosome changes, Headaches, Immune system -problems, Blood changes, Nose bleeds, Low birth weight babies, Nervous system problems, Kidneys.

5. Dioxin:

Cancer, Endometriosis, Immune System depressed resulting in increased susceptibility to infections; from Immune system hyper-stimulation leading to scleroderma, Graves' disease, Addison's disease, arthritis, asthma, Type I diabetes, Hashimoto's disease, Myasthenia gravis, Lymphocytic adenohypophysitis, and Thyroid diseases; Human Fetal Development, Birth Defects, Sterility, Reduced Liver Function, Decreased size of human reproductive organs, Endocrine system impaired, lower IQ, fatigue, reduced glucose tolerance, emotional problems.

6. Mercury:

Target organs like the brain, kidneys, central nervous system, eyes, skin, respiratory system and bowels from affected, Birth defects, Neurological damage. Endocrine-disrupting and reproductive effects, Emotional disturbances, Headaches, Spontaneous abortions, Immune system damage.

7. HCL:

Hydrochloric acid is an eye, skin and lung irritant that damages the mucous membrane promoting complications.

Sources:

Arnold Schecter, MD, Dioxins and Health, Plenum Press, 1994.

Marc Lappe, Chemical Deception: The Toxic Threat to Health and the Environment, Sierra Club, 1991.

Cynthia Wilson, Chemical Exposure and Human Health, McFarland, 1993.

Hormone Copycats, National Wildlife Federation, April 4, 1994.

Appendix A-1

Dioxin Health Effects

Health effects list shown below is known to be related to dioxin exposures through different media. The list is expanding as doctors learn more about this substance.

Dr. Arnold Schecter, MD, is a leading medical researcher on dioxin's health effects having regularly traveled to Viet Nam since the 1970s to study the children and people exposed to dioxin thru Agent Orange spraying, and many health problems continue to appear in people exposed to dioxin more than two decades after the spraying ended. Dioxin is persistent and may last for decades to several hundred years in nature. It bioaccumulates up the food chain.

Dioxin reported health effects:

1. Cancer
2. Endometriosis
3. Immune System depressed resulting in increased susceptibility to infections
4. Immune system hyper-stimulation leading to 10 illnesses:
 - * scleroderma
 - * Graves' disease
 - * Addison's disease
 - * arthritis
 - * asthma
 - * Type I diabetes
 - * Hashimoto's disease
 - * Myasthenia gravis,

- * Lymphocytic adenohypophysitis
- * Thyroid diseases
- 5. Human Fetal Development impaired
- 6. Birth Defects
- 7. Sterility
- 8. Reduced Liver Function
- 9. Decreased size of human reproductive organs (non-functional)
- 10. Endocrine system impaired
- 11. Lower IQ
- 12. Fatigue
- 13. Reduced glucose tolerance
- 14. Emotional problems
- 15. Heart disease

Appendix B

Dump Stacks/Bypass Stacks: An Unregulated Hazard of Modern Waste Incinerators

Dump stacks (bypass stacks or vent stacks) are standard equipment on modern dual-chambered incinerators (medical, municipal, sludge, industrial, PCB and hazardous waste). Dump stacks are installed and operated on modern waste incinerators in order to prevent fires, explosions and toxic vapor clouds when problems develop in the primary-secondary combustion chambers or when problems occur downstream in the air pollution control system such as failure in the quench process, acid gas scrubber, baghouse, pumps, ID fan or other problems. During upset events, incinerator operators manually push a button to open the dump stack, if it does not open automatically, and release incredibly high amounts of uncontrolled emissions with plumes of solid black smoke.

Bypassing means the incinerator's complete air pollution control system at the tail end of the incinerator, intended to control toxic emissions, is 100% bypassed by venting gases and particulate matter directly to the ambient air, which is one of the most dangerous modes of incinerator operation. Bypass stack use is usually inadequately regulated since they are regarded as necessary safety devices, but present enormous health risks to the local community. Citizens who have observed dump stack venting report observing plumes of black smoke emanating from the incinerator and containing odors characteristic of acid gases such as hydrochloric acid from a medical waste incinerator.

Bypass stacks pose a series of community health concerns as harmful-to-dangerous levels of emissions are released, including dioxins, furans, acid gases like hydrogen chloride (HCl), polycyclic aromatic hydrocarbons (PAHs) like benzo[a]pyrene, PM2.5 fine soot particles, metals such as mercury and lead, hydrocarbons such as vinyl chloride and benzene, and other harmful substances. Many other pollutants are emitted depending on the mix of waste being incinerated.

There are other unregulated features of bypass stacks:

- 1) Lack of Continuous Emissions Monitoring Systems (CEMS).
Dump stacks are not required to be continuously monitored for toxic air pollution

releases with any kind of CEMS stack monitors (i.e., CO, THC, NO_x, HCl, SO₂, Opacity, O₂, temperature) during an excess emissions event or malfunction with a potential for exceptionally high uncontrolled emissions since the permit tends to place few restrictions on dump stack use. Without CEMS, it's impossible to evaluate the emissions volumes and types of pollutants released during one bypass event or an annual emissions total.

2) Failure to require Stack Testing of Emissions.

Dump stacks are not required to undergo stack sampling for potential air pollution releases by utilizing EPA's Stack Sampling protocols in the Code of Federal Regulations because permits generally require no stack sampling. Of course, who would choose to allow such stack testing since the incinerator would have to be burning waste and venting everything through the Dump stack and bypassing the air pollution control system.

3) No Regulatory Limits on the Number of Bypass Vent Stack Events allowed each year, which means an incinerator could report a bypass event 365 times a year without violating its permit condition.

Dump stacks typically have no state or federal regulatory limits on the number of bypass events reported per day or per year, except what requirements and limitations are imposed by the state permit special conditions.

4) No Permit Emissions Limits occurring due to Bypass Vent Stack events. Dump stacks may have no regulatory limits on the volume of air pollution released during a single upset emissions event or annual total, since the incinerator operators are typically not required to maintain emissions data on the dump stack releases. For example, main stack opacity may be limited to 6% but the Bypass stack has no opacity limit and opacity levels can reach 100% solid black smoke without violating the permit's opacity limitations. No data is available on Bypass stack opacity levels since no Opacity COM is required on the Bypass vent stack.

5) No duration limits for Bypass Stack annual total use.

Incinerators often have no regulatory limitations as to the length of time per bypass event can last. Bypasses can last a few minutes to more than an hour.

Bypass vent stack use is completely undesirable and a dangerous operating condition that is totally unacceptable for protecting public health.
