TECHNICAL SUPPORT DOCUMENT

CONTROL OPTIONS AND ASSOCIATED COSTS OF COMPLYING WITH THE PROPOSED REVISIONS TO 35 ILLINOIS ADMINISTRATIVE CODE, PART 229: HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS

AQPSTR 10-08

December 20, 2010

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST
P.O. BOX 19276
SPRINGFIELD, ILLINOIS 62794-9276

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List of Acronyms

ACI	Activated carbon injection
APCD	Air pollution control devices
CAA	Clean Air Act
Cd	Cadmium
CDD/CDF	Chlorinated dibenzodioxin/ Chlorinated dibenzofuran (Dioxins/furans)
CO	Carbon monoxide
DIFF	Dry injection fabric filter
Dscfm	Dry standard cubic feet per minute
D/F, TEQ	Dioxins/furans, toxic equivalent
D/F, total	Total dioxins/furans
°F	Degrees Fahrenheit
FF	Fabric filter
gr/dscf	Grains per standard cubic feet
HCl	Hydrogen chloride
Hg	Mercury
HMIWI	Hospital/medical/infectious waste incinerators
hr	Hours
lb	Pounds
MACT	Maximum achievable control technology
mg/dscm	Milligrams per dry standard cubic meter
ng/dscm	Nanograms per dry standard meter
NO_x	Nitrogen oxides
OSHA	Occupational Safety and Health Administration
Pb	Lead
PM	Particulate matter
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
SNCR	Selective Non-Catalytic Reduction
SO_2	Sulfur dioxide
WS	Wet scrubber
yr	Year

1.0 Introduction

The Illinois Environmental Protection Agency ("Illinois EPA") is proposing to revise certain standards and requirements for hospital/medical/infectious waste incinerators (HMIWI), under 35 Illinois Administrative Code, Part 229 ("Part 229"), to further control emissions from this category of waste incinerators. This action is initiated by the requirement under Section 129(b) of the Clean Air Act ("CAA"), as amended in 1990, that each State in which exiting HMIWI are operating shall no later than 1 year after the promulgation of emission guidelines for the HMIWI source category, submit to United States Environmental Protection Agency ("USEPA") plans for the implementation and enforcement of the emission guidelines with respect to the existing HMIWI in their State.

On September 15, 1997, the United States Environmental Protection Agency ("USEPA") promulgated new source performance standards ("NSPS") and emission guidelines ("EG") to reduce emissions from HMIWI ("the 1997 MACT standards").[1]

NSPS for new HMIWI are Federal regulations that are implemented and enforced by the Illinois EPA under delegation authority from the USEPA. EG are intended to initiate State action to develop State regulations that are, at least, as stringent as the requirements of the promulgated guidelines. USEPA is required to develop a Federal plan to implement and enforce the emission guidelines in States that did not submit an approvable plan by the established deadline.

Illinois EPA submitted an approved state implementation plan ("SIP") that reflects the guidelines under the 1997 MACT standards. The standards and requirements contained in the SIP are codified under Part 229.

On March 2, 1999, the U.S. Court of Appeals for the District of Columbia Circuit ("the Court"), in a case challenging USEPA's methodology in deriving MACT floors for the 1997 MACT standards, remanded the rule for further explanation from USEPA of its derivation of the standards.[2] Since the Court did not vacate the 1997 MACT standards its requirements remained in effect during the remand and were fully implemented by September 15, 2002.

On October 6, 2009, the USEPA in response to the Court's remand promulgated revised NSPS and EG for HMIWI ("the 2009 MACT standards").[3] Illinois EPA is required to submit a revised SIP to address the new requirements under the guidelines.

This document describes the amended requirements under the 2009 MACT standards, control options and the estimated site-specific incremental costs that will be incurred by

the lone affected Illinois facility to comply with the proposed revisions to the standards and requirements under Part 229.

The Illinois EPA reviewed and relied upon the documents detailing results of USEPA's analyses for MACT floor determinations and the impacts, and other materials placed in the docket for the 2009 MACT standards.[4] The proposed revisions to Part 229 are deemed equivalent in stringency to the revised standards and requirements under the 2009 MACT standards.

2.0 Background

Incinerators are used to burn hospital waste at high temperature, and under controlled conditions (e.g., feed quantity, temperature, and residence time) before disposal. Some incinerators are also designed to recover energy. About 85 percent of hospital waste content consists of municipal–type waste that can be recycled or disposed without special treatment; the remaining content consists of regulated medical waste that is required to be treated to inactivate pathogens or other infectious agents contained in the waste.[1] Incineration is among the existing waste treatment technologies used to process regulated medical waste to make it biologically and chemically safe for disposal in a landfill.

A modern HMIWI generally consists of two combustion chambers and air pollution control equipment. Most of the incineration of waste feed takes place in the primary chamber while complete destruction is accomplished in the secondary chamber. Waste is fed into the primary chamber and exposed to lower temperatures that range between 1400° and 1600°F. The off-gases which contain volatiles from the waste feed that have not burned out are passed into the secondary chamber where the organic materials are burned out at higher temperatures (1800° to 2000°F) to form carbon dioxide and water. The objective of the combustion process is the complete destruction of all organic materials in the waste feed, while minimizing the formation and release of toxic pollutants. The advantages of incineration include reduction in the volume of material combusted, destruction of pathogens and hazardous organics, and energy recovery. In addition, incineration leaves wastes unrecognizable after treatment.

A major disadvantage of incineration as a treatment option is the public health risk posed by the emissions of hazardous air pollutants from the medical waste incineration process. Medical waste incinerators are major sources of persistent, bioaccumulative, and toxic pollutants such as mercury, dioxins and furans. These pollutants are known or suspected to cause serious health effects, such as cancer, birth defects, and lung defects as well cause adverse environmental and ecological effects.[1]

Emissions from HMIWI units depend greatly on the materials that are combusted. Hospital waste contains significant amounts of polyvinyl chloride plastic materials and heavy metals. Some pollutants in the waste feed are released unchanged during combustion; others are formed as a result of the combustion process. In addition, under poor operating conditions (e.g., low secondary combustion temperature and residence time) dioxins and furans are formed in the presence of the halogenated waste. Enhanced waste management practices such as waste segregation at the point of generation, purchasing of recycled or recyclable products, and good combustion control practices are effective pretreatment strategies for reducing emissions of certain target pollutants.

The CAA requires the USEPA to promulgate standards for the control of emissions of nine categories of pollutants from HMIWI to protect public health and welfare. The nine pollutants are hydrogen chloride (HCl), carbon monoxide (CO), lead (Pb), cadmium (Cd), mercury (Hg), particulate matter (PM), dioxin/furans (CDD/CDF), nitrogen oxides (NO_x), and sulfur dioxide (SO_2). The amended 2009 MACT standards are far more stringent than the original standards that most of the existing HMIWI would need to improve performance in order to comply with amended standards.

3.0 Summary of the proposed revisions to Part 229

Table 1 is a summary of the revised standards for existing HMIWI under the 2009 standards. Not included in the revised standards are percent reductions limits for HCl, Pb, Cd, and Hg as in the 1997 MACT standards. Because the approach used in determining percent reduction limits for these pollutants for the 1997 MACT standards did not account for non-technology factors that also affect emissions from HMIWI, the use of percent reduction limit as an option for compliance demonstration was removed from the 2009 MACT standards.

USEPA's analysis of emissions data collected from HMIWI facilities show that 7 out of 57 HMIWI simultaneously meet all of the MACT floor emissions limits; 42 units are estimated to meet the revised CO and NO_X emissions limits with existing controls. The revised emissions limits apply at all times, including during periods of startup, shutdown and malfunction (SSM). The regulatory exemption that allowed facilities under MACT programs to exceed emissions limits of toxic pollutants during periods of SSM was not included in the 2009 standards because of its vacatur in 2008 by the Court.[5]

USEPA believes that all of the MACT floors are achievable in practice since the floors were determined based on actual performance data. The industry believes differently. The owners and operators of HMIWI contend that the pollutant-by-pollutant approach

used by USEPA in calculating the MACT floors essentially created a hypothetical "super unit" that resulted in the establishment of overly stringent MACT floors that no existing unit has completely achieved, or can be simultaneously achieved by any of the best performing units identified in the MACT analysis.[3]

USEPA is of the opinion that its interpretation of Section 129 of the CAA supports the pollutant-by-pollutant approach rather than the unit-based approach, where the determination of MACT floor is based on a unit's overall performance for all pollutants. In the pollutant-by-pollutant approach, a unit's performance for each of the nine pollutants is scored and ranked; the individual pollutant rankings are summed to determine the overall ranking for each unit in a HMIWI size category.[3]

Table 1 – Summary of proposed emissions limits for HMIWI

	Existing HMIWI Throughput Size Category			
Pollutant (units)	Large	Medium	Small	Small Rural
HCl (ppmv)	6.6	7.7	44	810
CO (ppmv)	11	5.5	20	20
Pb (mg/dscm)	0.036	0.018	0.31	0.50
Cd (mg/dscm)	0.0092	0.013	0.017	0.11
Hg (mg/dscm)	0.018	0.025	0.014	0.0051
PM (gr/dscf)	0.011	0.020	0.029	0.038
D/F, total (ng/dscm)	9.3	0.85	16	240
D/F, TEQ (ng/dscm)	0.054	0.020	0.013	5.1
NO_x (ppmv)	140	190	190	130
SO_2 (ppmv)	9.0	4.2	4.2	55
Opacity (%)	6.0	6.0	6.0	6.0

Source: 74 Federal Register 51368, October 6, 2009.

Note: Each incinerator unit is categorized as large, medium, small, or small rural based on its maximum design waste charging capacity:

Large: > 500 lb/hr of waste;
Medium: > 200 to ≤ 500 lb/hr of waste;
Small: ≤ 200 lb/hr of waste; and
Small Rural: < 2,000 lb/wk, located > 50 miles from boundary of the nearest Standard Metropolitan Statistical Area

Other new requirements under the 2009 MACT standards that will now be included in Part 229 revisions are:

- Additional stack testing requirements for existing and new HMIWI;
- Additional monitoring requirements for new HMIWI;
- Annual inspections of air pollution control devices;
- One-time visible emissions test of ash handling operations; and
- Amended waste management plan provisions;

Additionally, the proposed revisions to Part 229 will include the following:

- The requirement that the existing HMIWI demonstrate compliance with the amended standards within 3 years of USEPA's approval of Illinois EPA's SIP or 5 years after the 2009 standards publication date of October 6, 2009, whichever is earlier;
- That Illinois EPA may, on a case-by-case basis, consider providing maximum compliance period allowed under the CAA to enable affected facilities that may need to install control devices and or retrofit their equipment; and
- A phased schedule for compliance with the revised limits

4.0 Control Option Costs for Model Large HMIWI

Table 2 lists the summary of APCD by HMIWI category used in demonstrating compliance with the 1997 MACT standards. The achievability of the 2009 MACT standards was evaluated by USEPA, and the results show that most of the 57 HMIWI as configured are not expected to meet all nine MACT floor limits. That is, most of the HMIWI would need to improve performance by installing control system, adding incremental control, using any of the alternatives to compliance, or a combination of these measures to meet standards.

To determine estimated costs associated with the control measures that can be used to comply with the 2009 MACT floor limits, model plants representing the 57 HMIWI in operation were developed by USEPA to aid in its analysis of impacts (cost, economic, environmental, energy, etc) of the amended standards. The design and operating parameters (e.g., incinerator charge rate, stack gas flow rate, incinerator operating hours, and emissions concentrations) for the model plants were based on those of the existing HMIWI.

The stack gas flow rate for a model large HMIWI was determined to be approximately 4,000 dscfm. The model capital costs for the various control options were estimated in units of dollars ($) and $/dscfm; for model annual costs, the units were estimated in dollars per year ($/yr) and $/dscfm. For each HMIWI requiring control, the control cost was determined by multiplying the unit-specific stack gas flow rate by model $/dscfm costs.

Table 2 – Air pollution control devices used for the 1997 MACT standards

APCD type	Existing HMIWI Throughput Size Category				Total no. HMIWI
	Large	Medium	Small	Small rural	
Dry APCD[a]	16	3	0	2	21
Wet APCD[b]	17	14	2	0	33
Dry/wet APCD[c]	3	0	0	0	3
Uncontrolled	0	0	0	0	0
Total	36	17	2	2	57

Sources:
1. MACT Performance Data for HMIWI Facilities.[6]
2. Revised Compliance Costs and Economic Inputs for Existing HMIWI.[7]

Note:
a . Dry APCD include filter fabric (FF) and dry sorbent injection followed by fabric filter (DIFF).
b. Wet APCD include various types of wet scrubbers (WS) e.g., venturi, packed-bed.

Table 3 lists control options, pollutants most effectively controlled by each option, and costs associated with each control option for a large model HMIWI to comply with proposed revisions to Part 229. (Control costs for other size categories are left out in this document.)

Included as options, are incremental controls that can be used in conjunction with existing control system (rather than install new system) to improve performance in emissions reductions of the listed pollutants.

Waste treatment and disposal methods such as autoclaving (followed by disposal of waste to landfill), hauling waste to off-site municipal waste combustors, and the use of commercial medical waste disposal services listed as control options, were developed as alternatives to compliance for the model plants.

Table 3 – Summary of control option costs for model large HMIWI

		Control Option Costs	
Control option	Pollutants controlled	Total Capital Investment, $	Annual Costs, $/yr
Packed-bed wet scrubbers	HCl, SO_2	$452,658	$104,101
Fabric filter	Pb, Cd, Hg, PM, CDD/CDF	$1,017,892	$267,793
Dry injection fabric filter	HCl, Pb, Cd, Hg. PM, CDD/CDF, SO_2	$1,363,508	$347,053
Secondary chamber retrofit	PM, CO, CDD/CDF	$346,250	$80,819
Selective noncatalytic reduction	NO_X	$585,709	$67,918
Activated carbon injection system	Hg, CDD/CDF	$11,989	$56,313
Incremental controls:			
Increase caustic flow	HCl, SO_2	$0	$55
Increase lime flow	HCl, SO_2	$0	$20,895
Increase $NaHCO_3$ flow	HCl, SO_2	$0	$81,587
Increase activated carbon flow	Hg, CDD/CDF	$0	$42,585
Increase natural gas use	PM, CO, CDD/CDF	$0	$30,207
Increase scrubber horsepower	PM	$0	$26,810
Improve fabric filter performance	Pb, Cd,, Hg, PM, CDD/CDF	$0	$8,608
Increase NO_X reagent	NO_X	$0	$1,836
Alternatives to Compliance:			
Autoclave/landfill	Alternatives to compliance	$1,000,000	$205,273
Haul waste to municipal waste combustor	Alternatives to compliance	$0	$225,944
Commercial medical waste disposal	Alternatives to compliance	$0	$1,447,200

Sources:

1. Revised Compliance Costs and Economic Inputs for Existing HMIWI.[7]
2. Medical Waste Incinerators – Background Information for Proposed Standards and Guidelines: Control Technology Performance Report for New and Existing Facilities.[8]
3. Medical Waste Incinerators – Background Information for Proposed Standards and Guidelines: Model Plant Description and Cost Report for New and Existing Facilities.[9]

Note:

1. Costs are in 2007 dollars
2. Only annual costs are associated with incremental controls, hauling waste to municipal waste combustor, and commercial medical waste disposal.

5.0 Affected Sources

There are two existing HMIWI units in operation in Illinois that are subject to Part 229 requirements. The two units which are both categorized as large based on waste charging capacity are commercially operated by Stericycle, Inc at its Clinton, Illinois facility. Hospital/medical/infectious waste generators that use off-site HMIWI to treat and dispose waste are only subject to Part 229 waste management plan requirements. The MACT

standards do not directly apply to waste generators that use off-site incinerators. However, commercial operators of HMIWI are expected to train and educate their waste generator customers to implement waste management program. For this reason, the analysis of the cost impact of the proposed revisions to Part 229 will focus only on the two HMIWI.

5.1 Stericycle, Inc.

Stericycle is a leading provider of medical waste management services to hospitals, clinics, dental offices, blood banks, research facilities, and other waste generators. The company owns and operates six commercial HMIWI facilities (including the Illinois facility) in the United States. In addition to its use of incineration to treat hospital/medical/infectious waste, Stericycle also uses other treatment methods such as autoclaving and its proprietary Electro-Thermal Deactivation (ETD) process to treat waste at its other facilities. (Autoclaving and ETD are described in below in Section 5.1.4, *Alternatives to Compliance.*)

Emissions from HMIWI units are impacted by the implementation of enhanced waste management practices at the point of waste generation. OSHA requirements preclude commercial HMIWI facilities from segregating medical waste received for treatment. Stericycle sees its role in providing training and education to waste generator customers to conduct their own waste segregation as vital to its overall goal of minimizing or eliminating toxic pollutants contained in wastes or that are formed when wastes are incinerated. In addition to providing educational outreach that focus on implementing waste management plan and dental waste management program, contract requirements and waste acceptance protocols negotiated with customers serve as incentives to the customers to develop and implement waste segregation program.[a, i]

Under the 1997 MACT standards, initial performance test (for all target pollutants) and subsequent annual test (for HCl, CO, and PM) are required for compliance demonstration. Tests so far conducted on the two HMIWI show compliance with the applicable 1997 MACT floor limits. Stericycle did not report any results for NO_X and SO_2; testing for the two pollutants is optional under the 1997 MACT standards. Table A1 lists a summary of operating parameters for the two HMIWI units, and APCD used to meet the 1997 MACT floor limits.

5.1.1 Control Measure Needed to Meet 2009 MACT Floor Limits

Based on the results of past performance tests, neither of the two HMIWI meets all the nine 2009 MACT floor limits (see Table A2). To determine percent improvement, and

the control measure needed to meet the 2009 MACT floors, the baseline concentrations determined from the initial and annual stack tests conducted for the 1997 MACT were compared to the 2009 MACT floor limits. As shown in Table A2 the two HMIWI each met six of the nine amended emissions limits. That is, the emissions of CO, Pb, and Hg from Unit 1 exceed the applicable MACT floor limits; for Unit 2, emissions of Pb, Cd, and Hg exceed the MACT floor limits. Baseline concentrations shown in Table A2 for NO_X and SO_2 are averaged emissions data from similar HMIWI units (size, parameters) as no tests results for these pollutants were reported by Stericycle.

Table A3 lists percent improvement and control measure needed to meet the 2009 MACT floor limit for specific pollutant and specific unit. In determining the control measure needed to bring a unit into compliance, the existing control system installed on the unit and the level of reduction in emission are considered. A pollutant with a negative percent improvement indicates that the pollutant emission is below the MACT floor limit; in this case improvement is not needed. Conversely, a positive percent indicates improvement is needed. Where improvement is needed, the level of control needed is determined by the level of reduction needed to meet compliance. For its analysis, USEPA considered a positive 50 percent or greater as requiring stringent control; if less than 50 percent, the addition of a less stringent control (e.g., increasing natural gas use) may be sufficient to improve performance. This approach is used for each pollutant individually and the results compared across all pollutants to determine the best combination of control measures needed for compliance.

As listed in Table A3, to improve performance for Unit 1 and Unit 2 in order to meet applicable MACT floor limits, fabric filter is to be added for Pb control, and activated carbon injection system for Hg control. In addition, natural gas flow will have to be increased for Unit 1 for CO control; the scrubber horsepower is to be increased for Cd control for Unit 2.

5.1.2 Control Option Costs

The control option costs include control costs, testing costs, monitoring, recordkeeping and reporting costs. The costs are itemized as capital and annual costs. Table A4 lists the capital control costs for DIFF and ACI. These costs were each determined by multiplying the unit-specific stack gas flow rate shown in Table A2 by applicable model capital cost unit, $/4,000 dscfm . (The stack gas flow rate for a large model HMIWI unit was determined to be approximately 4,000 dscfm.) As shown in Table 3 *(Summary of control option costs for model large HMIWI)*, there are no capital control costs associated with incremental controls. Tables A5 and A6 show capital costs associated with the

procurement and installation of control, testing, and monitoring, respectively. Table A7 presents a summary of the total MACT floor capital costs for the HMIWI: Unit 1, $1,172,045; and Unit 2, $1,110,224.

The total MACT floor annual costs for the HMIWI as shown in Table A12 are: Unit 1, $376, 220; and Unit 2, $333,136. Included in the annual costs are: annualized control cost (Table A8); total initial testing cost (Table A9); total annual monitoring cost (Table A10); and recordkeeping and reporting cost (Table A11). (Control costs were annualized over the expected equipment lifetime at 7 percent, while total initial testing cost was annualized over 15 years at 7 percent.)

5.1.3 MACT floor Cost Effectiveness

To calculate the cost effectiveness of the MACT floor for each of the HMIWI and for pollutants with similar emission reduction characteristics, the target pollutants were grouped based on the following characteristics: particulates (PM, Pb, and Cd); acid gases (HCl and SO_2); reduced by activated carbon (Hg, CDD/CDF); solely reduced by combustion control (CO); or solely reduced by SNCR (NO_X). Cost effectiveness was then determined for each HMIWI and for each segment by dividing the total emission control and monitoring costs for each segment by total emission reduction for the pollutant(s) in that segment. Cost effectiveness was not calculated for acid gases (HCl and SO_2) and pollutant solely reduced by SNCR (NO_X); no annual control and monitoring costs are associated with either segment. The cost effectiveness of the total MACT floor was determined by dividing the total compliance costs (total MACT floor annual costs) by the total emission reduction needed to meet the 2009 MACT standards limits. The total emission reduction needed to meet the 2009 MACT floor limits for Unit 1 was determined to be 237 pounds at a total annual cost of $376,220, with the unit average cost effectiveness value of $3,169,273 per ton. For Unit 2, with the total emission reduction of 41 pounds at a total annual cost of $333,136, the unit average cost effectiveness value was determined to be $16,361,729 per ton. Table A13 presents a summary of the results of the calculations.

5.1.4 Alternatives to Compliance

In addition to incineration, a number of other infectious waste treatment methods used in the industry include autoclaving, gas/vapor sterilization, chemical disinfection, thermal inactivation, microwave sterilization and others. While incineration is the waste treatment method used by Stericycle at its Clinton facility, the company also uses autoclaving, its proprietary Electro-Thermal Deactivation (ETD) process, and other methods at other facilities outside the state.

Autoclaving, or steam sterilization, involves the use of saturated steam within a pressure vessel at specified temperature, pressure, and time, to kill pathogens in medical waste. The disinfection of the waste is primarily achieved by steam penetration. Autoclaving is most effective with low-density materials such as plastics that they are widely used to treat laboratory waste typically collected in special plastic bags prior to disposal.

Steam sterilization is not as effective as incineration when used to treat high-density waste such as body parts or waste with high liquid content because direct steam penetration is inhibited which results in longer sterilization times.[12] Autoclaving is not generally approved as a treatment method for pathological waste, human blood and blood products because of their high liquid contents. Other than pathological and chemotherapy wastes that must be incinerated, autoclaving is an alternative treatment method for the other types of regulated medical wastes.

Stericycle ETD waste treatment process uses an oscillating field of low-frequency radio waves to heat medical waste to temperatures that destroy pathogens. The ETD process does not produce regulated air or water emissions, and it also reduces waste volume.[13]

Each waste treatment method presents its own performance issues and environmental impacts. For example, incineration is the most widely used treatment method used for the disposal of regulated medical waste. Operated properly incineration destroys pathogens, reduces volumes, and renders waste unrecognizable. However, its operation releases emissions of hazardous air pollutants (constituents of wastes being treated) such as metal particulates, and mercury; also emitted are dioxins/furans resulting from combustion process. Autoclaving also releases hazardous pollutants (including mercury) but the type and amount can be minimized by an effective waste management program. Because of regulatory requirements, and requirements by generators of certain regulated medical wastes, autoclaving is not used for the treatment of pathological, chemotherapy and pharmaceutical wastes. Autoclaving does not achieve the volume reduction as incineration thus, some medical wastes that are autoclaved may require more landfill space than if incinerated. Other environmental impacts associated with landfilling of autoclaved medical wastes include landfill gas emissions, landfill leachate issues, and impacts of waste transportation traffic.

The USEPA evaluated the model costs associated with only three alternatives to compliance namely, autoclave/landfill, haul waste to municipal waste combustors (MWC), and commercial medical waste disposal. (see Table 3) The costs associated with using commercial medical waste disposal services are significantly more expensive than

autoclave/landfill costs. Although the costs associated with using MWC services are lower than autoclave/landfill costs, the drawback is that most MWC do not accept medical waste. Amongst the three alternatives to compliance options, autoclave/landfill is considered a viable alternative to incineration for a commercial operator such as Stericycle. The estimated autoclave/landfill annual costs as alternative to compliance for the two HMIWI total $530,000, or roughly 75 percent of the estimated total MACT floor costs. Table A14 is a summary list of costs associated with use of autoclave/landfill as an alternative to compliance.

5.1.5 Cost Impact

The USEPA recognizes that the pollutant-by-pollutant approach used for determining MACT floors for the revised standards will cause the overall compliance costs of this regulation to increase compared to what would result under a unit-based approach. However, USEPA does not expect that the increase in costs will significantly impact most facilities with HMIWI, whether the costs are absorbed or passed on to customers. USEPA believes that even in the absence of increased regulatory requirements, less expensive alternative waste treatment options are available to almost all facilities that operate HMIWI. The additional costs imposed by the amended standards both to commercial operators and waste generators, will accelerate the trend towards alternative waste treatment options. For the commercial operator, it is expected that this will translate to a decline in the quantity of medical waste received for treatment, as well as declines in treatment costs, incineration costs, and profits.[14]

There are 14 commercial HMIWI operated at 10 facilities that are located in ten states. Eight of the 14 commercial HMIWI are located in six states and, are owned and operated by Syericycle; the other six HMIWI located in four states are owned and operated by five parent companies. The commercial operators are assumed to have market power especially in regions that do not have strong incinerator alternatives. Because of increased cost of incineration medical waste generators are increasingly using alternative options to treat waste onsite, and use the services of commercial HMIWI for wastes that must incinerated.

6.0 References

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7.0 APPENDIX

MACT FLOOR COMPLANCE COSTS TABLES

Table A1 – Stericycle's HMIWI operating parameters

Unit number	Size category	APCD description	APCD code	Operating parameters				
				Maximum charge rate (lb/hr)	Stack gas flow rate (dscfm)	Stack gas temperature (°F)	Operating hours (hr/yr)	Estimated annual throughput (tpy)
Unit 1	Large	Secondary chamber (1800°F), venture scrubber, and condensing absorber	WS	1,500	3,304	143	7,665	3,852
Unit 2	Large	Secondary chamber (1800°F), venture scrubber, and condensing absorber	WS	1,500	3,125	141	7,558	3,798

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Table A2 – Baseline concentrations and the 2009 MACT floor emissions limits

Pollutant (units)	Baseline concentrations		2009 MACT floor emissions limits
	Unit 1	Unit 2	
HCl (ppmvd)	1.12	1.43	6.6
CO (ppmvd)	12.9	5.77	11.0
Pb (mg/dscm)	0.200	0.134	0.036
Cd (mg/dscm)	0.00572	0.0123	0.0092
Hg (mg/dscm)	0.415	0.377	0.018
PM (gr/dscf)	0.00921	0.00878	0.011
D/F total (ng/dscm)	1.24	0.837	9.3
D/F TEQ (ng/dscm)	0.0105	0.0126	0.054
NO_X (ppmvd)	121	121	140
SO_2 (ppmvd)	2.85	2.85	9.0

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Note:

1. A baseline concentration (single emission value) for a specific unit and pollutant is the mean of the performance tests averages for the specific unit and pollutant. Baseline concentrations for NO_X and SO_2 are averaged emissions data from similar HMIWI units (size, parameters). Stericycle did not report any test results for NO_X and SO_2; testing for the pollutants is optional under the 1997 MACT standards.

Table A3 - Control measure needed to meet the 2009 MACT floor limits

Unit number	Percent improvement and control measure needed to meet 2009 MACT floor limit							
	CO % Improvement Needed	MACT floor CO control	Pb % Improvement Needed	MACT floor Pb control	Cd % Improvement Needed	MACT floor Cd control	Hg % Improvement Needed	MACT floor Hg control
Unit 1	17%	increase natural gas	457%	add FF	-38%	none	2204%	add ACI
Unit 2	-48%	none	274%	add FF	34%	increase scrubber hp	1993%	add ACI

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Table A4 - MACT floor capital control costs

Unit number	Summary of MACT floor controls		MACT floor capital control costs		
	Consolidated MACT floor controls	APCD code with MACT floor controls	DIFF	ACI	Total MACT floor control cost
Unit 1	increase natural gas; add DIFF and ACI	DIFF/WS	$1,126,424	$9,904	$1,136,328
Unit 2	add DIFF and ACI	DIFF/WS	$1,065,142	$9,365	$1,074,507

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Note:
The capital control costs for DIFF and ACI were each determined by multiplying the unit-specific stack gas flow rate in Table A2 by applicable model $/dscfm costs in Table 3

Table A5 - MACT floor capital testing costs

Unit number	MACT floor capital testing costs (initial and tests)						
	MACT floor initial stack testing	Initial metals testing	Initial NO_x testing	Initial SO_2 testing	Total initial stack testing cost	Initial visible emission testing cost	Total MACT floor testing cost
Unit 1	metals, NO_x, SO_2 (already tested for CO)	$14,000	$7,000	$7,000	$18,667	$250	$18,917
Unit 2	Metals. NO_x, SO_2	$14,000	$7,000	$7,000	$18,667	$250	$18,917

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Note:
Total initial stack testing cost of $28,000 was adjusted by two-thirds to account for costs common to multiple tests.

Table A6 - MACT floor capital monitoring cost

Unit number	MACT floor capital monitoring cost				
	MACT floor monitoring	DIFF monitoring	ACI monitoring	Maintenance/inspection	Total MACT floor monitoring costs
Unit 1	DIFF, ACI	$16,800	$0	$0	$16,800
Unit 2	DIFF, ACI	$16,800	$0	$0	$16,800

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Table A7 – Total MACT floor capital costs

Unit number	MACT floor capital cost				
	MACT floor control cost	MACT floor testing cost	MACT floor monitoring cost	MACT floor capital recordkeeping cost	Total MACT floor capital cost
Unit 1	$1,136,328	$18,917	$16,800	$0	$1,172,045
Unit 2	$1,074,507	$18,917	$16,800	$0	$1,110,224
Average Cost for a large Commercial Unit					$1,975,201

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Note:
14 out of the 57 affected HMIWI are commercial units.

Table A8 – MACT floor annual control costs

Unit number	MACT floor annual control cost			
	DIFF	ACI	Increase natural gas	Total floor annual control costs
Unit 1	$286,708	$46,521	$24,955	$358,184
Unit 2	$271,110	$43,990	$0	$315,100

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Table A9 – MACT floor annual testing costs

Unit number	MACT floor annual testing cost (initial and tests)							
	MACT floor initial stack testing	Initial metals testing	Initial NO_x testing	Initial SO_2 testing	Total initial stack testing cost	Initial visible emission testing cost	Total MACT floor testing cost	Total MACT floor annual testing cost
Unit 1	metals, NO_x, SO_2 (already tested for CO)	$14,000	$7,000	$7,000	$18,667	$250	$18,917	$2071
Unit 2	Metals, NO_x, SO_2	$14,000	$7,000	$7,000	$18,667	$250	$18,917	$2071

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Note:
1. Total initial stack testing cost of $28,000 was adjusted by two-thirds to account for costs common to multiple tests.
2. Adjusted total initial stack testing cost annualized over 15 years at 7 percent interest rate; the initial stack tests would only be conducted once.

Table A10 – MACT floor annual monitoring cost

Unit number	MACT floor annual monitoring cost				
	MACT floor monitoring	DIFF monitoring	ACI monitoring	Maintenance/inspection	Total annual MACT flooring monitoring cost
Unit 1	DIFF, ACI	$9,000	$4,800	$900	$14,700
Unit 2	DIFF, ACI	$9,000	$4,800	$900	$14,700

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Table A11 – MACT floor annual recordkeeping and reporting cost

Unit number	MACT floor annual recordkeeping and reporting costs						
	Read instructions	Perform spec test	Notification of performance test	Notification of CMS demonstration	Initial test report	Annual test report	Total MACT floor annual recordkeeping and reporting cost
Unit 1	$44	$698	$87	$87	$349	$0	$1,265
Unit 2	$44	$698	$87	$87	$349	$0	$1,265

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[1]

Table A12 – Total MACT floor annual cost

Unit number	MACT floor annual costs				
	MACT floor annual control costs	MACT floor annual testing costs (initial and tests)	MACT floor annual monitoring costs	MACT floor annual recordkeeping and reporting costs	Total MACT floor annual costs
Unit 1	$358,184	$2071	$14,700	$1,265	$376,220
Unit 2	$315,100	$2071	$14,700	$1,265	$333,136
Average Costs for a Commercial Unit	$465,461	$2,213	$9,929	$1,165	$478,767

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[1]

Note:
1. 14 out of the 57 affected HMIWI are commercial units.
2. Adjusted total initial stack testing cost annualized over 15 years at 7 percent interest rate; the initial stack tests would only be conducted once.

Table A13 – MACT floor cost effectiveness

Unit number	MACT floor particulate control – PM, Pb, Cd (emission control and monitoring)			MACT floor activated carbon control – Hg, CDD/CDF (emission control and monitoring)			MACT floor combustion control – CO (emission control and monitoring)			Total MACT floor (emission control, monitoring, testing, recordkeeping and reporting)		
	Cost ($/yr)	Emission reduction (lb/yr)	Unit average cost effectiveness ($/ton)	Cost ($/yr)	Emission reduction (lb/yr)	Unit average cost effectiveness ($/ton)	Cost ($/yr)	Emission reduction (lb/yr)	Unit average cost effectiveness ($/ton)	Total cost ($/yr)	Total emission reduction (lb/yr)	Unit average cost effectiveness ($/ton)
Unit 1	$295,708	15.6	$37,907,110	$51,321	37.63	$2,727,712	$24,955	184	$270,975	$376,220	237	$3,169,273
Unit 2	$280,110	8.99	$62,347,052	$48,790	31.74	$3,074,767	$0	0	-	$333,136	41	$16,361,729

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Note:

1. The HMIWI pollutants were grouped into 5 segments based on whether they are particulates (PM, Pb, and Cd), acid gases (HCl and SO_2), reduced by activated carbon (Hg, CDD/CDF), solely reduced by combustion control (CO), or solely reduced by SNCR (NO_X). The total emission control and monitoring costs for each segment was divided by the total emission reduction for the pollutant(s) in that segment to determine the cost effectiveness of the MACT floor.

2. The total MACT floor cost effectiveness was determined by dividing the total compliance cost (emission control, monitoring, testing, recordkeeping, and reporting) by the total emission needed to meet the 2009 MACT floor emissions limits.

Table A14 – Autoclave/landfill capital and annual costs

Unit number	Autoclave/landfill costs	
	Capital cost	Annual cost
Unit 1	$493,787	$264,808
Unit 2	$486,877	$261,102
Average Cost for a Commercial Unit	$958,042	$516,703

Source: Revised Compliance Costs and Economic Inputs for Existing HMIWI[7]

Note:
14 out of the 57 affected HMIWI are commercial units.

POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENTS

1) Heading of the Part: HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS

2) Code Citation: 35 Illinois Administrative Code Part 229

3)

Section Numbers:	Proposed Action:
229.100	amended
229.102	amended
229.104	amended
229.110	amended
229.112	amended
229.115	amended
229.116	amended
229.120	amended
229.125	amended
229.126	amended
229.130	repealed
229.142	amended
229.146	amended
229.148	amended
229.150	amended
229.152	amended
229.154	amended
229.156	amended
229.158	amended
229.160	amended
229.162	amended
229.166	amended
229.168	amended
229.180	amended
229.182	amended
229.184	amended
229.APPENDIX B	amended
229.APPENDIX C	amended

4) Statutory Authority:

415 ILCS 5/10, 27, 39 and 39.5

5) A Complete Description of the Subjects and Issues Involved: Updates Part 229 HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS to reflect the issuance of revised New Source Performance Standards by the US EPA. New standards begin on January 1, 2014.

6) Published studies or reports, and sources of underlying data, used to compose this rulemaking:

a) incorporations by reference:

1. ANSI/ASME PTC19.10-1981, Flue and Gas Analyses, [Part 10, Instruments and Apparatus].

2. ASTM D6784-02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method).

3) "Fabric Filter Bag Leak Detection Guidance", U.S. Environmental Protection Agency. (EPA-454/R-98-015, September 1997).

b) *Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators; Final Rule.* 62 Federal Register 48348, September 15, 1997.

c) Sierra Club v. EPA, 167 F.3d 658 (DC Cir. 1999)

d) *Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators; Final Rule.* 74 Federal Register 51368, October 6, 2009.

e) Sierra Club v. EPA, 551 F.3d 1019 (DC Cir. 2008) (SSM Exemption). *Docket ID No.: EPA-HQ-OAR-2006-0534*

f) Thomas Holloway. January 12, 2007. *MACT Performance Data for HMIWI Facilities* (Docket ID No.: EPA-HQ-OAR-2006-0534)

g) Thomas Holloway. July 6, 2009. *Revised Compliance Costs and Economic Inputs for Existing HMIWI* (Docket ID No.: EPA-HQ-OAR-2006-0534)

h) *Medical Waste Incinerators – Background Information for Proposed Standards and Guidelines: Control Technology Performance Report for New and Existing Facilities* U.S. Environmental Protection Agency. July 1994. (EPA-453/R-94-044a).

i) *Medical Waste Incinerators – Background Information for Proposed Standards and Guidelines: Model Plant Description and Cost Report for New and Existing Facilities* U.S. Environmental Protection Agency. (July 1994. EPA-453/R-94-045a).

j) Stericycle, Inc. *Waste Management Plan.* Submitted to Illinois EPA as an attachment to annual performance test results.

k) *Response to Information Collection Request* Stericycle, Inc. December 20, 2007. Stericycle, Inc. December 20, 2007 (Docket ID No.: EPA-HQ-OAR-2006-0534)

l) *Guidelines for Protecting the Safetyand Health of Health Care.* The National Institute for Occupational Safety and Health (NIOSH). Publication No. 88-119. September 1988.

m) Stericycle, Inc. *Environmental Responsibility.* http://www.stericycle.com/medical-waste-disposal/health-safety.html Assessed on March 10, 2010.

n) *Economic Impacts of Revised MACT Standards for Hospital/Medical/Infectious Waste Incinerators.* Katherine Heller, et al. July 2009. (Docket ID No.: EPA-HQ-OAR-2006-0534)

o) Illinois Environmental Protection Act (415 ILCS 5/*et seq.*).

p) Clean Air Act (42 U .S.C. 7401 *et seq.*).

7) Will this proposed rule replace an emergency rule currently in effect? No

8) Does this rulemaking contain an automatic repeal date? _____Yes __X__No

9) Does this proposed rule contain incorporations by reference? Yes

10) Are there any other proposed rule(s) pending on this Part? No

POLLUTION CONTROL BOARD

NOTICE OF PROPOSED AMENDMENTS

11) Statement of Statewide Policy Objectives: These proposed amendments do not create or enlarge a state mandate as defined in Section 3(b) of the State Mandates Act. [30 ILCS 805/3].

12) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking: The Board will accept written public comments on this proposal for a period of forty-five (45) days after the date of publication in the Illinois Register. Comments should reference Docket R10- and be addressed to:

Clerk's Office
Illinois Pollution Control Board
100 W. Randolph St., Suite 11-500
Chicago, IL 60601

And

Charles E. Matoesian
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
217-782-5544

13) Initial Regulatory Flexibility Analysis:

A) Types of small businesses, small municipalities and not for profit corporations affected: Any small businesses, small municipalities, or not for-profit corporations that are subject to the HMIWI regulations could be affected by the proposed amendment

B) Reporting, bookkeeping or other procedures required for compliance: Recordkeeping and reporting changes, but no special skills required

C) Types of Professional skills necessary for compliance: No special skills required

14) Regulatory Agenda on which this rulemaking was summarized:

January, 2010

15) Does this amendment require the review of the Procurement Policy Board as specified in Section 5-25 of the Illinois Procurement Code? [30 ILCS 500/5-25]

No

The full text of the Proposed Rule(s) begins on the next page:

Agency Analysis of Economic and Budgetary Effects of Proposed Rulemaking

Agency: Illinois Pollution Control Board

Part/Title: Hospital/Medical/Infectious Waste Incinerators (35 Ill. Adm. Code Part 229)

Illinois Register Citation: _____

Please attempt to provide as dollar-specific responses as possible and feel free to add any relevant explanation.

1. Anticipated effect on State expenditures and revenues.

   (a) Current cost to the agency for this program/activity. **Approximately $10,000 per year.**

   (b) If this rulemaking will result in an increase or decrease in cost, specify the fiscal year in which this change will first occur and the dollar amount of the effect. **No change in State costs are anticipated.**

   (c) Indicate the funding source, including Fund and appropriation lines, for this program/activity. **Clean Air Act Permit Program Fund (CAAPP)**

   (d) If an increase or decrease in the costs of another State agency is anticipated, specify the fiscal year in which this change will first occur and the estimated dollar amount of the effect. **No change in State costs are anticipated.**

   (e) Will this rulemaking have any effect on State revenues or expenditures not already indicated above? **No change in State revenues or expenditures are anticipated.**

2. Economic effect on persons affected by the rulemaking:

   (a) Indicate the economic effect and specify the persons affected:

   Positive ___ Negative _X_ No effect ___

   Persons affected: _1___

   Dollar amount per person: _approximately $700,000 per year___

   Total statewide cost: **approximately $700,000 per year**

   (b) If an economic effect is predicted, please briefly describe how the effect will occur. **Estimated increased costs to the affected company are expected due to the installation of control equipment, testing and monitoring of emissions, and administrative costs to maintain records to demonstrate compliance, and permitting and reporting to the Illinois EPA, as required.**

   (c) Will the rulemaking have an indirect effect that may result in increased administrative costs? Will there be any change in requirements such as filing,

documentation, reporting or completion of forms? **Estimated increased administrative costs to the affected company are expected due to recordkeeping requirements to demonstrate compliance, and permitting and reporting to the Illinois EPA, as required. Some of the administrative requirements will change as a result of this proposal.**

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: GENERAL PROVISIONS
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER c: EMISSION STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

PART 229
HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS

SUBPART A: GENERAL PROVISIONS

Section

SUBPART B: APPLICABILITY

Section

SUBPART C: COMPLIANCE SCHEDULES

Section

SUBPART D: CAAPP PERMIT REQUIREMENTS

Section

SUBPART E: EMISSIONS LIMITS

Section

SUBPART F:-EXCEPTIONS FROM EMISSION LIMITS (Repealed)

Section

229.130 Operation During Periods of Startup, Shutdown, or Malfunction

SUBPART G: METHODS AND PROCEDURES FOR PERFORMANCE TESTING

Section

229.140 Methods and Procedures for Performance Testing

SUBPART H: COMPLIANCE REQUIREMENTS

Section

229.142 Initial Performance Testing and Establishment of Operating Parameters for All HMIWIs
229.144 Subsequent Performance Testing for All HMIWIs
229.146 Annual Testing for Opacity
229.148 Annual Performance Testing for All ~~Small, Medium and Large~~ HMIWIs
229.150 Compliance with Operating Parameter Values
229.152 Compliance Requirements for HMIWIs Using CEMS
229.154 Violations by HMIWIs Equipped with a Dry Scrubber Followed by a Fabric Filter
229.156 Violations by HMIWIs Equipped with a Wet Scrubber
229.158 Violations by HMIWIs Equipped with a Dry Scrubber Followed by a Fabric Filter and a Wet Scrubber
229.160 Compliance Requirements for Rural HMIWIs
229.162 Inspection Requirements for All ~~Rural~~ HMIWIs
229.164 Optional Performance Testing to Address Actual or Potential Violations

SUBPART I: MONITORING REQUIREMENTS

Section

229.166 Monitoring Requirements for All ~~Small, Medium, and Large~~ HMIWIs
229.168 Monitoring Requirements for Rural HMIWIs

SUBPART J: REQUIREMENTS FOR HMIWI OPERATORS

Section

229.170 Operator Training and Qualification Requirements
229.172 Documentation To Be Maintained On-Site for Employees Operating HMIWIs

SUBPART K: WASTE MANAGEMENT PLAN REQUIREMENTS

Section

SUBPART L: RECORDKEEPING AND REPORTING REQUIREMENTS

Section

AUTHORITY: Implementing Sections 10, 39 and 39.5 and authorized by Section 27 of the Environmental Protection Act (415 ILCS 5/10, 27, 39 and 39.5)

SOURCE: Adopted at 23 Ill. Reg. 6477, effective May 15, 1999~~.~~ ; amended in _____ at _____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 229.100 Abbreviations

The following abbreviations have been used in this part:

Act	Illinois Environmental Protection Act [415 ILCS 5]
Agency	Illinois Environmental Protection Agency
Board	Illinois Pollution Control Board
Btu	British thermal units
CAAPP	Clean Air Act Permit Program [415 ILCS 5/39.5]
Cd	Cadmium

CEMS	Continuous Emissions Monitoring System
CO	Carbon monoxide
~~dscf~~	~~dry standard cubic foot~~
~~dscm~~	~~dry standard cubic meter~~
~~ft^3~~	~~cubic feet~~
gr/10^3 dscf	grains per thousand dry standard cubic feet
gr/10^9 dscf	grains per billion dry standard cubic feet
gr/dscf	grains per dry standard cubic foot
HCl	Hydrogen chloride
Hg	Mercury
HMIWI	Hospital/Medical/Infectious Waste Incinerator
hr	hour
lb(s)	pound(s)
mg/dscm	milligrams per dry standard cubic meter
~~mg~~	~~milligrams~~
ng/dscm	nanograms per dry standard cubic meter
NO_x	Nitrogen Oxide
Pb	Lead
PM	Particulate matter
ppmv	parts per million by volume
SO_2	Sulfur dioxide
TEQ	Toxic equivalent ~~equivalency~~
USEPA	United States Environmental Protection Agency

(Source: Amended at _____, effective _____).

Section 229.102 Definitions

The definitions contained in this Section apply only to the provisions of this Part. Unless otherwise defined herein and unless a different meaning of a term is clear from its context, the definitions of terms used in this Part shall have the meanings specified for those terms in 415 ILCS 5/39.5, 35 Ill. Adm. Code 201.102 or 35 Ill. Adm. Code 211.

"Bag leak detection system" means an instrument that is capable of monitoring PM loadings in the exhaust of a fabric filter in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, lightscattering, light-transmittance, or other effects to monitor relative PM loadings.

"Batch HMIWI" means an HMIWI that is designed in such a way that neither waste charging nor ash removal can occur during combustion.

"Biologicals" means preparations made from living organisms and their products, including vaccines, cultures, etc., intended for use in diagnosing, immunizing, or treating humans or animals or in research pertaining thereto.

"Body fluids" means liquid emanating or derived from humans and limited to: blood; dialysate; amniotic, cerebrospinal, synovial, pleural, peritoneal and pericardial fluids; semen and vaginal secretions.

"Bypass stack" means an alternative stack used for discharging combustion gases to the atmosphere primarily to avoid severe damage to an air pollution control device or other equipment.

"Charge" means the act of placing waste into an HMIWI for incineration.

"Chemotherapeutic waste" means waste material resulting from the production or use of antineoplastic agents used for the purpose of stopping or reversing the growth of malignant cells.

"Co-fired combustor" means a unit combusting hospital waste or medical/infectious waste with other fuels or wastes (e.g., coal, municipal solid waste) and subject to an enforceable requirement limiting the unit to combusting a fuel feed stream, of which 10 percent or less of the weight is comprised, in aggregate, of hospital waste and medical/infectious waste as measured on a calendar quarter basis. For purposes of this definition, pathological waste, chemotherapeutic waste, and low-level radioactive waste are considered "other" wastes when calculating the percentage of hospital waste and medical/infectious waste combusted.

"Commercial HMIWI" means a HMIWI which offers incineration services for hospital/medical/ infectious waste generated offsite by firms unrelated to the firm that owns the HMIWI.

"Continuous emission monitoring system" or "CEMS" means a monitoring system for continuously measuring and recording the emissions of a pollutant from an affected facility.

"Continuous HMIWI" means an HMIWI that is designed to allow waste charging and ash removal during combustion.

"Dioxins/furans" means the total emissions of any tetra- through octa-chlorinated dibenzo-para-dioxins and dibenzofurans, as measured by EPA Reference Method 23, incorporated by reference in Section 229.104(d) of this Subpart.

"Dry scrubber" means an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray dryer) to react with and neutralize acid gases in an HMIWI exhaust stream, forming a dry powder material.

"Fabric filter" means an add-on air pollution control system that removes PM and nonvaporous metals emissions by passing flue gas through filter bags.

"Facilities manager" means the individual in charge of purchasing, maintaining, and operating an HMIWI, or the owner's or operator's representative responsible for the management of an HMIWI. Alternative titles may include director of facilities or vice president of support services.

"High air phase" means the stage of the batch operating cycle when the primary chamber reaches and maintains maximum operating temperatures.

"Hospital" means any facility that has an organized medical staff, maintaining at least 6 inpatient beds and where the primary function of the facility is to provide diagnostic and therapeutic patient services and continuous nursing care primarily to human inpatients who are not related and who stay on average in excess of 24 hours per admission. This definition does not include facilities maintained for the sole purpose of providing nursing or convalescent care to human patients who generally are not acutely ill but who require continuing medical supervision.

"Hospital/medical/infectious waste incinerator" or "HMIWI" means any device that combusts any amount of hospital waste or medical/infectious waste.

"Hospital waste" means discards generated at a hospital, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains, or anatomical parts that are intended for interment or cremation.

"HMIWI operator" means any person who operates, controls, or supervises the day-to-day operation of an HMIWI.

"Infectious agent" means any organism that is capable of being communicated by invasion and multiplication in body tissues and is also capable of causing disease or adverse health impacts in humans.

"Intermittent HMIWI" means an HMIWI that is designed to allow waste charging, but not ash removal, during combustion.

"Large HMIWI" means:

An HMIWI whose maximum design waste burning capacity is more than 500 lbs per hour; or

A continuous or intermittent HMIWI whose maximum charge rate is more than 500 lbs per hour; or

A batch HMIWI whose maximum charge rate is more than 4,000 lbs per day.

"Low-level radioactive waste" means waste that contains radioactive nuclides emitting primarily beta or gamma radiation, or both, in concentrations or quantities that exceed applicable Federal or State standards for unrestricted release. Low-level radioactive waste is not high-level radioactive waste, spent nuclear fuel, or by-product material as defined by the Atomic Energy Act of 1954 (42 U.S.C. 2014(e)(2)).

"Malfunction" means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or of a process to operate in a normal or usual manner. Failures that are caused, in part, by poor maintenance or careless operation are not malfunctions.

"Maximum charge rate" means:

For continuous and intermittent HMIWI, 110 percent of the lowest 3-hour average charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits specified in Subpart E of this Part.

For batch HMIWI, 110 percent of the lowest daily charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits specified in Subpart E of this Part.

"Maximum design waste burning capacity" means:

For intermittent and continuous HMIWI:

$$C=P_V \times 15{,}000/8{,}500$$

Where:

C	=	HMIWI capacity, lb/hr
P_V	=	primary chamber volume, ft^3
15,000	=	primary chamber heat release rate factor, $Btu/ft^3/hr$
8,500	=	standard waste heating value, Btu/lb;

For batch HMIWI:

$$C = P_V \times 4.5/8$$

Where:

C = HMIWI capacity, lb/hr
P_V = primary chamber volume, ft^3
4.5 = waste density factor, lb/ft^3
8 = typical hours of operation of a batch HMIWI, hours.

"Maximum fabric filter inlet temperature" means 110 percent of the lowest 3-hour average temperature at the inlet to the fabric filter (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable dioxin/furan emission limit specified in Subpart E of this Part.

"Maximum flue gas temperature" means 110 percent of the lowest 3-hour average temperature at the outlet from the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable Hg emission limit specified in Subpart E of this Part.

"Medical/infectious waste" means any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. The definition of medical/infectious waste does not include hazardous waste identified or listed under the regulations in 40 CFR 261; household waste, as defined in 40 CFR 261.4(b)(1); and domestic sewage materials identified in 40 CFR 261.4(a)(1). For the purposes of this Part, medical/infectious waste includes:

Cultures and stocks of infectious agents and associated biologicals, including: vaccines and cultures intended for use in diagnosing, immunizing, or treating humans or animals; cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; and discarded live and attenuated vaccines;

Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers;

Human blood, any products derived from human blood, or anything that has been in contact with human blood in any form;

Intravenous bags and associated tubing;

Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, and needles with attached tubing;

Culture dishes, regardless of the presence of infectious agents, and culture dishes and devices used to transfer, inoculate, and mix cultures;

Any type of broken or unbroken glassware that has been in contact with infectious agents;

Animal waste, including contaminated animal carcasses, body parts, bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals;

Isolation wastes, including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from highly communicable diseases, or isolated animals known to be infected with highly communicable diseases; and

Unused sharps, including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

"Medium HMIWI" means:

An HMIWI whose maximum design waste burning capacity is more than 200 lbs per hour but less than or equal to 500 lbs per hour; or

A continuous or intermittent HMIWI whose maximum charge rate, as set by permit, is more than 200 lbs per hour but less than or equal to 500 lbs per hour; or

A batch HMIWI whose maximum charge rate, as set by permit, is more than 1,600 lbs per day but less than or equal to 4,000 lbs per day.

"Minimum dioxin/furan sorbent flow rate" means 90 percent of the highest 3-hour average dioxin/furan sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the applicable dioxin/furan emission limit specified in Subpart E of this Part.

"Minimum Hg sorbent flow rate" means 90 percent of the highest 3-hour average Hg sorbent flow rate (taken, at a minimum, once every hour) measured during the most

recent performance test demonstrating compliance with the applicable Hg emission limit specified in Subpart E of this Part.

"Minimum HCl sorbent flow rate" means 90 percent of the highest 3-hour average HCl sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the applicable HCl emission limit specified in Subpart E of this Part.

"Minimum horsepower" or "minimum amperage" means 90 percent of the highest 3-hour average horsepower or amperage to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable emission limits specified in Subpart E of this Part.

"Minimum pressure drop across the wet scrubber" means 90 percent of the highest 3-hour average pressure drop across the wet scrubber PM control device (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable PM emission limit specified in this Subpart E of this Part.

"Minimum reagent flow rate" means 90 percent of the highest 3-hour average reagent flow rate at the inlet to the selective noncatalytic reduction technology (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the NOx emissions limit.

"Minimum scrubber liquor flow rate" means 90 percent of the highest 3-hour average liquor flow rate at the inlet to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable emission limits specified in Subpart E of this Part.

"Minimum scrubber liquor pH" means 90 percent of the highest 3-hour average liquor pH at the inlet to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable HCl emission limit specified in Subpart E of this Part.

"Minimum secondary chamber temperature" means 90 percent of the highest 3-hour average secondary chamber temperature (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM, CO, dioxin/furan, and NOX emissions limits.

~~"Minimum secondary chamber temperature" means 90 percent of the highest 3-hour average secondary chamber temperature (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable PM, CO, and dioxin/furan emission limits specified in Subpart E of this Part.~~

"Operating day" means a 24-hour period between 12:00 midnight and the following midnight during which any amount of hospital waste or medical/infectious waste is combusted at any time in an HMIWI.

"Operation" means any period during which waste is combusted in an HMIWI, excluding periods of startup or shutdown.

"Pathological waste" means waste material consisting of only human or animal remains, anatomical parts, tissue, and the bags or containers used to collect and transport the waste material and associated animal bedding, if applicable.

"Primary chamber" means the chamber in an HMIWI that receives waste material, in which the waste is ignited, and from which ash is removed.

"Rural HMIWI" means any HMIWI identified in Section 229.110(a) of this Part, that is located more than 50 miles from the boundary of the nearest Standard Metropolitan Statistical Area, as defined in OMB Bulletin No. 93-17, incorporated by reference at Section 229.104(b) of this Part, meets the criteria specified in the definition of "small HMIWI" and burns less than 2,000 lbs per week of hospital waste and medical/infectious waste (except the 2,000 lbs per week limitation does not apply during performance testing).

"Secondary chamber" means that component of an HMIWI that receives combustion gases from the primary chamber and in which the combustion process is completed.

"Shutdown" means the period of time after all waste has been combusted in the primary chamber.

"Small HMIWI" means:

An HMIWI whose maximum design waste burning capacity is less than or equal to 200 lbs per hour; or

A continuous or intermittent HMIWI whose maximum charge rate, as set by permit, is less than or equal to 200 lbs per hour; or

A batch HMIWI, whose maximum charge rate, as set by permit, is less than or equal to 1,600 lbs per day.

"Startup" means the period of time between the activation of an HMIWI and the first charge of waste to the unit. For batch HMIWI, startup means the period of time between activation of an HMIWI and ignition of the waste.

"Wet scrubber" means an add-on air pollution control device that utilizes either an alkaline or some other type of scrubbing liquor to collect pollutants and/or neutralize acid gases.

(Source: Amended at _____, effective _____).

Section 229.104 Incorporations by Reference

The following materials are incorporated in this Part by reference. These incorporations by reference do not include any later amendments or editions.

a) "An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities," American Society for Healthcare Environmental Services, 840 North Lake Shore Drive, Chicago, Illinois, 60611 (1993).

b) "Revised Statistical Definitions for Metropolitan Areas," OMB Bulletin No. 93-17, Office of Management and Budget, Washington, D.C. (June 30, 1993).

c) 40 CFR 60.8.

d) 40 CFR 60, Appendix A, Methods 1, 2, 3, 3A, 5, 9, 10, 10B, 23, 26, 26A, 29.

e) 40 CFR 60, Appendices B and F.

f) 40 CFR Appendix A, Methods 3B, 6, 6C, 7, 7E, 22 (2010).

g) 40 CFR 60, subpart Ce and Ec (2010).

h) ANSI/ASME PTC19.10-1981, Flue and Gas Analyses, [Part 10, Instruments and Apparatus].

i) ASTM D6784-02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method).

j) "Fabric Filter Bag Leak Detection Guidance", U.S. Environmental Protection Agency. (EPA-454/R-98-015, September 1997).

(Source: Amended at _____, effective _____).

SUBPART B: APPLICABILITY

Section 229.110 General Applicability

a) Except as provided for in subsections (b), (c), (d) and (e) of this Section and Section 229.112 of this Subpart, this Part applies to all HMIWIs for which:

1) Construction commenced either on or before June 20, 1996, or modification was commenced either on or before March 16, 1998; or

2) Construction commenced either after June 20, 1996 but no later than December 1, 2008, or for which modification is commenced after March 16, 1998 but no later than April 6, 2010.

~~a) This Part applies to all HMIWIs for which construction commenced either on or before June 20, 1996, except as provided for in subsections (b), (c), (d) and (e) of this Section and Section 229.112 of this Subpart.~~

b) An HMIWI otherwise subject to the emission limits in this Part is only subject to the recordkeeping requirements set forth in Section 229.182(b), (f) and (g) of this Part during those periods when it combusts only pathological waste, low-level radioactive waste, or chemotherapeutic waste, provided the owner or operator of the HMIWI notifies the Agency of its intention to operate pursuant to this operating scenario in its CAAPP application submitted in accordance with either Section 229.115(b)(1), Subpart D of this Part, or Section 39.5 of the Act.

c) An HMIWI that combusts only pathological waste, low-level radioactive waste, or chemotherapeutic waste is subject to only the recordkeeping requirements set forth in Sections 229.182(c), (f) and (g) of this Part, provided that the owner or operator of an HMIWI provides, by December 15, 1999, both the Agency and the USEPA with a written certification of its status as an HMIWI burning only the wastes listed in this subsection.

d) A co-fired combustor is subject only to the recordkeeping requirements set forth in Sections 229.182(d), (f) and (g) of this Part, provided that the owner or operator of the combustor is subject to a permit condition limiting its fuel feed stream to

co-fired combustor status, provides, by December 15, 1999, both the Agency and USEPA with a written certification of its status as a co-fired combustor including an estimate of the relative weight of hospital waste, medical/infectious waste, and other fuels and/or waste combusted at the facility.

e) Any hospital that does not operate an HMIWI but that sends any of its hospital waste or medical/infectious waste to an off-site HMIWI is subject only to the waste management plan provisions set forth at Section 229.178 of this Part.

f) Before January 1, 2014, each owner or operator of an HMIWI, as defined in subsection 229.110 (a)(1) of this Section subject to the emissions limits under Section 229.125(a) or Section 229.126(a), shall comply with all the applicable provisions of this Part.

g) On and after January 1, 2014, an HMIWI as defined in subsection 229.110 (a)(1) of this Section is no longer subject to the emissions limits under Section 229.125(a) or Section 229.126(a) of this Part, but is subject to the emissions limits under Section 229.125(c) or Section 229.126(c), and shall comply with all the applicable provisions of this Part.

h) On and after January 1, 2014, each owner and operator of an HMIWI as defined in subsection 229.110 (a)(2) of this subpart is no longer subject to the provisions under New Source Performance Standards for Hospital/Medical/Infectious Waste Incinerators (40 CFR 60, Subpart Ec), but is subject to the emissions limits under Section 229.125(e) or Section 229.126(c), and shall comply with all the applicable provisions of this Part.

(Source: Amended at _____, effective _____).

Section 229.112 Exemptions

Notwithstanding other provisions of this Part, the following emission units are exempt from the requirements of this Part:

a) Any combustor required to have a permit under Section 3005 of the Solid Waste Disposal Act, 42 U.S.C. 6925;

b) Any municipal waste combustor that meets the applicability provisions for municipal waste combustors under Subparts Cb, Ea or Eb of 40 CFR 60;

c) Any pyrolysis unit (i.e., a unit that uses endothermic gasification to treat hospital waste or medical/infectious waste in order to render such waste harmless);

d) Any cement kiln firing hospital waste or medical/infectious waste; or

e) Any HMIWI that meets the applicability provisions for Standards of Performance for Hospital/Medical/Infectious Waste Incinerators under Subpart Ec of 40 CFR 60

~~e) Any HMIWI subject to the *Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996*, contained in Subpart Ec of 40 CFR 60.50c.~~

(Source: Amended at _____, effective _____).

SUBPART C: COMPLIANCE SCHEDULES

Section 229.115 Compliance Schedules for HMIWIs That Will Continue to Operate

a) Before January 1, 2014, each owner or operator of an HMIWI, as defined in Section 229.110 (a)(1) of this Part subject to the emissions limits under Section 229.125(a) or Section 229.126(a) of this Part, shall comply with all the applicable provisions of this Part according to the following schedules:

1~~a~~) Except as provided in subsection (a)(2) ~~(b)~~ of this Section and unless another date is specified in the provisions of this Part, all owners or operators of HMIWIs shall be in compliance with all of the provisions of this Part by September 15, 2000.

2~~b~~) Except as provided in subsection (a)(3) ~~(c)~~ of this Section, the owner or operator of an HMIWI may have up to September 15, 2002, to come into compliance with this Part. To avail themselves of this extended compliance timeframe, the owner or operator of an HMIWI shall:

A~~1~~) Submit its CAAPP application to the Agency, on or before November 15, 1999, requesting an extended compliance schedule, pursuant to Section 39.5(5)(d) of the Act, [415 ILCS 5/39.5(5)(d)].

This compliance schedule shall include documentation supporting the need for an extension, a final control plan for the HMIWI and incremental steps to be taken toward compliance with this Part that, at a minimum, meet the increments of progress specified in subsection (a)(2)(B) ~~(b)(2)~~ of this Section;

B~~2~~) Meet the following increments of progress by the dates indicated:

i~~A~~) Finalize all contracts for the purchase of either pollution control equipment, process modification or control systems by February 29, 2000;

ii~~B~~) Commence the implementation of either the process modifications or the necessary construction or installation of air pollution control devices for the HMIWI by November 30, 2000;

iii~~C~~) Complete either the process modifications or the installation or construction of the new air pollution control equipment by August 31, 2001;

iv~~D~~) Perform initial startup of the retrofitted HMIWI by January 15, 2002; and

v~~E~~) Complete the initial performance test in accordance with Section 229.142 of this Part within 180 days after initial startup.

3e) Any owner or operator of an HMIWI that fails to demonstrate compliance with this Part by September 15, 2002, shall cease operation of the HMIWI until compliance with the provisions of this Part is achieved.

4d) Notwithstanding subsection (a)(2) ~~(b)~~ of this Section, all owners or operators of HMIWIs shall be in full compliance with all of the HMIWI operator provisions of Subpart J of this Part by September 15, 2000.

b) On and after January 1, 2014, each owner or operator of an HMIWI, as defined in Section 229.110 (a)(1) or (a)(2) of this Part, and subject to the emissions limits under Section 229.125(c) of this Part, as applicable, or Section 229.126(c) of this Part, shall comply with the applicable provisions of this Part according to the following schedules:

1) Except as provided in paragraph (2) of this subsection and unless another date is specified in the provisions of this Part, all owners or operators of HMIWIs shall comply with all of the provisions of this Part by January 1, 2014.

2) Except as provided in paragraph (3) of this subsection, the owner or operator of an HMIWI may have until October 6, 2014, to comply with this Part. To avail themselves of this extended compliance timeframe, the owner or operator of an HMIWI shall do all of the following:

A) Submit its CAAPP application to the Agency, on or before January 1, 2013, requesting an extended compliance schedule, pursuant to Section 39.5(5)(d) of the Act, [415 ILCS 5/39.5(5)(d)]. This compliance schedule shall include documentation supporting the need for an extension, a final control plan for the HMIWI and incremental steps to be taken toward compliance with this Part that, at a minimum, meet the increments of progress specified in subsection (b)(2)(B) of this Section;

B) Meet the following increments of progress by the dates indicated:

i) Finalize all contracts for the purchase of either pollution control equipment, process modification or control systems by July 1, 2011;

ii) Commence the implementation of either the process modifications or the necessary construction or installation of air pollution control devices for the HMIWI by April 1, 2012;

iii) Complete either the process modifications or the installation or construction of the new air pollution control equipment by January 1, 2013;

iv) Perform initial startup of the retrofitted HMIWI by July 1, 2013; and

v) Complete the initial performance test in accordance with Section 229.142 of this Part within 180 days after initial startup.

3) Any owner or operator of an HMIWI that fails to demonstrate compliance with this Part by October 6, 2014, shall cease operation of the HMIWI until compliance with the provisions of this Part is achieved.

4) Notwithstanding subsection (b)(2) of this Section, all owners or operators of HMIWIs shall be in full compliance with all of the HMIWI operator provisions of Subpart J of this Part before January 1, 2014.

(Source: Amended at _____, effective _____).

Section 229.116 Compliance Schedules for HMIWIs That Will Shut Down

All owners or operators of HMIWIs that intend to permanently shut down their HMIWI as a means of complying with this Part shall:

a) Provide the Agency with written notice of their intention to permanently shut down their HMIWI, as follows:

1) On or before November 15, 1999, for an HMIWI as defined in Section 229.110 (a)(1) of this Part subject to the emissions limits under Section 229.125(a) or Section 229.126(a) of this Part;

2) On or before January 1, 2013, for an HMIWI as defined in Section 229.110 (a)(1) or (a)(2) of this Part subject to the emissions limits under Section 229.125(c), as applicable, or Section 229.126(c) of this Part.

b) Take the following affirmative steps to demonstrate that the HMIWI has been rendered permanently inoperable by September 15, 2000, for an HMIWI as defined in Section 229.110 (a)(1), or by January 1, 2014 for an HMIWI as defined in Sections 229.110 (a)(1) and (a)(2) of this Part:

~~a) Provide the Agency with written notice of their intention to permanently shut down their HMIWI on or before November 15, 1999; and~~

~~b) Take the following affirmative steps to demonstrate that the HMIWI has been rendered permanently inoperable by September 15, 2000:~~

1) Weld the primary chamber door shut;

2) Dismantle the HMIWI; or

3) Other means that reasonably demonstrate that the HMIWI is no longer functional.

(Source: Amended at _____, effective _____).

SUBPART D: CAAPP PERMIT REQUIREMENTS

Section 229.120 CAAPP Permit Requirements

a) All HMIWIs subject to the emissions limits in this Part shall operate pursuant to a CAAPP permit, as follows:

1) By September 15, 2000, for an HMIWI as defined in Section 229.110 (a)(1) of this Part;

2) By January 1, 2014, for an HMIWI as defined in Section 229.110 (a)(1) or (a)(2) of this Part.

b) For any HMIWI subject to the emission limits in this Part that is first required to obtain a CAAPP permit because it is subject to the emission limits in this Part, the owner or operator shall submit a complete application for a CAAPP permit, as follows:

1) By September 15, 2000, except as provided for in Section 229.115(a)(2)(A) of this Part, for an HMIWI as defined in Section 229.110 (a)(1) of this Part;

2) By January 1, 2014, except as provided for in Section 229.115(b)(2)(A) of this Part for an HMIWI as defined in Section 229.110 (a)(1) or (a)(2) of this Part.

~~a) All HMIWIs subject to the emissions limits in this Part shall operate pursuant to a CAAPP permit by September 15, 2000.~~

~~b) For any HMIWI subject to the emission limits in this Part that is first required to obtain a CAAPP permit because it is subject to the emission limits in this Part, the owner or operator shall submit a complete application for a CAAPP permit by September 15, 2000, except as provided for in Section 229.115(b)(1) of this Part.~~

c) Upon submittal of a timely and complete CAAPP application, the owner or operator of an HMIWI shall not be in violation of the requirement, specified in subsection (a) of this Section, to have a CAAPP permit, to the extent provided in Section 39.5(5)(h) of the Act [415 ILCS 5/39.5(5)(h)].

d) For any HMIWI that currently has a CAAPP permit, the following conditions apply:

1) If the CAAPP permit has 3 or more years remaining on the permit term, the owner or operator of an HMIWI shall apply for revision to the CAAPP permit to incorporate the applicable requirements of this Part, as follows: ~~on or before November 15, 1999; or~~

A) On or before November 15, 1999, for an HMIWI as defined in Section 229.110 (a)(1) of this Part,

B) On or before January 1, 2013, for an HMIWI as defined in Section 229.110 (a)(1) or (a)(2) of this Part; or

2) If the CAAPP permit has less than 3 years remaining on the permit term, the CAAPP permit shall be revised to incorporate the applicable requirements of this Part, upon renewal of the permit.

(Source: Amended at _____, effective _____).

SUBPART E: EMISSION LIMITS

Section 229.125 Emissions Limits for Small, Medium, and Large HMIWIs

~~a)~~The emission limits in this Section shall apply at all times to HMIWIs identified in Section 229.110(a) ~~at all times~~, except as provided in Section 229.110(b) of this Part, Section 229.126 of this Subpart ~~and Subpart F of this Part~~.

a) Before January 1, 2014, each owner or operator of a small, medium, or large HMIWI as defined in Section 229.110(a)(1) of this Part, shall comply with the following emissions limits:

~~b) The emission limits for small, medium, and large HMIWIs are as follows:~~

		HMIWI Emissions Limits

Pollutant	Units (7% oxygen, dry basis)	Small	Medium	Large
Particulate matter	Milligrams per dry standard cubic meter (mg/dscm) (grains per dry standard cubic foot (gr/dscf))	115 (0.05)	69 (0.03)	34 (0.015)
Carbon monoxide	Parts per million by volume (ppmv)	40	40	40
Dioxins/furans	Nanograms per dry standard cubic meter total dioxins/furans (ng/dscm) (grains per billion dry standard cubic feet (gr/10^9 dscf)) or ng/dscm TEQ (gr/10^9 dscf)	125 (55) or 2.3 (1.0)	125 (55) or 2.3 (1.0)	125 (55) or 2.3 (1.0)
Hydrogen chloride	(ppmv) or percent reduction	100 or 93%	100 or 93%	100 or 93%
Sulfur dioxide	(ppmv)	55	55	55
Nitrogen oxides	(ppmv)	250	250	250
Lead	mg/dscm (grains per thousand dry standard cubic feet (gr/10^3 dscf)) or percent reduction	1.2 (0.52) or 70%	1.2 (0.52) or 70%	1.2 (0.52) or 70%
Cadmium	mg/dscm (gr/10^3 dscf) or percent reduction	0.16 (0.07) or 65%	0.16 (0.07) or 65%	0.16 (0.07) or 65%
Mercury	mg/dscm (gr/10^3 dscf) or percent reduction	0.55 (0.24) or 85%	0.55 (0.24) or 85%	0.55 (0.24) or 85%

		~~HMIWI EMISSION LIMITS~~		
~~Pollutant~~	~~Units (7% oxygen, dry basis)~~	~~Small~~	~~Medium~~	~~Large~~
~~PM~~	~~mg per dscm(grains per dscf)~~	~~115 (0.05)~~	~~69 (0.03)~~	~~34 (0.015)~~
~~CO~~	~~ppmv~~	~~40~~	~~40~~	~~40~~

~~Dioxins/ Furans~~	~~Nanograms per dscm, total dioxins/furans (grains per billion dscf), or nanograms per dscm TEQ (grains per billion dscf)~~	~~125 (55) or 2.3 (1.0)~~	~~125 (55) or 2.3 (1.0)~~	~~125 (55) or 2.3 (1.0)~~
~~HCl~~	~~ppmv or percent reduction~~	~~100 or 93%~~	~~100 or 93%~~	~~100 or 93%~~
~~SO_2~~	~~ppmv~~	~~55~~	~~55~~	~~55~~
~~NOx~~	~~ppmv~~	~~250~~	~~250~~	~~250~~
~~Pb~~	~~mg per dscm (grains per thousand dscf) or percent reduction~~	~~1.2 (0.52) or 70%~~	~~1.2 (0.52) or 70%~~	~~1.2 (0.52) or 70%~~
~~Cd~~	~~mg per dscm (grains per thousand dscf) or percent reduction~~	~~0.16 (0.07) or 65%~~	~~0.16 (0.07) or 65%~~	~~0.16 (0.07) or 65%~~
~~Hg~~	~~mg per dscm (grains per thousand dscf) or percent reduction~~	~~0.55 (0.24) or 85%~~	~~0.55 (0.24) or 85%~~	~~0.55 (0.24) or 85%~~

b) No owner or operator of a small, medium, or large HMIWI subject to emission limits listed under subsection (a) of this Section shall cause or allow any emissions that cause greater than 10 percent opacity, as measured on a 6-minute block average, according to Method 9, 40 CFR 60, Appendix A, incorporated by reference in Section 229.104(d) of this Part, from any stack used by an HMIWI.

c) On and after January 1, 2014, each owner or operator of a small, medium, or large HMIWI, as defined in Sections 229.110(a)(1) and (a)(2) of this Part, shall comply with the following emissions limits, as applicable:

~~c) No owner or operator of a small, medium, or large HMIWI shall cause or allow any emissions that cause greater than 10 percent opacity, as measured on a 6-minute block average, according to Method 9, 40 CFR 60, Appendix A, incorporated by reference at Section 229.104(d) of this Part, from any stack used by an HMIWI.~~

Pollutant	Units (7% oxygen, dry basis)	HMIWI Emissions Limits		
		Small	Medium	Large
Particulate matter	Milligrams per dry standard cubic meter (mg/dscm) (grains per dry standard cubic foot (gr/dscf))	66 (0.029)	46 (0.020)[a] 34 (0.015)[b]	25 (0.011)
Carbon monoxide	Parts per million by volume (ppmv)	20	5.5	11
Dioxins/furans	Nanograms per dry standard cubic meter total dioxins/furans (ng/dscm) (grains per billion dry standard cubic feet (gr/10^9 dscf)) or ng/dscm TEQ (gr/10^9 dscf)	16 (7.0) or 0.013 (0.0057)	0.85 (0.37) or 0.020 (0.0087)	9.3 (4.1) or 0.054 (0.024)
Hydrogen chloride	(ppmv)	44[a] 15[b]	7.7	6.6
Sulfur dioxide	(ppmv)	4.2	4.2	9.0
Nitrogen oxides	(ppmv)	190	190	140
Lead	mg/dscm (grains per thousand dry standard cubic feet (gr/10^3 dscf))	0.31 (0.14)	0.018 (0.0079)	0.036 (0.016)
Cadmium	mg/dscm (gr/10^3 dscf)	0.017 (0.0074)	0.013 (0.0057)	0.0092 (0.0040)
Mercury	mg/dscm (gr/10^3 dscf)	0.014 (0.0061)	0.025 (0.011)	0.018 (0.0079)

[a] Emissions limits for HMIWIs as defined in Section 229.110(a)(1) of this Part.

[b] Emissions limits for HMIWIs as defined in Section 229.110(a)(2) of this Part.

d) No owner or operator of a small, medium, or large HMIWI subject to emission limits listed under subsection (c) of this Section shall cause or allow any emissions that cause greater than 6 percent opacity, as measured on a 6 minute block average, according to Method 9, 40 CFR 60, Appendix A, incorporated by reference at Section 229.104(d) of this Part, from any stack used by an HMIWI.

e) On and after the date on which the initial performance test is completed or required to be completed under Section 229.142 of this Part, whichever date comes first, no owner or operator of an HMIWI, as defined in Section 229.110 (a)(1) or (a)(2) of this Part and subject to the emissions limits under subsection (c) of this Section, shall cause to be discharged into the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer

points), enclosures of ash conveying systems, buildings, or other sources in excess of 5 percent of the observation period of 9 minutes per 3-hour period, according to Method 22, 40 CFR 60, Appendix A, incorporated by reference in Section 229.104(d) of this Part, except as provided by the following exclusions:

1) Visible emissions discharged inside buildings or enclosures of ash conveying systems;

2) During maintenance and repair of ash conveying systems. Maintenance and/or repair shall not exceed 10 operating days per calendar quarter unless the owner or operator of an HMIWI makes a request to the Agency in writing for a longer period of time to complete maintenance and/or repair, and the Agency approves the owner or operator's request in writing.

(Source: Amended at _____, effective _____).

Section 229.126 Emissions Limits For Rural HMIWIs

~~a)~~Notwithstanding the emissions limits set out in Section 229.125 of this Part, any rural HMIWI shall comply with the emissions limits set out in subsection (a) or (c) ~~(b)~~ of this Section. The emissions limits under this Section shall apply at all times, except as provided for in Section 229.110(b) ~~and Subpart F of this Part~~.

a) Before January 1, 2014, a rural HMIWI as defined in Section 229.110(a)(1), shall comply with the following emissions limits:

~~b) The emission limits for rural HMIWI are as follows:~~

Pollutant	Units (7% oxygen, dry basis)	HMIWI Emissions Limits
Particulate matter	mg/dscm (gr/dscf)	197 (0.086)
Carbon monoxide	ppmv	40
Dioxins/furans	ng/dscm total dioxins/furans (gr/10^9 dscf) or ng/dscm TEQ (gr/10^9 dscf)	800 (350) or 15 (6.6)
Hydrogen chloride	ppmv	3100

Sulfur dioxide	ppmv	55
Nitrogen oxides	ppmv	250
Lead	mg/dscm (gr/10^3 dscf)	10 (4.4)
Cadmium	mg/dscm (gr/10^3 dscf)	4 (1.7)
Mercury	mg/dscm (gr/10^3 dscf)	7.5 (3.3)

~~Pollutant~~	~~Units~~ ~~(7% oxygen, dry basis)~~	~~EMISSION LIMITS~~
~~PM~~	~~mg per dscm (grains per dscf)~~	~~197 (0.086)~~
~~CO~~	~~ppmv~~	~~40~~
~~Dioxin/ Furans~~	~~nanograms per dscm total dioxins/furans (grains per billion dscf), or nanograms per dscm TEQ (grains per billion dscf)~~	~~800 (350) or 15 (6.6)~~
~~HCl~~	~~ppmv~~	~~3100~~
~~SO_2~~	~~ppmv~~	~~55~~
~~NOx~~	~~ppmv~~	~~250~~
~~Pb~~	~~mg per dscm (grains per thousand dscf)~~	~~10 (4.4)~~
~~Cd~~	~~mg per dscm (grains per thousand dscf)~~	~~4 (1.7)~~
~~Hg~~	~~mg per dscm (grains per thousand dscf)~~	~~7.5 (3.3)~~

b) No owner or operator of a rural HMIWI subject to emissions limits listed under subsection (a) of this Section shall cause or allow any emissions that cause greater than 10 percent opacity, as measured on a 6-minute block average, according to Method 9, 40 CFR Part 60, Appendix A, incorporated by reference at Section 229.104(d) of this Part, from any stack used by an HMIWI.

~~c) No owner or operator of a rural HMIWI shall cause or allow any emissions that cause greater than 10 percent opacity, as measured on a 6-minute block average, according to Method 9, 40 CFR Part 60, Appendix A, incorporated by reference at Section 229.104(d) of this Part, from any stack used by an HMIWI.~~

c) On and after January 1, 2014, a rural HMIWI, as defined in Section 229.110(a)(1), shall comply with the following emissions limits:

Pollutant	Units (7% oxygen, dry basis)	Emissions Limits
Particulate matter	mg/dscm (gr/dscf)	87 (0.038)
Carbon monoxide	ppmv	20
Dioxins/furans	ng/dscm total dioxins/furans (gr/10^9 dscf) or ng/dscm TEQ (gr/10^9 dscf)	240 (100) or 5.1 (2.2)
Hydrogen chloride	ppmv	810
Sulfur dioxide	ppmv	55
Nitrogen oxides	ppmv	130
Lead	mg/dscm (gr/10^3 dscf)	0.50 (0.22)
Cadmium	mg/dscm (gr/10^3 dscf)	0.11 (0.048)
Mercury	mg/dscm (gr/10^3 dscf)	0.0051 (0.0022)

d) No owner or operator of a rural HMIWI subject to emissions limits listed under subsection (c) of this Section shall cause or allow any emissions that cause greater than 6 percent opacity, as measured on a 6 minute block average, according to Method 9, 40 CFR Part 60, Appendix A, incorporated by reference at Section 229.104(d) of this Part, from any stack used by an HMIWI.

e) On and after the date on which the initial performance test is completed or required to be completed under Section 229.142 of this Part, whichever date comes first, no owner or operator of a rural HMIWI, as defined in Section 229.110 (a)(1) of this Part, subject to the emissions limits under subsection (c) of this Section, shall cause to be discharged into the atmosphere visible emissions of combustion ash from ash conveying system (including conveyor transfer points), enclosures of ash conveying systems, buildings, or other sources in excess of 5 percent of the observation period of 9 minutes per 3-hour period, according to Method 22, 40 CFR 60, Appendix A, incorporated by reference at Section 229.104(d) of this Part, except as provided by the following exclusions:

1) Visible emissions discharged inside buildings or enclosures of ash conveying systems;

2) During maintenance and repair of ash conveying systems. Maintenance and/or repair shall not exceed 10 operating days per calendar quarter, unless the owner or operator of an HMIWI makes a request to the Agency in writing for a longer period of time to complete maintenance and/or repair, and the Agency approves the owner or operator's request in writing.

(Source: Amended at _____, effective _____).

SUBPART F: EXCEPTIONS FROM EMISSION LIMITS (Repealed)

Section 229.130 Operation During Periods of Startup, Shutdown, or Malfunction (Repealed)

~~a) The emission limits specified in Subpart E of this Part do not apply to an HMIWI during periods of startup, shutdown or malfunction, if the requirements provided in subsections (b), (c) and (d) of this Section are met.~~

~~b) No waste shall be charged to an HMIWI during periods of startup, shutdown or malfunction.~~

~~c) The shutdown of any HMIWI shall proceed according to the following requirements:~~

~~1) For continuous HMIWIs, shutdown may commence no less than 2 hours after the last charge to an HMIWI;~~

~~2) For intermittent HMIWIs, shutdown may commence no less than 4 hours after the last charge to an HMIWI; and~~

~~3) For batch HMIWIs, shutdown may commence no less than 5 hours after the high air phase of combustion has been completed.~~

~~d) During periods of malfunction, the owner or operator of an HMIWI shall do all of the following:~~

~~1) Take all reasonable steps to ensure that an HMIWI operates within the parameters established for that HMIWI and to minimize excess emissions;~~

~~2) Continue monitoring all applicable parameters; and~~

~~3) Take appropriate corrective actions prior to resuming the charging of any waste to an HMIWI.~~

(Source: Repealed at_____Ill. Reg.____, effective,_____)

SUBPART H: COMPLIANCE REQUIREMENTS

Section 229.142 Initial Performance Testing and Establishment of Operating Parameters for All HMIWIs

a) Before January 1, 2014, each owner or operator of an HMIWI, as defined in Section 229.110 (a)(1) of this Part, subject to the emissions limits under Section 229.125(a) or Section 229.126(a) of this Part, shall comply with the following requirements:

~~The owner or operator of an HMIWI subject to the emissions limits under this Part shall comply with the following requirements:~~

1~~a~~) Except as provided in Section 229.115(a)(2)(B)(v) ~~229.115(b)(2)(E)~~ of this Part, conduct an initial performance test on their HMIWI by September 15, 2000;

2~~b~~) Except as provided in subsection (a)(3) ~~(c)~~ of this Section, in the initial performance test, test for all pollutants limited pursuant to Subpart E of this Part;

3~~c~~) During the initial performance test, rural HMIWIs are not required to test for HCl, Pb or Cd;

4~~d~~) If an HMIWI is equipped with a dry scrubber followed by a fabric filter, a wet scrubber, ~~or~~ a dry scrubber followed by a fabric filter and wet scrubber, or selective noncatalytic reduction system, establish the appropriate maximum and minimum operating parameter values indicated in Appendix B of this Part for the relevant control system during the initial performance test, provided that the performance test demonstrates compliance with the emission limits specified in Section 229.125 of this Part;

5~~e~~) If air pollution control equipment other than a dry scrubber followed by a fabric filter, a wet scrubber, ~~or~~ dry scrubber followed by a fabric filter and a wet scrubber, or selective noncatalytic reduction system is used to comply with the emission limits under Section 229.125 of this Part, the

initial performance test may not be conducted until site-specific operating parameters that will be monitored to demonstrate compliance with this Part have been established by the Agency in a construction permit and approved by USEPA.

6f) For rural HMIWI, establish the maximum charge rate and minimum secondary chamber temperature as site-specific parameters during the initial performance test, provided that the performance test demonstrates that the HMIWI is in compliance with the emission limits specified in Section 229.126 of this Part.

b) On and after January 1, 2014, each owner or operator of an HMIWI, as defined in Section 229.110 (a)(1) or (a)(2) of this Part, and subject to the emissions limits under Section 229.125(c), as applicable, or Section 229.126(c) of this Part shall comply with the following requirements:

1) Except as provided in Section 229.115(a)(2)(B)(v) of this Part, conduct an initial performance test on their HMIWI by January 1, 2014;

2) Except as provided for in paragraph (b)(6) of this subsection, in the initial performance test, test for all pollutants to demonstrate compliance with Section 229.125(c), or Section 229.126(c) emissions limits, as applicable, pursuant to Subpart E of this Part;

3) If an HMIWI is equipped with a dry scrubber followed by a fabric filter, a wet scrubber, a dry scrubber followed by a fabric filter and wet scrubber, or selective noncatalytic reduction system establish the appropriate maximum and minimum operating parameter values indicated in Appendix B of this Part for the relevant control system during the initial performance test, provided that the performance test demonstrates compliance with the emission limits specified in Section 229.125 or 229.126 of this Part;

4) If an air pollution control device other than a dry scrubber followed by a fabric filter, a wet scrubber, dry scrubber followed by a fabric filter and a wet scrubber, or selective noncatalytic reduction system is used to comply with the emission limits under Section 229.125 or Section 229.126 of this Part, the initial performance test may not be conducted until site-specific operating parameters that will be monitored to demonstrate compliance with this Part have been established by the Agency in a construction permit and approved by USEPA.

5) For a rural HMIWI that is not equipped with an air pollution control device, establish the maximum charge rate and minimum secondary chamber temperature as site-specific parameters during the initial performance test, provided that the performance test demonstrates that the HMIWI is in compliance with the emission limits specified in Section 229.126(c) of this Part;

6) The owner or operator of an HMIWI may use results of previous performance test(s) for initial compliance demonstration with the applicable emissions limits, provided the following conditions are met:

A) The previous emissions test(s) was conducted using procedures and test methods listed in Section 229.140 of this Part, or USEPA-accepted voluntary consensus standards; and

B) The test results are certified as representative of current operations;

C) The previous emissions test(s) was conducted no earlier than 1996; and

7) The owner or operator of an HMIWI that cannot certify and or whose previous performance test(s) results do not demonstrate compliance with one or more of the revised emission limits must conduct another performance test for those pollutants.

8) The owner or operator of an HMIWI as defined in Section 229.110(a)(1) or (a)(2) of this Part, and subject to the emissions limits under Section 229.125(c), as applicable, or Section 229.126(c) of this Part, shall determine compliance with the visible emissions limit for fugitive emissions from ash handling in Sections 229.125(g) and 229.126(e) by conducting an initial performance test using Method 22, at 40 CFR 60, Appendix A, incorporated by reference at Section 229.104(d) of this Part.

(Source: Amended at _____, effective _____).

Section 229.146 Annual Testing for Opacity

Following the date on which the initial performance test is completed, as required by Section 229.142 of this Section, the owners or operators of all HMIWIs shall conduct an annual opacity

test, in accordance with Section 229.140 of this Part. The opacity test schedules are as follows: ~~by September 15 of each year.~~

a) By September 15 of each year, for an HMIWI, as defined in Section 229.110 (a)(1) of this Part, and subject to the emissions limits under subsection 229.125(a) or subsection 229.126(a) of this Part;

b) By January 1 of each year, for an HMIWI, as defined in Section 229.110 (a)(1) or (a)(2) of this Part, and subject to the emissions limits under Section 229.125(c), as applicable, or Section 229.126(c) of this Part.

(Source: Amended at _____, effective _____).

Section 229.148 Annual Performance Testing for All ~~Small, Medium and Large~~ HMIWIs

Following the date on which the initial performance test is completed, as required by Section 229.142 of this Part, ~~all owners or operators of small, medium, or large HMIWIs~~ each owner or operator of an HMIWI, as applicable, shall conduct an annual performance test~~, by September 15 of each year~~ to determine compliance with the applicable PM, CO and HCl emission limits specified in Section 229.125~~(b)~~ or 229.126 of this Part, using the applicable test procedures and methods specified in Section 229.140 of this Part.

a) Annual performance test schedules are as follows:

1) Before January 1, 2014, each owner or operator of a small, medium, or large HMIWI as defined in Section 229.110(a)(1), subject to the emissions limits under Section 229.125(a) of this Part shall complete an annual performance test by September 15 of each year;

2) On and after January 1, 2014, an owner or operator of a small, rural, medium, or large HMIWI, as defined in Section 229.110(a)(1) or (a)(2), subject to the emissions limits under Section 229.125(c), as applicable, or in Section 229.126(c) of this Part, shall complete an annual performance test by January 1 of each year.

b~~a~~) If all 3 annual performance tests over a 3-year period indicate compliance with the applicable emission limits for PM, CO, or HCl specified in Section 229.125~~(b)~~ of this Part, the owner or operator of an HMIWI may forego a performance test for that pollutant during the next 2 years. If the next performance test conducted every third year indicates compliance with the emission limits for PM, CO, or HCl specified in Section 229.125~~(b)~~

of this Part, the owner or operator of an HMIWI may forego a performance test for that pollutant for an additional 2 years from the date of the previous performance test.

c~~b~~) If any performance test indicates noncompliance with the respective emission limit, the owner or operator of an HMIWI shall conduct a performance test for that pollutant annually until all annual performance tests over a 3-year period indicate compliance with the respective emission limits.

d) The owner or operator of an HMIWI may use any of the following types of continuous emission monitoring systems ("CEMs") as provided in Section 229.152 of this Part, to substitute for annual performance tests and parameter monitoring to demonstrate compliance with applicable emission limits:

1) PM CEMS: replace annual PM testing and opacity testing and monitoring of pressure drop across the wet scrubber, if applicable;

2) CO CEMS: replace annual CO testing and monitoring of minimum secondary chamber temperature;

3) HCl CEMS: replace annual HCl testing and monitoring of minimum HCl sorbent flow rate, and minimum scrubber liquor pH.

(Source: Amended at _____, effective _____).

Section 229.150 Compliance with Operating Parameter Values

a) Following the date on which the initial performance test is completed, or is required to be completed under ~~as provided in~~ Section 229.142 of this Subpart, whichever date comes first ~~Part~~, an HMIWI, using a dry scrubber followed by a fabric filter, a wet scrubber, ~~or~~ dry scrubber followed by a fabric filter and a wet scrubber, or a selective noncatalytic reduction system to comply with the emission limits of this Part~~,~~ shall not operate above any of the applicable maximum or below any of the applicable minimum operating parameter values specified in Appendix B of this Part. All operating parameters shall be measured as a 3-hour rolling average (calculated each hour as the average of the previous 3 operating hours) at all times~~, except during periods of startup, shutdown, and malfunction (calculated each hour as a 3-hour rolling average of the previous 3 operating hours)~~. For batch HMIWIs, the charge rate shall be measured on a per batch basis.

b) Except as provided in Section 229.164 of this Subpart, for an HMIWI equipped with a selective noncatalytic reduction system, operation of the HMIWI above the maximum charge rate, below the minimum secondary chamber temperature, and below the minimum reagent flow rate simultaneously shall constitute a violation of the NOx emissions limit.

c~~b~~) For HMIWIs using air pollution control equipment other than a dry scrubber followed by a fabric filter, a wet scrubber, ~~or~~ dry scrubber followed by a fabric filter and a wet scrubber, or a selective noncatalytic reduction system to comply with the emission limits under Section 229.125 or Section 229.126 of this Part, following the date on which the initial performance test is completed, as provided in Section 229.142 of this Part, an HMIWI shall not operate above any applicable maximum or below any applicable minimum operating parameter values established in its CAAPP permit.

d~~c~~) Operating parameter limits do not apply during performance tests.

(Source: Amended at _____, effective _____).

Section 229.152 Compliance Requirements for HMIWIs using CEMS

The owner or operator of an HMIWI may use a CEMS to demonstrate compliance with any of the emission limits under Section 229.125~~(b)~~ or Section 229.126 of this Part, if provided for in its permit. ~~Any HMIWI that is allowed to use a CEMS to demonstrate compliance with the emission limits of this Part shall:~~

a) Any HMIWI that is allowed to use a CEMS to demonstrate compliance with the emission limits of this Part shall:

1~~a~~) Determine compliance with the applicable emission limits using a 12-hour rolling average, calculated each hour as the average of the previous 12 operating hours~~, not including startup, shutdown, or malfunction~~; and

2~~b~~) Operate all CEMS in accordance with the applicable procedures under Appendices B and F of 40 CFR 60, incorporated by reference at Section 229.104(e) of this Part.

b) In the case of CEMS for which USEPA has not published performance specifications, the option to use the CEMS takes effect on the date of publication of the performance specifications in the Federal Register or after site-specific

operating parameters used to demonstrate compliance with this Part have been established by the Agency in a construction permit and approved by USEPA.

(Source: Amended at _____, effective _____).

Section 229.154 Violations by HMIWIs Equipped with a Dry Scrubber Followed by a Fabric Filter

Except as provided in Section 229.164 of this Subpart, for an HMIWI equipped with a dry scrubber followed by a fabric filter:

a) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum secondary chamber temperature (each measured on a 3-hour rolling average) shall be a violation of the CO emission limit;

b) Simultaneous operation of an HMIWI above the maximum fabric filter inlet temperature, above the maximum charge rate, and below the minimum dioxin/furan sorbent flow rate (each measured on a 3-hour rolling average) shall be a violation of the dioxin/furan emission limit;

c) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum HCl sorbent flow rate (each measured on a 3-hour rolling average) shall be a violation of the HCl emission limit;

d) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum Hg sorbent flow rate (each measured on a 3-hour rolling average) shall be a violation of the Hg emission limit; ~~or~~

e) Use of the bypass stack ~~(except during startup, shutdown or malfunction)~~ at any time during operation of an HMIWI is a violation of the PM, dioxin/furan, HCl, Pb, Cd and Hg emission limits~~;~~.

f) If a CO CEMS is used to determine compliance with a CO emissions limit, operation of the HMIWI above the CO emissions limit as measured by the CO CEMS shall be a violation of the emissions limit;

g) If a bag leak detection system is used, failure to initiate corrective action within one hour of the bag leak detection system alarm, or failure to operate and maintain the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period shall be a violation of the PM emissions limit;

h) If a bag leak detection system is used to demonstrate compliance with the opacity limit, failure to initiate corrective action within one hour of the bag leak detection system alarm shall be a violation of the opacity emissions limit;

i) If a CEMS is used to determine compliance with a PM, HCl, Pb, Cd, and/or Hg emissions limits, operation of the HMIWI above the applicable emissions limit as measured by the CEMS shall be a violation of the emissions limit;

j) If a continuous automated sampling system is used, operation of the HMIWI above the dioxin/furan emissions limit as measured by the continuous automated sampling system shall be a violation of the dioxin/furan emissions limit; or

k) If a continuous automated sampling system is used, operation of the HMIWI above the Hg emissions limit as measured by the continuous automated sampling system shall be a violation of the Hg emissions limit.

(Source: Amended at _____, effective _____).

Section 229.156 Violations by HMIWIs Equipped with a Wet Scrubber

Except as provided in Section 229.164 of this Subpart, for an HMIWI equipped with a wet scrubber:

a) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum pressure drop across the wet scrubber or below the minimum horsepower or amperage to the system (each measured on a 3-hour rolling average) is a violation of the PM emission limit;

b) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum secondary chamber temperature (each measured on a 3-hour rolling average) is a violation of the CO emission limit;

c) Simultaneous operation of an HMIWI above the maximum charge rate, below the minimum secondary chamber temperature and below the minimum scrubber liquor flow rate (each measured on a 3-hour rolling average) is a violation of the dioxin/furan emission limit;

d) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum scrubber liquor pH (each measured on a 3-hour rolling average) is a violation of the HCl emission limit;

e) Simultaneous operation of an HMIWI above the maximum flue gas temperature and above the maximum charge rate (each measured on a 3-hour rolling average) is a violation of the Hg emission limit; ~~or~~

f) Use of the bypass stack ~~(except during startup, shutdown, or malfunction)~~ at any time during operation of an HMIWI is a violation of the PM, dioxin/furan, HCl, Pb, Cd and Hg emission limits~~;~~.

g) If a CO CEMS is used to determine compliance with a CO emissions limit, operation of the HMIWI above the CO emissions limit as measured by the CO CEMS shall be a violation of the emissions limit;

h) If a CEMS is used to determine compliance with a PM, HCl, Pb, Cd, and/or Hg emissions limit, operation of the HMIWI above the applicable emissions limit as measured by the CEMS shall be a violation of the emissions limit;

i) If a continuous automated sampling system is used, operation of the HMIWI above the dioxin/furan emissions limit as measured by the continuous automated sampling system shall be a violation of the dioxin/furan emissions limit; or

j) If a continuous automated sampling system is used, operation of the HMIWI above the Hg emissions limit as measured by the continuous automated sampling system shall be a violation of the Hg emissions limit.

(Source: Amended at _____, effective _____).

Section 229.158 Violations by HMIWIs Equipped with a Dry Scrubber Followed by a Fabric Filter and a Wet Scrubber

Except as provided in Section 229.164 of this Subpart, for an HMIWI equipped with a dry scrubber followed by a fabric filter and a wet scrubber:

a) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum secondary chamber temperature (each measured on a 3-hour rolling average) is a violation of the CO emission limit;

b) Simultaneous operation of an HMIWI above the maximum fabric filter inlet temperature, above the maximum charge rate and below the minimum dioxin/furan sorbent flow rate (each measured on a 3-hour rolling average) is a violation of the dioxin/furan emission limit;

c) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum scrubber liquor pH (each measured on a 3-hour rolling average) is a violation of the HCl emission limit;

d) Simultaneous operation of an HMIWI above the maximum charge rate and below the minimum Hg sorbent flow rate (each measured on a 3-hour rolling average) is a violation of the Hg emission limit; ~~or~~

e) Use of the bypass stack ~~(except during startup, shutdown, or malfunction)~~ at any time during operation of an HMIWI is a violation of the PM, dioxin/furan, HCl, Pb, Cd and Hg emission limits~~;~~.

f) If CO CEMS is used to determine compliance with a CO emissions limit, operation of the HMIWI above the CO emissions limit as measured by the CO CEMS shall be a violation of the emissions limit;

g) If a bag leak detection system is used, failure to initiate corrective action within one hour of the bag leak detection system alarm, or failure to operate and maintain the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period shall be a violation of the PM emissions limit;

h) If a bag leak detection system is used to demonstrate compliance with the opacity limit, failure to initiate corrective action within one hour of the bag leak detection system alarm shall be a violation of the opacity emissions limit;

i) If CEMS is used to determine compliance with a PM, HCl, Pb, Cd, and/or Hg emissions limit, operation of the HMIWI above the applicable emissions limit as measured by the CEMS shall be a violation of the emissions limit;

j) If a continuous automated sampling system is used, operation of the HMIWI above the dioxin/furan emissions limit as measured by the continuous automated sampling system shall be a violation of the dioxin/furan emissions limit; or

k) If a continuous automated sampling system is used, operation of the HMIWI above the Hg emissions limit as measured by the continuous automated sampling system shall be a violation of the Hg emissions limit.

(Source: Amended at _____, effective _____).

Section 229.160 Compliance Requirements for Rural HMIWIs

a) Prior to January 1, 2014, the requirements set forth in subsections (c) through (e) of this section shall apply to all rural HMIWIs subject to the emissions limits under Section 229.126 of this Part.

b) On and after January 1, 2014, the requirements set forth in subsections (c) through (e) of this section shall apply to all rural HMIWIs that are not equipped with an air pollution control device and that are subject to the emissions limits under Section 229.126 of this Part.

c~~a~~) Following the date on which the initial performance test is completed or is required to be completed under Section 229.142 of this Subpart, whichever date comes first, the owners or operators of a rural HMIWI shall not operate their HMIWI either above the maximum charge rate or below the minimum secondary chamber temperature measured as 3-hour rolling averages ~~at all times, except during periods of startup or shutdown~~ (calculated each hour as the average of the previous ~~a 3 hour rolling average of the previous~~ 3 operating hours) at all times. Operating parameter limits do not apply during performance tests.

d) Operation above the maximum charge rate or below the minimum secondary chamber temperature determined during the initial performance test shall constitute a violation of the established operating parameter(s).

d~~b~~) Except as provided in Section 229.164 of this Subpart, the simultaneous operation of a rural HMIWI above the maximum charge rate and below the minimum secondary chamber temperature (calculated as a 3-hour rolling average) shall constitute a violation of the PM, CO and dioxin/furan emission limits.

(Source: Amended at _____, effective _____).

Section 229.162 Inspection Requirements for All ~~Rural~~ HMIWIs

a) Before January 1, 2014, each owner or operator of a rural HMIWI subject to the emission limits under Section 229.126 of this Part shall inspect the HMIWI according to the following schedule:
~~Each owner or operator of a rural HMIWI shall inspect the HMIWI according to the following schedule:~~

1) An initial inspection shall be conducted by September 15, 2000; and

2) An annual inspection shall be conducted by September 15 of each year thereafter.

b) Each equipment inspection shall be conducted to ensure the proper operation of the ~~rural~~ HMIWI and, at a minimum, shall consist of the following steps:

1) An inspection of all burners, pilot assemblies, and pilot sensing devices, cleaning the pilot flame sensor, as necessary;

2) An inspection of the primary and secondary chamber combustion air flow, adjusting, as necessary;

3) An inspection of the hinges and door latches, lubricating, as necessary;

4) An inspection of dampers, fans, and blowers;

5) An inspection of the HMIWI door and door gaskets;

6) An inspection of all HMIWI motors;

7) An inspection of the primary chamber refractory lining, cleaning, repairing or replacing the lining, as necessary;

8) An inspection of the incinerator shell for corrosion or hot spots;

9) An inspection of the secondary/tertiary chamber and stack, cleaning as necessary;

10) Where applicable, an inspection of the mechanical loader, including limit switches;

11) A visual inspection of the waste bed (grates), repairing or sealing, as necessary;

12) Where applicable, an inspection of air pollution control devices to ensure their proper operation;

13) Where applicable, an inspection of the waste heat boiler systems;

14) An inspection of all bypass stack components;

15) Calibration of thermocouples, sorbent feed systems and monitoring equipment; and

16) A general inspection of all equipment to ensure that it is maintained in good operating condition.

c) The owner or operator of an ~~a rural~~ HMIWI shall document that, during the burn cycle immediately following the inspection required by this Section, the HMIWI is operating properly and make any necessary adjustments.

d) All maintenance, adjustments, or repairs identified during the equipment inspection required under this Section shall be completed within 10 days after the inspection. The owner or operator of an HMIWI may have a longer period of time in which to complete any repairs identified as a result of the inspection required by this Section, provided that it makes this request to the Agency in writing, and the Agency approves the owner or operator of an HMIWI's request in writing.

e) On and after January 1, 2014, the owner or operator of a small, rural, medium, or large HMIWI subject to the emission limits under Section 229.125(c), as applicable, or Section 229.126 of this Part, shall inspect the HMIWI as outlined in subsection (b) of this Section, according to the following schedule:

1) An initial equipment inspection shall be conducted by January 1, 2014; and

2) An annual equipment inspection shall be conducted by January 1 of each year thereafter.

f) On and after January 1, 2014, the owner or operator of an HMIWI subject to the emission limits under Section 229.125(c), as applicable, or Section 229.126(c) of this Part, shall inspect the air pollution control device(s), according to the following schedule:

1) An initial air pollution control device inspection shall be conducted by January 1, 2014; and

2) An annual air pollution control device inspection shall be conducted by January 1 of each year thereafter.

g) Each air pollution control device inspection, as applicable, shall be conducted to ensure the proper operation of the device and, at a minimum, shall consist of the following steps:

1) Where applicable, an inspection of the thermocouples, sorbent feed systems, and any other monitoring equipment, adjusting applicable calibration(s), as necessary; and

2) A general inspection of the equipment to ensure that it is maintained in good operating condition.

h) All maintenance, adjustments, or repairs identified during an air pollution control device inspection required under this Section shall be completed within 10 days after the inspection. The owner or operator of an HMIWI may have a longer period of time in which to complete any repairs identified as a result of the inspection required by this Section, provided that it makes this request to the Agency in writing, and the Agency approves the request in writing.

(Source: Amended at _____, effective _____).

SUBPART I: MONITORING REQUIREMENTS

Section 229.166 Monitoring Requirements for All ~~Small, Medium, and Large~~ HMIWIs

a) Each owner or operator of an HMIWI subject to the emission limits under Section 229.125(c), as applicable, or Section 229.126(c) of this Part, shall comply with requirements of this Section according to the following schedule:

1) Before January 1, 2014, for a small, medium or large HMIWI;

2) On and after January 1, 2014, for a small, medium or large HMIWI, and a rural HMIWI that is equipped with an air pollution control device(s).

b~~a~~) Once the initial performance test required by Section 229.142 of this Part has been performed, and the site-specific minimum and maximum operating parameter values have been established, the owner or operator of an ~~a small, medium or large~~ HMIWI, as applicable, shall continuously monitor those parameters.

c~~b~~) The owner or operator of an ~~a small, medium or large~~ HMIWI, as applicable, shall comply with the following monitoring requirements:

1) Install, calibrate according to manufacturer's specifications, maintain, and operate devices or establish methods for monitoring the applicable maximum and minimum operating parameters specified in Appendix B of this Part (unless CEMS are used as a substitute for certain parameters as specified) such that these devices or methods measure and record values for these operating parameters at the frequencies indicated in Appendix B of this Part at all times~~, except during periods of startup and shutdown~~;

2) Install, calibrate according to manufacturer's specifications, maintain, and operate a device or establish a method for identifying the use of the bypass stack, including date, time, and duration of use;

3) If control equipment other than a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and a wet scrubber, or a selective noncatalytic reduction system is used to comply with the applicable emission limits under Section 229.125(c) ~~229.125(b)~~, as applicable, or Section 229.126(c) of this Part, install, calibrate according to manufacturer's specifications, maintain, and operate the equipment necessary to monitor the site-specific operating parameters developed and approved pursuant to Section 229.142(a)(5) or (b)(5) ~~Section 229.142 (e)~~ of this Part; and

4) Record monitoring data at all times during HMIWI operation, except during the periods of monitoring equipment malfunction, calibration, or repair. At a minimum, valid monitoring data shall be recorded for 75 percent of the operating hours per day ~~and~~ for 90 percent of the operating days per calendar quarter that an HMIWI is combusting hospital waste or medical/infectious waste.

d) If an HMIWI is equipped with an air pollution control device that includes a fabric filter and a PM CEMS is not used to demonstrate compliance, the owner or operator of the HMIWI may use a bag leak detection system to determine compliance with the PM emissions limit. The owner or operator shall meet the following requirements for each bag leak detection system installed:

1) Each triboelectric bag leak detection system may be installed, calibrated, operated, and maintained according to the "Fabric Filter Bag Leak Detection Guidance," as incorporated by reference in Section 229.104;

2) The bag leak detection system shall be certified by the manufacturer as being capable of detecting PM emissions at concentrations of 10

milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less;

3) The bag leak detection system sensor shall provide an output of relative PM loadings;

4) The bag leak detection system shall be equipped with a device to continuously record the output signal from the sensor;

5) The bag leak detection system shall be equipped with an audible alarm system that sounds automatically when an increase in relative PM emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel;

6) For positive pressure fabric filter systems, a bag leak detector shall be installed in each baghouse compartment or cell;

7) For negative pressure or induced air fabric filters, a bag leak detector shall be installed downstream of the fabric filter;

8) If multiple bag leak detectors are required, the bag leak detection system's instrumentation and alarm may be shared among detectors;

9) The baseline output shall be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time according to section 5.0 of the "Fabric Filter Bag Leak Detection Guidance," as incorporated by reference in Section 229.104;

10) Following initial adjustment of the system, the sensitivity or range, averaging period, alarm set points, or alarm delay time may not be adjusted. Increasing the sensitivity by more than 100 percent or decreasing by more than 50 percent over a 365-day period is a violation, unless such adjustment follows a complete fabric filter inspection that demonstrates that the fabric filter is in good operating condition. Each adjustment shall be recorded;

11) Maintain records of the results of each inspection, calibration, and validation check; and

12) The fabric filter must be operated and maintained such that the bag leak detection system alarm is not engaged for more than 5 percent of the total

operating time in a 6-month block reporting period; however, corrective action must be initiated within 1 hour of the alarm.

(Source: Amended at _____, effective _____).

Section 229.168 Monitoring Requirements for Rural HMIWIs

a) Each owner or operator of a rural HMIWI subject to the emission limits under Section 229.126 of this Part shall comply with requirements of this Section according to the following schedule:

1) Before January 1, 2014, for a rural HMIWI;

2) On and after January 1, 2014, for a rural HMIWI that is not equipped with an air pollution control device(s).

b) The owner or operator of each rural HMIWI shall comply with the following monitoring requirements:

1~~a~~) Install, calibrate according to manufacturer's specifications, maintain, and operate a device measuring and recording the temperature of the secondary chamber on a continuous basis, the output of which shall be recorded, at a minimum, once every minute of operation;

2~~b~~) Install, calibrate according to manufacturer's specifications, maintain, and operate a device that automatically measures and records the date, time, and weight of each charge fed into an HMIWI; and

3~~c~~) Record monitoring data at all times during HMIWI operation, except during periods of monitoring equipment malfunction, calibration, or repair. At a minimum, valid monitoring data shall be recorded for 75 percent of the operating hours per day ~~and~~ for 90 percent of the operating hours per calendar quarter that an HMIWI is combusting hospital waste or medical/infectious waste.

(Source: Amended at _____, effective _____).

SUBPART J: REQUIREMENTS FOR HMIWI OPERATORS

SUBPART K: WASTE MANAGEMENT PLAN REQUIREMENTS

Section 229.180 Waste Management Requirements for Commercial HMIWIs ~~Accepting Waste Generated Off-Site~~

a) The owner or operator of any commercial HMIWI that accepts hospital waste or medical/infectious waste generated off-site shall:

1) Provide hospital, medical or infectious waste customers with written information at least once a year concerning the availability of waste management practices for reducing the volume and toxicity of waste to be incinerated; ~~and~~

2) Conduct training and education programs in waste segregation for each of the company's waste generator customers;

3) Ensure that each waste generator customer prepares its own waste management plan that includes, at a minimum, the following elements:

A) Segregation of recyclable wastes such as paper products, glass, batteries and metals;

B) Segregation of non-recyclable wastes such as polyvinyl chloride plastics, pharmaceutical waste, and mercury-containing waste; and

C) Purchasing recycled or recyclable products.

~~4~~2) Submit a waste management plan to the Agency, in accordance with Section 229.184(b) of this Part, that outlines the efforts that will be undertaken to implement the requirements ~~distribute information~~ as specified in subsections (a)(1) through (a)(3) of this Section. ~~and identifies the information that will be distributed.~~

b) Paper or electronic copies of the materials disseminated under this Section shall be made available to the Agency upon written request.

(Source: Amended at _____, effective _____).

SUBPART L: RECORDKEEPING AND REPORTING REQUIREMENTS

Section 229.182 Recordkeeping Requirements

a) The owner or operator of an HMIWI subject to the emission limits under Subpart E of this Part shall maintain records of the following information:

1) The calendar date of each record;

2) The following data, where applicable:

A) Concentrations of all applicable pollutants listed in Section 229.125 (a), (c), or in Section 229.126 (a) or (c) of this Part (as determined by the CEMS, if applicable), and any measurements of opacity as required under Section 229.125(b), (d), or (f) or Section 229.126(b) or (d);

~~Concentrations of all applicable pollutants listed in Section 229.125(b) or 229.126(b) of this Part (as determined by the CEMS, if applicable) and any measurements of opacity as required under Section 229.125(c) or 229.126(c);~~

B) HMIWI charge dates, times and weights, and hourly charge rates;

C) If a fabric filter is used, the fabric filter inlet temperatures during each minute of operation;

D) The amount and type of dioxin/furan sorbent used during each hour of operation;

E) The amount and type of Hg sorbent used during each hour of operation;

F) The amount and type of HCl sorbent used during each hour of operation;

G) If a selective noncatalytic reduction system is used to comply, the amount and type of NO_X reagent used during each hour of operation;

H) If a selective noncatalytic reduction system is used to comply, the minimum secondary chamber temperature recorded during each minute of operation;

IG) The secondary chamber temperatures recorded during each minute of operation;

JH) The liquor flow rate to the wet scrubber inlet during each minute of operation;

KI) The horsepower or amperage to the wet scrubber during each minute of operation;

LJ) Any pressure drop across the wet scrubber system during each minute of operation;

MK) The temperature at the outlet from the wet scrubber during each minute of operation;

NL) The pH at the inlet to the wet scrubber during each minute of operation;

OM) Identification of any use of the bypass stack, including dates, times, and the duration of such use; and

PN) For sources complying with Section 229.166(c) (b)(3) of this Part, all operating parameter data collected monitored;

Q) If a bag leak detection system is used, maintain records of the system alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken, as applicable.

3) Identification of any calendar days for which data on emission rates or operating parameters specified under subsection (a)(2) of this Section have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining data, and a description of the corrective actions taken;

4) Identification of any malfunctions, including the calendar date, the time and duration, and a description of the malfunction and of the corrective action taken to remedy it;

5) Identification of calendar days for which data on emission rates or operating parameters specified under subsection (a)(2) of this Section

exceeded the applicable limits, with a description of the exceedences, reasons for such exceedences, and a description of the corrective actions taken;

6) The results of the initial, annual, and any other subsequent performance tests conducted to determine compliance with the applicable emissions limits and/or to establish or re-establish operating parameters, as applicable, and a description, including sample calculations, of how the operating parameters were established or re-established, if applicable;

7) Records of calibration of any monitoring devices as required under Sections 229.166(c)~~(b)~~(1), (2) and (3) and 229.168(b)~~(a)~~(1) and (2) of this Part; and

8) Identification of the names of all HMIWI operators who have met the criteria for qualification under Section 229.170 of this Part, including:

A) Documentation of training and the dates of the training; and

B) The date of the initial review and all subsequent annual reviews of the information specified in Section 229.172(a) of this Part, as required by Section 229.172(b) of this Part.

b) The owner or operator of an HMIWI claiming an exemption from the emission limits in this Part pursuant to Section 229.110(b) of this Part shall keep contemporaneous records identifying each period of time when only pathological waste, low-level radioactive waste, or chemotherapeutic waste is burned, including the calendar date and duration of such periods.

c) The owner or operator of an HMIWI claiming an exemption pursuant to Section 229.110(c) of this Part shall keep records on a calendar quarter basis demonstrating that only pathological waste, low-level radioactive waste, or chemotherapeutic waste is burned.

d) The owner or operator of a co-fired combustor claiming an exemption from the emission limits under Section 229.110(d) of this Part shall maintain records on a calendar quarter basis of the relative weight of hospital waste and/or medical/infectious waste, and of all other fuels or waste combusted.

e) The owner or operator of each HMIWI subject to the emission limits under Section 229.125(c), or Section 229.126 of this Part, shall maintain records of the annual equipment inspection required under Section 229.162 of this Part;

~~e) The owner or operator of each rural HMIWI shall maintain records of the annual equipment inspections required under Section 229.162 of this Part, any required maintenance, and any repairs not completed within 10 days after an inspection or the time frame established by the Agency.~~

f) The owner or operator of each HMIWI subject to the emission limits under Section 229.125(c), or 229.126(c) of this Part, shall maintain records of the annual air pollution control device inspection required under Section 229.162 of this Part;

g) If a bag leak detection system is used, the owner or operator shall maintain records of the system alarm, the time of the alarm, the time corrective action was initiated and completed, a brief description of the cause of the alarm and the corrective action taken, as applicable;

h) The owner or operator of each HMIWI , where applicable, shall maintain records of any required maintenance, adjustments, or repairs identified during an inspection required under Section 229.162 of this Part not completed within 10 days after the inspection or the timeframe approved in writing by the Agency.

~~i~~f) All records required under this Section shall be maintained onsite for a period of 5 years, in either paper copy or electronic format, unless an alternative format has been approved by the Agency in a permit condition.

~~j~~g) All records required to be maintained pursuant to this Section shall be made available to the Agency upon request.

(Source: Amended at _____, effective _____).

Section 229.184 Reporting Requirements

a) The facilities manager and the responsible official for the affected source shall certify each report required under this Section.

b) The owner or operator of an HMIWI shall submit to the Agency the results of any performance test conducted on the HMIWI within 60 days after conducting the performance test. The information submitted with the initial performance test required by Section 229.142 of this Part shall include:

1) Before January 1, 2014, the test data and values for the site-specific operating parameters established pursuant to Section 229.142(a)(4), (5) or

(6), as applicable, and a description, including sample calculations, of how the operating parameters were established during the initial performance test for an HMIWI subject to the emissions limits under Section 229.125(a) or 229.126(a) of this Part;

~~The test data and values for the site specific operating parameters established for an HMIWI pursuant to either Section 229.142(d), (e) or (f) of this Part, as applicable; and~~

2) On and after January 1, 2014, the test data and values for the site-specific operating parameters established pursuant to Section 229.142(b)(3), (4) or (5), as applicable, and a description, including sample calculations, of how the operating parameters were established during the initial performance test for an HMIWI subject to the emissions limits under Section 229.125(c), or Section 229.126(c) of this Part;

3) If a bag leak detection system is used, analysis and supporting documentation demonstrating conformance with guidance and specifications for bag leak detection systems in Section 229.166(d)(1);

~~4~~3) A copy of the waste management plan required under Subpart K of this Part.

c) All owners or operators of HMIWIs shall submit the information specified under this subsection (c) to the Agency, as follows:

~~All owners or operators of HMIWIs shall submit the information specified under this subsection (c) to the Agency by September 15, 2001 and by September 15 of each year thereafter. Once an HMIWI is issued a CAAPP permit, the owner or operator of an HMIWI shall submit these reports semi-annually, in accordance with subsection (d) of this Section. The annual report shall include the following information:~~

1) By September 15, 2001, and by September 15 of each year thereafter, for an HMIWI subject to the emissions limits under Section 229.125(a) or 229.126(a) of this Part;

2) By January 1, 2014, and by January 1 of each year thereafter, for an HMIWI subject to the emissions limits under Section 229.125(c), or Section 229.126(c) of this Part; and

3) The annual report required under subsection (c)(1) or (2) of this subsection shall include the following information:

A ~~(c)(1)~~) Before January 1, 2014, the values for site-specific operating parameters established pursuant to Section 229.142(a)(4), (5) or (6) of this Part, as applicable;

B) On and after January 1, 2014, the values for site-specific operating parameters established pursuant to Section 229.142(b)(3), (4) or (5) of this Part, as applicable;

C~~(c)(2)~~) The highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter~~,~~ recorded for the calendar year being reported pursuant to Section 229.142(a)(4), (5) or (6), or Section 229.142(b)(3), (4) or (5) of this Part, as applicable; ~~and for the calendar year preceding the year being reported;~~

D) The highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter recorded pursuant to Section 229.142(a)(4), (5) or (6), or Section 229.142(b)(3), (4) or (5), of this Part, as applicable, for the calendar year preceding the year being reported, in order to provide the Agency with a summary of the performance of the affected facility over 2-year period;

E~~(c)(3)~~) Any information recorded pursuant to Section 229.182(a)(3) through (5) of this Subpart for the calendar year being reported and for the calendar year preceding the year being reported;

F~~(c)(4)~~) If no exceedences or malfunctions were recorded under Section 229.182(a)(3) through (a)(5) of this Subpart for the calendar year being reported, a statement that no exceedences occurred during the reporting period; and

G~~(c)(5)~~) Any use of the bypass stack, the duration of use, the reason for malfunction, and the corrective actions taken.

d) Once an HMIWI is issued a CAAPP permit, the owner or operator of the HMIWI shall submit the reports required under subsection (c) of this Section semi-annually. The semiannual reports must be submitted within 60 days following the end of the reporting period. The first semiannual reporting period ends on June 30 of each year and the second semiannual reporting period ends on December 31 of each year.

~~Once the owner or operator of an HMIWI is required to submit semiannual reports, these reports must be submitted within 60 days following the end of the reporting period. The first semiannual reporting period ends on March 15 of each year and the second semiannual reporting period ends on September 15 of each year.~~

e) The owner or operator of each rural HMIWI subject to the emission limits under Section 229.126(b) of this Part, shall submit an annual report containing all information listed in subsections (b) and (c) of this Section by no later than 60 days following the year in which the data was collected. Subsequent reports shall be sent no later than 12 calendar months following the previous report. Once the unit is subject to permitting requirements under the CAAPP, the owner or operator shall submit these reports semiannually in accordance with the schedule specified in subsection (d) of this Section.

(Source: Amended at _____, effective _____).

Section 229.APPENDIX B Operating Parameters to be Monitored and Minimum Measurement and Recording Frequencies. An "x" in any box in this matrix means that measurement of that parameter is required.

MINIMUM FREQUENCY			CONTROL SYSTEM			
Operating Parameters	**Data Measurement**	**Data Recording**	**Dry Scrubber Followed by Fabric Filter**	**Wet Scrubber**	**Dry Scrubber Followed by Fabric Filter and Wet Scrubber**	**Selective Noncatalytic Reduction System**
Maximum Charge Rate[1]	Continuous	Once per hour	X	X	X	X
Maximum Fabric Filter Inlet Temperature	Continuous	Once per minute	X		X	
Maximum Flue Gas	Continuous	Once per minute	X	X		

Temperature						
Minimum Secondary Chamber Temperature	Continuous	Once per minute	X	X	X	X
Minimum Dioxin/Furan Sorbent Flow Rate	Hourly	Once per hour	X		X	
Minimum HCl Sorbent Flow Rate	Hourly	Once per hour	X		X	
Minimum Reagent Flow Rate	Hourly	Once per hour				X
Minimum Hg Sorbent Flow Rate	Hourly	Once per hour	X		X	
Minimum Pressure Drop Across the Wet Scrubber or Minimum Horsepower or Amperage to Wet Scrubber	Continuous	Once per minute		X	X	
Minimum Scrubber Liquor Flow Rate	Continuous	Once per hour		X	X	
Minimum Scrubber Liquor pH	Continuous	Once per hour		X	X	

[1] For batch HMIWIs, record the charge per batch.

~~Operating Parameters to be Monitored and Minimum Measurement and Recording Frequencies. An "x" in any box in this matrix means that measurement of that parameter is required.~~

~~MINIMUM FREQUENCY~~	~~CONTROL SYSTEM~~

Operating Parameters	Data Measurement	Data Recording	Dry Scrubber Followed by Fabric Filter	Wet Scrubber	Dry Scrubber Followed by Fabric Filter and Wet Scrubber
Maximum[1] – Charge Rate	Continuous	Once per hour	X	X	X
Maximum Fabric Filter Inlet Temperature	Continuous	Once per minute	X		X
Maximum flue gas temperature	Continuous	Once per minute	X	X	
Minimum secondary chamber temperature	Continuous	Once per minute	X	X	X
Minimum Dioxin/ Furan Sorbent Flow Rate	Hourly	Once per hour	X		X
Minimum HCl Sorbent Flow Rate	Hourly	Once per hour	X		X
Minimum Hg Sorbent Flow Rate	Hourly	Once per hour	X		X
Minimum Pressure Drop Across the Wet Scrubber or Minimum Horsepower or Amperage to Wet Scrubber	Continuous	Once per minute		X	X

~~Minimum Scrubber Liquor Flow Rate~~	~~Continuous~~	~~Once per minute~~		~~X~~	~~X~~
~~Minimum Scrubber Liquor pH~~	~~Continuous~~	~~Once per minute~~		~~X~~	~~X~~

~~[1]For batch HMIWIs, record the charge per batch.~~

(Source: Amended at _____, effective _____).

PART 229.APPENDIX C Reference Test Methods and Procedures for Performance Tests.

The following test methods and procedures shall be used as specified in Section 229.140(e) of this Part, when conducting any performance test for the purpose of demonstrating compliance with the emission limits established under this Part.

a) All performance tests shall consist of a minimum of 3 test runs conducted under representative operating conditions. The minimum sample time of 1 hour per test run shall be used unless otherwise indicated. In order to demonstrate compliance with the emission limits set forth in Subpart E of this Part, the arithmetic average of all 3 performance test runs shall be used.

b) Method 1, at 40 CFR 60, incorporated by reference at Section 229.104(d) of this Part, shall be used to select the sampling location and number of traverse points.

c) Method 2, at 40 CFR 60 shall be used to determine average gas density, as well as to measure gas velocity.

d) Method 3, 3A, or 3B, at 40 CFR 60 shall be used for gas composition analysis, including measurement of oxygen concentration. Method 3, 3A or 3B, at 40 CFR 60 shall be used simultaneously with each of the other reference methods. As an alternative to Method 3B, ASME PTC-19-10-1981-Part 10 may be used.

~~d) Method 3 or 3A, at 40 CFR 60 shall be used for gas composition analysis, including measurement of oxygen concentration. Method 3 or 3A, at 40 CFR 60 shall be used simultaneously with each reference method.~~

e) The pollutant concentrations shall be adjusted to 7 percent oxygen using the following equation:

$C_{adj} = C_{meas} (20.9-7)/(20.9-\%O_2)$

Where:

C_{adj} = pollutant concentration adjusted to 7 percent oxygen;

C_{meas} = pollutant concentration measured on a dry basis

(20.9-7) = 20.9 percent oxygen – 7 percent oxygen (defined oxygen correction basis);

20.9 = oxygen concentration in air, percent; and

$\%O_2$ = oxygen concentration measured on a dry basis, percent.

f) Method 5, 26A, or 29, at 40 CFR 60 shall be used to measure PM emissions. As an alternative, a PM CEMS may be used in determining compliance with PM emissions using a 12-hour rolling average, calculated each hour as the average of the previous 12 operating hours.

~~f) Method 5 or 29, at 40 CFR 60 shall be used to measure particulate matter emissions.~~

g) Method 7 or 7E, at 40 CFR 60 shall be used to measure NO_X emissions.

h) Method 6 or 6C, at 40 CFR 60 shall be used to measure SO_2 emissions.

ig) Method 9, at 40 CFR 60 shall be used to measure stack opacity. As an alternative, the use of a bag leak detection system or a PM CEMS to demonstrate compliance with the PM standards is considered demonstrative of compliance with the opacity requirements.

jh) Method 10 or 10B, at 40 CFR 60 shall be used to measure CO emissions. As an alternative, a CO CEMS may be used to measure CO emissions.

k) Method 22, at 40 CFR 60 shall be used to measure fugitive ash emissions.

li) Method 23, at 40 CFR 60 shall be used to measure total dioxin/furan emissions. As an alternative, the facility may elect to sample total dioxins/furans by installing, calibrating, maintaining, and operating a continuous automated sampling system for monitoring dioxin/furan emissions. The minimum sample time for Method 23 sampling shall be 4 hours per test run. If the affected facility

has selected the TEQ for dioxin/furans (set out in Appendix A of this Part), as provided under Section 229.125~~(b)~~ or 229.126~~(b)~~ of this Part, whichever is applicable, the following procedures shall be used to determine compliance:

1) Measure the concentration of each dioxin/furan tetra-through-octa-congener emitted using Method 23;

2) For each dioxin/furan congener measured in accordance with subsection (i)(1) of this Section, multiply the congener concentration by its corresponding TEQ factor specified in Appendix A of this Part; and

3) Sum the products calculated in accordance with subsection (i)(2) of this Section to obtain the total concentration of dioxin/furans emitted in terms of TEQ.

m~~j~~) Method 26 or 26A, at 40 CFR 60 shall be used to measure HCl emissions. As an alternative, an HCl CEMS may be used to measure HCl emissions. Before January 1, 2014, if the affected facility has selected the percentage reduction standard for HCl as provided under Section 229.125(a)~~(b)~~ or 229.126(a)~~(b)~~ of this Part, whichever is applicable, the percentage reduction in HCl emissions ($\%R_{HCl}$) is computed using the following formula:

$$(\%R_{HCl}) = ((E_i - E_o)/E_i) \times 100$$

Where:

$\%R_{HCl}$ = percentage reduction of HCl emissions achieved;

E_i = HCl emissions concentration measured at the control device inlet, corrected to 7 percent oxygen (dry basis); and

E_o = HCl emissions concentration measured at the control device outlet, corrected to 7 percent oxygen (dry basis).

n~~k~~) Method 29, at 40 CFR 60 shall be used to measure Pb, Cd, and Hg emissions. As an alternative, ASTM D6784-02 may be used to measure Hg emissions; a multi-metals CEMS or Hg CEMS may be used to measure Pb, Cd, and Hg emissions; or the facility may elect to sample Hg by installing, calibrating, maintaining, and operating a continuous automated sampling system for monitoring Hg emissions. Before January 1, 2014, if the affected facility has

selected the percentage reduction standards for metals as provided in Section 229.125(a) ~~(b)~~ or 229.126(a) ~~(b)~~ of this Part, whichever is applicable, the percentage reduction in emissions ($\%R_{metal}$) is computed using the following formula:

$$(\%R_{metal})=((E_i-E_o)/E_i)x\ 100$$

Where:

$\%R_{metal}$ = percentage reduction of metal emissions (Pb, Cd, or Hg) achieved;

E_i = metal emissions concentration (Pb, Cd, or Hg) measured at the control device inlet, corrected to 7 percent oxygen (dry basis); and

E_o = metal emissions concentration (Pb, Cd, or Hg) measured at the control device outlet, corrected to 7 percent oxygen (dry basis).

(Source: Amended at _____, effective _____).