

Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

Commonwealth of Pennsylvania
Environmental Resources
May 9, 1990

Subject: Source Test Review

ref 18

To: Data File
Hershey Medical Center
Derry Township, Dauphin County

From: Thomas P. Bianca
Air Pollution Control Engineer
Division of Technical Services and Monitoring
Bureau of Air Quality Control



Through: Chief, Source Testing and Monitoring Section

*max charging rate
~1300 lbs/hr*

The Milton S. Hershey Medical Center operates an Ecolaire Model 1500TE Thermal Incinerator at its facility in Derry Township, Dauphin County. Pathological waste including papers, food scraps, glass test tubes, glass slides, water and alcohol solutions, cultures, bandages, blood, urine samples, body parts, small animal carcasses, needles, syringes, scintillation cocktail, chemotherapeutic waste, and similar items is charged into the primary chamber of the incinerator by an automatic hydraulic ram feeder operating at approximately 1700 degrees Fahrenheit. Effluent flows from the primary chamber to the secondary chamber operating at approximately 2,000 degrees Fahrenheit with a retention time of approximately 2.32 seconds and to an Andersen wet scrubber. Flow is induced from the scrubber by an induced draft fan and discharge to the atmosphere through a 18 inch I.D. stack having a discharge point approximately 54 feet above grade.

A series of source tests were conducted for compliance purposes by Air Nova, Inc. to determine particulate, hydrogen chloride, sulfur dioxide, heavy metals, dioxins/furans, and carbon monoxide emissions from the stack serving the wet scrubber. Source tests were conducted at the inlet to the scrubber to determine particulate, dioxins/furans, and carbon monoxide emissions. Particle size distribution analysis was also conducted at this location. I have the following comments in regard to the test report:

1. The approved test protocol required separate sampling trains for particulate and hydrogen chloride testing. Air Nova, Inc. utilized one train for the two pollutants. The Pennsylvania method for hydrogen chloride requires analysis of the filter, front half, and back half of the sampling train. Air Nova, Inc. analyzed an aliquot of the distilled water wash from the particulate sampling train for hydrogen chloride. The hydrogen chloride tests are unacceptable to the Department.
2. The particulate tests were not conducted in accordance with the preapproved test protocol. Particulate loss may have occurred upon removing aliquots from the impinger water washings biasing the results low.
3. Particle size distribution analysis was performed on the glass fiber filter, front half water and acetone washings. The particulate on the glass fiber filter was dispersed in distilled water and refiltered in preparation for particle size analysis. Particles may have adhered to the glass

the glass fiber filter or dissolved into the distilled water resulting in erroneous particle size distribution data.

The remaining tests are acceptable. The calculations are correct and the results appear to be valid.

The following was extracted from the test report.

Run No.	1	2	3
<u>OUTLET</u>			
*Particulate Concentration, gr/dscf	0.026	0.029	0.033
*Allowable Particulate Concentration, gr/dscf	0.03	0.03	0.03
*Carbon Monoxide Concentration, PPMV	14.1	15.7	12.5
*Allowable Carbon Monoxide Concentration, PPMV	100	100	100
*Sulfur Dioxide Concentration, PPMV	0.6	0.6	0.7
*Allowable Sulfur Dioxide Concentration, PPMV	30	30	30
Arsenic Mass Emission Rate, lb/hr	<0.00000059	<0.00000071	<0.00000064
Beryllium Mass Emission Rate, lb/hr	<0.00000293	<0.00000356	<0.00000325
Cadmium Mass Emission Rate, lb/hr	0.0000198	0.0000229	0.0000182
Chromium Mass Emission Rate, lb/hr	0.00000119	0.00000143	0.00000065
Nickel Mass Emission Rate, lb/hr	0.00000238	0.00000428	0.00000135
Lead Mass Emission Rate, lb/hr	0.000127	0.00019	0.000111
Mercury Mass Emission Rate, lb/hr	0.0000507	0.0000396	0.0000871
Dioxins/Furans Concentration, ug/m ³	0.000132	0.000147	0.000149
	<i>hand</i> 0.1324688	0.146972	0.149 0.14938
<u>INLET</u>	9.02 11.4	11.4	11.4
*Particulate Concentration, gr/dscf	0.118	0.061	0.124
*Carbon Monoxide Concentration, PPMV	18.0	23.7	13.8
Dioxins/Furans Concentration, ug/m ³	0.0000604	0.0000945	0.0000935
	<i>hand</i> 0.0603639	0.094543	0.0934869
*Corrected to 7% Oxygen.	<i>ny/m</i>		
cc: Kanubhai Patel through Leif Ericson, Harrisburg Regional Office			
22-301-054			
EPA/RSL	9.02	11.00	11.00
Reading File			
✓ Doug Leshar	11.2		

TPB:sjw