

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.

AP-42 MWI emission factor development by Rob Harrison 6/8/93

ALTERED BY M. V. CAMPBELL 6/11/93
=====

Test Report 26

Facility: Therm-Tec
Control type: 1

	Run 1	Run 3	Run 4	Avg
Charge rate (lb/hr)	105	274	208	195.6667
Charge rate (ton/hr)	0.0525	0.137	0.104	0.097833

Emissions (lb/hr)				
HCl	1.48	1.48	1.27	1.41
NOx	0.28	0.32	0.38	0.326667

EF (lb/ton)	Rating				
HCl	B	28.19048	10.80292	12.21154	17.06831
NOx	B	5.333333	2.335766	3.653846	3.774315

	Run 5	Run 6	Run 7	Run 8	Avg
Charge rate (lb/hr)	168	135	299	246	212
Charge rate (ton/hr)	0.084	0.0675	0.1495	0.123	0.106

Emissions (lb/hr)					
PM	0.32		0.19	0.25	0.253333
CO	0.19	0.1	0.07	0.05	0.1025
THC	0.05	0.07	0.07		0.063333

EF (lb/ton)	Rating				
PM	B	3.809524	1.270903	2.03252	2.370982
CO	B	2.261905	1.481481	0.468227	0.406504
THC	B	0.595238	1.037037	0.468227	0.700168

REPORT OF EMISSION TESTS
THE NEW JERSEY AIR POLLUTION CONTROL CODE

36

ref 71

Hamilton Hospital
Hamilton Center for Health
White Horse - Hamilton Square Road
Hamilton, New Jersey 08690
APC Plant ID No. 60164
NJ Stack No. 002



NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY

December 19, 1989

Source Emission Test Summary

Hamilton Hospital

Hamilton Center for Health

Table of Contents

SECTION

I)	Project Purpose
II)	Project Personnel
III)	Source Description
IV)	Sampling Dates and Testing Schedule
V)	Sampling Procedures
VI)	Sampling Location
VII)	Incinerator Operating Conditions
VIII)	Test Results
IX)	Conclusion
X)	Emission Test Data Sheets
XI)	Laboratory Results

SECTION I

PROJECT PURPOSE

Hamilton Hospital
Hamilton Center for Health
White Horse - Hamilton Square Road
Hamilton, New Jersey, 08690
APC Plant ID No. 60164
NJ Stack No. 002

PROJECT PURPOSE:

The Bureau of Technical Services conducted a Pathological Incinerator test program in order to determine various air contaminants and emission levels being emitted from this source category.

Several Pathological Incinerator sources were inspected and evaluated by personnel from the Bureau of Technical Services for the purpose of this testing project. The Pathological Incinerator selection for testing was based on a wide profile of units with special attention focused on the following:

1. Amount and type of material charged per hour.
2. Unit operating times.
3. Operating temperatures.
4. Manner of material charge.
5. Type and percentage of plastics charged.

Stack emission tests were conducted on the Pathological Incinerator (N.J. Stack No. 002) for the following contaminants.

- A) Particulates
- B) Carbon Monoxide
- C) Total Hydrocarbons
- D) Nitrogen Oxides
- E) Hydrochloric Acid

The stack emissions tests were conducted to determine compliance with the standards stated on Permit/Certificate Number P-40026 as filed under New Jersey Administrative Code 7:27-8 "Permits" and the standards prescribed by New Jersey Administrative Code 7:27-11 "Incinerators".

SECTION II

EMISSION TEST PROJECT PERSONNEL

PERSONNEL:

The emission tests were conducted by personnel of the New Jersey Department of Environmental Protection, Air Quality Engineering and Technology Element, Bureau of Technical Services.

Those participating in the emission test program were as follows:

Frederick Ballay - Senior Environmental Specialist
Stafford Stewart - Environmental Engineer
Gary Andrew - Environmental Specialist
Robert Tembrevilla - Environmental Specialist
Debra Berman - Environmental Engineer Trainee
Andrew Coleman - Summer Intern
Susan McLaughlin - Summer Intern

The Pathological Incinerator (N.J. Stack No. 002) was being operated at the conditions listed in the Incinerator Operating Conditions (Section VII). These process conditions were monitored by Mr. Paul Orlando, Mr. Gregory Walker, and Mr. Bryan Cranston of the Central Regional Enforcement Office.

The emission test samples were analyzed at the Bureau of Organic Analytical Service Laboratories located in West Trenton, New Jersey by:

Henry Smith, Principal Chemist

Randolph Barbiero, Principal Chemist

Thomas La Fisca, Principal Chemist

Gloria Griffith, Principal Laboratory Technician

SECTION III

SOURCE DESCRIPTION

SOURCE DESCRIPTION:

Hamilton Hospital operates a Comtro controlled Air Incinerator, Model A-24 (N.J. Stack No. 002) which is fired with Number 2 Fuel Oil.

Manufacturers
Standard Specifications
Model A-24 Pathological
Incinerator

<u>Burning Capacity Type 0:</u>	-	305 lbs. Per/Hour
<u>Burning Capacity Type 1:</u>	-	400 lbs. Per/Hour
<u>Burning Capacity Type 2:</u>	-	400 lbs. Per/Hour
<u>Burning Capacity Type 3:</u>	-	Not rated
<u>Burning Capacity Type 4:</u>	-	400 lbs. Per/Hour
<u>Hearth Area:</u>	-	19.6 sq. ft.
<u>Primary Volume:</u>	-	112.89 cu. ft.
<u>Secondary Volume:</u>	-	31.90 cu. ft.
<u>Ash Door:</u>	-	12" wide x 18" high. Free swinging refractory lined door.
<u>Shell:</u>	-	3/16" Plate
<u>Burners:</u>	-	a) Two (2) - Primary adjustable burners. b) One (1) - Secondary adjustable burner.

Controls:

- Enclosed control box with two timers located at charging door. The 0-60 minute timer is for the primary burner. The 0-20 hour timer is for the secondary burner. The temperature is controlled with thermowells which monitor high-low burner control in the primary chamber. Load limit switch on the charging door shuts down the primary burner when the charging door is opened.

Air Supply:

- Manually adjustable air gates for primary and secondary chamber air control, equipped with two (2) 1/3 horse-power blowers.

Stack:

- Refractory lined approximately 21" inch inside diameter and 26 1/2 inch outside diameter vertical discharge 50 feet in height.

The Pathological Incinerator (N.J. Stack NO. 002) is permitted to charge at a rate not to exceed 400 pounds per hour of Type 0, 1, 2, 3, and 4 waste.

"Type 0 Waste" means trash, a mixture of highly combustible waste such as paper, cardboard, cartons, wood boxes and combustible floor sweepings, containing approximately ten percent moisture and five percent incombustible solids, and have a heating value of approximately 8500 British Thermal Units per pound as fired, and deriving from commercial and industrial activities. The mixtures containing up to ten percent by weight of plastic bags, coated paper, laminated paper, treated corrugated cardboard, oily rags, and plastic or rubber scraps.

"Type 1 Waste" means rubbish, a mixture of combustible waste such as paper, cardboard cartons, wood scraps, foliage and combustible floor sweepings, containing approximately 25 percent moisture and ten percent incombustible solids and have a heating value of approximately 6500 British Thermal Units per pound as fired, and deriving for domestic, commercial and industrial activities. The mixture contains up to 20 percent by weight of restaurant or cafeteria waste, but contains little or no treated paper, plastic or rubber wastes.

"Type 2 Waste" Means refuse, consisting of an approximately even mixture of rubbish and garbage by weight, containing up to 50 percent moisture and approximately 4300 British Thermal Units per pound as fired, and commonly deriving from apartment and residential occupancy.

"Type 3 Waste" means garbage, consisting of animal and vegetable wastes containing up to 70 percent moisture and up to five percent incombustible solids and having a heating value of approximately 2500 British Thermal Units per pound as fired and deriving from restaurants, cafeterias, hotels, hospitals, markets, and like installations.

"Type 4 Waste" means human and animal remains, consisting of carcasses, organs, and solid organic wastes from hospitals, laboratories, abattoirs, animal pounds, and similar sources, consisting of up to 85 percent moisture and approximately five percent incombustible solids and having a heating value of approximately 1000 British Thermal Units per pound as fired.

SECTION IV

SAMPLING DATES AND TESTING SCHEDULE

SAMPLING DATES AND TESTING SCHEDULE:

The Pathological Incinerator (N.J. Stack No. 002) was tested on August 24, 25, 28, and 29, 1989.

August 24, 1989

Test Time: 11:35 AM - 12:45 PM

Run Number 1 Hydrochloric Acid

Run Number 1 Nitrogen Oxides

Test Time: 2:50 PM - 3:55 PM

Run Number 2 Hydrochloric Acid (Void)*

Run Number 2 Nitrogen Oxides (Void)*

* Run Number 2 Hydrochloric Acid and Run Number 2 Nitrogen Oxide were voided due to an unacceptable post test leak check.

August 25, 1989

Test Time: 10:12 AM - 12:55 PM

Run Number 3 Hydrochloric Acid

Run Number 3 Nitrogen Oxides

Test Time: 1:23 PM - 2:28 PM

Run Number 4 Hydrochloric Acid

Run Number 4 Nitrogen Oxides

August 28, 1989

Test Time: 10:37 AM - 11:47 AM

Run Number 1 Particulate

Run Number 1 Carbon Monoxide

Run Number 1 Total Hydrocarbons

Test Time: 1:13 PM - 02:40 PM

Run Number 2 Particulate *

Run Number 2 Carbon Monoxide

Run Number 2 Total Hydrocarbons

* Run Number 2 Particulate was voided due to an unacceptable

isokinetic draw rate.

August 29, 1989

Test Time: 10:05 AM - 11:30 AM

Run Number 3 Particulate
Run Number 3 Carbon Monoxide
Run Number 3 Total Hydrocarbons

Test Time: 1:25 PM - 2:40 PM

Run Number 4 Particulate
Run Number 4 Carbon Monoxide

SECTION V
SAMPLING PROCEDURES

SAMPLING PROCEDURES:

The Particulate emission tests were conducted in accordance with the sampling and analytical procedures outlined in draft New Jersey Administrative Code 7:27B-5, Air Test Method Five, "Sampling and Analytical Procedures for Determining Emissions of Particulates from the Combustion of Waste".

The Total Hydrocarbon emission tests were conducted in accordance with sampling and analytical procedures outlined in New Jersey Administrative Code 7:27B-3, Air Test Method 3 - "Sampling and Analytical Procedures for the Determination of Volatile Organic Substances from Source Operations".

The Nitrogen Oxide emission tests were conducted in accordance with the sampling and analytical procedures outlined in the Code of Federal Regulations - Part 60 - Appendix A, Reference Method 7D - "Determination of Nitrogen Oxide Emission from Stationary Sources - Alkaline - Permanganate/Colorimetric Method".

The Carbon Monoxide emission tests were conducted in accordance with the sampling and analytical procedures outlined in the Code of Federal Regulations - Part 60 - Appendix A - Reference Method 10 "Determination of Carbon Monoxide Emissions from Stationary Sources".

The Hydrochloric Acid emission tests were conducted in accordance with the procedures outlined in draft method entitled "Method for the Determination of HCl Emissions from Municipal and Hazardous Waste Incinerators" (July 1989).

A complete description of the sampling trains, analytical procedures, original field notes and quality assurance procedures are on file with the Bureau of Technical Services.

SECTION VI
SAMPLING LOCATION

SAMPLING LOCATION:

The Hamilton Hospital Pathological Incinerator (NJ Stack No. 002) has a discharge exhaust stack approximately 50 feet high. The Stack has an inside diameter of 21 inches. Two 3-inch sampling ports with removable seals were installed 90 degrees to each other. These ports are located two (2) feet above the roof wall and were accessible from the roof level. The location of the sampling ports allowed approximately forty (40) feet downstream and approximately six and one half (6 1/2) feet upstream on the pathological incinerator discharge exhaust. This sampling location meets the requirements stated in the Code of Federal Regulations EPA Stationary Source Sampling Method 1 - "Sampling and Velocity Traverses for Stationary Sources".

The exact stack measurements, sampling location, stack size, and preliminary set-up data were verified by Bureau of Technical Services Personnel.

SECTION VII

INCINERATOR OPERATING CONDITIONS

INCINERATOR OPERATING CONDITIONS:

The Pathological Incinerator (N.J. Stack No. 002) is permitted by the New Jersey Department of Environmental Protection, Air Pollution Control Program. Permit/Certificate Number P-40026 allows this facility to incinerate Waste Types 0, 1, 2, 3, and 4 at a rate not to exceed 400 pounds per hour.

The following is a compilation of process data monitored by the Department of Environmental Protection, Regional Enforcement Personnel.

**FUEL CONSUMPTION DATA
NUMBER 2 FUEL OIL**

DATE	TIME START	TIME STOP	TIME	TOTAL FUEL FIRED (GAL/HR)
08-24-89	11:40 AM	12:40 PM	60 MIN	11.80
08-24-89	14:55 PM	15:55 PM	60 MIN	4.80
08-25-89	10:48 PM	12:05 PM	77 MIN	7.58
08-25-89	13:25 PM	14:36 PM	71 MIN	7.19
08-28-89	10:50 AM	12:04 PM	74 MIN	8.95
08-28-89	13:23 PM	14:30 PM	67 MIN	6.37
08-29-89	09:56 AM	11:56 AM	120 MIN	7.87
08-29-89	13:28 PM	14:44 PM	76 MIN	7.70

*Run #1
HCl 1
void
HCl 3
HCl 4
M 1
Am-void
PM 3
PM 4*

**AUGUST 24, 1989
PATHOLOGICAL INCINERATOR
MATERIAL CHARGING LOG**

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	11:45	1	37	37
2	11:47	1	37	74
3	12:40	1	31	105

The above waste was being incinerated during the following test runs.

Run Number 1 Hydrochloric Acid
Run Number 1 Nitrogen Oxide

Testing Period 11:35 AM - 12:45 PM

AUGUST 24, 1989
 PATHOLOGICAL INCINERATION
 TEMPERATURE LOG

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
11:40	1500	1600
11:45	1650	1600
11:50	1600	1600
11:55	1900	1750
12:00	1800	1600
12:05	1650	1600
12:10	1550	1600
12:15	1800	1750
12:20	1950	1650
12:25	1650	1900
12:30	1750	1600

Average Primary Temperature 1714 °F.
 Average Secondary Temperature 1659 °F.

AUGUST 24, 1989
 PATHOLOGICAL INCINERATOR
 MATERIAL CHARGING LOG

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	14:55	1	96	96
2	15:18	1 & 4	20	116
3	15:24	1 & 4	51	167

The above waste was being incinerated during the following test runs.

Run Number 2 Hydrochloric Acid (Void)*
 Run Number 2 Nitrogen Oxide (Void) *

Note: The above test runs were voided due to an unacceptable post test leak check.

Testing Period 2:50 PM - 3:55 PM

AUGUST 24, 1989
 PATHOLOGICAL INCINERATION
 TEMPERATURE LOG

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
14:55	1600	1650
15:00	1700	1750
15:05	1900	1650
15:10	1850	1800
15:15	1750	1700
15:20	1850	1650
15:25	2000	2000
15:30	2200	1800
15:35	1950	1650
15:40	1850	1600
14:45	1600	1250

Average Primary Temperature 1841 °F.
 Average Secondary Temperature 1682 °F.

AUGUST 25, 1989
 PATHOLOGICAL INCINERATOR
 MATERIAL CHARGING LOG

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	10:48	0	96	96
2	12:05	1 & 4	178	274

The above waste was being incinerated during the following test runs.

Run Number 3 Hydrochloric Acid
 Run Number 3 Nitrogen Oxide

Testing Period 10:12 AM - 12:55 PM

101 1/2 hr

AUGUST 25, 1989
 PATHOLOGICAL INCINERATION
 TEMPERATURE LOG

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
10:50	1600	1600
11:05	1675	1600
11:15	1850	1600
11:20	1575	1600
11:30	1750	1750
11:40	1600	1600
11:50	1800	1675
11:55	1650	1600
12:05	1825	1625

Average Primary Temperature 1703 °F.
 Average Secondary Temperature 1628 °F.

AUGUST 25, 1989
 PATHOLOGICAL INCINERATOR
 MATERIAL CHARGING LOG

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	13:25	1 & 4	208	208
2	14:36	0	100	308

The above waste was being incinerated during the following test runs.

Run Number 4 Hydrochloric Acid
 Run Number 4 Nitrogen Oxide

Testing Period 1:23 PM - 2:28 PM

AP-42 Emission Factor Development
 Paper Number 26

Type	Facility	Reference	Run	Pollutant	Emission Factor lb/ton	Emission Factor mg/Mg	Quality Rating
1	Hamilton	26	5	Particulate Matter	3.81E+00	1.90E+06	B
1	Hamilton	26	7	Particulate Matter	1.27E+00	6.35E+05	B
1	Hamilton	26	8	Particulate Matter	2.03E+00	1.02E+06	B
1	Hamilton	26	1	Hydrogen Chloride	2.82E+01	1.41E+07	B
1	Hamilton	26	3	Hydrogen Chloride	1.08E+01	5.40E+06	B
1	Hamilton	26	4	Hydrogen Chloride	1.22E+01	6.11E+06	B
1	Hamilton	26	5	Carbon Monoxide	2.26E+00	1.13E+06	B
1	Hamilton	26	6	Carbon Monoxide	1.48E+00	7.41E+05	B
1	Hamilton	26	7	Carbon Monoxide	4.68E-01	2.34E+05	B
1	Hamilton	26	8	Carbon Monoxide	4.07E-01	2.03E+05	B
1	Hamilton	26	1	Oxides of Nitrogen	5.33E+00	2.67E+06	B
1	Hamilton	26	3	Oxides of Nitrogen	2.34E+00	1.17E+06	B
1	Hamilton	26	4	Oxides of Nitrogen	3.65E+00	1.83E+06	B
1	Hamilton	26	5	Total Hydrocarbons	5.95E-01	2.98E+05	B
1	Hamilton	26	6	Total Hydrocarbons	1.04E+00	5.18E+05	B
1	Hamilton	26	7	Total Hydrocarbons	4.68E-01	2.34E+05	B

AUGUST 25, 1989
 PATHOLOGICAL INCINERATION
 TEMPERATURE LOG

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
13:25	1600	1600
13:35	1800	1600
13:45	1750	1620
13:55	1600	1600
14:05	1950	1650
14:15	1825	1650
14:25	1800	1650
14:30	1800	1600
14:35	1600	1600

Average Primary Temperature 1747 °F
 Average Secondary Temperature 1619 °F.

AUGUST 28, 1989
 PATHOLOGICAL INCINERATOR
 MATERIAL CHARGING LOG

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	10:43	2	88	88
2	11:02	3	20	108
3	11:19	3	35	143
4	11:36	3	25	168
5	11:49	1	3	171
6	11:52	3	25	196

The above waste was being incinerated during the following test runs.

Run Number 1 Particulate
 Run Number 1 Carbon Monoxide
 Run Number 1 Total Hydrocarbons

Testing Period 10:37 AM - 11:47 AM

**AUGUST 28, 1989
PATHOLOGICAL INCINERATION
TEMPERATURE LOG**

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
10:30	1400	1370
10:46	1420	1440
11:00	1560	1600
11:20	1620	1510
11:35	1600	1500
11:45	1600	1550
11:52	1670	1620
12:03	1620	1550

Average Primary Temperature 1561 °F
Average Secondary Temperature 1518 °F

**AUGUST 28, 1989
PATHOLOGICAL INCINERATOR
MATERIAL CHARGING LOG**

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	13:26	2	25	25
2	13:37	3	40	65
3	13:50	1	20	85
4	14:03	3	28	113
5	14:13	3	22	135

The above waste was being incinerated during the following test runs.

Run Number 2 Particulate
Run Number 2 Carbon Monoxide
Run Number 2 Total Hydrocarbons

Testing Period 1:13 PM - 2:40 PM

AUGUST 28, 1989
 PATHOLOGICAL INCINERATION
 TEMPERATURE LOG

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
13:23	1550	1660
13:46	1580	1600
13:52	1860	1830
14:00	1660	1610
14:13	1750	1600
14:30	1610	1610

Average Primary Temperature 1668 °F.
 Average Secondary Temperature 1642 °F.

AUGUST 29, 1989
 PATHOLOGICAL INCINERATOR
 MATERIAL CHARGING LOG

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	10:00	4	180	180
2	10:23	3	26	206
3	10:35	2	30	236
4	10:50	1	12	248
5	10:59	3	20	268
6	11:27	2	31	299
7	11:33	2	40	339
8	11:47	2	40	379
9	11:55	1	16	395

The above waste was being incinerated during the following test runs.

Run Number 3 Particulate
 Run Number 3 Carbon Monoxide
 Run Number 3 Total Hydrocarbons

Testing Period 10:05 AM - 11:30 AM

AUGUST 29, 1989
 PATHOLOGICAL INCINERATION
 TEMPERATURE LOG

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
10:00	1440	1610
10:09	1750	1630
10:24	1550	1620
10:26	1780	1780
10:36	1600	1610
10:45	1740	1610
10:50	1700	1790
10:59	1570	1610
11:16	1550	1610
11:28	1560	1610
11:49	1670	1640

Average Primary Temperature 1628 °F
 Average Secondary Temperature 1647 °F.

AUGUST 29, 1989
 PATHOLOGICAL INCINERATOR
 MATERIAL CHARGING LOG

LOAD NUMBER	TIME	TYPE WASTE NUMBER	CHARGE WEIGHT (LBS)	TOTAL WEIGHT (LBS)
1	13:30 PM	2	39	39
2	13:38 PM	2	36	75
3	13:46 PM	1	10	85
4	13:51 PM	2	34	119
5	14:03 PM	3	41	160
6	14:25 PM	3	30	190
7	14:28 PM	1	24	214
8		3	32	246

The above waste was being incinerated during the following test runs.

Run Number 4 Particulate
 Run Number 4 Carbon Monoxide

Testing Period 1:25 PM - 2:40 PM

AUGUST 29, 1989
PATHOLOGICAL INCINERATION
TEMPERATURE LOG

TIME	PRIMARY CHAMBER DEGREES (°F)	SECONDARY CHAMBER DEGREES (°F)
13:28	1600	1600
13:37	1730	1600
13:48	1810	1650
14:04	1580	1500
14:19	1580	1510
14:29	1710	1600
14:44	1560	1620

Average Primary Temperature 1653 °F.
Average Secondary Temperature 1583 °F.

SECTION VIII

EMISSION TEST RESULTS

TEST RESULTS:

PARTICULATE

RUN	DATE	ACTUAL EMISSIONS			ALLOWABLE EMISSIONS	
		GR/DSCF * @ 12% CO ₂	GR/DSCF ** @ 7% O ₂	LBS/HR	SUB. 8 GR/DSCF @ 12% CO ₂	SUB. 11 GR/DSCF @ 12% CO ₂
1	08-28-89	0.13	0.06	0.32	0.06	0.10
2	08-28-89	0.16 ***	0.08 ***	0.41	0.06	0.10
3	08-29-89	0.08	0.04	0.19	0.06	0.10
4	08-29-89	0.11	0.05	0.25	0.06	0.10

The above Subchapter 8 Particulate Allowable Emissions (GR/DSCF @ 12 % CO₂) is based upon the standards stated on Permit/Certificate P-40026, as filed under the New Jersey Administrative Code 7:27-8 "Permits".

The above Subchapter 11 Particulate Allowable Emissions (GR/DSCF @ 12 % CO₂) is prescribed by the New Jersey Administrative Code 7:27-11 "Incinerators".

* GR/DSCF at 12% CO₂ minus the CO₂ from the auxiliary fuel (front half and back half collect).

** GR/DSCF at 7% O₂ (front half collect only).

*** Particulate Run Number 2 was voided due to unacceptable isokinetic sampling rates.

HYDROCHLORIC ACID

RUN	DATE	ACTUAL EMISSIONS		
		PPMVD	PPMVD @ 7% O ₂	LBS/HR
1	08-24-89	187	689	1.48
2	08-24-89	VOID	VOID	VOID
3	08-25-89	175	533	1.48
4	08-25-89	144	403	1.27

Hydrochloric Acid is not listed as an air contaminant on Permit/Certificate Number P-40026, as filed under New Jersey Administrative Code 7:27-8 "Permits".

Note: The Hydrochloric Acid Run Number two (2) was voided due to an unacceptable post test leak check.

NITROGEN OXIDE

RUN	DATE	ACTUAL EMISSIONS		
		PPMVD	PPMVD @ 7% O ₂	LBS/HR
1	08-24-89	28.0	103	0.28
2	08-25-89	29.9	91	0.32
3	08-25-89	33.0	92	0.38

Note: Nitrogen Oxide is not listed as an air contaminant on Permit/Certificate Number P-40026, as filed under New Jersey Administrative Code 7:27-8 "Permits".

CARBON MONOXIDE

RUN	DATE	ACTUAL EMISSIONS		
		PPMVD	PPMVD @ 7% O ₂	LBS/HR
1	08-28-89	29.0	81.2	0.19
2	08-28-89	16.0	44.8	0.10
3	08-29-89	12.5	36.5	0.07
4	08-29-89	8.0	22.4	0.05

Note: Carbon Monoxide is not listed as an air contaminant on Permit/Certificate Number P-40026, as filed under New Jersey Administrative Code 7:27-8 "Permits".

TOTAL HYDROCARBONS (as Methane)

RUN	DATE	ACTUAL EMISSIONS		
		PPMVD	PPMVD @ 7% O ₂	LBS/HR
1	08-28-89	12.4	34.8	0.05
2	08-28-89	21.1	59.1	0.07
3	08-28-89	18.2	53.0	0.07

Note: Total Hydrocarbons (as Methane) is not listed as an air contaminant on Permit/Certificate Number P-40026, as filed under New Jersey Administrative Code 7:27-8 "Permits".

SECTION IX
CONCLUSIONS

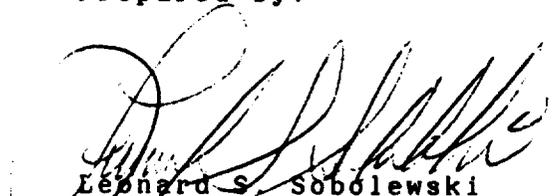
CONCLUSION:

The test results indicated that the Particulate emissions from the Pathological Incinerator (NJ Stack No. 002) exceeded the standards as stated on Permit/Certificate No. P-40026, as filed under New Jersey Administrative Code 7:27-8 "Permits", during all test runs.

The test results indicated that the Particulate emissions from the Pathological Incinerator (NJ Stack No. 002) exceeded that standards during Particulate Run Numbers 1 and 4 and was within the standards during Particulate Run Number 3 as prescribed by the New Jersey Administrative Code 727-11 "Incinerators".

The tests results also indicated that emissions of Nitrogen Oxide, Hydrochloric Acid, Total Hydrocarbons, and Carbon Monoxide are being emitted into the atmosphere and are not listed as air contaminants on Permit/Certificate Number P-40026, as filed under New Jersey Administrative Code 7:27-8 "Permits".

Stack Emissions Test Report
Prepared by:



Leonard S. Sobolewski
Supervising Environmental
Compliance Investigator
December 19, 1989

SECTION X

EMISSION TEST DATA SHEETS:

HAMILTON HOSPITAL
 APC PLANT ID NO.:060164
 PATHOLOGICAL INCINERATOR N.J. STACK NO: 002

HCL		RUN NO:1		TEST DATE: 08-24-89	
POINT	DELTA P (IN H2O)	DELTA H (IN H2O)	STACK TEMP (DEGREES F)	METER TEMP (DEGREES F)	
A- 1	0.090	1.76	862	86.0	
A- 2	0.102	1.98	871	88.0	
A- 3	0.119	2.25	922	88.5	
A- 4	0.097	1.85	896	89.5	
A- 5	0.060	1.23	800	90.5	
A- 6	0.040	0.08	800	90.5	
B- 1	0.095	1.80	891	89.0	
B- 2	0.105	1.99	890	89.5	
B- 3	0.113	2.17	880	90.0	
B- 4	0.103	1.98	879	91.0	
B- 5	0.075	1.47	857	93.0	
B- 6	0.046	0.80	857	92.0	
AVGS.=	0.085	1.61	867	89.8	

METER VOL= 43.731 (DACF) Pb= 30.02 (IN. Hg) ORSAT-CO2= 3.00 %
 Y-FACTOR= 1.01 Pst= -0.02 (IN. H2O) O2= 17.20 %
 NOZZLE DIAM.= .500 (INCHES) Cp= .8270 CO= 0.00 %
 H2O(COLLECTED)= 55.8 (mls) TEST TIME= 60 (MIN.) N2= 79.80 %

STACK DIAM= 21.0 (INCHES) STACK AREA= 2.41 (SQ. FT.)

Ps= 30.02 (IN. Hg) Pm= 30.14 (IN. Hg) MOISTURE= 5.85 %
 METER VOL= 42.465 (DSCF) Ms= 28.52 Us= 25.62 (FT/SEC)
 Gd= 0.99

ACFM= 3,697.2
 WSCFM= 1,481.4
 DSCFM= 1,394.7

CONCENTRATION- HCL= 187 (PPM-DRY)
 EMISSION RATE- HCL= 1.48 (LB/HR)

ADDITIONAL TESTS USING FLOW DATA FROM HCL RUN:1

 CONCENTRATION- NOx = 28 (PPM-DRY)
 EMISSION RATE- NOx = 0.28 (LB/HR)

HAMILTON HOSPITAL
 APC PLANT ID NO.:06164
 PATHOLOGICAL INCINERATOR N.J. STACK NO: 002

HCL		RUN NO:3	TEST DATE: 08-25-89	
POINT	DELTA P (IN H2O)	DELTA H (IN H2O)	STACK TEMP (DEGREES F)	METER TEMP (DEGREES F)
A- 1	0.106	1.85	862	77.5
A- 2	0.116	1.85	841	76.5
A- 3	0.130	1.85	850	77.5
A- 4	0.115	1.85	882	78.0
A- 5	0.085	1.85	780	79.0
A- 6	0.055	1.85	780	80.0
B- 1	0.094	1.85	858	80.5
B- 2	0.108	1.85	860	80.5
B- 3	0.131	1.85	900	81.5
B- 4	0.106	1.85	855	81.5
B- 5	0.079	1.85	810	81.5
B- 6	0.030	1.85	810	82.0
AVGS.=	0.093	1.85	841	79.7

METER VOL= 42.206 (DACF) Pb= 30.10 (IN. Hg) ORSAT-CO2= 3.60 %
 Y-FACTOR= 1.01 Pst= -0.02 (IN. H2O) O2= 16.40 %
 NOZZLE DIAM.= .500 (INCHES) Cp= .8270 CO= 0.00 %
 H2O(COLLECTED)= 44.7 (mls) TEST TIME= 60 (MIN.) N2= 80.00 %

STACK DIAM= 21.0 (INCHES) STACK AREA= 2.41 (SQ. FT.)

Ps= 30.10 (IN. Hg) Pm= 30.24 (IN. Hg) MOISTURE= 4.80 %
 METER VOL= 41.888 (DSCF) Ms= 28.70 Us= 26.48 (FT/SEC)
 Gd= 0.99

ACFM= 3,821.6
 WSCFM= 1,566.5
 DSCFM= 1,491.3

CONCENTRATION- HCL= 175 (PPM-DRY)
 EMISSION RATE- HCL= 1.48 (LB/HR)

ADDITIONAL TESTS USING FLOW DATA FROM HCL RUN:3

 CONCENTRATION- NOx- = 29.9 (PPM-DRY)
 EMISSION RATE- NOx- = 0.32 (LB/HR)

HAMILTON HOSPITAL
 APC PLANT ID NO.:060164
 PATHOLOGICAL INCINERATOR N.J. STACK NO: 002

HCL		RUN NO:4	TEST DATE: 08-25-89	
POINT	DELTA P (IN H2O)	DELTA H (IN H2O)	STACK TEMP (DEGREES F)	METER TEMP (DEGREES F)
A- 1	0.090	1.90	843	87.0
A- 2	0.077	1.90	478	89.0
A- 3	0.082	1.90	438	87.5
A- 4	0.072	1.90	434	87.5
A- 5	0.070	1.90	463	88.5
A- 6	0.063	1.90	463	88.5
B- 1	0.120	1.90	885	87.5
B- 2	0.129	1.90	868	87.5
B- 3	0.139	1.90	866	87.5
B- 4	0.122	1.90	883	86.0
B- 5	0.085	1.90	806	86.5
B- 6	0.056	1.90	806	88.0
AVGS.=	0.090	1.90	686	87.6

METER VOL= 44.012 (DACF) Pb= 30.10 (IN. Hg) ORSAT-CO2= 4.00 %
 Y-FACTOR= 1.01 Pst= -0.02 (IN. H2O) O2= 16.00 %
 NOZZLE DIAM.= .500 (INCHES) Cp= .8270 CO= 0.00 %
 H2O(COLLECTED)= 50.1 (mls) TEST TIME= 60 (MIN.) N2= 80.00 %

STACK DIAM= 21.0 (INCHES) STACK AREA= 2.41 (SQ. FT.)

Ps= 30.10 (IN. Hg) Pm= 30.24 (IN. Hg) MOISTURE= 5.22 %
 METER VOL= 43.054 (DSCF) Ms= 28.70 Us= 24.42 (FT/SEC)
 Gd= 0.99

ACFM= 3,523.5
 WSCFM= 1,639.2
 DSCFM= 1,553.7

CONCENTRATION- HCL= 144 (PPM-DRY)
 EMISSION RATE- HCL= 1.27 (LB/HR)

ADDITIONAL TESTS USING FLOW DATA FROM HCL RUN:4

 CONCENTRATION- NOx= = 33 (PPM-DRY)
 EMISSION RATE- NOx= = 0.37 (LB/HR)

HAMILTON HOSPITAL
 APC PLANT ID NO.:060164
 PATHOLOGICAL INCINERATOR N.J. STACK NO: 002

PARTICULATE		RUN NO:1	TEST DATE: 08-28-89	
POINT	DELTA P (IN H2O)	DELTA H (IN H2O)	STACK TEMP (DEGREES F)	METER TEMP (DEGREES F)
A- 1	0.104	2.16	795	79.5
A- 2	0.111	2.27	798	82.0
A- 3	0.130	2.66	797	85.0
A- 4	0.111	2.17	865	89.5
A- 5	0.083	1.70	780	93.5
A- 6	0.051	1.06	780	95.0
B- 1	0.070	2.05	418	94.0
B- 2	0.087	2.44	449	96.0
B- 3	0.083	2.43	422	97.0
B- 4	0.076	2.23	419	96.5
B- 5	0.106	2.30	704	97.0
B- 6	0.060	1.29	704	97.5

AVGS. =	0.088	2.06	661	91.9

METER VOL= 49.268 (DACF) Pb= 30.12 (IN. Hg) ORSAT-CO2= 4.00 %
 Y-FACTOR= 1.01 Pst= -0.02 (IN. H2O) O2= 16.00 %
 NOZZLE DIAM.= .500 (INCHES) Cp= .8270 CO= 0.20 %
 H2O(COLLECTED)= 67.4 (mls) TEST TIME= 60 (MIN.) N2= 79.80 %

STACK DIAM= 21.0 (INCHES) STACK AREA= 2.41 (SQ. FT.)

Ps= 30.12 (IN. Hg) Pm= 30.27 (IN. Hg) MOISTURE= 6.24 %
 METER VOL= 47.871 (DSCF) Ms= 28.58 Us= 23.87 (FT/SEC)
 Gd= 0.99 ISOKINETICS= 91.54 %

ACFM= 3,445.5
 WSCFM= 1,639.9
 DSCFM= 1,537.5

SAMPLE WT= .0752 (GRAMS)
 GRAINS/DSCF= 0.0242 (1574) .0202 (6007 half) GRAMS/DSCM= 0.0555
 GRAINS/WSCF= 0.0227 GRAMS/WSCM= 0.0520
 GRAINS/DSCF @ 12% CO2(MINUS AUX FUEL)= 0.1327
 GRAMS/DSCM @ 12% CO2(MINUS AUX FUEL)= 0.3037

PARTICULATE EMISSION RATE= ~~0.3194~~ (LB/HR)
 0.2662

ADDITIONAL TESTS USING FLOW DATA FROM PARTICULATE-RUN:1

 CONCENTRATION-HYDROCARBONS AS METHANE= 12.44 (PPM-DRY)
 EMISSION RATE-HYDROCARBONS AS METHANE= 0.0476 (LB/HR)

CONCENTRATION- CO= 29 (PPM-DRY)
 EMISSION RATE- CO= 0.19 (LB/HR)

HAMILTON HOSPITAL
 APC PLANT ID NO.:060164
 PATHOLOGICAL INCINERATOR N.J. STACK NO: 002

POINT	DELTA P (IN H2O)	DELTA H (IN H2O)	STACK TEMP (DEGREES F)	METER TEMP (DEGREES F)
A- 1	0.072	1.98	478	78.0
A- 2	0.075	2.10	465	79.5
A- 3	0.076	2.16	449	81.0
A- 4	0.065	1.86	443	82.5
A- 5	0.060	1.74	430	83.5
A- 6	0.048	1.38	440	85.0
B- 1	0.098	1.90	850	81.5
B- 2	0.120	2.35	865	83.0
B- 3	0.118	2.29	874	84.0
B- 4	0.111	2.17	860	86.0
B- 5	0.086	1.76	800	87.5
B- 6	0.067	1.45	725	93.5
AVGS.=	0.081	1.93	640	83.8

METER VOL= 47.436 (DACF) Pb= 30.06 (IN. Hg) ORSAT-CO2= 3.80 %
 Y-FACTOR= 1.01 Pst= -0.02 (IN. H2O) O2= 16.20 %
 NOZZLE DIAM.= .500 (INCHES) Cp= .8270 CO= 0.00 %
 H2O(COLLECTED)= 66.3 (mls) TEST TIME= 60 (MIN.) N2= 80.00 %

STACK DIAM= 21.0 (INCHES) STACK AREA= 2.41 (SQ. FT.)

Ps= 30.06 (IN. Hg) Pm= 30.20 (IN. Hg) MOISTURE= 6.30 %
 METER VOL= 46.672 (DSCF) Ms= 28.56 Us= 22.81 (FT/SEC)
 Gd= 0.99 ISOKINETICS= 91.91 %

ACFM= 3,291.3
 WSCFM= 1,593.3
 DSCFM= 1,493.0

SAMPLE WT= .0438 (GRAMS)
 GRAINS/DSCF= 0.0145 (TOTAL) .0119 (flow rate)
 GRAINS/WSCF= 0.0136
 GRAINS/DSCF @ 12% CO2(MINUS AUX FUEL)= 0.0804
 GRAMS/DSCM @ 12% CO2(MINUS AUX FUEL)= 0.1839
 GRAMS/DSCM= 0.0331
 GRAMS/WSCM= 0.0310

PARTICULATE EMISSION RATE= 0.1853 (LB/HR)
 0.1523

ADDITIONAL TESTS USING FLOW DATA FROM PARTICULATE RUN:3

 CONCENTRATION-HYDROCARBONS AS METHANE= 18.18 (PPM-DRY)
 EMISSION RATE-HYDROCARBONS AS METHANE= 0.0676 (LB/HR)

CONCENTRATION- CO= 12.5 (PPM-DRY)
 EMISSION RATE- CO= 0.08 (LB/HR)

HAMILTON HOSPITAL
 APC PLANT ID NO.: 060164
 PATHOLOGICAL INCINERATOR N.J. STACK NO: 002

PARTICULATE		RUN NO:4	TEST DATE: 08-29-89	
POINT	DELTA P (IN H2O)	DELTA H (IN H2O)	STACK TEMP (DEGREES F)	METER TEMP (DEGREES F)
A- 1	0.052	1.70	452	85.0
A- 2	0.056	1.89	446	85.5
A- 3	0.064	2.07	473	86.5
A- 4	0.084	2.00	828	88.0
A- 5	0.110	2.54	865	89.0
A- 6	0.074	1.70	865	89.0
B- 1	0.064	1.50	817	86.0
B- 2	0.098	2.26	863	86.0
B- 3	0.112	2.55	875	85.0
B- 4	0.102	2.47	800	86.5
B- 5	0.097	2.30	816	88.0
B- 6	0.036	0.86	816	89.0
AVGS. =	0.077	1.99	743	87.0

METER VOL= 48.879 (DACF) Pb= 30.06 (IN. Hg) ORSAT-CO2= 4.00 %
 Y-FACTOR= 1.01 Pst= -0.02 (IN. H2O) O2= 16.00 %
 NOZZLE DIAM.= .500 (INCHES) Cp= .8270 CO= 0.00 %
 H2O(COLLECTED)= 69.1 (mls) TEST TIME= 60 (MIN.) N2= 80.00 %

STACK DIAM= 21.0 (INCHES) STACK AREA= 2.41 (SQ. FT.)

Ps= 30.06 (IN. Hg) Pm= 30.21 (IN. Hg) MOISTURE= 6.40 %
 METER VOL= 47.816 (DSCF) Ms= 28.57 Us= 23.20 (FT/SEC)
 Gd= 0.99 ISOKINETICS= 101.34 %

ACFM= 3,348.3
 WSCFM= 1,482.0
 DSCFM= 1,387.2

SAMPLE WT= .0659 (GRAMS)
 GRAINS/DSCF= 0.0213 (total) .0176 (front half) GRAMS/DSCM= 0.0487
 GRAINS/WSCF= 0.0199 GRAMS/WSCM= 0.0455
 GRAINS/DSCF @ 12% CO2(MINUS AUX FUEL)= 0.1121
 GRAMS/DSCM @ 12% CO2(MINUS AUX FUEL)= 0.2566

PARTICULATE EMISSION RATE= 0.2528 (LB/HR)
 .2093 (front half)

ADDITIONAL TESTS USING FLOW DATA FROM PARTICULATE RUN:4

 CONCENTRATION- CO= 8 (PPM-DRY)
 EMISSION RATE- CO= 0.05 (LB/HR)

SECTION XI
LABORATORY RESULTS

Let's protect our earth



Anthony J. McMahon
Acting Director

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
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Eric Rau, Ph.D., Assistant Director
Laboratories and Quality Assurance

MEMORANDUM

TO: Edward Choromanski, Chief
Bureau of Technical Services

FROM: Henry Smith, Supervisor
Source Compliance Laboratory

SUBJECT: Hamilton Hospital Incinerator Tests

DATE: October 23, 1989

I have enclosed laboratory results on Particulate matter, Nitrogen Dioxide, Hydrogen Chloride and Carbon Monoxide runs.

Please see Bob Reinowski, Bureau of Organic Analytical Services (BOAS), Quality Assurance Officer, for Compliance sample results.

c: Jay Quimby
Leonard Sobolewski

Left printed records



Anthony J. McMahon
Acting Director

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Eric Rau, Ph.D., Assistant Director
Laboratories and Quality Assurance

Source Test
N.J. Department of Environmental Protection
HCL, Orsat Analyses
Summary

Company: Hamilton Hospital
Location: Trenton
N.J. Stack Number: 002
Stack Designation: Incinerator
Applicable Subchapter: 11
I.D. Number: 60164
Date Received: 8-28-89
Report Date: 10-23-89
Number of Test Runs 3

Hydrogen Chloride

	<u>Run 1</u>	<u>Run 3</u>	<u>Run 4</u>
<u>Field Data</u>			
Barometric Pressure (Hg")	30.020	30.100	30.100
Avg. Meter Pressure (H ₂ O")	1.620	1.890	2.060
Meter Volume (ft ³)	43.731	42.206	44.012
Avg. Meter Temp. (°F)	89.800	79.700	87.500

	<u>Run 1</u>	<u>Run 3</u>	<u>Run 4</u>
<u>Analytical Data</u>			
Total Volume of sample (ml)	1000	1000	1000
Aliquot of sample (ml)	10	10	10
Volume of prepared sample (ml)	250	250	250
Sample response (pk. hgt.)	23926	21911	18174

Slope = 0.0005
Y-Intercept = 1.2622
Correlation Coeff. = 0.9976

Results

	<u>Run 1</u>	<u>Run 3</u>	<u>Run 4</u>
Sample Conc., HCL (ppm)	187	175	144

Results

<u>Orsat</u>	<u>Run 1</u>	<u>Run 3</u>	<u>Run 4</u>
CO ₂ %	3.0	3.6	4.0
O ₂ %	17.2	16.4	16.0
CO%	0.0	0.0	0.0
N ₂ %	79.8	80.0	80.0
Drierite, Water (gm)	13.8	14.7	16.1

c: Jay Quimby
Leonard Sobolewski



Anthony J. McMahon
Acting Director

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Eric Rau, Ph.D., Assistant Director
Laboratories and Quality Assurance

Source Test
N.J. Department of Environmental Protection
NO₂, CO Analyses
Summary

Company: Hamilton Hospital	I.D. Number: 60164
Location: Trenton	Date Received: 8-28-89
N.J. Stack Number: 002	Report Date: 10-23-89
Stack Designation: Incinerator	Number of Test Runs: 3
Applicable Subchapter: 11	NO ₂ results on dry basis

Nitrogen Dioxide

<u>Field Data</u>	<u>Run 1</u>	<u>Run 3</u>	<u>Run 4</u>
Barometric Pressure (Hg")	30.020	30.100	30.100
Avg. Meter Pressure (H ₂ O")	1.250	1.200	1.200
Meter Volume (LTR'g)	29.360	26.820	25.952
Avg. Meter Temp. (°F)	96.800	90.400	89.200

<u>Analytical Data</u>	<u>Run 1</u>	<u>Run 3</u>	<u>Run 4</u>
Total Volume of KMNO ₄ /NAOH	1000	1000	1000
Aliquot of KMNO ₄ /NAOH solution (ml)	50	50	50
Volume of prepared sample (ml)	250	250	250
Sample Response (pk. hgt)	166	164	176

slope = 0.0018
Y-Intercept = 0.0016
Correlation Coeff. = 1.000

Results

	<u>EPA Conc.</u>	<u>Measured Conc.</u>
NO ₂ Audit Sample, Difference from EPA value = 1.45%	125.1mg DSCM	123.28mg DSCM

	<u>Run 1</u>	<u>Run 3</u>	<u>Run 4</u>
Sample Conc., NO ₂ (ppm)	28	29.9	33

Carbon Monoxide

Instrumentation: Beckman
NDIR Analyzer

Calibration: 0-100 ppm

range spanned with
81 ppm CO

	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>	<u>Run 4</u>
Sample Conc., CO (ppm)	29	16	12.5	8

c: Jay Quimby
Leonard Sobolewski

SOURCE TEST
N.J. DEPT ENV PROT
PARTICULATE ANALYSIS
SUMMARY

COMPANY: HAMILTON HOSPITAL
LOCATION HAMILTON TOWNSHIP
NJ#: 002
STACK DES: PATHOLOGICAL INCINERATOR
APPLIABLE SUBCHAPTER: 11

ID # 60164
DATE REC: 8/29/89
REP DATE: 10/5/89

TEST RUNS: 4
RESULTS ON DRY BASIS

DATA

		RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
part filter	gm	0.0460	0.0578	0.0246	0.0411		
part acetone	gm	0.0176	0.0216	0.0118	0.0140		
water desc	gm	15.4000	11.8000	12.3000	13.1000		
acetone blk	gm	0.0004	0.0004	0.0004	0.0004		
init. imp vol	ml	0.0000	0.0000	0.0000	0.0000		
final imp vol	ml	0.0000	0.0000	0.0000	0.0000		
acetone vol	ml	190.0000	170.0000	130.0000	150.0000		
blank vol	ml	100.0000	100.0000	100.0000	100.0000		
imp part	gm	0.0016	0.0006	0.0005	0.0006		
org part	gm	0.0010	0.0038	0.0000	0.0038		
inorg resid	gm	0.0078	0.0104	0.0070	0.0068		

RESULTS

acetone reed	gm	0.0008	0.0007	0.0005	0.0006		
adj part acet	gm	0.0168	0.0209	0.0113	0.0134		
total part	gm	0.0252	0.0925	0.0438	0.0659		
total water	gm	15.4000	11.8000	12.3000	13.1000		
		.0628	.0787	.0359	.0545		

ORGANIC RESULTS

Z002	4.0000	4.0000	3.8000	4.0000
Z02	16.0000	16.0000	16.2000	16.0000
Z00	0.2000	0.2000	0.0000	0.0000
Z02	79.8000	79.8000	80.0000	80.0000

SIGNATURE _____

Henry Smith



Anthony J. McMahon
Acting Director

State of New Jersey
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Eric Rau, Ph.D., Assistant Director
Laboratories and Quality Assurance

October 18, 1989

MEMORANDUM

TO: Henry Smith
FROM: Randy Barbiero
SUBJECT: Total Hydrocarbon Analysis from Hamilton Hospital
Pathological Incinerator #002

The results from the total hydrocarbon gas bag analyses by Tom LaFisca (reported as methane and non-methane) are reported below.

Run#	Methane THC ppm (V/V) \bar{x}	Non-Methane THC ppm (V/V) \bar{x}
1A	12.95	11.61
1B	12.37	10.87
1C	12.01	10.67
		11.05
2A	19.65	18.08
2B	20.25	18.69
2C	23.41	21.74
		19.50
3A	17.86	16.30
3B	19.77	18.13
3C	16.90	15.26
		16.56

The % Relative Standard Deviation for Run 1, Methane THC, is 3.81.
" " " " Non-Methane THC, is 4.48.
" " " " Run 2, Methane THC, is 9.57.
" " " " Non-Methane THC, is 10.06
" " " " Run 3, Methane THC, is 8.04.
" " " " Non-Methane THC, is 8.77.

Randy Barbiero

Randy