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.

AP42 Section:	12.2
Reference:	11
Title:	Coke Oven Gas Study Performed for Bethlehem Steel Corporation, Mostardi-Platt Associates, Inc., December 1992.

#11

COKE OVEN GAS STUDY
PERFORMED FOR
BETHLEHEM STEEL CORPORATION
AT THE
BURNS HARBOR, INDIANA FACILITY
BURNS HARBOR, INDIANA
DECEMBER 18, 1992

TABLE OF CONTENTS

Page

CERTIFICATION SHEET i

1.0 INTRODUCTION 1

2.0 SUMMARY OF RESULTS 1

3.0 TEST METHODOLOGY 2
- 3.1 Combined Sampling Train 3
- 3.2 Acid Sampling Train 4
- 3.3 Organic Sampling Train 4
- 3.4 Major Components and Sulfur Analyses 5
- 3.5 Knockout Pot Analysis 5

4.0 QUALITY ASSURANCE PROCEDURES 5

5.0 DISCUSSION OF RESULTS 6

6.0 ACKNOWLEDGMENTS 6

APPENDIX
- Sampling Train Diagram 15
- Calculation Nomenclature and Formula 16
- Test Data and Results (Computerized) 20
- Calibration Data 80
- Field Data Sheets 84
- Laboratory Data 89

CERTIFICATION SHEET

Having supervised and worked on the test program described in this report, and having written this report, I hereby certify the data, information, and results in this report to be accurate and true according to the methods and procedures used.

MOSTARDI-PLATT ASSOCIATES, INC.

Richard J. Trzupek
Senior Project Engineer

COKE OVEN GAS STUDY
Performed For
BETHLEHEM STEEL CORPORATION
At The
Burns Harbor, Indiana Facility
Burns Harbor, Indiana
December 18, 1992

1.0 INTRODUCTION

A coke oven gas study was performed by MOSTARDI-PLATT ASSOCIATES, INC. (MPA) on the coke oven gas stream at the coke oven battery at the Burns Harbor, Indiana facility in Burns Harbor, Indiana on December 18, 1992. The tests were authorized by and performed for Bethlehem Steel Corporation.

The purpose of this test program was to determine the concentrations of any potential Hazardous Air Pollutants (HAPs) in the raw coke oven gas stream at the coke oven battery. Samples were taken from the exhausts of three coke ovens, prior to any treatment, during the first hour following the charging of each oven.

The tests were conducted by Messrs. M. Simmons, S. Burton, C. Trezak, and R. Trzupek of MPA. Mr. W. Itell of Bethlehem Steel provided assistance and coordinated plant operating conditions during the test program.

2.0 SUMMARY OF RESULTS

Light hydrocarbon concentrations (C_1 to C_4) as well as oxygen, nitrogen, hydrogen, carbon monoxide, and carbon dioxide concentrations were determined using glass sampling bombs. The results are listed on Table 1, found on page 7.

Ammonia and acid (hydrogen cyanide, hydrogen chloride, hydrogen fluoride, nitric acid, phosphoric acid, sulfuric acid, and sulfur dioxide) emissions were determined using a modified USEPA Method 4 sampling train. Results are listed on Table 2, found on page 8.

Metals (arsenic, mercury, and selenium were detected) emissions were determined using a modified USEPA Method 4 sampling train. Results are listed on Table 3, found on page 9.

 © Mostardi-Platt Associates, Inc.

Emission rates are presented (in lbs/hr of pollutant) and are based on 1000 scfm of coke oven gas exhaust. The actual emission rate can be calculated by multiplying the emission rate listed by the actual exhaust rate and dividing by 1000.

Semi-volatile organic emissions were determined using a specialized sampling train. The results are listed on Tables 3A through 3C, beginning on page 10.

Benzene, toluene, xylene, naphthalene, and other volatile organic emissions C_5 and larger were collected in glass sampling bombs. Their concentrations and emission rates are found on Table 5 on page 13.

3.0 TEST METHODOLOGY

Three 90-minute tests were conducted to determine the concentrations of various species in the coke oven gas stream in the coke battery. Where appropriate methods are available, USEPA procedures, as defined in 40CFR, Part 60, Appendix A, were used.

The following sampling and analytical methods were used for the constituents in question.

Analyte	Sampling Method	Analytical Method
H_2S, COS, CS_2 and other sulfur species	Glass sampling bombs	GC/FPD
SO_2	USEPA Method 6	USEPA Method 6
H_2O, NH_3, Inorganic Acids and Metals	Modified USEPA Method 4 Sampling Train	NH_3: Indophenol Method (colorimetric) Acids: Ion Chromatography Metals: Inductively Coupled Argon Plasma Spectroscopy
O_2, N_2, H_2, CO, CO_2	Glass Sampling Bombs	GC/TCD
$C_1 \rightarrow C_4$ Hydrocarbons	Glass Sampling Bombs (USEPA Method 18)	GC/FID
BTX, Naphthalene, C_5+	Tenax and XAD-2 Tubes and Water Impingent (USEPA Method 18)	GC/MS

Ammonia sampling and analytical methods were taken from Methods of Air Sampling and Analysis, James P. Lodge, Editor, 1989, Lewis Publishers, Inc. Samples were collected in O.1N H_2SO_4. The cyanide analytical method was taken from the USEPA Handbook for the Analysis of Solid Waste, Third Edition (SW-846).

Volatile organic compounds to be determined included benzene, toluene, xylene, napthaline as well as the other five peaks to show up in the GC/MS analysis.

3.1 Combined Sampling Train

In order to accurately measure any potential Hazardous Air Pollutants (HAPs) which might be present, a specialized combined sampling train was designed and utilized. The sampling train consisted of the following components:

1) A ½" O.D. stainless steel sampling probe.

2) A ten gallon (nominal) capacity stainless steel "knockout" pot, filled with approximately two liters of deionized, distilled water. This knockout was placed in an ice bath and served as a dropout for the heavy tars and oils which make up a large portion of the coke oven gas.

3) An air-powered, Teflon headed, sampling pump which provided the motive force for sampling.

4) One portion of the pump exhaust was diverted through the acid sampling train described below.

5) One portion of the pump exhaust was diverted through the organic sampling train described below.

6) One portion of the sampling train was diverted through the major components sampling train described below.

At the conclusion of each test run, the contents of the knockout pot were recovered and the interior surfaces of the knockout and probe were ringed thoroughly with a 50:50 mixture of HPLC grade methylene chloride:methanol. The recovered aqueous and inorganic fractions were stored in Teflon capped amber glass jars. All jars were filled completely, with no head space and were stored on ice until analyzed.

 © Mostardi-Platt Associates, Inc.

3.2 Acid Sampling Train

Inorganic acidic emissions were collected in a sampling train which consisted of the following components:

1) Two glass midget impingers charged with 20 ml (nominal) of 5M NaOH.

2) Two glass midget impingers charged with 20 ml (nominal) of O.1N H_2SO_4.

3) A silica gel impinger to remove moisture.

4) A calibrated gas meter to measure the volume of gas sampled.

Sampling was conducted for one hour at a target sampling rate of 0.1 cfm. The contents of impingers one and two were recovered and stored, along with deionized, distilled water rinsings of the impingers, in an amber glass bottle. The contents of impingers three and four were similarly recovered and stored in another glass sample bottle.

The contents of all impingers were analyzed for metals content by Inductively Coupled Argon Plasma Spectroscopy (ICP) by Great Lakes Analytical Laboratories of Buffalo Grove, Illinois.

The contents of all impingers were also analyzed for inorganic acids (HCN, HCR, HF, HNO_3, H_3PO_4 and H_2SO_4) by Ion Chromatography (IC) by TEI Analytical of Niles, Illinois.

The contents of all impingers were also analyzed for NH_3 by the indophenol method at MPA's Elmhurst laboratories.

3.3 Organic Sampling Train

Organic emissions were collected in a sampling train consisting of the following components:

1) Two glass midget impingers filled with 20 ml (nominal) of distilled, deionized water and one empty glass midget impinger.

2) An OSHA type XAD-2 sampling tube, connected to the outlet of the empty midget impinger by a short section of Teflon tubing.

3) An OSHA type Tenax sampling tube, connected to the outlet at the XAD-2 tube by a short section of Teflon tubing.

4) A calibrated gas meter to measure the volume of gas sampled.

 © Mostardi-Platt Associates, Inc.

Sampling was conducted for one hour at a target sampling rate of 0.1 cfm. The contents of the impingers were recovered and stored, along with 50:50 methylene chloride:methanol rinsings of these impingers, in amber glass sample bottles fitted with Teflon-lined caps. Each bottle was filled completely, with no head space, and stored on ice.

The sampling tubes were capped and labeled and stored on ice prior to analysis.

All sample fractions were analyzed by GC/MS by Air Toxics Ltd. of Rancho Cordova, California and Great Lakes Analytical of Buffalo Grove, Illinois.

3.4 Major Components and Sulfur Analyses

Major gaseous components and sulfur bearing constituents of the gas stream were collected in glass sampling bombs. Each bomb was purged for approximately one minute before sampling.

The contents of each bomb were analyzed for major components by chromatography/thermal conductivity detection (GC/TCP) by IGT Laboratories of Chicago, Illinois.

The contents of each bomb were also analyzed for volatile sulfur bearing components by gas chromatography/flame photometric detection (GC/FPD) by IGT Laboratories of Chicago, Illinois.

3.5 Knockout Pot Analysis

The recovered aqueous fraction of the knockout pot was analyzed for metals content by ICP procedures described earlier. The organic fraction was also analyzed by the GC/MS procedures described earlier.

4.0 QUALITY ASSURANCE PROCEDURES

MPA recognizes the previously described reference methods to be very technique oriented and attempts to minimize all factors which can increase error by implementing its Quality Assurance Program into every segment of its testing activities.

Dry test meters and wet test meters were calibrated according to methods described in the Quality Assurance Handbook, Sections 3.3.2., 3.4.2 and 3.5.2. Percent error for the wet test meter according to the methods was less than the allowable error of 1.0 percent. The dry test meters measured the test sample volumes to within 2 percent at the flowrate and conditions encountered during sampling.

Raw data will be kept on file at the MPA offices in Elmhurst, Illinois. All samples from this test program, not used for analysis, will be retained for 60 days after the submittal of the report, after which they will be discarded unless MPA is advised otherwise.

5.0 DISCUSSION OF RESULTS

Coke oven operation appeared normal and no special upsets appeared to occur during any sampling period. Sampling commenced soon after the departure of the charging car from each oven (approximately five minutes after the charge was complete).

Due to sample train problems, the samples from the run 2 acid/NH_3 impingers were lost before analysis. No test data is presented for these components for this run. Similarly, the major components sample for test run 1 were lost prior to analysis. Test data presented for these components for test run 1 is an average of runs 2 and 3.

6.0 ACKNOWLEDGMENTS

MOSTARDI-PLATT ASSOCIATES, INC. would like to thank all personnel involved in this project for their assistance in completing this test program, especially Mr. W. Itell of Bethlehem Steel Corporation.

Respectfully submitted,

MOSTARDI-PLATT ASSOCIATES, INC.

Richard J. Trzupek
Senior Project Engineer

RJT/hw

TABLE 1
Major Components

Plant: Bethlehem Steel Corporation
Source: Coke Oven Exhaust
Date: August 18, 1992

Compound	Run 1	Run 2	Run 3
Methane, % (v/v)	29.2	27.7	30.6
Ethane, % (v/v)	1.22	1.26	1.18
Ethene, % (v/v)	3.47	3.11	3.82
Acetylene, ppmv	950	890	990
Propane, ppmv	410	410	400
Propene, ppmv	2070	2020	2110
Propyne, ppmv	100	80	120
Propadiene, ppmv	10	30	ND
n-Butane, ppmv	20	40	ND
Iso Butene, ppmv	140	150	120
Trans Butene, ppmv	20	30	ND
Butadiene, ppmv	240	230	250
Oxygen, % (v/v)	2.74	2.91	2.57
Hydrogen, % (v/v)	45.1	42.6	47.5
Carbon Monoxide, % (v/v)	4.27	4.13	4.41
Carbon Dioxide, % (v/v)	1.35	1.29	1.39
Nitrogen, % (v/v)	9.13	15.9	2.36
Hydrogen Sulfide	373	<1	745
Carbonyl Sulfide	21	19	40
Carbon Disulfide	23	24	22
Methyl Mercaptan	3	<1	4
Thiophenes	47	49	44

TABLE 2
Ammonia and Acid Emissions

Plant: Bethlehem Steel Corporation
Source: Coke Battery
Date: December 18, 1992

Compound	Run 1	Run 2	Run 3	Average
HCN, ppmv lbs/hr	6.32 2.65	Lost in Transport	1719 7.22	1175 4.90
HCl, ppmv lbs/hr	18.9 0.11	Lost in Transport	41.6 0.24	30.3 0.20
HF, ppmv lbs/hr	0.6 0.002	Lost in Transport	<0.2 <0.001	0.4 0.001
HNO_3, ppmv lbs/hr	<1.4 <0.014	Lost in Transport	<1.6 <0.016	1.5 0.015
H_3PO_4, ppmv lbs/hr	<1.8 <0.028	Lost in Transport	<2 <0.031	1.9 0.029
H_2SO_4 and SO_2, ppmv lbs/hr	9.1 0.139	Lost in Transport	12.3 0.188	10.7 0.164
NH_3, ppmv lbs/hr	1250 3.31	Lost in Transport	1998 5.29	1624 4.30

TABLE 3
Metals Emissions

Plant: Bethlehem Steel Corporation
Source: Coke Battery
Date: December 18, 1992

Compound	Run 1	Run 2	Run 3	Average
Arsenic, ug/dscm	15.92	11.62	11.79	13.11
lbs/hr	5.97×10^{-5}	4.35×10^{-5}	4.42×10^{-5}	4.91×10^{-5}
Mercury, ug/dscm	29.64	ND	ND	9.89
lbs/hr	1.11×10^{-4}	ND	ND	3.70×10^{-5}
Selenium, ug/dscm	23.91	10.85	17.49	17.42
lbs/hr	8.96×10^{-5}	4.06×10^{-5}	6.55×10^{-5}	6.53×10^{-5}

TABLE 3a
Semi Volatile Organic Emissions

Plant: Bethlehem Steel Corporation
Source: Coke Battery
Date: December 18, 1992

Compound	Run 1	Run 2	Run 3	Average
Acenphtene, ppmv	0.01	<0.02	<0.01	<0.01
lbs/hr	<0.001	<0.001	<0.001	<0.001
Acenapthylene, ppmv	0.46	0.23	0.36	0.35
lbs/hr	0.011	0.005	0.009	0.008
Antracene, ppmv	0.20	<0.02	0.16	0.13
lbs/hr	0.005	<0.001	0.004	0.003
Benzofluoathene, ppmv	0.01	<0.01	<0.01	<0.01
lbs/hr	<0.001	<0.01	<0.01	<0.01
Benzofuran, ppmv	1.3	<0.01	<0.01	0.5
lbs/hr	0.024	<0.001	<0.001	0.015
Benzopyrene, ppmv	0.01	<0.01	0.04	<0.02
lbs/hr	<0.001	<0.001	0.001	<0.001
Benzonitrile, ppmv	0.5	0.6	0.3	0.5
lbs/hr	0.008	0.010	0.004	0.007
Benzothiophene, ppmv	0.1	19.2	12.9	10.7
lbs/hr	0.002	0.399	0.268	0.223
Chyrsene, ppmv	0.02	<0.02	<0.01	<0.02
lbs/hr	0.001	<0.001	<0.001	<0.001
Cyclooctatetraene, ppmv	3.6	<0.6	<0.3	<1.5
lbs/hr	0.058	<0.010	<0.004	<0.024
Dibenzofuran, ppmv	0.12	0.05	0.10	0.09
lbs/hr	0.003	0.001	0.002	0.002

TABLE 3b
Semi Volatile Organic Emissions

Plant: Bethlehem Steel Corporation
Source: Coke Battery
Date: December 18, 1992

Compound	Run 1	Run 2	Run 3	Average
Dimethyl benzene, ppmv	0.08	<0.03	<0.02	<0.01
lbs/hr	0.001	<0.001	<0.001	<0.001
Dimethyl Phenol, ppmv	0.09	0.10	0.18	0.13
lbs/hr	0.002	0.002	0.003	0.002
Ethyl Methylbenzene, ppmv	2	25	32	19.5
lbs/hr	0.038	0.459	0.596	0.365
Fluorathene, ppmv	0.06	0.03	0.05	0.05
lbs/hr	0.002	0.001	0.001	0.001
Fuorene, ppmv	0.29	0.16	0.23	0.23
lbs/hr	0.008	0.004	0.006	0.006
Hexanoic Acid Diocty Ester				
ppmv	0.07	0.11	0.48	0.22
lbs/hr	0.002	0.003	0.014	0.006
Isocyano, 2 Methyl Benzene				
ppmv	<0.04	<0.05	0.06	<0.05
lbs/hr	<0.001	<0.001	0.001	<0.001
Methyl Napthalenes, ppmv	0.99	2.80	1.87	1.88
lbs/hr	0.019	0.064	0.046	0.046
2 Methyl Phenol, ppmv	0.58	0.96	1.12	0.85
lbs/hr	0.009	0.016	0.018	0.014
4 Methyl Phenol, ppmv	0.35	2.21	3.65	2.04
lbs/hr	0.006	0.037	0.060	0.034
Napthalene, ppmv	20.9	37.3	31.8	30.0
lbs/hr	0.415	0.743	0.638	0.596

TABLE 3c
Semi Volatile Organic Emissions

Plant: Bethlehem Steel Corporation
Source: Coke Battery
Date: December 18, 1992

Compound	Run 1	Run 2	Run 3	Average
Phenathrene, ppmv	0.17	0.02	0.10	0.10
lbs/hr	0.005	0.001	0.003	0.003
Phenol, ppmv	12.2	5.80	11.5	9.87
lbs/hr	0.178	0.085	0.169	0.144
Propanenitrile, ppmv	0.09	0.08	0.34	0.17
lbs/hr	0.001	0.001	0.004	0.002
Propynyl Benzene, ppmv	0.44	0.18	0.12	0.11
lbs/hr	0.007	0.003	0.004	0.004
Pyrene, ppmv	0.12	0.10	0.12	0.11
lbs/hr	0.004	0.003	0.004	0.004
Pyridine, ppmv	0.57	1.67	7.94	3.39
lbs/hr	0.008	0.021	0.098	0.042
Toluene, ppmv	0.27	0.21	0.41	0.30
lbs/hr	0.004	0.003	0.006	0.004
Trimethylbenzene, ppmv	1.1	0.5	0.2	0.6
lbs/hr	0.020	0.010	0.004	0.011

 © Mostardi-Platt Associates, Inc.

TABLE 4
Volatile Organic Emissions

Plant: Bethlehem Steel Corporation
Source: Coke Battery
Date: December 18, 1992

Compound	Run 1	Run 2	Run 3	Average
Azulene, ppmv	<0.1	25	<0.2	<8.3
lbs/hr	<0.002	0.489	<0.004	<0.165
Benzene, ppmv	297	72	667	345
lbs/hr	3.60	0.869	8.09	4.19
Ethylbenzene, ppmv	<0.2	19.4	<0.6	<6.8
lbs/hr	<0.004	0.32	<0.008	<0.111
Ethylmethylbenzene, ppmv	<0.2	23.2	<0.4	<7.9
lbs/hr	<0.004	0.434	<0.008	<0.149
Methylethylbenzene, ppmv	28.5	47.6	34.4	36.9
lbs/hr	0.462	0.780	0.558	0.600
Thiophene, ppmv	<0.2	10.7	<0.3	<3.7
lbs/hr	<0.002	0.140	<0.004	<0.049
Toluene, ppmv	238	77	289	201
lbs/hr	3.402	1.098	4.132	2.877
Trimethylbenzene, ppmv	11.3	18.7	11.2	13.7
lbs/hr	0.210	0.349	0.209	0.256
Xylenes, ppmv	122	105	161	129
lbs/hr	2.021	1.727	2.654	2.134

APPENDIX

SUMMARY OF RESULTS CALCULATIONS

$$Vm\ (std) = 17.64 \times Vm \times \left[\frac{P_b + \frac{\Delta H}{13.6}}{(460 + Tm)}\right] \times Yd$$

$$Vw\ (std) = 0.0471 \times Vlc$$

Vlc = water + silica net

$$Bwo = \frac{Vw\ (std)}{[(Vw\ (std) + Vm\ (std)]}$$

$$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + [0.28 \times (100 - \%CO_2 - \%O_2)]$$

$$Ms = Md \times (1 - Bwo) + (18 \times Bwo)$$

$$Vs = \sqrt{\frac{(Ts + 460)}{Ms \times Ps}} \times \sqrt{\Delta P} \times Cp \times 85.49$$

Cp = pitot tube correction factor

Ps = absolute flue gas pressure

$$Acfm = Vs \times Area\ (of\ stack\ or\ duct) \times 60$$

$$Dscfm = Acfm \times 17.64 \times \left[\frac{Ps}{(460 + Ts)}\right] \times (1 - Bwo)$$

AMMONIA CALCULATION FORMULAE

$$NH_3\text{-mg-l} = (NH_3 \text{ conc})\ (Vs)$$

$$NH_3\text{-mg-os} = (NH_3 \text{ conc})\ (1.2143)\ (Vs)$$

$$NH_3\text{-mg-t} = \sum_{i=1}^{n} NH_3\text{-mg}$$

$$NH_3 \text{ ppm} = \left(\frac{NH_3\text{-mg-t}}{Vmstd}\right) \frac{(2.205)\ (386)}{(17)}$$

Where:

n	=	Number of impingers applicable for specific run
NH_3 conc	=	Ammonia concentration, determined analytically in mg/l
NH_3-mg-l	=	Mass of ammonia in impinger, analyzed at MPA labs, in mg
NH_3-mg-s	=	Mass of ammonia in impinger, analyzed on-site, in mg
NH_3 ppm	=	Concentration of ammonia for applicable run, parts per million volume basis
NH_3-mg-t	=	Mass of ammonia, total of all impingers for applicable run, in mg
Vmstd	=	Volume of gas samples measured by dry gas meter, corrected to standard conditions, dscf
Vs	=	Volume of liquid collected in impinger, plus rinsings and original solution, ml
1.2143	=	Conversion factor, molecular weight of ammonia/molecular weight of nitrogen
2.205	=	Conversion factor, mg/dscf to lbs/dscf
17	=	Molecular weight of ammonia, lbs/lb-mole
386	=	Molecular volume, at standard conditions, dscf/mole

ORGANIC EMISSIONS CALCULATIONS

$$\text{lbs sampled} = \mu\text{gm of compound detected} \times 10^{-6}\ \mu\text{g/gm} \times 2.2046 \times 10^{-3}\ \text{lb/gm}$$

$$\text{lbs/dscf} = \text{lbs sampled/dscf sampled during test}$$

$$\text{ppm} = \frac{\text{lbs/dscf}}{\dfrac{\text{(molecular weight of compound)}}{\text{(385 dscf/lb-mole)} \times 10^{6}}\ \text{lb/lb-mole}}$$

$$\text{lbs/hr} = \text{lbs/dscf} \times \text{dscf/hr}$$

Assuming standard conditions of 68°F and 29.92 inches Hg.

METAL SAMPLE CALCULATION

Concentration

$$\frac{ug}{m^3} = \frac{\text{ug of sample}}{\text{dscf volume sampled} \times 0.02832 \ \frac{m^3}{ft^3}}$$

Emission Rate

$$\frac{\text{ug of sample} \times \frac{1 \times 10^{-6} \text{grams}}{\text{ug}}}{453.6 \text{ gr/lb}} = \text{lbs of sample}$$

$$\frac{\text{lbs/sample}}{\text{Vm (std) sample}} \times \text{dscfm} \times 60 \ \frac{\text{min}}{\text{hr}} = \text{lbs/hr}$$

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Acenphthene			
Molecular Weight (lb/lb-mole)	154			
ug/ml of analyte	35	20	20	25.00
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Acenphthene Concentratio (ppmv)	0.01	0.02	0.01	0.01
Acenphthene Emission Rat (lbs/hr)	0.000	0.001	0.000	0.000

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Acenaphthylene			
Molecular Weight (lb/lb-mole)	152			
ug/ml of analyte	1200	200	600	666.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Acenaphthylene Concentrat (ppmv)	0.46	0.23	0.36	0.35
Acenaphthylene Emission (lbs/hr)	0.011	0.005	0.009	0.008

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Antracene			
Molecular Weight (lb/lb-mole)	178			
ug/ml of analyte	600	20	310	310.00
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Antracene Concentration (ppmv)	0.2	0.02	0.16	0.13
Antracene Emission Rate (lbs/hr)	0.005	0.001	0.004	0.003

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Benzofluoanthene			
Molecular Weight (lb/lb-mole)	252			
ug/ml of analyte	52	20	20	30.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Benzofluoanthene Concent (ppmv)	0.01	0.01	0.01	0.01
Benzofluoanthene Emissio (lbs/hr)	0.000	0.001	0.000	0.000

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Benzofuran			
Molecular Weight (lb/lb-mole)	118			
Total ug of analyte	1200	100	100	466.67
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Benzofuran Concentration (ppmv)	1.3	0.5	0.2	0.7
Benzofuran Emission Rate (lbs/hr)	0.024	0.010	0.004	0.013

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Benzopyrene			
Molecular Weight (lb/lb-mole)	252			
ug/ml of analyte	29	20	100	49.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Benzopyrene Concentratio (ppmv)	0.01	0.01	0.04	0.02
Benzopyrene Emission Rat (lbs/hr)	0.000	0.001	0.001	0.001

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Benzonitrile			
Molecular Weight (lb/lb-mole)	103			
Total ug of analyte	410	100	100	203.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Benzonitrile Concentration (ppmv)	0.5	0.6	0.3	0.5
Benzonitrile Emission Rate (lbs/hr)	0.008	0.010	0.004	0.007

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Benzothiophene			
Molecular Weight (lb/lb-mole)	134			
Total ug of analyte	100	4000	6300	3466.67
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Benzothiophene Concentra (ppmv)	0.1	19.2	12.9	10.7
Benzothiophene Emission (lbs/hr)	0.002	0.399	0.268	0.223

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Chrysene			
Molecular Weight (lb/lb-mole)	228			
ug/ml of analyte	73	20	20	37.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Chrysene Concentration (ppmv)	0.02	0.02	0.01	0.02
Chrysene Emission Rate (lbs/hr)	0.001	0.001	0.000	0.000

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Cyclooctatetraene			
Molecular Weight (lb/lb-mole)	104			
Total ug of analyte	2900	100	100	1033.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Cyclooctatetraene Concent (ppmv)	3.6	0.6	0.3	1.5
Cyclooctatetraene Emissio (lbs/hr)	0.058	0.010	0.004	0.024

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Dibenzofuran			
Molecular Weight (lb/lb-mole)	168			
ug/ml of analyte	350	44	180	191.33
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Dibenzofuran Concentratio (ppmv)	0.12	0.05	0.1	0.09
Dibenzofuran Emission Rat (lbs/hr)	0.003	0.001	0.003	0.002

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Dimethyl Benzene			
Molecular Weight (lb/lb-mole)	106			
ug/ml of analyte	150	20	20	63.33
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Dimethyl Benzene Concent (ppmv)	0.08	0.03	0.02	0.04
Dimethyl Benzene Emissio (lbs/hr)	0.001	0.001	0.000	0.001

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Dimethyl Phenol			
Molecular Weight (lb/lb-mole)	106			
ug/ml of analyte	20	20	42	27.33
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Dimethyl Phenol Concentra (ppmv)	0.05	0.05	0.13	0.08
Dimethyl Phenol Emission (lbs/hr)	0.001	0.001	0.002	0.001

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Dimethyl Phenol			
Molecular Weight (lb/lb-mole)	122			
ug/ml of analyte	21	22	20	21.00
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Dimethyl Phenol Concentra (ppmv)	0.04	0.05	0.05	0.05
Dimethyl Phenol Emission (lbs/hr)	0.001	0.001	0.001	0.001

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Ethyl Methylbenzene			
Molecular Weight (lb/lb-mole)	120			
Total ug of analyte	1900	4600	14000	6833.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Ethyl Methylbenzene Conc (ppmv)	2	24.6	31.9	19.5
Ethyl Methylbenzene Emiss (lbs/hr)	0.038	0.459	0.596	0.365

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Fluoranthene			
Molecular Weight (lb/lb-mole)	202			
ug/ml of analyte	200	36	100	112.00
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Fluoranthene Concentratio (ppmv)	0.06	0.03	0.05	0.05
Fluoranthene Emission Rat (lbs/hr)	0.002	0.001	0.001	0.001

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Fluorene			
Molecular Weight (lb/lb-mole)	166			
ug/ml of analyte	830	150	420	466.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Fluorene Concentration (ppmv)	0.29	0.16	0.23	0.23
Fluorene Emission Rate (lbs/hr)	0.008	0.004	0.006	0.006

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	HADE*			
Molecular Weight (lb/lb-mole)	186			
ug/ml of analyte	49	76	270	131.67
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
HADE* Concentration (ppmv)	0.07	0.11	0.48	0.22
HADE* Emission Rate (lbs/hr)	0.002	0.003	0.014	0.006

NOTE: * HADE = Hexanoic Acid Dioctyl Ester

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	ICMB*			
Molecular Weight (lb/lb-mole)	118			
ug/ml of analyte	20	20	22	20.67
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
ICMB* Concentration (ppmv)	0.04	0.05	0.06	0.05
ICMB* Emission Rate (lbs/hr)	0.001	0.001	0.001	0.001

NOTE: * ICMB = Isocyano, 2-methyl Benzene

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Methylnapthalene			
Molecular Weight (lb/lb-mole)	142			
ug/ml of analyte	680	86	280	348.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Methylnapthalene Concentr (ppmv)	0.28	0.11	0.18	0.19
Methylnapthalene Emission (lbs/hr)	0.006	0.002	0.004	0.004

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	2-Methylnapthalene			
Molecular Weight (lb/lb-mole)	142			
ug/ml of analyte	280	60	140	160.00
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
2-Methylnapthalene Conce (ppmv)	0.11	0.07	0.09	0.09
2-Methylnapthalene Emissi (lbs/hr)	0.003	0.002	0.002	0.002

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	2-Methylnapthalene			
Molecular Weight (lb/lb-mole)	142			
Total ug of analyte	710	590	840	713.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
2-Methylnapthalene Conce (ppmv)	0.6	2.7	1.6	1.6
2-Methylnapthalene Emissi (lbs/hr)	0.01	0.06	0.04	0.04

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	2-Methyl Phenol			
Molecular Weight (lb/lb-mole)	108			
Total ug of analyte	62	100	100	87.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
2-Methyl Phenol Concentrat (ppmv)	0.1	0.6	0.3	0.3
2-Methyl Phenol Emission (lbs/hr)	0.001	0.010	0.004	0.005

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	2 Methylphenol			
Molecular Weight (lb/lb-mole)	108			
ug/ml of analyte	210	140	270	206.67
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
2 Methylphenol Concentrati (ppmv)	0.48	0.36	0.82	0.55
2 Methylphenol Emission R (lbs/hr)	0.008	0.006	0.014	0.009

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	4 Methylphenol			
Molecular Weight (lb/lb-mole)	108			
ug/ml of analyte	110	620	1100	610.00
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
4 Methylphenol Concentrati (ppmv)	0.25	1.61	3.35	1.74
4 Methylphenol Emission R (lbs/hr)	0.004	0.027	0.056	0.029

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	4-Methyl Phenol			
Molecular Weight (lb/lb-mole)	108			
Total ug of analyte	89	100	100	96.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
4-Methyl Phenol Concentrat (ppmv)	0.1	0.6	0.3	0.3
4-Methyl Phenol Emission (lbs/hr)	0.002	0.010	0.004	0.005

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Napthalene			
Molecular Weight (lb/lb-mole)	128			
ug/ml of analyte	3800	80	2600	2160.00
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Napthalene Concentration (ppmv)	1.73	0.11	1.86	1.23
Napthalene Emission Rate (lbs/hr)	0.034	0.002	0.037	0.025

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Napthalene			
Molecular Weight (lb/lb-mole)	128			
ug/ml of analyte	20	24	26	23.33
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Napthalene Concentration (ppmv)	0.04	0.05	0.07	0.05
Napthalene Emission Rate (lbs/hr)	0.001	0.001	0.001	0.001

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Napthalene			
Molecular Weight (lb/lb-mole)	128			
Total ug of analyte	19000	7400	14000	13466.67
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Napthalene Concentration (ppmv)	19.1	37.1	29.9	28.7
Napthalene Emission Rate (lbs/hr)	0.38	0.74	0.60	0.57

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Phenanthrene			
Molecular Weight (lb/lb-mole)	178			
ug/ml of analyte	520	21	200	247.00
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Phenanthrene Concentratio (ppmv)	0.17	0.02	0.1	0.10
Phenanthrene Emission Rat (lbs/hr)	0.005	0.001	0.003	0.003

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Phenol			
Molecular Weight (lb/lb-mole)	94			
Total ug of analyte	490	100	100	230.00
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Phenol Concentration (ppmv)	0.7	0.7	0.3	0.6
Phenol Emission Rate (lbs/hr)	0.010	0.010	0.004	0.008

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Phenol			
Molecular Weight (lb/lb-mole)	94			
ug/ml of analyte	4300	1700	3200	3066.67
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Phenol Concentration (ppmv)	11.4	5.06	11.2	9.22
Phenol Emission Rate (lbs/hr)	0.167	0.074	0.164	0.135

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Phenol			
Molecular Weight (lb/lb-mole)	94			
ug/ml of analyte	130	20	20	56.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Phenol Concentration (ppmv)	0.08	0.04	0.02	0.05
Phenol Emission Rate (lbs/hr)	0.001	0.001	0.000	0.001

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Propanenitrile			
Molecular Weight (lb/lb-mole)	70			
ug/ml of analyte	24	20	73	39.00
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Propanenitrile Concentratio (ppmv)	0.09	0.08	0.34	0.17
Propanenitrile Emission Rat (lbs/hr)	0.001	0.001	0.004	0.002

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Propynyl Benzene			
Molecular Weight (lb/lb-mole)	104			
ug/ml of analyte	780	110	410	433.33
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Propynyl Benzene Concent (ppmv)	0.44	0.18	0.36	0.33
Propynyl Benzene Emissio (lbs/hr)	0.007	0.003	0.006	0.005

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Pyrene			
Molecular Weight (lb/lb-mole)	202			
ug/ml of analyte	430	120	260	270.00
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Pyrene Concentration (ppmv)	0.12	0.1	0.12	0.11
Pyrene Emission Rate (lbs/hr)	0.004	0.003	0.004	0.004

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Pyridine			
Molecular Weight (lb/lb-mole)	79			
ug/ml of analyte	170	460	1900	843.33
Liquid Sample Volume (L)	3.329	1.95	2.782	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Pyridine Concentration (ppmv)	0.54	1.63	7.92	3.36
Pyridine Emission Rate (lbs/hr)	0.007	0.020	0.097	0.041

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Pyridine			
Molecular Weight (lb/lb-mole)	79			
ug/ml of analyte	40	20	20	26.67
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Pyridine Concentration (ppmv)	0.03	0.04	0.02	0.03
Pyridine Emission Rate (lbs/hr)	0.000	0.001	0.000	0.000

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Toluene			
Molecular Weight (lb/lb-mole)	92			
ug/ml of analyte	420	110	410	313.33
Liquid Sample Volume (L)	0.777	1.216	0.775	
Gas Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Toluene Concentration (ppmv)	0.27	0.21	0.41	0.30
Toluene Emission Rate (lbs/hr)	0.004	0.003	0.006	0.004

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Trimethylbenzene			
Molecular Weight (lb/lb-mole)	120			
Total ug of analyte	1000	100	100	400.00
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Trimethylbenzene Concentr (ppmv)	1.1	0.5	0.2	0.6
Trimethylbenzene Emission (lbs/hr)	0.020	0.010	0.004	0.011

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Azulene			
Molecular Weight (lb/lb-mole)	128			
Total ug of analyte	100	4900	100	1700.00
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Azulene Concentration (ppmv)	0.1	24.6	0.2	8.3
Azulene Emission Rate (lbs/hr)	0.002	0.489	0.004	0.165

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Benzene			
Molecular Weight (lb/lb-mole)	78			
Total ug of analyte	180000	8700	190000	126233.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Benzene Concentration (ppmv)	296.7	71.6	666.8	345.0
Benzene Emission Rate (lbs/hr)	3.602	0.869	8.093	4.188

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Ethylbenzene			
Molecular Weight (lb/lb-mole)	106			
Total ug of analyte	100	1500	100	566.67
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Ethylbenzene Concentratio (ppmv)	0.1	9.1	0.3	3.2
Ethylbenzene Emission Rat (lbs/hr)	0.002	0.150	0.004	0.052

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Ethyl Benzene			
Molecular Weight (lb/lb-mole)	106			
Total ug of analyte	100	1700	100	633.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Ethyl Benzene Concentratio (ppmv)	0.1	10.3	0.3	3.6
Ethyl Benzene Emission Ra (lbs/hr)	0.002	0.170	0.004	0.059

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Ethylmethylbenzene			
Molecular Weight (lb/lb-mole)	120			
Total ug of analyte	100	3500	100	1233.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Ethylmethylbenzene Conce (ppmv)	0.1	18.7	0.2	6.3
Ethylmethylbenzene Emissi (lbs/hr)	0.002	0.349	0.004	0.119

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Ethylmethylbenzene			
Molecular Weight (lb/lb-mole)	120			
Total ug of analyte	100	850	100	350.00
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Ethylmethylbenzene Conce (ppmv)	0.1	4.5	0.2	1.6
Ethylmethylbenzene Emissi (lbs/hr)	0.002	0.085	0.004	0.030

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Methylethylbenzene			
Molecular Weight (lb/lb-mole)	120			
Total ug of analyte	100	710	100	303.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Methylethylbenzene Conce (ppmv)	0.1	3.8	0.2	1.4
Methylethylbenzene Emissi (lbs/hr)	0.002	0.071	0.004	0.026

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Styrene			
Molecular Weight (lb/lb-mole)	104			
Total ug of analyte	23000	7100	13000	14366.67
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Styrene Concentration (ppmv)	28.4	43.8	34.2	35.5
Styrene Emission Rate (lbs/hr)	0.460	0.709	0.554	0.574

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Thiophene			
Molecular Weight (lb/lb-mole)	84			
Total ug of analyte	100	1400	100	533.33
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Thiophene Concentration (ppmv)	0.2	10.7	0.3	3.7
Thiophene Emission Rate (lbs/hr)	0.002	0.140	0.004	0.049

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Toluene			
Molecular Weight (lb/lb-mole)	92			
Total ug of analyte	170000	11000	97000	92666.67
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Toluene Concentration (ppmv)	237.6	76.7	288.6	201.0
Toluene Emission Rate (lbs/hr)	3.402	1.098	4.132	2.877

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Trimethylbenzenes			
Molecular Weight (lb/lb-mole)	120			
Total ug of analyte	10500	3500	4900	6300.00
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Trimethylbenzenes Concen (ppmv)	11.3	18.7	11.2	13.7
Trimethylbenzenes Emissio (lbs/hr)	0.210	0.349	0.209	0.256

METHOD 18 TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/93

Test Run Number	1	2	3	Average
Analyte	Xylene			
Molecular Weight (lb/lb-mole)	106			
Total ug of analyte	101000	17300	62300	60200.00
Sample Volume (dscf)	6.612	1.325	3.106	3.681
Gas volume flow rate (scfm)	1000	1000	1000	1000
Xylene Concentration (ppmv)	122.5	104.7	160.9	129.4
Xylene Emission Rate (lbs/hr)	2.021	1.727	2.654	2.134

ACID TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	HCN			
Molecular Weight (lb/lb-mole)	27			
Total ug of analyte	96200		232000	164100.00
Sample Volume (dscf)	4.794		4.251	4.523
Gas volume flow rate (scfm)	1000		1000	1000
HCN Concentration (ppmv)	631.9	ERR	1718.6	1175.3
HCN Emission Rate (lbs/hr)	2.65	ERR	7.22	4.9

ACID TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	HCl			
Molecular Weight (lb/lb-mole)	36.5			
Total ug of analyte	3900		7600	5750.00
Sample Volume (dscf)	4.794		4.251	4.523
Gas volume flow rate (scfm)	1000		1000	1000
HCl Concentration (ppmv)	18.9	ERR	41.6	30.3
HCl Emission Rate (lbs/hr)	0.11	ERR	0.24	0.2

ACID TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	HF			
Molecular Weight (lb/lb-mole)	20			
Total ug of analyte	70		20	45.00
Sample Volume (dscf)	4.794		4.251	4.523
Gas volume flow rate (scfm)	1000		1000	1000
HF Concentration (ppmv)	0.6	ERR	0.2	0.4
HF Emission Rate (lbs/hr)	0.002	ERR	0.001	0.001

ACID TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	HNO3			
Molecular Weight (lb/lb-mole)	63			
Total ug of analyte	500		500	500.00
Sample Volume (dscf)	4.794		4.251	4.523
Gas volume flow rate (scfm)	1000		1000	1000
HNO3 Concentration (ppmv)	1.4	ERR	1.6	1.5
HNO3 Emission Rate (lbs/hr)	0.014	ERR	0.016	0.015

ACID TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	H3PO4			
Molecular Weight (lb/lb-mole)	98			
Total ug of analyte	1000		1000	1000.00
Sample Volume (dscf)	4.794		4.251	4.523
Gas volume flow rate (scfm)	1000		1000	1000
H3PO4 Concentration (ppmv)	1.8	ERR	2	1.9
H3PO4 Emission Rate (lbs/hr)	0.028	ERR	0.031	0.029

ACID TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	H2SO4			
Molecular Weight (lb/lb-mole)	98			
Total ug of analyte	5050		6050	5550.00
Sample Volume (dscf)	4.794		4.251	4.523
Gas volume flow rate (scfm)	1000		1000	1000
H2SO4 Concentration (ppmv)	9.1	ERR	12.3	10.7
H2SO4 Emission Rate (lbs/hr)	0.139	ERR	0.188	0.164

ACID TEST DATA

Client:	Bethlehem Steel
Project No.:	23708
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Analyte	Ammonia			
Molecular Weight (lb/lb-mole)	17			
ug/ml of analyte	4280000		3330000	3805000.00
Liquid Sample Volume (L)	0.028		0.051	
Gas Sample Volume (dscf)	4.794		4.251	4.523
Gas volume flow rate (scfm)	1000		1000	1000
Ammonia Concentration (ppmv)	1250.22	ERR	1998.05	1624.14
Ammonia Emission Rate (lbs/hr)	3.307	ERR	5.285	4.30

METALS TEST DATA

Client:	Bethlehem Steel
Project No.:	23706
Source:	Coke Battery
Date:	12/18/92

Test Run Number	1	2	3	Average
Sample Volume (dscf)	11.356	5.926	7.187	8.156
Gas volume flow rate (scfm)	1000	1000	1000	1000
Metal	Arsenic			
Total ug of analyte	5.12	1.95	2.4	3.16
Arsenic Concentration (ug/dscm)	15.9221	11.6206	11.7929	13.1119
Arsenic Emission Rate (lbs/hr)	5.965E-05	4.353E-05	4.418E-05	4.912E-05
Metal	Mercury			
Total ug of analyte	9.53	ND	ND	
Mercury Concentration (ug/dscm)	29.6363	0.0000	0.0000	9.8788
Mercury Emission Rate (lbs/hr)	1.110E-04	0.000E+00	0.000E+00	3.701E-05
Metal	Selenium			
Total ug of analyte	7.69	1.82	3.56	4.36
Selenium Concentration (ug/dscm)	23.9143	10.8459	17.4928	17.4176
Selenium Emission Rate (lbs/hr)	8.959E-05	4.063E-05	6.553E-05	6.525E-05
Metal				
Total ug of analyte				ERR
ERR (ug/dscm)	0.0000	0.0000	0.0000	0.0000
ERR (lbs/hr)	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Metal				
Total ug of analyte				ERR
ERR (ug/dscm)	0.0000	0.0000	0.0000	0.0000
ERR (lbs/hr)	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Metal				
Total ug of analyte				ERR
ERR (ug/dscm)	0.0000	0.0000	0.0000	0.0000
ERR (lbs/hr)	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Metal				
Total ug of analyte				ERR
ERR (ug/dscm)	0.0000	0.0000	0.0000	0.0000
ERR (lbs/hr)	0.000E+00	0.000E+00	0.000E+00	0.000E+00

METER BOX CALIBRATION DATA

Dry Gas Meter No. 6847887 Date 4/6/92 Calibrated By PC
Standard Meter No. 677253 Yr =1.0000 Barometric Pressure, in. Hg (Pb): 29.96 - 0.65 = 29.31

Run No	Orifice Setting in. H_2O Chg(H)	Gas Volume, ft^3 Standard Meter (V_r)	Gas Volume, ft^3 Dry Gas Meter (V_d)	Pressure in. H_2O Standard Meter (P_r)	Meter Temperature, ^0F Standard Meter (t_r)	Meter Temperature, ^0F Dry Gas Meter Inlet (t_{di})	Meter Temperature, ^0F Dry Gas Meter Outlet (t_{do})	Meter Temperature, ^0F Test Meter Avg (t_d)	Time min.	Time sec.	Y	Chg(H@) in. H_2O
		55.128	101.460									
		52.647	99.007									
1	0.00	2.481	2.453	0.00	65	62	62	62.0	0	0	1.006	0.000
		56.872	103.194									
		55.128	101.460									
2	0.00	1.744	1.734	0.00	65	63	63	63.0	0	0	1.002	0.000
		58.707	5.029									
		56.872	3.194									
3	0.00	1.835	1.835	0.00	66	64	64	64.0	0	0	0.996	0.000
		0.000	0.000									
		0.000	0.000									
4	0.00	0.000	0.000	0.00	0	0	0	0.0	0	0	0.000	0.000
		0.000	0.000									
		0.000	0.000									
5	0.00	0.000	0.000	0.00	0	0	0	0.0	0	0	0.000	0.000
		0.000	0.000									
		0.000	0.000									
6	0.00	0.000	0.000	0.00	0	0	0	0.0	0	0	0.000	0.000

AVERAGE ~~0.501~~ 1.001 0.000

METER BOX CALIBRATION DATA FOR COMPUTER ENTRY

Dry Gas Meter No. 68[illegible]887 Date [illegible]/6/92 Calibrated by PC

Standard Meter No. 677253 Standard Meter (Y) 1.000

Barometric Pressure 29.96 -0.65= 29.31

Ideal ΔH / Rate / Volume	Orifice Setting in. H_2O (ΔH)	Gas Volume, ft^3 Standard Meter (V_r)	Gas Volume, ft^3 Dry Gas Meter (V_d)	Time Minutes (Approx)	Pressure in. H_2O Standard Meter (p_r)	Meter Temp., °F Std. Meter (t_r)	Meter Temp., °F Dry Gas Meter Inlet (t_{d_i})	Meter Temp., °F Dry Gas Meter Outlet (t_{d_o})	Run Time θ min.	Run Time θ sec.
0.10	[illegible]	55.128	101.460	0	[illegible]					
				5		65	62	62		
0.25				10						
>5				15						
		52.[illegible]	99.007	20						
Run 1		2.481	2.453							
0.30	[illegible]	56.872	103.194	0	[illegible]					
				3		65	63	63		
0.45				6						
>5				9						
		55.128	101.460	12						
Run 2		1.244	1.734							
0.60	[illegible]	58.707	5.0[illegible]	0	[illegible]					
				4		66	64	64		
0.65				8						
>10				12						
		56.872	3.194	16						
Run 3		1.835	1.835							
0.90				0						
				4						
0.80				8						
>10				10						
				13						
Run 4										
1.30				0						
				3						
0.95				6						
>10				9						
				11						
Run 5										
1.90				0						
				2						
1.15				5						
>10				7						
				9						
Run 6										

METER BOX CALIBRATION DATA

Dry Gas Meter No. 6837974 Date 9/25/91 Calibrated By DW
Standard Meter No. 677253 Yr =1.0000 Barometric Pressure, in. Hg (Pb): 29.68 - 0.65 = 29.03

Run No	Orifice Setting in. H_2O Chg(H)	Gas Volume, ft^3 Standard Meter (V_r)	Gas Volume, ft^3 Dry Gas Meter (V_d)	Pressure in. H_2O Standard Meter (P_r)	Meter Temperature, °F Standard Meter (t_r)	Meter Temperature, °F Dry Gas Meter Inlet (t_{di})	Meter Temperature, °F Dry Gas Meter Outlet (t_{do})	Meter Temperature, °F Test Meter Avg (t_d)	Time min.	Time sec.	Y	Chg(H@) in. H_2O
		66.907	34.504									
		66.497	34.093									
1	0.00	0.410	0.411	0.00	66	67	67	66.5	20	0	0.999	0.000
		67.414	35.009									
		66.907	34.504									
2	0.00	0.507	0.505	0.00	66	67	67	67.0	20	42	1.006	0.000
		67.982	35.575									
		67.414	35.009									
3	0.00	0.568	0.566	0.00	66	67	67	67.0	20	0	1.005	0.000
		0.000	0.000									
		0.000	0.000									
4	0.00	0.000	0.000	0.00	0	0	0	0.0	0	0	0.000	0.000
		0.000	0.000									
		0.000	0.000									
5	0.00	0.000	0.000	0.00	0	0	0	0.0	0	0	0.000	0.000
		0.000	0.000									
		0.000	0.000									
6	0.00	0.000	0.000	0.00	0	0	0	0.0	0	0	0.000	0.000

AVERAGE ~~0.502~~ 0.000
1.004

METER BOX CALIBRATION DATA FOR COMPUTER ENTRY

Dry Gas Meter No. 6837954 Date 9/25/91 Calibrated by DW

Standard Meter No. 177753 Standard Meter (Y) 1.000

Barometric Pressure 29.62 -0.65= 29.03

Ideal ΔH / Rate / Volume	Orifice Setting in. H_2O (Δ H)	Gas Volume, ft^3 Standard Meter (V_r)	Gas Volume, ft^3 Dry Gas Meter (V_d)	Time Minutes (Approx)	Pressure in.H_2O Standard Meter (p_r)	Meter Temp., °F Std. Meter (t_r)	Meter Temp., °F Dry Gas Meter Inlet (t_{d_i})	Meter Temp., °F Dry Gas Meter Outlet (t_{d_o})	Run Time θ min.	Run Time θ sec.
0.10		66.907	34.504	0		[illegible]	[illegible]	[illegible]		
				5						
.25		[illegible]	[illegible]	10	Y = 0.998	[illegible]	[illegible]	[illegible]		
				15						
>5	—	66.097	34.093	20	—	66	60	60	20	[illegible]
Run 1										
.30		[illegible]	[illegible]	0		[illegible]	[illegible]	[illegible]		
0.45		[illegible]	[illegible]	3						
				6	Y = [illegible]	[illegible]	[illegible]	[illegible]		
5				9						
	—	[illegible]	[illegible]	12	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Run 2										
0.60		[illegible]	[illegible]	0		[illegible]	[illegible]	[illegible]		
.5				4						
				8		[illegible]	[illegible]	[illegible]		
>10				12						
	—	[illegible]	[illegible]	16		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Run 3										
.90				0						
0.80				4						
				8						
10				10						
				13						
Run 4										
1.30				0						
.95				3						
				6						
>10				9						
				11						
Run 5										
90				0						
5				2						
				5						
10				7						
				9						
Run 6										

MOISTURE FIELD DATA SHEET

Project: [illegible] Date: [illegible]

Sampling Location: [illegible]

Source Condition: _____ Monitor: Model _____

Dry Gas Meter No. [illegible] Y = 1.002 Serial No. _____

Test (Run) No. 1 Barometric Pressure (P_{bar}) 29.14 in. Hg

Gas Temperature _____ °F Static Pressure _____ in. Hg

Orsat Analysis _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
1122	49.655	0.0[illegible]	56	fully
1127	50.[illegible]		58	
1132	50.[illegible]		58	iced
1137	50.[illegible]		62	
1142	51.[illegible]		64	568°
1147	53.200		68	
1152	54.423		70	
[illegible]				
Avg.	4.868		62	(T_m) 522 °R

Condensate

_____ mls (V_f)

- _____ mls (V_i)

_____ mls

x 0.04707 = _____

Silica Gel or Train

_____ grams (W_f)

- _____ grams (W_i)

_____ grams

x 0.04715 = _____

_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$]

= _____ ft³ [$V_{w(std)}$]

$V_{m(std)}$ = 4.794 ft³

Water Vapor, proportion by volume

Leak Check: JOK

B_{ws} = _____

Moisture correction factor:

1 - B_{ws} = _____

Comments:

Test (Run) No. 3 Barometric Pressure (P_{bar}) 29.14 in. Hg

Gas Temperature _____ °F Static Pressure _____ in. Hg

Orsat Analysis _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
1337	54.555	0.0[illegible]	98	
				fully
				iced
				[illegible]
Avg.				(T_m) °R

Condensate

_____ mls (V_f)

- _____ mls (V_i)

_____ mls

x 0.04707 = _____

Silica Gel or Train

_____ grams (W_f)

- _____ grams (W_i)

_____ grams

x 0.04715 = _____

_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$]

= _____ ft³ [$V_{w(std)}$]

$V_{m(std)}$ = _____ ft³

Water Vapor, proportion by volume

Leak Check:

B_{ws} = _____

Moisture correction factor:

1 - B_{ws} = _____

Comments:

$$V_{m(std)} = 17.64\, V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

$$B_{ws} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

Form No. 1047 [Rev. 3/92]

Operator S BURTON

Mostardi-Platt Associate

MOISTURE FIELD DATA SHEET

Project: Bethlehem Steel Date: 12-15-92

Sampling Location: COKE BATT 1 - OVEN 104

Source Condition: _____ Monitor: Model _____

Dry Gas Meter No. 6R47887 Y = 1.000 Serial No. _____

Test (Run) No. 3 Barometric Pressure (P_{bar}) 29.14 in. Hg

Gas Temperature _____ °F Static Pressure 1.000 in. Hg

Orsat Analysis: _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
1337	54.555	0.00	98	
1342	55.225		94	fully
1347	56.168		96	
1352	57.025		96	Iced
1357	57.868		94	
1402	58.565		92	≤68°
1407	59.137		90	
Avg.	4.582		94	(T_m) 554 °R

Condensate: _____ mls (V_f) - _____ mls (V_i) _____ mls x 0.04707 = _____

Silica Gel or Train: _____ grams (W_f) - _____ grams (W_i) _____ grams x 0.04715 = _____

_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$] = _____ ft³ [$V_{w(std)}$]

$V_{m(std)}$ = 4.251 ft³

Water Vapor, proportion by volume

Leak Check: Jol

B_{ws} = _____

Moisture correction factor:

$1 - B_{ws}$ = _____

Comments:

Test (Run) No. _____ Barometric Pressure (P_{bar}) _____ in. Hg

Gas Temperature _____ °F Static Pressure _____ in. Hg

Orsat Analysis: _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
Avg.				(T_m) °R

Condensate: _____ mls (V_f) - _____ mls (V_i) _____ mls x 0.04707 = _____

Silica Gel or Train: _____ grams (W_f) - _____ grams (W_i) _____ grams x 0.04715 = _____

_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$] = _____ ft³ [$V_{w(std)}$]

$V_{m(std)}$ = _____ ft³

Water Vapor, proportion by volume

Leak Check:

B_{ws} = _____

Moisture correction factor:

$1 - B_{ws}$ = _____

Comments:

$$V_{m(std)} = 17.64\, V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

$$B_{ws} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

84

Operator S. BURTON

Form No. 1047 [Rev. 3/92]

Mostardi-Platt Associates, Inc.

MOISTURE FIELD DATA SHEET

Project: [illegible] Date: 12/15/92

Sampling Location: Bike Oven #102 [illegible]

Source Condition: [illegible] Monitor: Model [illegible]

Dry Gas Meter No. 6837974 Y = 1.004 Serial No. [illegible]

Test (Run) No. #1 Barometric Pressure (P_{bar}) 29.14 in. Hg

Gas Temperature _____ °F Static Pressure _____ in. Hg

Orsat Analysis _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
1122	94.912	N/A	55	Elica
1127	96.610		59	
1131	97.500		60	
1137	99.330		62	
1142	100.31[illegible]		6[illegible]	
1147	101.524			
1152				
1157				
1202				
Avg.	6.612		60 + 460 (T_m)	520 °R

Condensate

_____ mls (V_f)

- _____ mls (V_i)

_____ mls

x 0.04707 = _____

Silica Gel or Train

_____ grams (W_f)

- _____ grams (W_i)

_____ grams

x 0.04715 = _____

_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$]

= _____ ft³ [$V_{w(std)}$]

$V_{m(std)}$ = 6.562 ft³

Water Vapor, proportion by volume

Leak Check:

B_{ws} = _____

Moisture correction factor:

1 - B_{ws} = _____

Comments:

Test (Run) No. #2 (112) Barometric Pressure (P_{bar}) 29.14 in. Hg

Gas Temperature _____ °F Static Pressure _____ in. Hg

Orsat Analysis _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
	1.525	N/A	110.0	Elica
	2.820			
	3.000			
Avg.			(T_m)	°R

Condensate

_____ mls (V_f)

- _____ mls (V_i)

_____ mls

x 0.04707 = _____

Silica Gel or Train

_____ grams (W_f)

- _____ grams (W_i)

_____ grams

x 0.04715 = _____

_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$]

= _____ ft³ [$V_{w(std)}$]

$V_{m(std)}$ = _____ ft³

Water Vapor, proportion by volume

Leak Check:

B_{ws} = _____

Moisture correction factor:

1 - B_{ws} = _____

Comments:

$$V_{m(std)} = 17.64\, V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

$$B_{ws} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

Operator [illegible]

Mostardi-Platt Associates, Inc

Form No. 1047 [Rev. 3/92]

MOISTURE FIELD DATA SHEET

Project: [illegible] Date: [illegible]
Sampling Location: Norm
Source Condition: Coke Oven #112 Battery 1 Monitor: Model _____
Dry Gas Meter No. 6837974 Y = 1.004 Serial No. _____

Test (Run) No. #2 Barometric Pressure (P_{bar}) 29.14 in. Hg
Gas Temperature _____ °F Static Pressure _____ in. Hg
Orsat Analysis _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
12.40	1.525	N/A	110	F/ICE
1245	2.820	↓	115	↓
1250	3.001	↓	120	↓
Avg.	1.476		115 (T_m)	575 °R

Condensate

_____ mls (V_i) _____ grams (W_i)
- _____ mls (V_f) - _____ grams (W_f)
_____ mls _____ grams
x 0.04707 = _____ x 0.04715 = _____
_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$]
= _____ ft³ [$V_{w(std)}$]

Silica Gel or Train

$V_{m(std)}$ = 1.325 ft³

Water Vapor, proportion by volume

Leak Check:

B_{wo} = _____

Moisture correction factor:

1 - B_{wo} = _____

Comments:

Test (Run) No. _____ Barometric Pressure (P_{bar}) _____ in. Hg
Gas Temperature _____ °F Static Pressure _____ in. Hg
Orsat Analysis _____ %CO_2 _____ %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
Avg.			(T_m)	°R

Condensate

_____ mls (V_i) _____ grams (W_i)
- _____ mls (V_f) - _____ grams (W_f)
_____ mls _____ grams
x 0.04707 = _____ x 0.04715 = _____
_____ ft³ [$V_{wc(std)}$] + _____ ft³ [$V_{wsg(std)}$]
= _____ ft³ [$V_{w(std)}$]

Silica Gel or Train

$V_{m(std)}$ = _____ ft³

Water Vapor, proportion by volume

Leak Check:

B_{wo} = _____

Moisture correction factor:

1 - B_{wo} = _____

Comments:

$$V_{m(std)} = 17.64\, V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

$$B_{wo} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

Operator _____

Form No. 1047 [Rev. 3/92]

Mostardi-Platt Associates, Inc.

MOISTURE FIELD DATA SHEET

Project: Bethlehem Steel Date: 12/15/92
Sampling Location: Coke Oven #102 Battery #1
Source Condition: Norm Monitor: Model
Dry Gas Meter No. 683974 Y = 1.004 Serial No.

Test (Run) No. #3 Barometric Pressure (P_{bar}) 29.14 in. Hg
Gas Temperature °F Static Pressure in. Hg
Orsat Analysis %CO_2 %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
1335	3.060	N/A	78	F/ICE
1340	3.475		86	
1345	3.945		90	
1350	4.375		90	
1355	5.120			
1400	5.595			
1405	6.166			
Avg.	3.106		86	(T_m) 546 °R

Condensate: ____ mls (V_f) ____ grams (W_f)
- ____ mls (V_i) - ____ grams (W_i)
____ mls ____ grams
x 0.04707 = ____ x 0.04715 = ____
____ ft³ [$V_{wc(std)}$] + ____ ft³ [$V_{wsg(std)}$]
= ____ ft³ [$V_{w(std)}$]

Silica Gel or Train

$V_{m(std)}$ = 2.936 ft³

Water Vapor, proportion by volume

Leak Check:

B_{ws} = ____

Moisture correction factor:

1 - B_{ws} = ____

Comments:

Test (Run) No. ____ Barometric Pressure (P_{bar}) ____ in. Hg
Gas Temperature °F Static Pressure ____ in. Hg
Orsat Analysis %CO_2 %O_2

Clock Time 24 hour	Meter Volume (V_m) ft³	Meter Gage Pressure (ΔH) in. H_2O	Meter Temp. (t_m) °F	Impgr. Outlet Temp. °F
Avg.			(T_m) °R	

Condensate: ____ mls (V_f) ____ grams (W_f)
- ____ mls (V_i) - ____ grams (W_i)
____ mls ____ grams
x 0.04707 = ____ x 0.04715 = ____
____ ft³ [$V_{wc(std)}$] + ____ ft³ [$V_{wsg(std)}$]
= ____ ft³ [$V_{w(std)}$]

Silica Gel or Train

$V_{m(std)}$ = ____ ft³

Water Vapor, proportion by volume

Leak Check:

B_{ws} = ____

Moisture correction factor:

1 - B_{ws} = ____

Comments:

$$V_{m(std)} = 17.64\, V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

$$B_{ws} = \frac{V_{w(std)}}{V_{w(std)} + V_{m(std)}}$$

Operator Hazel Simmons

Form No. 1047 [Rev. 3/92]

Mostardi-Platt Associates, Inc.

Project Summary

23708
BETHLEHEM STEEL
COKE OVEN
RJT

Project	Sample	Sample Point	Analyte
23708	001	GAS BOMB RUN1	Major Gas Components
23708	001	GAS BOMB RUN1	Trace Sulfur Compounds
23708	002	GAS BOMB RUN2	Major Gas Components
23708	002	GAS BOMB RUN2	Trace Sulfur Compounds
23708	003	GAS BOMB RUN3	Major Gas Components
23708	003	GAS BOMB RUN3	Trace Sulfur Compounds
23708	004	XAD2 RUN1	Extractable Compounds by GCMS
23708	004	XAD2 RUN1	GCMS Search for 10 TICs
23708	005	XAD2 RUN2	Extractable Compounds by GCMS
23708	005	XAD2 RUN2	GCMS Search for 10 TICs
23708	006	XAD2 RUN3	Extractable Compounds by GCMS
23708	006	XAD2 RUN3	GCMS Search for 10 TICs
23708	007	XAD2 BLANK	Extractable Compounds by GCMS
23708	007	XAD2 BLANK	GCMS Search for 10 TICs
23708	008	TENAX RUN1	GCMS Search for 10 TICs
23708	008	TENAX RUN1	Volatile Organics by GCMS
23708	009	TENAX RUN2	GCMS Search for 10 TICs
23708	009	TENAX RUN2	Volatile Organics by GCMS
23708	010	TENAX RUN3	GCMS Search for 10 TICs
23708	010	TENAX RUN3	Volatile Organics by GCMS
23708	011	TENAX BLANK	GCMS Search for 10 TICs
23708	011	TENAX BLANK	Volatile Organics by GCMS
23708	012	0.1N H2SO4 R1	Ammonia
23708	012	0.1N H2SO4 R1	Method 26 HCl
23708	013	0.1N H2SO4 R3	Ammonia
23708	013	0.1N H2SO4 R3	Method 26 HCl
23708	014	5M NAOH R1	Chloride
23708	014	5M NAOH R1	Cyanide
23708	014	5M NAOH R1	Fluoride
23708	014	5M NAOH R1	Nitrate
23708	014	5M NAOH R1	Phosphate
23708	014	5M NAOH R1	Sulfate
23708	015	5M NAOH R3	Chloride
23708	015	5M NAOH R3	Cyanide
23708	015	5M NAOH R3	Fluoride
23708	015	5M NAOH R3	Nitrate
23708	015	5M NAOH R3	Phosphate
23708	015	5M NAOH R3	Sulfate
23708	016	5M NAOH BLANK	Chloride
23708	016	5M NAOH BLANK	Cyanide
23708	016	5M NAOH BLANK	Fluoride

23708
BETHLEHEM STEEL
COKE OVEN
RJT

Project	Sample	Sample Point	Analyte
23708	016	5M NAOH BLANK	Nitrate
23708	016	5M NAOH BLANK	Phosphate
23708	016	5M NAOH BLANK	Sulfate
23708	017	POT CATCH RUN1	Extractable Compounds by GCMS
23708	017	POT CATCH RUN1	GCMS Search for 10 TICs
23708	017	POT CATCH RUN1	Metals Analysis
23708	018	POT CATCH RUN2	Extractable Compounds by GCMS
23708	018	POT CATCH RUN2	GCMS Search for 10 TICs
23708	018	POT CATCH RUN2	Metals Analysis
23708	019	POT CATCH RUN3	Extractable Compounds by GCMS
23708	019	POT CATCH RUN3	GCMS Search for 10 TICs
23708	019	POT CATCH RUN3	Metals Analysis
23708	020	MECL2/MEOH R1	Extractable Compounds by GCMS
23708	020	MECL2/MEOH R1	GCMS Search for 10 TICs
23708	020	MECL2/MEOH R1	Metals Analysis
23708	021	MECL2/MEOH R2	Extractable Compounds by GCMS
23708	021	MECL2/MEOH R2	GCMS Search for 10 TICs
23708	021	MECL2/MEOH R2	Metals Analysis
23708	022	MECL2/MEOH R3	Extractable Compounds by GCMS
23708	022	MECL2/MEOH R3	GCMS Search for 10 TICs
23708	022	MECL2/MEOH R3	Metals Analysis
23708	023	BAG RUN 1	Hold
23708	024	BAG RUN 2	Hold
23708	025	BAG RUN 3	Hold
23708	026	0.1N H2SO4 BLNK	Method 26 HCl

AIR TOXICS LTD.

SAMPLE NAME: 23708-008
ID#: 9212171A-01A
SW-846 METHOD 8240

File Name:	1010711	Date of Collection:	NP
Dil. Factor:	300	Date of Analysis:	1/7/93

Compound	MDL (nG)	Amount (nG)
Chloromethane	3000	Not Detected
Vinyl Chloride	3000	Not Detected
Bromomethane	3000	Not Detected
Chloroethane	3000	Not Detected
Trichlorofluoromethane	3000	Not Detected
1,1-Dichloroethene	3000	Not Detected
Carbon Disulfide	3000	Not Detected
Acetone	15000	Not Detected
Methylene Chloride	3000	Not Detected
trans-1,2-Dichloroethene	3000	Not Detected
1,1-Dichloroethane	3000	Not Detected
Vinyl Acetate	15000	Not Detected
cis-1,2-Dichloroethene	3000	Not Detected
2-Butanone	15000	Not Detected
Chloroform	3000	Not Detected
1,1,1-Trichloroethane	3000	Not Detected
Carbon Tetrachloride	3000	Not Detected
Benzene	3000	180000
1,2-Dichloroethane	3000	Not Detected
Trichloroethene	3000	Not Detected
1,2-Dichloropropane	3000	Not Detected
Bromodichloromethane	3000	Not Detected
trans-1,3-Dichloropropene	3000	Not Detected
4-Methyl-2-Pentanone	15000	Not Detected
Toluene	3000	170000
cis-1,3-Dichloropropene	3000	Not Detected
1,1,2-Trichloroethane	3000	Not Detected
Tetrachloroethene	3000	Not Detected
2-Hexanone	15000	Not Detected
Dibromochloromethane	3000	Not Detected
Chlorobenzene	3000	Not Detected
Ethyl Benzene	3000	Not Detected
m,p-Xylene	3000	85000
o-Xylene	3000	16000
Styrene	3000	23000
Bromoform	3000	Not Detected
1,1,2,2-Tetrachloroethane	3000	Not Detected
1,3-Dichlorobenzene	3000	Not Detected
1,4-Dichlorobenzene	3000	Not Detected
1,2-Dichlorobenzene	3000	Not Detected

AIR TOXICS LTD.

SAMPLE NAME: 23708-008
ID#: 9212171A-01A

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	1010711	Date of Collection:	NP
Dil. Factor:	300	Date of Analysis:	1/7/93

Compound	CAS Number	Match Quality	Amount (nG)
Unknown Trimethylbenzene	NA	93%	6500
Unknown Trimethylbenzene	NA	95%	4000

Surrogates	% Recovery	Method Limits
1,2-dichloroethane-d4	100	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	106	70-130

AIR TOXICS LTD.

SAMPLE NAME: 23708-009
ID#: 9212171A-02A
SW-846 METHOD 8240

File Name:	1010608	Date of Collection:	NP
Dil. Factor:	1.0	Date of Analysis:	1/6/93

Compound	MDL (nG)	Amount (nG)
Chloromethane	10	Not Detected
Vinyl Chloride	10	Not Detected
Bromomethane	10	Not Detected
Chloroethane	10	Not Detected
Trichlorofluoromethane	10	Not Detected
1,1-Dichloroethene	10	Not Detected
Carbon Disulfide	10	Not Detected
Acetone	50	Not Detected
Methylene Chloride	10	1600 E
trans-1,2-Dichloroethene	10	Not Detected
1,1-Dichloroethane	10	Not Detected
Vinyl Acetate	50	Not Detected
cis-1,2-Dichloroethene	10	Not Detected
2-Butanone	50	Not Detected
Chloroform	10	Not Detected
1,1,1-Trichloroethane	10	Not Detected
Carbon Tetrachloride	10	Not Detected
Benzene	10	8700 S
1,2-Dichloroethane	10	Not Detected
Trichloroethene	10	Not Detected
1,2-Dichloropropane	10	Not Detected
Bromodichloromethane	10	Not Detected
trans-1,3-Dichloropropene	10	Not Detected
4-Methyl-2-Pentanone	50	Not Detected
Toluene	10	11000 S
cis-1,3-Dichloropropene	10	Not Detected
1,1,2-Trichloroethane	10	Not Detected
Tetrachloroethene	10	Not Detected
2-Hexanone	50	Not Detected
Dibromochloromethane	10	Not Detected
Chlorobenzene	10	12
Ethyl Benzene	10	1700 E
m,p-Xylene	10	9500 S
o-Xylene	10	7800 S
Styrene	10	7100 S
Bromoform	10	Not Detected
1,1,2,2-Tetrachloroethane	10	Not Detected
1,3-Dichlorobenzene	10	Not Detected
1,4-Dichlorobenzene	10	Not Detected
1,2-Dichlorobenzene	10	Not Detected

AIR TOXICS LTD.

SAMPLE NAME: 23708-009
ID#: 9212171A-02A

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	1010608	Date of Collection:	NP
Dil. Factor:	1.0	Date of Analysis:	1/6/93

Compound	CAS Number	Match Quality	Amount (nG)
Thiophene	110-02-1	90%	1400
Ethynylbenzene	536-74-3	91%	1500
Unknown Ethylmethylbenzene	NA	95%	850
Unknown Trimethylbenzene	NA	83%	3500
Unknown Methylethylbenzene	NA	93%	710
1-(1-propynyl) cyclohexene	1655-05-6	81%	2600
Unknown ethenylmethylbenzene	NA	95%	3500
1,1'-(1-ethenyl-1,3-propanediyl) bisbenzene	61141-97-7	50%	580
1-propynylbenzene	673-32-5	55%	5800
Azulene	275-51-4	95%	4900

COMMENTS:
S = Saturated peak, data reported as estimated.
E = Exceeds Instrument calibration range, but within linear range.
Q = Exceeds Quality Control limits of +/- 30% due to Matrix Interference.

Surrogates	% Recovery	Method Limits
1,2-dichloroethane-d4	34 Q	70-130
Toluene-d8	58 Q	70-130
4-Bromofluorobenzene	100	70-130

AIR TOXICS LTD.

SAMPLE NAME: 23708-010
ID#: 9212171A-03A
SW-846 METHOD 8240

File Name:	1010710	Date of Collection: 1/1/04
Dil. Factor:	300	Date of Analysis: 1/7/93

Compound	MDL (nG)	Amount (nG)
Chloromethane	3000	Not Detected
Vinyl Chloride	3000	Not Detected
Bromomethane	3000	Not Detected
Chloroethane	3000	Not Detected
Trichlorofluoromethane	3000	Not Detected
1,1-Dichloroethene	3000	Not Detected
Carbon Disulfide	3000	Not Detected
Acetone	15000	Not Detected
Methylene Chloride	3000	Not Detected
trans-1,2-Dichloroethene	3000	Not Detected
1,1-Dichloroethane	3000	Not Detected
Vinyl Acetate	15000	Not Detected
cis-1,2-Dichloroethene	3000	Not Detected
2-Butanone	15000	Not Detected
Chloroform	3000	Not Detected
1,1,1-Trichloroethane	3000	Not Detected
Carbon Tetrachloride	3000	Not Detected
Benzene	3000	190000
1,2-Dichloroethane	3000	Not Detected
Trichloroethene	3000	Not Detected
1,2-Dichloropropane	3000	Not Detected
Bromodichloromethane	3000	Not Detected
trans-1,3-Dichloropropene	3000	Not Detected
4-Methyl-2-Pentanone	15000	Not Detected
Toluene	3000	97000
cis-1,3-Dichloropropene	3000	Not Detected
1,1,2-Trichloroethane	3000	Not Detected
Tetrachloroethene	3000	Not Detected
2-Hexanone	15000	Not Detected
Dibromochloromethane	3000	Not Detected
Chlorobenzene	3000	Not Detected
Ethyl Benzene	3000	Not Detected
m,p-Xylene	3000	53000
o-Xylene	3000	9300
Styrene	3000	13000
Bromoform	3000	Not Detected
1,1,2,2-Tetrachloroethane	3000	Not Detected
1,3-Dichlorobenzene	3000	Not Detected
1,4-Dichlorobenzene	3000	Not Detected
1,2-Dichlorobenzene	3000	Not Detected

AIR TOXICS LTD.

SAMPLE NAME: 23708-010
ID#: 9212171A-03A

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	1010710	Date of Collection:	1/1/04
Dil. Factor:	300	Date of Analysis:	1/7/93

Compound	CAS Number	Match Quality	Amount (nG)
Unknown Trimethylbenzene	NA	93%	4900

Surrogates	% Recovery	Method Limits
1,2-dichloroethane-d4	101	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	105	70-130

AIR TOXICS LTD.

SAMPLE NAME: 23708-011
ID#: 9212171A-04A
SW-846 METHOD 8240

File Name:	1D10708	Date of Collection: NP
Dil. Factor:	30	Date of Analysis: 1/7/93

Compound	MDL (nG)	Amount (nG)
Chloromethane	300	Not Detected
Vinyl Chloride	300	Not Detected
Bromomethane	300	Not Detected
Chloroethane	300	Not Detected
Trichlorofluoromethane	300	Not Detected
1,1-Dichloroethene	300	Not Detected
Carbon Disulfide	300	Not Detected
Acetone	1500	Not Detected
Methylene Chloride	300	110000 E
trans-1,2-Dichloroethene	300	Not Detected
1,1-Dichloroethane	300	Not Detected
Vinyl Acetate	1500	Not Detected
cis-1,2-Dichloroethene	300	Not Detected
2-Butanone	1500	Not Detected
Chloroform	300	Not Detected
1,1,1-Trichloroethane	300	Not Detected
Carbon Tetrachloride	300	Not Detected
Benzene	300	10000
1,2-Dichloroethane	300	Not Detected
Trichloroethene	300	Not Detected
1,2-Dichloropropane	300	Not Detected
Bromodichloromethane	300	Not Detected
trans-1,3-Dichloropropene	300	Not Detected
4-Methyl-2-Pentanone	1500	Not Detected
Toluene	300	5800
cis-1,3-Dichloropropene	300	Not Detected
1,1,2-Trichloroethane	300	Not Detected
Tetrachloroethene	300	Not Detected
2-Hexanone	1500	Not Detected
Dibromochloromethane	300	Not Detected
Chlorobenzene	300	Not Detected
Ethyl Benzene	300	Not Detected
m,p-Xylene	300	1400
o-Xylene	300	Not Detected
Styrene	300	790
Bromoform	300	Not Detected
1,1,2,2-Tetrachloroethane	300	Not Detected
1,3-Dichlorobenzene	300	Not Detected
1,4-Dichlorobenzene	300	Not Detected
1,2-Dichlorobenzene	300	Not Detected

AIR TOXICS LTD.

SAMPLE NAME: 23708-011
ID#: 9212171A-04A

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	1010708	Date of Collection:	NP
Dil. Factor:	30	Date of Analysis:	1/7/93

Compound	CAS Number	Match Quality	Amount (nG)
Unknown	NA	NA	4200
Unknown	NA	NA	480
3,8-dimethyldecane	17312-55-9	64	320
Unknown Hydrocarbon	NA	NA	330
Unknown Aromatic	NA	84	310
Unknown Aromatic	NA	93	750

COMMENT:
E = Exceeds instrument calibration range, but within linear range.

Surrogates	% Recovery	Method Limits
1,2-dichloroethane-d4	106	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	106	70-130

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank
ID#: 9212171A-05A
SW-846 METHOD 8240

File Name:	1010607	Date of Collection:	NA
Dil. Factor:	1.0	Date of Analysis:	1/6/93

Compound	MDL (nG)	Amount (nG)
Chloromethane	10	Not Detected
Vinyl Chloride	10	Not Detected
Bromomethane	10	Not Detected
Chloroethane	10	Not Detected
Trichlorofluoromethane	10	Not Detected
1,1-Dichloroethene	10	Not Detected
Carbon Disulfide	10	Not Detected
Acetone	50	Not Detected
Methylene Chloride	10	Not Detected
trans-1,2-Dichloroethene	10	Not Detected
1,1-Dichloroethane	10	Not Detected
Vinyl Acetate	50	Not Detected
cis-1,2-Dichloroethene	10	Not Detected
2-Butanone	50	Not Detected
Chloroform	10	Not Detected
1,1,1-Trichloroethane	10	Not Detected
Carbon Tetrachloride	10	Not Detected
Benzene	10	Not Detected
1,2-Dichloroethane	10	Not Detected
Trichloroethene	10	Not Detected
1,2-Dichloropropane	10	Not Detected
Bromodichloromethane	10	Not Detected
trans-1,3-Dichloropropene	10	Not Detected
4-Methyl-2-Pentanone	50	Not Detected
Toluene	10	Not Detected
cis-1,3-Dichloropropene	10	Not Detected
1,1,2-Trichloroethane	10	Not Detected
Tetrachloroethene	10	Not Detected
2-Hexanone	50	Not Detected
Dibromochloromethane	10	Not Detected
Chlorobenzene	10	Not Detected
Ethyl Benzene	10	Not Detected
m,p-Xylene	10	Not Detected
o-Xylene	10	Not Detected
Styrene	10	Not Detected
Bromoform	10	Not Detected
1,1,2,2-Tetrachloroethane	10	Not Detected
1,3-Dichlorobenzene	10	Not Detected
1,4-Dichlorobenzene	10	Not Detected
1,2-Dichlorobenzene	10	Not Detected

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank
ID#: 9212171A-05A

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	1010607	Date of Collection:	NA
Dil. Factor:	1.0	Date of Analysis:	1/6/93

Compound	CAS Number	Match Quality	Amount (nG)
None Identified			

Surrogates	% Recovery	Method Limits
1,2-dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank
ID#: 9212171A-05B
EPA METHOD TO-14 GC/MS Full Scan

File Name:	1010707	Date of Collection:	NA
Dil. Factor:	1.0	Date of Analysis:	1/7/93

Compound	MDL (nG)	Amount (nG)
Chloromethane	10	Not Detected
Vinyl Chloride	10	Not Detected
Bromomethane	10	Not Detected
Chloroethane	10	Not Detected
Trichlorofluoromethane	10	Not Detected
1,1-Dichloroethene	10	Not Detected
Carbon Disulfide	10	Not Detected
Acetone	50	Not Detected
Methylene Chloride	10	Not Detected
trans-1,2-Dichloroethene	10	Not Detected
1,1-Dichloroethane	10	Not Detected
Vinyl Acetate	50	Not Detected
cis-1,2-Dichloroethene	10	Not Detected
2-Butanone	50	Not Detected
Chloroform	10	Not Detected
1,1,1-Trichloroethane	10	Not Detected
Carbon Tetrachloride	10	Not Detected
Benzene	10	Not Detected
1,2-Dichloroethane	10	Not Detected
Trichloroethene	10	Not Detected
1,2-Dichloropropane	10	Not Detected
Bromodichloromethane	10	Not Detected
trans-1,3-Dichloropropene	10	Not Detected
4-Methyl-2-Pentanone	50	Not Detected
Toluene	10	Not Detected
cis-1,3-Dichloropropene	10	Not Detected
1,1,2-Trichloroethane	10	Not Detected
Tetrachloroethene	10	Not Detected
2-Hexanone	50	Not Detected
Dibromochloromethane	10	Not Detected
Chlorobenzene	10	Not Detected
Ethyl Benzene	10	Not Detected
m,p-Xylene	10	Not Detected
o-Xylene	10	Not Detected
Styrene	10	Not Detected
Bromoform	10	Not Detected
1,1,2,2-Tetrachloroethane	10	Not Detected
1,3-Dichlorobenzene	10	Not Detected
1,4-Dichlorobenzene	10	Not Detected
1,2-Dichlorobenzene	10	Not Detected

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank
ID#: 9212171A-05B

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	1010707	Date of Collection:	NA
Dil. Factor:	1.0	Date of Analysis:	1/7/93

Compound	CAS Number	Match Quality	Amount (nG)
None Identified			

Surrogates	% Recovery	Method Limits
1,2-dichloroethane-d4	105	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	101	70-130

 IGT_ANALYTICAL REPORT Work Order # 92-12-038

Received: 12/17/92 12/23/92 15:02:37

RECEIVED DEC 30 1992

REPORT TO Mostardi Platt Associates Inc
945 Oaklawn Ave.
Elmhurst, Illinois 60126
(Phone #: 1-708-993-9000)
ATTEN Cheryl Smith

PREPARED BY Chemical Research Services
Institute of Gas Technology
3424 S. State Street
Chicago, IL 60616-3896
ATTEN S. S. Chao | Business Phone
PHONE 312-949-3838 | 312-949-3650

CERTIFIED BY

CONTACT KONCAR 3815

CLIENT MOST PLATT SAMPLES 4
COMPANY Mostardi Platt Associates Inc
FACILITY 945 Oaklawn Ave.
Elmhurst, Illinois 60126

(For additional information, phone the CONTACT above.)
NEITHER IGT NOR ANY PERSON ACTING ON BEHALF OF IGT ASSUMES ANY LIABILITY WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION PRESENTED IN THIS REPORT.

WORK ID Gas samples 12/14,16/92
TAKEN 12/14/92 12/16/92
TRANS
TYPE
P.O. # 9919,9923
INVOICE under separate cover

If needed, their FAX # is 1-708-860-5938.

SAMPLE IDENTIFICATION

02 Sample 23708-001
03 Sample 23708-002
4 Sample 23708-003

TEST CODES and NAMES used on this workorder

SLFRTG Trace Sulfur in Gas
SYNGAS ASTM D1946 Gas Analysis

Major Components
&
Sulfurs

Received: 12/17/92 Results by Sample

SAMPLE ID Sample 23708-001 FRACTION 02A TEST CODE SYNGAS NAME ASTM D1946 Gas Analysis
Date & Time Collected not specified Category

Date received: 12/17/92 Date analyzed: 12/18/92

COMPONENT	MOLE%	D. L.	WEIGHT%
Helium	ND		
Hydrogen	BDL	0.04	
Oxygen & Argon	21.4	0.03	23.7
Nitrogen	78.5	0.03	76.2
Carbon dioxide	0.07	0.03	0.10
Carbon monoxide	BDL	0.03	
Methane	BDL	0.03	
Ethane	BDL	0.03	
Ethene	BDL	0.03	
Ethyne (Acetylene)	BDL	0.002	
Propane	BDL	0.002	
Propene	BDL	0.002	
Propyne	BDL	0.002	
Propadiene	BDL	0.002	
i-Butane	BDL	0.003	
n-Butane	BDL	0.003	
1-Butene	BDL	0.003	
iso-Butene	BDL	0.003	
trans-2-Butene	BDL	0.003	
cis-2-Butene	BDL	0.003	
Butadiene	BDL	0.006	
neo-Pentane	BDL	0.006	
i-Pentane	BDL	0.01	
n-Pentane	BDL	0.01	
Pentenes	BDL	0.01	
C-6 & heavier	BDL	0.002	
Hydrogen sulfide	ND		
Carbonyl sulfide	ND		
Total	100.0		100.0

CALCULATED PROPERTIES at 60°F / 14.73 psia (per ASTM D3588-91)

Relative Density : 0.997 Wobbe Index (BTU/SCF) : 0
Compressibility (z) : 0.9996
Gross Heating Value (BTU/SCF) Net Heating Value (BTU/SCF)
-- dry -- : 0 -- dry -- : 0
-- sat.-- : 0 -- sat.-- : 0

Analyst : JLO

NOTES: "BDL" = Below Detection Limit (D. L.); "ND" = Component Not Determined

Received: 12/17/92 Results by Sample

SAMPLE ID Sample 23708-001 FRACTION 02A TEST CODE SLFRTG NAME Trace Sulfur in Gas
Date & Time Collected not specified Category

Date Sample Received 12/17/92
Date Sample Analyzed 12/17/92

TRACE SULFUR DETERMINATION BY GAS CHROMATOGRAPHY

COMPOUND	ppmv	COMPOUND	ppmv
Hydrogen Sulfide	BDL	Thiophene	BDL
Sulfur Dioxide	BDL	C1-Thiophenes	BDL
Carbonyl Sulfide	BDL	C2-Thiophenes	BDL
Carbon Disulfide	BDL	C3-Thiophenes	BDL
Methyl Mercaptan	BDL	Benzothiophene	BDL
Ethyl Mercaptan	BDL	C1-Benzothiophenes	BDL
i-Propyl Mercaptan	BDL	C2-Benzothiophenes	BDL
n-Propyl Mercaptan	BDL		
t-Butyl Mercaptan	BDL	Thiophane	BDL
Dimethyl Sulfide	BDL	Thiophenol	BDL
Methyl Ethyl Sulfide	BDL		
Diethyl Sulfide	BDL		
Di-t-Butyl Sulfide	BDL	Total unidentified sulfur compounds:	BDL
Dimethyl Disulfide	BDL		
Methyl Ethyl Disulfide	BDL	(all quantitated as monosulfides)	
Methyl i-Propyl Disulfide	BDL		
Diethyl Disulfide	BDL		
Methyl n-Propyl Disulfide	BDL		
Methyl t-Butyl Disulfide	BDL		
Ethyl i-Propyl Disulfide	BDL		
Ethyl n-Propyl Disulfide	BDL		
Ethyl t-Butyl Disulfide	BDL		
Di-i-Propyl Disulfide	BDL		
i-Propyl n-Propyl Disulfide	BDL		
Di-n-Propyl Disulfide	BDL		
i-Propyl t-Butyl Disulfide	BDL		
n-Propyl t-Butyl Disulfide	BDL		
Di-t-Butyl Disulfide	BDL		
Di-t-Butyl Trisulfide	BDL		

NOTES: "BDL" = Below Detection Limit:
1 ppmv for Hydrogen Sulfide,
0.1 ppmv for all other compounds

Total Sulfur content: 0 ppm, or 0 grains/100 SCF

All Components BDL

Analyst: CLA

Received: 12/17/92 Results by Sample

SAMPLE ID Sample 23708-002 FRACTION 03A TEST CODE SYNGAS NAME ASTM D1946 Gas Analysis
Date & Time Collected not specified Category

Date received: 12/17/92 Date analyzed: 12/18/92

COMPONENT	MOLE%	D. L.	WEIGHT%
Helium	ND		
Hydrogen	42.6	0.04	5.93
Oxygen & Argon	2.91	0.03	6.43
Nitrogen	15.9	0.03	30.7
Carbon dioxide	1.29	0.03	3.92
Carbon monoxide	4.13	0.03	7.99
Methane	27.7	0.03	30.7
Ethane	1.26	0.03	2.61
Ethene	3.11	0.03	6.03
Ethyne (Acetylene)	0.089	0.002	0.160
Propane	0.041	0.002	0.126
Propene	0.202	0.002	0.586
Propyne	0.008	0.002	0.023
Propadiene	0.003	0.002	0.010
i-Butane	BDL	0.003	
n-Butane	0.004	0.003	0.015
1-Butene	BDL	0.003	
iso-Butene	0.015	0.003	0.057
trans-2-Butene	0.003	0.003	0.012
cis-2-Butene	BDL	0.003	
Butadiene	0.023	0.006	0.088
neo-Pentane	BDL	0.006	
i-Pentane	BDL	0.01	
n-Pentane	BDL	0.01	
Pentenes	BDL	0.01	
C-6 & heavier	0.771	0.002	4.59
Hydrogen sulfide	ND		
Carbonyl sulfide	ND		
Total	100.0		100.0

CALCULATED PROPERTIES at 60°F / 14.73 psia (per ASTM D3588-91)

Relative Density : 0.500 Wobbe Index (BTU/SCF) : 778
Compressibility (z) : 0.9994

Gross Heating Value (BTU/SCF)		Net Heating Value (BTU/SCF)	
-- dry -- :	550	-- dry -- :	492
-- sat.-- :	540	-- sat.-- :	484

Analyst : JLO

NOTES: "BDL" = Below Detection Limit (D. L.); "ND" = Component Not Determined

Received: 12/17/92 Results by Sample

SAMPLE ID Sample 23708-002 FRACTION 03A TEST CODE SLFRTG NAME Trace Sulfur in Gas
Date & Time Collected not specified Category

Date Sample Received 12/17/92
Date Sample Analyzed 12/17/92

TRACE SULFUR DETERMINATION BY GAS CHROMATOGRAPHY

COMPOUND	ppmv	COMPOUND	ppmv
Hydrogen Sulfide	BDL	Thiophene	42
Sulfur Dioxide	BDL	C1-Thiophenes	6.3
Carbonyl Sulfide	19	C2-Thiophenes	0.3
Carbon Disulfide	24	C3-Thiophenes	BDL
Methyl Mercaptan	BDL	Benzothiophene	0.2
Ethyl Mercaptan	BDL	C1-Benzothiophenes	BDL
i-Propyl Mercaptan	BDL	C2-Benzothiophenes	BDL
n-Propyl Mercaptan	BDL		
t-Butyl Mercaptan	BDL	Thiophane	BDL
Dimethyl Sulfide	BDL	Thiophenol	BDL
Methyl Ethyl Sulfide	BDL		
Diethyl Sulfide	BDL		
Di-t-Butyl Sulfide	BDL	Total unidentified sulfur compounds:	0.4
Dimethyl Disulfide	BDL		
Methyl Ethyl Disulfide	BDL	(all quantitated as monosulfides)	
Methyl i-Propyl Disulfide	BDL		
Diethyl Disulfide	BDL	(1)	0.4
Methyl n-Propyl Disulfide	BDL		
Methyl t-Butyl Disulfide	BDL		
Ethyl i-Propyl Disulfide	BDL		
Ethyl n-Propyl Disulfide	BDL		
Ethyl t-Butyl Disulfide	BDL		
Di-i-Propyl Disulfide	BDL		
i-Propyl n-Propyl Disulfide	BDL		
Di-n-Propyl Disulfide	BDL		
i-Propyl t-Butyl Disulfide	BDL		
n-Propyl t-Butyl Disulfide	BDL		
Di-t-Butyl Disulfide	BDL		
Di-t-Butyl Trisulfide	BDL		

NOTES: "BDL" = Below Detection Limit:
1 ppmv for Hydrogen Sulfide,
0.1 ppmv for all other compounds

Total Sulfur content: 120 ppm, or 7.3 grains/100 SCF

Analyst: CLA

Received: 12/17/92 Results by Sample

SAMPLE ID Sample 23708-003 FRACTION 04A TEST CODE SYNGAS NAME ASTM D1946 Gas Analysis
Date & Time Collected not specified Category

Date received: 12/17/92 Date analyzed: 12/18/92

COMPONENT	MOLE%	D. L.	WEIGHT%
Helium	ND		
Hydrogen	15.3	0.04	1.31
Oxygen & Argon	15.0	0.03	20.2
Nitrogen	56.0	0.03	66.3
Carbon dioxide	0.45	0.03	0.83
Carbon monoxide	1.42	0.03	1.68
Methane	9.86	0.03	6.69
Ethane	0.38	0.03	0.48
Ethene	1.23	0.03	1.45
Ethyne (Acetylene)	0.032	0.002	0.036
Propane	0.013	0.002	0.025
Propene	0.068	0.002	0.120
Propyne	0.004	0.002	0.007
Propadiene	BDL	0.002	
i-Butane	BDL	0.003	
n-Butane	BDL	0.003	
1-Butene	BDL	0.003	
iso-Butene	0.004	0.003	0.010
trans-2-Butene	BDL	0.003	
cis-2-Butene	BDL	0.003	
Butadiene	0.008	0.006	0.019
neo-Pentane	BDL	0.006	
i-Pentane	BDL	0.01	
n-Pentane	BDL	0.01	
Pentenes	BDL	0.01	
C-6 & heavier	0.215	0.002	0.783
Hydrogen sulfide	ND		
Carbonyl sulfide	ND		
Total	100.0		100.0

CALCULATED PROPERTIES at 60°F / 14.73 psia (per ASTM D3588-91)

Relative Density : 0.817 Wobbe Index (BTU/SCF) : 215
Compressibility (z) : 0.9996

Gross Heating Value (BTU/SCF)		Net Heating Value (BTU/SCF)	
-- dry -- :	194	-- dry -- :	173
-- sat.-- :	191	-- sat.-- :	170

Analyst : JLO

NOTES: "BDL" = Below Detection Limit (D. L.); "ND" = Component Not Determined

Received: 12/17/92 Results by Sample

SAMPLE ID Sample 23708-003 FRACTION 04A TEST CODE SLFRTG NAME Trace Sulfur in Gas
Date & Time Collected not specified Category

Date Sample Received 12/17/92
Date Sample Analyzed 12/17/92

TRACE SULFUR DETERMINATION BY GAS CHROMATOGRAPHY

COMPOUND	ppmv	COMPOUND	ppmv
Hydrogen Sulfide	240	Thiophene	13
Sulfur Dioxide	BDL	C1-Thiophenes	1.3
Carbonyl Sulfide	13	C2-Thiophenes	BDL
Carbon Disulfide	7.2	C3-Thiophenes	BDL
Methyl Mercaptan	1.4	Benzothiophene	BDL
Ethyl Mercaptan	BDL	C1-Benzothiophenes	BDL
i-Propyl Mercaptan	BDL	C2-Benzothiophenes	BDL
n-Propyl Mercaptan	BDL		
t-Butyl Mercaptan	BDL	Thiophane	BDL
Dimethyl Sulfide	BDL	Thiophenol	BDL
Methyl Ethyl Sulfide	BDL		
Diethyl Sulfide	BDL		
Di-t-Butyl Sulfide	BDL	Total unidentified sulfur compounds:	1.8
Dimethyl Disulfide	BDL		
Methyl Ethyl Disulfide	BDL	(all quantitated as monosulfides)	
Methyl i-Propyl Disulfide	BDL		
Diethyl Disulfide	BDL	(1)	1.8
Methyl n-Propyl Disulfide	BDL		
Methyl t-Butyl Disulfide	BDL		
Ethyl i-Propyl Disulfide	BDL		
Ethyl n-Propyl Disulfide	BDL		
Ethyl t-Butyl Disulfide	BDL		
Di-i-Propyl Disulfide	BDL		
i-Propyl n-Propyl Disulfide	BDL		
Di-n-Propyl Disulfide	BDL		
i-Propyl t-Butyl Disulfide	BDL		
n-Propyl t-Butyl Disulfide	BDL		
Di-t-Butyl Disulfide	BDL		
Di-t-Butyl Trisulfide	BDL		

NOTES: "BDL" = Below Detection Limit:
1 ppmv for Hydrogen Sulfide,
0.1 ppmv for all other compounds

Total Sulfur content: 280 ppm, or 18 grains/100 SCF

Analyst: CLA

AIR TOXICS LTD.

SAMPLE NAME: 23708-004
ID#: 9212171B-01A
EPA METHOD 8270

File Name: 5011403/5011408 Date of Collection: NP
Dil. Factor: 10 Date of Analysis: 1/14/93

Compound	MDL (uG)	Amount (uG)
Phenol	10	490
bis(2-Chloroethyl) Ether	10	Not Detected
2-Chlorophenol	10	Not Detected
1,3-Dichlorobenzene	10	Not Detected
1,4-Dichlorobenzene	10	Not Detected
1,2-Dichlorobenzene	10	Not Detected
2-Methylphenol	10	62
bis(2-Chloroisopropyl) Ether	10	Not Detected
N-Nitroso-di-n-Propylamine	10	Not Detected
4-Methylphenol	10	89
Hexachloroethane	10	Not Detected
Nitrobenzene	10	Not Detected
Isophorone	10	Not Detected
2-Nitrophenol	10	Not Detected
2,4-Dimethylphenol	10	Not Detected
Benzoic Acid	10	Not Detected
bis(2-Chloroethoxy) Methane	10	Not Detected
2,4-Dichlorophenol	10	Not Detected
1,2,4-Trichlorobenzene	10	Not Detected
Naphthalene	1000	19000
4-Chloroaniline	10	Not Detected
Hexachlorobutadiene	10	Not Detected
4-Chloro-3-Methylphenol	10	Not Detected
2-Methylnaphthalene	10	710
Hexachlorocyclopentadiene	10	Not Detected
2,4,6-Trichlorophenol	10	Not Detected
2,4,5-Trichlorophenol	10	Not Detected
2-Chloronaphthalene	10	Not Detected
2-Nitroaniline	10	Not Detected
Dimethylphthalate	10	Not Detected
Acenaphthylene	10	Not Detected
2,6-Dinitrotoluene	10	Not Detected
3-Nitroaniline	10	Not Detected
Acenaphthene	10	Not Detected
2,4-Dinitrophenol	10	Not Detected
4-Nitrophenol	10	Not Detected
2,4-Dinitrotoluene	10	Not Detected
Dibenzofuran	10	Not Detected
Diethylphthalate	10	Not Detected
Fluorene	10	Not Detected
4-Chlorophenyl-Phenyl Ether	10	Not Detected
4-Nitroaniline	10	Not Detected
4,6-Dinitro-2-Methylphenol	10	Not Detected
N-Nitrosodiphenylamine	10	Not Detected

(cont.)

AIR TOXICS LTD.

SAMPLE NAME: 23708-004
ID#: 9212171B-01A
EPA METHOD 8270

File Name:	5011403/5011408	Date of Collection:	NP
Dil. Factor:	10	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
4-Bromophenyl-Phenyl Ether	10	Not Detected
Hexachlorobenzene	10	Not Detected
Pentachlorophenol	10	Not Detected
Phenanthrene	10	Not Detected
Anthracene	10	Not Detected
di-n-Butylphthalate	10	Not Detected
Fluoranthene	10	Not Detected
Pyrene	10	Not Detected
Butylbenzylphthalate	10	Not Detected
3,3'-Dichlorobenzidine	10	Not Detected
Chrysene	10	Not Detected
Benzo(a)anthracene	10	Not Detected
bis(2-Ethylhexyl)phthalate	10	Not Detected
Di-n-Octylphthalate	10	Not Detected
Benzo(b)fluoranthene	10	Not Detected
Benzo(k)fluoranthene	10	Not Detected
Benzo(a)pyrene	10	Not Detected
Indeno(1,2,3-cd)pyrene	10	Not Detected
Dibenz(a,h)anthracene	10	Not Detected
Benzo(g,h,i)perylene	10	Not Detected

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	5011403/5011408	Date of Collection:	NP
Dil. Factor:	10	Date of Analysis:	1/14/93

Compound	CAS Number	Match Quality	Amount (uG)
1,3,5,7-Cyclooctatetraene	629-20-9	93	2900
1,3,5-Trimethylbenzene	108-67-8	91	1000
Benzonitrile	100-47-0	78	410
1-Ethenyl-4-methyl-benzene	622-97-9	78	1900
Benzofuran	271-89-6	74	1200

Surrogates	% Recovery	Method Limits
2-Fluorophenol	60	25-121
Phenol-d5	45	24-113
Nitrobenzene-d5	95	23-120
2-Fluorobiphenyl	95	30-115
2,4,6-Tribromophenol	70	19-122
Terphenyl-d14	130	18-137

AIR TOXICS LTD.

SAMPLE NAME: 23708-005
ID#: 9212171B-02A
EPA METHOD 8270

File Name:	5011404	Date of Collection:	NP
Dil. Factor:	100	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
Phenol	100	Not Detected
bis(2-Chloroethyl) Ether	100	Not Detected
2-Chlorophenol	100	Not Detected
1,3-Dichlorobenzene	100	Not Detected
1,4-Dichlorobenzene	100	Not Detected
1,2-Dichlorobenzene	100	Not Detected
2-Methylphenol	100	Not Detected
bis(2-Chloroisopropyl) Ether	100	Not Detected
N-Nitroso-di-n-Propylamine	100	Not Detected
4-Methylphenol	100	Not Detected
Hexachloroethane	100	Not Detected
Nitrobenzene	100	Not Detected
Isophorone	100	Not Detected
2-Nitrophenol	100	Not Detected
2,4-Dimethylphenol	100	Not Detected
Benzoic Acid	100	Not Detected
bis(2-Chloroethoxy) Methane	100	Not Detected
2,4-Dichlorophenol	100	Not Detected
1,2,4-Trichlorobenzene	100	Not Detected
Naphthalene	100	7400
4-Chloroaniline	100	Not Detected
Hexachlorobutadiene	100	Not Detected
4-Chloro-3-Methylphenol	100	Not Detected
2-Methylnaphthalene	100	590
Hexachlorocyclopentadiene	100	Not Detected
2,4,6-Trichlorophenol	100	Not Detected
2,4,5-Trichlorophenol	100	Not Detected
2-Chloronaphthalene	100	Not Detected
2-Nitroaniline	100	Not Detected
Dimethylphthalate	100	Not Detected
Acenaphthylene	100	Not Detected
2,6-Dinitrotoluene	100	Not Detected
3-Nitroaniline	100	Not Detected
Acenaphthene	100	Not Detected
2,4-Dinitrophenol	100	Not Detected
4-Nitrophenol	100	Not Detected
2,4-Dinitrotoluene	100	Not Detected
Dibenzofuran	100	Not Detected
Diethylphthalate	100	Not Detected
Fluorene	100	Not Detected
4-Chlorophenyl-Phenyl Ether	100	Not Detected
4-Nitroaniline	100	Not Detected
4,6-Dinitro-2-Methylphenol	100	Not Detected
N-Nitrosodiphenylamine	100	Not Detected

(cont.)

AIR TOXICS LTD.

SAMPLE NAME: 23708-005
ID#: 9212171B-02A
EPA METHOD 8270

File Name:	5011404	Date of Collection:	NP
Dil. Factor:	100	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
4-Bromophenyl-Phenyl Ether	100	Not Detected
Hexachlorobenzene	100	Not Detected
Pentachlorophenol	100	Not Detected
Phenanthrene	100	Not Detected
Anthracene	100	Not Detected
di-n-Butylphthalate	100	Not Detected
Fluoranthene	100	Not Detected
Pyrene	100	Not Detected
Butylbenzylphthalate	100	Not Detected
3,3'-Dichlorobenzidine	100	Not Detected
Chrysene	100	Not Detected
Benzo(a)anthracene	100	Not Detected
bis(2-Ethylhexyl)phthalate	100	Not Detected
Di-n-Octylphthalate	100	Not Detected
Benzo(b)fluoranthene	100	Not Detected
Benzo(k)fluoranthene	100	Not Detected
Benzo(a)pyrene	100	Not Detected
Indeno(1,2,3-cd)pyrene	100	Not Detected
Dibenz(a,h)anthracene	100	Not Detected
Benzo(g,h,i)perylene	100	Not Detected

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	5011404	Date of Collection:	NP
Dil. Factor:	100	Date of Analysis:	1/14/93

Compound	CAS Number	Match Quality	Amount (uG)
1-Ethynyl-4-Methylbenzene	766-97-2	87	4600
Benzo (b) thiophene	95-18-8	90	4000

* Surrogates diluted out

Surrogates	% Recovery	Method Limits
2-Fluorophenol	*	25-121
Phenol-d5	*	24-113
Nitrobenzene-d5	*	23-120
2-Fluorobiphenyl	*	30-115
2,4,6-Tribromophenol	*	19-122
Terphenyl-d14	*	18-137

AIR TOXICS LTD.

SAMPLE NAME: 23708-006
ID#: 9212171B-03A
EPA METHOD 8270

File Name:	5011405	Date of Collection:	NP
Dil. Factor:	100	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
Phenol	100	Not Detected
bis(2-Chloroethyl) Ether	100	Not Detected
2-Chlorophenol	100	Not Detected
1,3-Dichlorobenzene	100	Not Detected
1,4-Dichlorobenzene	100	Not Detected
1,2-Dichlorobenzene	100	Not Detected
2-Methylphenol	100	Not Detected
bis(2-Chloroisopropyl) Ether	100	Not Detected
N-Nitroso-di-n-Propylamine	100	Not Detected
4-Methylphenol	100	Not Detected
Hexachloroethane	100	Not Detected
Nitrobenzene	100	Not Detected
Isophorone	100	Not Detected
2-Nitrophenol	100	Not Detected
2,4-Dimethylphenol	100	Not Detected
Benzoic Acid	100	Not Detected
bis(2-Chloroethoxy) Methane	100	Not Detected
2,4-Dichlorophenol	100	Not Detected
1,2,4-Trichlorobenzene	100	Not Detected
Naphthalene	100	14000
4-Chloroaniline	100	Not Detected
Hexachlorobutadiene	100	Not Detected
4-Chloro-3-Methylphenol	100	Not Detected
2-Methylnaphthalene	100	840
Hexachlorocyclopentadiene	100	Not Detected
2,4,6-Trichlorophenol	100	Not Detected
2,4,5-Trichlorophenol	100	Not Detected
2-Chloronaphthalene	100	Not Detected
2-Nitroaniline	100	Not Detected
Dimethylphthalate	100	Not Detected
Acenaphthylene	100	Not Detected
2,6-Dinitrotoluene	100	Not Detected
3-Nitroaniline	100	Not Detected
Acenaphthene	100	Not Detected
2,4-Dinitrophenol	100	Not Detected
4-Nitrophenol	100	Not Detected
2,4-Dinitrotoluene	100	Not Detected
Dibenzofuran	100	Not Detected
Diethylphthalate	100	Not Detected
Fluorene	100	Not Detected
4-Chlorophenyl-Phenyl Ether	100	Not Detected
4-Nitroaniline	100	Not Detected
4,6-Dinitro-2-Methylphenol	100	Not Detected
N-Nitrosodiphenylamine	100	Not Detected

(cont.)

AIR TOXICS LTD.

SAMPLE NAME: 23708-006
ID#: 9212171B-03A
EPA METHOD 8270

File Name:	5011405	Date of Collection:	NP
Dil. Factor:	100	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
4-Bromophenyl-Phenyl Ether	100	Not Detected
Hexachlorobenzene	100	Not Detected
Pentachlorophenol	100	Not Detected
Phenanthrene	100	Not Detected
Anthracene	100	Not Detected
di-n-Butylphthalate	100	Not Detected
Fluoranthene	100	Not Detected
Pyrene	100	Not Detected
Butylbenzylphthalate	100	Not Detected
3,3'-Dichlorobenzidine	100	Not Detected
Chrysene	100	Not Detected
Benzo(a)anthracene	100	Not Detected
bis(2-Ethylhexyl)phthalate	100	Not Detected
Di-n-Octylphthalate	100	Not Detected
Benzo(b)fluoranthene	100	Not Detected
Benzo(k)fluoranthene	100	Not Detected
Benzo(a)pyrene	100	Not Detected
Indeno(1,2,3-cd)pyrene	100	Not Detected
Dibenz(a,h)anthracene	100	Not Detected
Benzo(g,h,i)perylene	100	Not Detected

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	5011405	Date of Collection:	NP
Dil. Factor:	100	Date of Analysis:	1/14/93

Compound	CAS Number	Match Quality	Amount (uG)
1-Ethyl-4-Methylbenzene	766-97-2	91	14000
Benzo (b) thiophene	95-15-8	83	6300

* Surrogates diluted out

Surrogates	% Recovery	Method Limits
2-Fluorophenol	*	25-121
Phenol-d5	*	24-113
Nitrobenzene-d5	*	23-120
2-Fluorobiphenyl	*	30-115
2,4,6-Tribromophenol	*	19-122
Terphenyl-d14	*	18-137

AIR TOXICS LTD.

SAMPLE NAME: 23708-007
ID#: 9212171B-04A
EPA METHOD 8270

File Name:	5011406	Date of Collection:	NP
Dil. Factor:	10	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
Phenol	10	Not Detected
bis(2-Chloroethyl) Ether	10	Not Detected
2-Chlorophenol	10	Not Detected
1,3-Dichlorobenzene	10	Not Detected
1,4-Dichlorobenzene	10	Not Detected
1,2-Dichlorobenzene	10	Not Detected
2-Methylphenol	10	Not Detected
bis(2-Chloroisopropyl) Ether	10	Not Detected
N-Nitroso-di-n-Propylamine	10	Not Detected
4-Methylphenol	10	Not Detected
Hexachloroethane	10	Not Detected
Nitrobenzene	10	Not Detected
Isophorone	10	Not Detected
2-Nitrophenol	10	Not Detected
2,4-Dimethylphenol	10	Not Detected
Benzoic Acid	10	Not Detected
bis(2-Chloroethoxy) Methane	10	Not Detected
2,4-Dichlorophenol	10	Not Detected
1,2,4-Trichlorobenzene	10	Not Detected
Naphthalene	10	Not Detected
4-Chloroaniline	10	Not Detected
Hexachlorobutadiene	10	Not Detected
4-Chloro-3-Methylphenol	10	Not Detected
2-Methylnaphthalene	10	Not Detected
Hexachlorocyclopentadiene	10	Not Detected
2,4,6-Trichlorophenol	10	Not Detected
2,4,5-Trichlorophenol	10	Not Detected
2-Chloronaphthalene	10	Not Detected
2-Nitroaniline	10	Not Detected
Dimethylphthalate	10	Not Detected
Acenaphthylene	10	Not Detected
2,6-Dinitrotoluene	10	Not Detected
3-Nitroaniline	10	Not Detected
Acenaphthene	10	Not Detected
2,4-Dinitrophenol	10	Not Detected
4-Nitrophenol	10	Not Detected
2,4-Dinitrotoluene	10	Not Detected
Dibenzofuran	10	Not Detected
Diethylphthalate	10	Not Detected
Fluorene	10	Not Detected
4-Chlorophenyl-Phenyl Ether	10	Not Detected
4-Nitroaniline	10	Not Detected
4,6-Dinitro-2-Methylphenol	10	Not Detected
N-Nitrosodiphenylamine	10	Not Detected

(cont.)

AIR TOXICS LTD.

SAMPLE NAME: 23708-007
ID#: 9212171B-04A
EPA METHOD 8270

File Name:	5011406	Date of Collection:	NP
Dil. Factor:	10	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
4-Bromophenyl-Phenyl Ether	10	Not Detected
Hexachlorobenzene	10	Not Detected
Pentachlorophenol	10	Not Detected
Phenanthrene	10	Not Detected
Anthracene	10	Not Detected
di-n-Butylphthalate	10	Not Detected
Fluoranthene	10	Not Detected
Pyrene	10	Not Detected
Butylbenzylphthalate	10	Not Detected
3,3'-Dichlorobenzidine	10	Not Detected
Chrysene	10	Not Detected
Benzo(a)anthracene	10	Not Detected
bis(2-Ethylhexyl)phthalate	10	Not Detected
Di-n-Octylphthalate	10	Not Detected
Benzo(b)fluoranthene	10	Not Detected
Benzo(k)fluoranthene	10	Not Detected
Benzo(a)pyrene	10	Not Detected
Indeno(1,2,3-cd)pyrene	10	Not Detected
Dibenz(a,h)anthracene	10	Not Detected
Benzo(g,h,i)perylene	10	Not Detected

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	5011406	Date of Collection:	NP
Dil. Factor:	10	Date of Analysis:	1/14/93

Compound	CAS Number	Match Quality	Amount (uG)
None Identified			

Surrogates	% Recovery	Method Limits
2-Fluorophenol	75	25-121
Phenol-d5	25	24-113
Nitrobenzene-d5	80	23-120
2-Fluorobiphenyl	105	30-115
2,4,6-Tribromophenol	76	19-122
Terphenyl-d14	90	18-137

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank
ID#: 9212171B-05A
EPA METHOD 8270

File Name:	5011402	Date of Collection: NA
Dil. Factor:	1.0	Date of Analysis: 1/14/93

Compound	MDL (uG)	Amount (uG)
Phenol	1.0	Not Detected
bis(2-Chloroethyl) Ether	1.0	Not Detected
2-Chlorophenol	1.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected
2-Methylphenol	1.0	Not Detected
bis(2-Chloroisopropyl) Ether	1.0	Not Detected
N-Nitroso-di-n-Propylamine	1.0	Not Detected
4-Methylphenol	1.0	Not Detected
Hexachloroethane	1.0	Not Detected
Nitrobenzene	1.0	Not Detected
Isophorone	1.0	Not Detected
2-Nitrophenol	1.0	Not Detected
2,4-Dimethylphenol	1.0	Not Detected
Benzoic Acid	1.0	Not Detected
bis(2-Chloroethoxy) Methane	1.0	Not Detected
2,4-Dichlorophenol	1.0	Not Detected
1,2,4-Trichlorobenzene	1.0	Not Detected
Naphthalene	1.0	Not Detected
4-Chloroaniline	1.0	Not Detected
Hexachlorobutadiene	1.0	Not Detected
4-Chloro-3-Methylphenol	1.0	Not Detected
2-Methylnaphthalene	1.0	Not Detected
Hexachlorocyclopentadiene	1.0	Not Detected
2,4,6-Trichlorophenol	1.0	Not Detected
2,4,5-Trichlorophenol	1.0	Not Detected
2-Chloronaphthalene	1.0	Not Detected
2-Nitroaniline	1.0	Not Detected
Dimethylphthalate	1.0	Not Detected
Acenaphthylene	1.0	Not Detected
2,6-Dinitrotoluene	1.0	Not Detected
3-Nitroaniline	1.0	Not Detected
Acenaphthene	1.0	Not Detected
2,4-Dinitrophenol	1.0	Not Detected
4-Nitrophenol	1.0	Not Detected
2,4-Dinitrotoluene	1.0	Not Detected
Dibenzofuran	1.0	Not Detected
Diethylphthalate	1.0	Not Detected
Fluorene	1.0	Not Detected
4-Chlorophenyl-Phenyl Ether	1.0	Not Detected
4-Nitroaniline	1.0	Not Detected
4,6-Dinitro-2-Methylphenol	1.0	Not Detected
N-Nitrosodiphenylamine	1.0	Not Detected

(cont.)

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank
ID#: 9212171B-05A
EPA METHOD 8270

File Name:	5011402	Date of Collection:	NA
Dil. Factor:	1.0	Date of Analysis:	1/14/93

Compound	MDL (uG)	Amount (uG)
4-Bromophenyl-Phenyl Ether	1.0	Not Detected
Hexachlorobenzene	1.0	Not Detected
Pentachlorophenol	1.0	Not Detected
Phenanthrene	1.0	Not Detected
Anthracene	1.0	Not Detected
di-n-Butylphthalate	1.0	Not Detected
Fluoranthene	1.0	Not Detected
Pyrene	1.0	Not Detected
Butylbenzylphthalate	1.0	Not Detected
3,3'-Dichlorobenzidine	1.0	Not Detected
Chrysene	1.0	Not Detected
Benzo(a)anthracene	1.0	Not Detected
bis(2-Ethylhexyl)phthalate	1.0	Not Detected
Di-n-Octylphthalate	1.0	Not Detected
Benzo(b)fluoranthene	1.0	Not Detected
Benzo(k)fluoranthene	1.0	Not Detected
Benzo(a)pyrene	1.0	Not Detected
Indeno(1,2,3-cd)pyrene	1.0	Not Detected
Dibenz(a,h)anthracene	1.0	Not Detected
Benzo(g,h,i)perylene	1.0	Not Detected

TENTATIVELY IDENTIFIED COMPOUNDS - Top 10 Reported

File Name:	5011402	Date of Collection:	NA
Dil. Factor:	1.0	Date of Analysis:	1/14/93

Compound	CAS Number	Match Quality	Amount (uG)
None Identified			

Surrogates	% Recovery	Method Limits
2-Fluorophenol	30	25-121
Phenol-d5	90	24-113
Nitrobenzene-d5	47	23-120
2-Fluorobiphenyl	41	30-115
2,4,6-Tribromophenol	64	19-122
Terphenyl-d14	30	18-137

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-017	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0795	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene	20	N.D.
Acenaphthylene	20	N.D.
Aniline	20	N.D.
Anthracene	20	N.D.
Benzidine	500	N.D.
Benzoic Acid	100	N.D.
Benzo(a)anthracene	20	N.D.
Benzo(b)fluoranthene	20	N.D.
Benzo(k)fluoranthene	20	N.D.
Benzo(g,h,i)perylene	20	N.D.
Benzo(a)pyrene	20	N.D.
Benzyl alcohol	20	N.D.
Bis(2-chloroethoxy)methane	20	N.D.
Bis(2-chloroethyl)ether	20	N.D.
Bis(2-chloroisopropyl)ether	20	N.D.
Bis(2-ethylhexyl)phthalate	100	N.D.
4-Bromophenyl phenyl ether	20	N.D.
Butyl benzyl phthalate	20	N.D.
4-Chloroaniline	20	N.D.
2-Chloronaphthalene	20	N.D.
4-Chloro-3-methylphenol	20	N.D.
2-Chlorophenol	20	N.D.
4-Chlorophenyl phenyl ether	20	N.D.
Chrysene	20	N.D.
Dibenz(a,h)anthracene	20	N.D.
Dibenzofuran	20	N.D.
Di-N-butyl phthalate	100	N.D.
1,3-Dichlorobenzene	20	N.D.
1,4-Dichlorobenzene	20	N.D.
1,2-Dichlorobenzene	20	N.D.
3,3-Dichlorobenzidine	100	N.D.
2,4-Dichlorophenol	20	N.D.
Diethyl phthalate	20	N.D.
2,4-Dimethylphenol	20	21
Dimethyl phthalate	20	N.D.
4,6-Dinitro-2-methylphenol	100	N.D.
2,4-Dinitrophenol	100	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-017	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0795	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
2,4-Dinitrotoluene	20.0	N.D.
2,6-Dinitrotoluene	20.0	N.D.
Di-N-octyl phthalate	20.0	N.D.
Fluoranthene	20.0	N.D.
Fluorene	20.0	N.D.
Hexachlorobenzene	20.0	N.D.
Hexachlorobutadiene	20.0	N.D.
Hexachlorocyclopentadiene	20.0	N.D.
Hexachloroethane	20.0	N.D.
Indeno(1,2,3-cd)pyrene	20.0	N.D.
Isophorone	20.0	N.D.
2-Methylnaphthalene	20.0	N.D.
2-Methylphenol	20.0	210
4-Methylphenol	20.0	110
Naphthalene	20.0	N.D.
2-Nitroaniline	100	N.D.
3-Nitroaniline	100	N.D.
4-Nitroaniline	100	N.D.
Nitrobenzene	20.0	N.D.
2-Nitrophenol	20.0	N.D.
4-Nitrophenol	100	N.D.
N-Nitrosodiphenylamine	20.0	N.D.
N-Nitroso-di-N-propylamine	20.0	N.D.
Pentachlorophenol	100	N.D.
Phenathrene	20.0	N.D.
Phenol	20.0	4,300
Pyrene	20.0	N.D.
1,2,4-Trichlorobenzene	20.0	N.D.
2,4,5-Trichlorophenol	100	N.D.
2,4,6-Trichlorophenol	20.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-018	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0796	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene	20	N.D.
Acenaphthylene	20	N.D.
Aniline	20	N.D.
Anthracene	20	N.D.
Benzidine	500	N.D.
Benzoic Acid	100	N.D.
Benzo(a)anthracene	20	N.D.
Benzo(b)fluoranthene	20	N.D.
Benzo(k)fluoranthene	20	N.D.
Benzo(g,h,i)perylene	20	N.D.
Benzo(a)pyrene	20	N.D.
Benzyl alcohol	20	N.D.
Bis(2-chloroethoxy)methane	20	N.D.
Bis(2-chloroethyl)ether	20	N.D.
Bis(2-chloroisopropyl)ether	20	N.D.
Bis(2-ethylhexyl)phthalate	100	N.D.
4-Bromophenyl phenyl ether	20	N.D.
Butyl benzyl phthalate	20	N.D.
4-Chloroaniline	20	N.D.
2-Chloronaphthalene	20	N.D.
4-Chloro-3-methylphenol	20	N.D.
2-Chlorophenol	20	N.D.
4-Chlorophenyl phenyl ether	20	N.D.
Chrysene	20	N.D.
Dibenz(a,h)anthracene	20	N.D.
Dibenzofuran	20	N.D.
Di-N-butyl phthalate	100	N.D.
1,3-Dichlorobenzene	20	N.D.
1,4-Dichlorobenzene	20	N.D.
1,2-Dichlorobenzene	20	N.D.
3,3-Dichlorobenzidine	100	N.D.
2,4-Dichlorophenol	20	N.D.
Diethyl phthalate	20	N.D.
2,4-Dimethylphenol	20	22
Dimethyl phthalate	20	N.D.
4,6-Dinitro-2-methylphenol	100	N.D.
2,4-Dinitrophenol	100	N.D.

121

2120795.MOS <6>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-018	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0796	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
2,4-Dinitrotoluene	20.0	N.D.
2,6-Dinitrotoluene	20.0	N.D.
Di-N-octyl phthalate	20.0	N.D.
Fluoranthene	20.0	N.D.
Fluorene	20.0	N.D.
Hexachlorobenzene	20.0	N.D.
Hexachlorobutadiene	20.0	N.D.
Hexachlorocyclopentadiene	20.0	N.D.
Hexachloroethane	20.0	N.D.
Indeno(1,2,3-cd)pyrene	20.0	N.D.
Isophorone	20.0	N.D.
2-Methylnaphthalene	20.0	N.D.
2-Methylphenol	**20.0**	**140**
4-Methylphenol	**20.0**	**620**
Naphthalene	**20.0**	**24**
2-Nitroaniline	100	N.D.
3-Nitroaniline	100	N.D.
4-Nitroaniline	100	N.D.
Nitrobenzene	20.0	N.D.
2-Nitrophenol	20.0	N.D.
4-Nitrophenol	100	N.D.
N-Nitrosodiphenylamine	20.0	N.D.
N-Nitroso-di-N-propylamine	20.0	N.D.
Pentachlorophenol	100	N.D.
Phenathrene	20.0	N.D.
Phenol	**20.0**	**1,700**
Pyrene	20.0	N.D.
1,2,4-Trichlorobenzene	20.0	N.D.
2,4,5-Trichlorophenol	100	N.D.
2,4,6-Trichlorophenol	20.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-019	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0797	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthene	20	N.D.
Acenaphthylene	20	N.D.
Aniline	20	N.D.
Anthracene	20	N.D.
Benzidine	500	N.D.
Benzoic Acid	100	N.D.
Benzo(a)anthracene	20	N.D.
Benzo(b)fluoranthene	20	N.D.
Benzo(k)fluoranthene	20	N.D.
Benzo(g,h,i)perylene	20	N.D.
Benzo(a)pyrene	20	N.D.
Benzyl alcohol	20	N.D.
Bis(2-chloroethoxy)methane	20	N.D.
Bis(2-chloroethyl)ether	20	N.D.
Bis(2-chloroisopropyl)ether	20	N.D.
Bis(2-ethylhexyl)phthalate	100	N.D.
4-Bromophenyl phenyl ether	20	N.D.
Butyl benzyl phthalate	20	N.D.
4-Chloroaniline	20	N.D.
2-Chloronaphthalene	20	N.D.
4-Chloro-3-methylphenol	20	N.D.
2-Chlorophenol	20	N.D.
4-Chlorophenyl phenyl ether	20	N.D.
Chrysene	20	N.D.
Dibenz(a,h)anthracene	20	N.D.
Dibenzofuran	20	N.D.
Di-N-butyl phthalate	100	N.D.
1,3-Dichlorobenzene	20	N.D.
1,4-Dichlorobenzene	20	N.D.
1,2-Dichlorobenzene	20	N.D.
3,3-Dichlorobenzidine	100	N.D.
2,4-Dichlorophenol	20	N.D.
Diethyl phthalate	20	N.D.
2,4-Dimethylphenol	20	N.D.
Dimethyl phthalate	20	N.D.
4,6-Dinitro-2-methylphenol	100	N.D.
2,4-Dinitrophenol	100	N.D.

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-019	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0797	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/L	Sample Results µg/L
2,4-Dinitrotoluene	20.0	N.D.
2,6-Dinitrotoluene	20.0	N.D.
Di-N-octyl phthalate	20.0	N.D.
Fluoranthene	20.0	N.D.
Fluorene	20.0	N.D.
Hexachlorobenzene	20.0	N.D.
Hexachlorobutadiene	20.0	N.D.
Hexachlorocyclopentadiene	20.0	N.D.
Hexachloroethane	20.0	N.D.
Indeno(1,2,3-cd)pyrene	20.0	N.D.
Isophorone	20.0	N.D.
2-Methylnaphthalene	20.0	N.D.
2-Methylphenol	**20.0**	**270**
4-Methylphenol	**20.0**	**1,100**
Naphthalene	**20.0**	**26**
2-Nitroaniline	100	N.D.
3-Nitroaniline	100	N.D.
4-Nitroaniline	100	N.D.
Nitrobenzene	20.0	N.D.
2-Nitrophenol	20.0	N.D.
4-Nitrophenol	100	N.D.
N-Nitrosodiphenylamine	20.0	N.D.
N-Nitroso-di-N-propylamine	20.0	N.D.
Pentachlorophenol	100	N.D.
Phenathrene	20.0	N.D.
Phenol	**20.0**	**3,200**
Pyrene	20.0	N.D.
1,2,4-Trichlorobenzene	20.0	N.D.
2,4,5-Trichlorophenol	100	N.D.
2,4,6-Trichlorophenol	20.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

124

2120795.MOS <9>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-017	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270 & "Open Scan"	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0795	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit µg/L	Sample Results µg/L
Pyridine	20	170
3,3-thiobis-Propanenitrile	20	24
Hexanoic acid diactyl ester	20	49

No additional peaks > 20 µg/L were identified by the Mass Spectral Library.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

2120795.MOS <10>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-018	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270 & "Open Scan"	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0796	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit µg/L	Sample Results µg/L
Pyridine	20	460
Hexanoic acid dioctyl ester	20	76

No additional peaks > 20 µg/L were identified by the Mass Spectral Library.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

2120795.MOS <11>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-019	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270 & "Open Scan"	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0797	Analyzed:	Jan 7, 1993
			Reported:	Jan 11, 1993

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit µg/L	Sample Results µg/L
Pyridine	20	1,900
3,4- dimethyl phenol	20	42
Isoquinoline	20	32
1-isocyano, 2-methyl Benzene	20	22
3,3-thiobis Propane nitrile	20	73
Hexanoic acid dioctyl ester	20	270

No additional peaks > 20 µg/L were identified by the Mass Spectral Library.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

2120795.MOS <12>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

CHAIN OF CUSTODY

Client: MOSTARDI - PLATT	Project: 23708
Address: 945 OAKLAWN AVE. ELMHURST, IL 60126	Sampler:
	PO #:
Report to: CHERYL SMITH	Turn-Around Time: 5 Day 3 Day 1-2 Day < 24 Hr.
Phone #:	Date Results Needed: 12/30/92

	Sample Description	Date/ Time	# /Type Cont.	Analysis/Remarks	Lab #
1	23708-017			• TOTAL METALS: Sb, As, Be, Cd,	2120795
2				Cr, Co, Pb, Mn, Hg, Ni	
3				Se, Tl	
4				• PHOSPHORUS	
5				• 8270 + OPEN SCAN	
6	23708-018			SAME AS LINE S1-4	2120796
7	23708-019			↓ ↓ ↓ ↓	2120797
8					
9					
10					
11					
12					
13					
14					
15					

Sample Condition: Violated: Y N Preserved: Y N In Good Condition: Y N

Relinquished:	Date/Time:	Recieved: [signature]
Relinquished:	Date/Time:	Recieved: 12/22/92 0800
Relinquished:	Date/Time:	Recieved:

Comments: SAMPLES COMPOSITED, SPLIT UP & PRESERVED UPON RECEIPT [signature]

128

Page 1 of 1

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-020	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270 & "Open Scan"	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0798	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Pyridine	20	40
Toluene	20	420
1,4-dimethyl Benzene	20	150
1-propynyl Benzene	20	780
1-methyl Naphthalene	20	680

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

2120798.MOS <10>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-021	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270 & "Open Scan"	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0799	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit mg/L	Sample Results mg/L
Toluene	20	160
1-propynyl Benzene	20	110
1-methyl Naphthalene	20	86

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

2120798.MOS <11>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-022	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270 & "Open Scan"	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0800	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit mg/L	Sample Results mg/L
Toluene	20	260
1-propynyl Benzene	20	410
1-methyl Naphthalene	20	280

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

2120798.MOS <12>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-020	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0798	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/L	Sample Results mg/L
Acenaphthene	**20**	**35**
Acenaphthylene	**20**	**1,200**
Aniline	20	N.D.
Anthracene	**20**	**600**
Benzidine	500	N.D.
Benzoic Acid	100	N.D.
Benzo(a)anthracene	20	N.D.
Benzo(b)fluoranthene	20	N.D.
Benzo(k)fluoranthene	**20**	**52**
Benzo(g,h,i)perylene	20	N.D.
Benzo(a)pyrene	**20**	**29**
Benzyl alcohol	20	N.D.
Bis(2-chloroethoxy)methane	20	N.D.
Bis(2-chloroethyl)ether	20	N.D.
Bis(2-chloroisopropyl)ether	20	N.D.
Bis(2-ethylhexyl)phthalate	100	N.D.
4-Bromophenyl phenyl ether	20	N.D.
Butyl benzyl phthalate	20	N.D.
4-Chloroaniline	20	N.D.
2-Chloronaphthalene	20	N.D.
4-Chloro-3-methylphenol	20	N.D.
2-Chlorophenol	20	N.D.
4-Chlorophenyl phenyl ether	20	N.D.
Chrysene	**20**	**73**
Dibenz(a,h)anthracene	20	N.D.
Dibenzofuran	**20**	**350**
Di-N-butyl phthalate	100	N.D.
1,3-Dichlorobenzene	20	N.D.
1,4-Dichlorobenzene	20	N.D.
1,2-Dichlorobenzene	20	N.D.
3,3-Dichlorobenzidine	100	N.D.
2,4-Dichlorophenol	20	N.D.
Diethyl phthalate	20	N.D.
2,4-Dimethylphenol	20	N.D.
Dimethyl phthalate	20	N.D.
4,6-Dinitro-2-methylphenol	100	N.D.
2,4-Dinitrophenol	100	N.D.

2120798.MOS <4>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-020	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0798	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/L	Sample Results mg/L
2,4-Dinitrotoluene	20.0	N.D.
2,6-Dinitrotoluene	20.0	N.D.
Di-N-octyl phthalate	20.0	N.D.
Fluoranthene	**20.0**	**200**
Fluorene	**20.0**	**830**
Hexachlorobenzene	20.0	N.D.
Hexachlorobutadiene	20.0	N.D.
Hexachlorocyclopentadiene	20.0	N.D.
Hexachloroethane	20.0	N.D.
Indeno(1,2,3-cd)pyrene	20.0	N.D.
Isophorone	20.0	N.D.
2-Methylnaphthalene	**20.0**	**280**
2-Methylphenol	20.0	N.D.
4-Methylphenol	20.0	N.D.
Naphthalene	**20.0**	**3,800**
2-Nitroaniline	100	N.D.
3-Nitroaniline	100	N.D.
4-Nitroaniline	100	N.D.
Nitrobenzene	20.0	N.D.
2-Nitrophenol	20.0	N.D.
4-Nitrophenol	100	N.D.
N-Nitrosodiphenylamine	20.0	N.D.
N-Nitroso-di-N-propylamine	20.0	N.D.
Pentachlorophenol	100	N.D.
Phenathrene	**20.0**	**520**
Phenol	**20.0**	**130**
Pyrene	**20.0**	**430**
1,2,4-Trichlorobenzene	20.0	N.D.
2,4,5-Trichlorophenol	100	N.D.
2,4,6-Trichlorophenol	20.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120798.MOS <5>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-021	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0799	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/L	Sample Results mg/L
Acenaphthene	20	N.D.
Acenaphthylene	**20**	**200**
Aniline	20	N.D.
Anthracene	20	N.D.
Benzidine	500	N.D.
Benzoic Acid	100	N.D.
Benzo(a)anthracene	20	N.D.
Benzo(b)fluoranthene	20	N.D.
Benzo(k)fluoranthene	20	N.D.
Benzo(g,h,i)perylene	20	N.D.
Benzo(a)pyrene	20	N.D.
Benzyl alcohol	20	N.D.
Bis(2-chloroethoxy)methane	20	N.D.
Bis(2-chloroethyl)ether	20	N.D.
Bis(2-chloroisopropyl)ether	20	N.D.
Bis(2-ethylhexyl)phthalate	100	N.D.
4-Bromophenyl phenyl ether	20	N.D.
Butyl benzyl phthalate	20	N.D.
4-Chloroaniline	20	N.D.
2-Chloronaphthalene	20	N.D.
4-Chloro-3-methylphenol	20	N.D.
2-Chlorophenol	20	N.D.
4-Chlorophenyl phenyl ether	20	N.D.
Chrysene	20	N.D.
Dibenz(a,h)anthracene	20	N.D.
Dibenzofuran	**20**	**44**
Di-N-butyl phthalate	100	N.D.
1,3-Dichlorobenzene	20	N.D.
1,4-Dichlorobenzene	20	N.D.
1,2-Dichlorobenzene	20	N.D.
3,3-Dichlorobenzidine	100	N.D.
2,4-Dichlorophenol	20	N.D.
Diethyl phthalate	20	N.D.
2,4-Dimethylphenol	20	N.D.
Dimethyl phthalate	20	N.D.
4,6-Dinitro-2-methylphenol	100	N.D.
2,4-Dinitrophenol	100	N.D.

2120798.MOS <6>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-021	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0799	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/L	Sample Results mg/L
2,4-Dinitrotoluene	20.0	N.D.
2,6-Dinitrotoluene	20.0	N.D.
Di-N-octyl phthalate	20.0	N.D.
Fluoranthene	20.0	36
Fluorene	20.0	150
Hexachlorobenzene	20.0	N.D.
Hexachlorobutadiene	20.0	N.D.
Hexachlorocyclopentadiene	20.0	N.D.
Hexachloroethane	20.0	N.D.
Indeno(1,2,3-cd)pyrene	20.0	N.D.
Isophorone	20.0	N.D.
2-Methylnaphthalene	20.0	60
2-Methylphenol	20.0	N.D.
4-Methylphenol	20.0	N.D.
Naphthalene	20.0	80
2-Nitroaniline	100	N.D.
3-Nitroaniline	100	N.D.
4-Nitroaniline	100	N.D.
Nitrobenzene	20.0	N.D.
2-Nitrophenol	20.0	N.D.
4-Nitrophenol	100	N.D.
N-Nitrosodiphenylamine	20.0	N.D.
N-Nitroso-di-N-propylamine	20.0	N.D.
Pentachlorophenol	100	N.D.
Phenathrene	20.0	21
Phenol	20.0	N.D.
Pyrene	20.0	120
1,2,4-Trichlorobenzene	20.0	N.D.
2,4,5-Trichlorophenol	100	N.D.
2,4,6-Trichlorophenol	20.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120798.MOS <7>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-022	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0800	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/L	Sample Results mg/L
Acenaphthene	20	N.D.
Acenaphthylene	**20**	**600**
Aniline	20	N.D.
Anthracene	**20**	**310**
Benzidine	500	N.D.
Benzoic Acid	100	N.D.
Benzo(a)anthracene	20	N.D.
Benzo(b)fluoranthene	20	N.D.
Benzo(k)fluoranthene	20	N.D.
Benzo(g,h,i)perylene	20	N.D.
Benzo(a)pyrene	**20**	**100**
Benzyl alcohol	20	N.D.
Bis(2-chloroethoxy)methane	20	N.D.
Bis(2-chloroethyl)ether	20	N.D.
Bis(2-chloroisopropyl)ether	20	N.D.
Bis(2-ethylhexyl)phthalate	100	N.D.
4-Bromophenyl phenyl ether	20	N.D.
Butyl benzyl phthalate	20	N.D.
4-Chloroaniline	20	N.D.
2-Chloronaphthalene	20	N.D.
4-Chloro-3-methylphenol	20	N.D.
2-Chlorophenol	20	N.D.
4-Chlorophenyl phenyl ether	20	N.D.
Chrysene	20	N.D.
Dibenz(a,h)anthracene	20	N.D.
Dibenzofuran	**20**	**180**
Di-N-butyl phthalate	100	N.D.
1,3-Dichlorobenzene	20	N.D.
1,4-Dichlorobenzene	20	N.D.
1,2-Dichlorobenzene	20	N.D.
3,3-Dichlorobenzidine	100	N.D.
2,4-Dichlorophenol	20	N.D.
Diethyl phthalate	20	N.D.
2,4-Dimethylphenol	20	N.D.
Dimethyl phthalate	20	N.D.
4,6-Dinitro-2-methylphenol	100	N.D.
2,4-Dinitrophenol	100	N.D.

2120798.MOS <8>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-022	Received:	Dec 21, 1992
Elmhurst, IL 60126	Analysis Method:	EPA 8270	Extracted:	Dec 30, 1992
Attention: Cheryl Smith	Lab Number:	212-0800	Analyzed:	Dec 31, 1992
			Reported:	Jan 12, 1993

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/L	Sample Results µg/L
2,4-Dinitrotoluene	20.0	N.D.
2,6-Dinitrotoluene	20.0	N.D.
Di-N-octyl phthalate	20.0	N.D.
Fluoranthene	**20.0**	**100**
Fluorene	**20.0**	**420**
Hexachlorobenzene	20.0	N.D.
Hexachlorobutadiene	20.0	N.D.
Hexachlorocyclopentadiene	20.0	N.D.
Hexachloroethane	20.0	N.D.
Indeno(1,2,3-cd)pyrene	20.0	N.D.
Isophorone	20.0	N.D.
2-Methylnaphthalene	**20.0**	**140**
2-Methylphenol	20.0	N.D.
4-Methylphenol	20.0	N.D.
Naphthalene	**20.0**	**2,600**
2-Nitroaniline	100	N.D.
3-Nitroaniline	100	N.D.
4-Nitroaniline	100	N.D.
Nitrobenzene	20.0	N.D.
2-Nitrophenol	20.0	N.D.
4-Nitrophenol	100	N.D.
N-Nitrosodiphenylamine	20.0	N.D.
N-Nitroso-di-N-propylamine	20.0	N.D.
Pentachlorophenol	100	N.D.
Phenathrene	**20.0**	**200**
Phenol	20.0	N.D.
Pyrene	**20.0**	**260**
1,2,4-Trichlorobenzene	20.0	N.D.
2,4,5-Trichlorophenol	100	N.D.
2,4,6-Trichlorophenol	20.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120798.MOS <9>

TEI ANALYTICAL, INC.

7177 NORTH AUSTIN • NILES, ILLINOIS • 60648 • 708/647-1345

January 22, 1993

LABORATORY REPORT

#10039

Mostardi Platt Associates
945 Oaklawn Ave.
Elmhurst, IL 60126

Attn: Cheryl Smith

P.O. # 9942

SAMPLE
RECEIVED: 12-28-92 1200

TEI NO. 99312
SAMPLE IDENTIFICATION: 23708-014

TEST	RESULT		DATE PERFORMED
Total Cyanide (335.2)	96.2	mg	01-13-93
Chloride (D4327)	3.9	mg	01-11-93
Fluoride (D4327)	0.07	mg	01-14-93
Nitrate (D4327)	<0.5	mg	01-11-93
o-Phosphorus (D4327)	<1	mg	01-11-93
Sulfate (D4327)	5.05	mg	01-11-93

TEI NO. 99313
SAMPLE IDENTIFICATION: 23708-015

TEST	RESULT		DATE PERFORMED
Total Cyanide (335.2)	232	mg	01-13-93
Chloride (D4327)	7.6	mg	01-11-93
Fluoride (D4327)	<0.02	mg	01-14-93
Nitrate (D4327)	<0.5	mg	01-11-93
o-Phosphorus (D4327)	<1	mg	01-11-93
Sulfate (D4327)	8.05	mg	01-11-93

TEI NO. 99314
SAMPLE IDENTIFICATION: 23708-016

TEST	RESULT		DATE PERFORMED
Total Cyanide (335.2)	0.007	mg	01-13-93
Chloride (D4327)	<1	mg	01-11-93
Fluoride (D4327)	6.08	mg	01-14-93
Nitrate (D4327)	<0.5	mg	01-11-93
o-Phosphorus (D4327)	<1	mg	01-11-93
Sulfate (D4327)	<0.4	mg	01-11-93

This report may not be reproduced except in its entirety.

Gayle E. O'Neill, Ph.D.

TEI ANALYTICAL, INC.

7177 NORTH AUSTIN • NILES, ILLINOIS • 60648 • 708/647-1345

LABORATORY REPORT

January 22, 1993

#10039

Mostardi Platt Associates,
945 Oaklawn Ave.
Elmhurst, IL 60126

Attn: Cheryl Smith

SAMPLE RECEIVED: 12-28-92 1200

TEI NO. 99315
SAMPLE IDENTIFICATION: 23708-012

TEST	RESULT		DATE PERFORMED
HCl by Method 26	<2	mg	01-11-93

TEI NO. 99316
SAMPLE IDENTIFICATION: 23708-013

TEST	RESULT		DATE PERFORMED
HCl by Method 26	<2	mg	01-11-93

TEI NO. 99317
SAMPLE IDENTIFICATION: 23708-026

TEST	RESULT		DATE PERFORMED
HCl by Method 26	<2	mg	01-11-93

This report may not be reproduced except in its entirety.

Gayle E. O'Neill, Ph.D.

TEI ANALYTICAL, INC.
7177 NORTH AUSTIN • NILES, ILLINOIS • 60648 • 708/647-1345

LABORATORY REPORT

Mostardi Platt Associates,
945 Oaklawn Ave.
Elmhurst, IL 60126

Attn: Cheryl Smith

P.O. # 9942

SAMPLE RECEIVED: 12-28-92 1200

TEI NO. 99312
SAMPLE IDENTIFICATION: 23708-014

TEST	RESULT		DATE PERFORMED
Total Cyanide (335.2)	96.2	mg	01-13-93
Chloride (D4327)	3.9	mg	01-11-93
Fluoride (D4327)	0.07	mg	01-14-93
Nitrate (D4327)	<0.5	mg	01-11-93
o-Phosphorus (D4327)	<1	mg	01-11-93
Sulfate (D4327)	5.05	mg	01-11-93

TEI NO. 99313
SAMPLE IDENTIFICATION: 23708-015

TEST	RESULT		DATE PERFORMED
Total Cyanide (335.2)	232	mg	01-13-93
Chloride (D4327)	7.6	mg	01-11-93
Fluoride (D4327)	<0.02	mg	01-14-93
Nitrate (D4327)	<0.5	mg	01-11-93
o-Phosphorus (D4327)	<1	mg	01-11-93
Sulfate (D4327)	6.05	mg	01-11-93

TEI NO. 99314
SAMPLE IDENTIFICATION: 23708-016

TEST	RESULT		DATE PERFORMED
Total Cyanide (335.2)	0.007	mg	01-13-93
Chloride (D4327)	<1	mg	01-11-93
Fluoride (D4327)	6.08	mg	01-14-93
Nitrate (D4327)	<0.5	mg	01-11-93
o-Phosphorus (D4327)	<1	mg	01-11-93
Sulfate (D4327)	<0.4	mg	01-11-93

This report may not be reproduced except in its entirety.

Gayle E. O'Neill, Ph.D.

TEI ANALYTICAL, INC.

7177 NORTH AUSTIN · NILES, ILLINOIS · 60648 · 708/647-1345

LABORATORY REPORT

Mostardi Platt Associates,
945 Oaklawn Ave.
Elmhurst, IL 60126

Attn: Cheryl Smith

SAMPLE RECEIVED: 12-28-92 1200

TEI NO. 99315
SAMPLE IDENTIFICATION: 23708-012

TEST	RESULT		DATE PERFORMED
HCl by Method 26	<2	mg	01-11-93

TEI NO. 99316
SAMPLE IDENTIFICATION: 23708-013

TEST	RESULT		DATE PERFORMED
HCl by Method 26	<2	mg	01-11-93

TEI NO. 99317
SAMPLE IDENTIFICATION: 23708-026

TEST	RESULT		DATE PERFORMED
HCl by Method 26	<2	mg	01-11-93

This report may not be reproduced except in its entirety.

Gayle E. O'Neill, Ph.D.

MOSTARDI-PLATT ASSOCIATES, INC.

Ammonia-Nitrogen Analysis Sheet

Project: Bethlehem Steel 23708
Dates of Analysis: 12-23-92
Analysis performed by: Ellen Volodarsky

Wavelength 630 nm
Spectrophotometer: Spectronic 301
Page 1 of 1

Volume 10 ppm NH_3 Standard diluted to 25 ml	NH_3-N Concentration (ug)	Actual Concentration (mg/L NH_3-N)	Measured Absorbance	Concentration readout (mg/L NH_3-N)
0.5 ml	4.12	0.165	0.246	0.165
1.0 ml	8.23	0.329	0.495	0.314
1.5 ml	12.4	0.496	0.698	0.465
Control Samples (10 ppm NH_3-N Std)	Concentration (ug NH_3-N)			
0.5 ml	5	0.200	———	0.190
1.0 ml	10	0.400	———	0.385

Control Sample Recovery = {(Concentration readout)/(Actual concentration)}(100)
Recovery of 5 ug NH_3-N control: 95%
Recovery of 10 ug NH_3-N control: 96%
Acceptance criteria: 90-110%.

Blank Absorbance 0.100

Sample Number	Sample Identification	Dilution Factor (F)	Concentration readout (mg/L NH_3-N)	Calculated NH_3-N concentration (mg/L)
012	Run 1 (28mL)	400x	0.428	4280
013	Run 3 (51mL)	400 x	0.333	3330

Calculated NH_3-N concentration (mg/L) = (F) (Concentration readout) (25)

Cal 1/4/93

Nitrogen.blk

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

RECEIVED
JAN 15 1993

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-020	Received:	Dec 21, 1992
Elmhurst, IL 60126			Analyzed:	12/29 - 12/31
Attention: Cheryl Smith	Lab Number:	212-0798	Reported:	Jan 12, 1993

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Anitmony	5.0	N.D.
Arsenic	**0.0100**	**0.0066**
Beryllium	0.30	N.D.
Cadmium	0.50	N.D.
Chromium	1.0	N.D.
Cobalt	5.0	N.D.
Lead	1.0	N.D.
Manganese	0.20	N.D.
Mercury	**0.0050**	**0.0067**
Nickel	1.0	N.D.
Selenium	**0.010**	**0.0075**
Titanium	0.50	N.D.
Phosphorus	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120798.MOS <1>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-021	Received:	Dec 21, 1992
Elmhurst, IL 60126			Analyzed:	12/29 - 12/31
Attention: Cheryl Smith	Lab Number:	212-0799	Reported:	Jan 12, 1993

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Anitmony	5.0	N.D.
Arsenic	**0.0100**	**0.0016**
Beryllium	0.30	N.D.
Cadmium	0.50	N.D.
Chromium	1.0	N.D.
Cobalt	5.0	N.D.
Lead	1.0	N.D.
Manganese	0.20	N.D.
Mercury	0.0050	N.D.
Nickel	1.0	N.D.
Selenium	**0.010**	**0.0015**
Titanium	0.50	N.D.
Phosphorus	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120798.MOS <2>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-022	Received:	Dec 21, 1992
Elmhurst, IL 60126			Analyzed:	12/29 - 12/31
Attention: Cheryl Smith	Lab Number:	212-0800	Reported:	Jan 12, 1993

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Anitmony	5.0	N.D.
Arsenic	0.0100	0.0031
Beryllium	0.30	N.D.
Cadmium	0.50	N.D.
Chromium	1.0	N.D.
Cobalt	5.0	N.D.
Lead	1.0	N.D.
Manganese	0.20	N.D.
Mercury	0.0050	N.D.
Nickel	1.0	N.D.
Selenium	0.010	0.0080
Titanium	0.50	N.D.
Phosphorus	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120798.MOS <3>

RECEIVED
JAN 13 1993

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-017	Received:	Dec 21, 1992
Elmhurst, IL 60126			Analyzed:	12/29 - 12/31
Attention: Cheryl Smith	Lab Number:	212-0795	Reported:	Jan 11, 1993

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Anitmony	0.50	N.D.
Arsenic	0.0010	N.D.
Beryllium	0.030	N.D.
Cadmium	0.050	N.D.
Chromium	0.10	N.D.
Copper	0.50	N.D.
Lead	0.10	N.D.
Manganese	0.020	N.D.
Mercury	**0.00050**	**0.0013**
Nickel	0.10	N.D.
Selenium	**0.0010**	**0.0058**
Thallium	0.050	N.D.
Phosphorus	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120795.MOS <1>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-018	Received:	Dec 21, 1992
Elmhurst, IL 60126			Analyzed:	12/29/12/31
Attention: Cheryl Smith	Lab Number:	212-0796	Reported:	Jan 11, 1993

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Anitmony	0.50	N.D.
Arsenic	0.0010	N.D.
Beryllium	0.030	N.D.
Cadmium	0.050	N.D.
Chromium	0.10	N.D.
Cobalt	0.50	N.D.
Lead	0.10	N.D.
Manganese	0.020	N.D.
Mercury	0.00050	N.D.
Nickel	0.10	N.D.
Selenium	0.0010	N.D.
Titanium	0.050	N.D.
Phosphorus	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120795.MOS <2>

GREAT
LAKES
ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

Mostardi-Platt Associates, Inc.	Client Project ID:	23708	Sampled:	N/A
945 Oaklawn Ave.	Sample Descript:	Liquid: 23708-019	Received:	Dec 21, 1992
Elmhurst, IL 60126			Analyzed:	12/29 - 12/31
Attention: Cheryl Smith	Lab Number:	212-0797	Reported:	Jan 11, 1993

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Anitmony	0.50	N.D.
Arsenic	0.0010	N.D.
Beryllium	0.030	N.D.
Cadmium	0.050	N.D.
Chromium	0.10	N.D.
Cobalt	0.50	N.D.
Lead	0.10	N.D.
Manganese	0.020	N.D.
Mercury	0.00050	N.D.
Nickel	0.10	N.D.
Selenium	**0.0010**	**0.0016**
Titanium	0.050	N.D.
Phosphorus	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

2120795.MOS <3>

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

CHAIN OF CUSTODY

Client: MOSTARDI - PLATT	Project: 23708
Address: 945 OAKLAWN AVE. ELMHURST, IL 60126	Sampler:
	PO #:
Report to: CHERYL SMITH	Turn-Around Time: (5 Day) 3 Day 1-2 Day < 24 Hr.
Phone #:	Date Results Needed: 12/30/92

	Sample Description	Date/ Time	# /Type Cont.	Analysis/Remarks	Lab #
1	23708-017			• TOTAL METALS: Sb, As, Be, Cd,	212075
2				Cr, Co, Pb, Mn, Hg, Ni	
3				Se, Tl	
4				• PHOSPHORUS	
5				• 8270 + OPEN SCAN	
6	23708-018			SAME AS LINE S1-4	2120796
7	23708-019			↓ ↓ ↓ ↓	2120797
8					
9					
10					
11					
12					
13					
14					
15					

Sample Condition: **Violated:** Y (N) **Preserved:** (Y) N **In Good Condition:** (Y) N

Relinquished:	Date/Time:	Recieved: [signature]
Relinquished:	Date/Time:	Recieved: 12/22/92 080[illegible]
Relinquished:	Date/Time:	Recieved:

Comments: SAMPLES COMPOSITED, SPLIT UP & PRESERVED UPON RECEIPT

Page 1 of 1

GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089
(708) 808-7766 FAX (708) 808-7772

CHAIN OF CUSTODY

Client: MOSTARDI - PLATT	Project: 23708
Address: 945 OAKLAWN AVE. ELMHURST, IL	Sampler:
	PO #:
Report to: CHERYL SMITH	Turn-Around Time: (5 Day) 3 Day 1-2 Day < 24 Hr.
Phone #:	Date Results Needed: 12/30/92

	Sample Description	Date/ Time	# /Type Cont.	Analysis/Remarks	Lab #
1	23708 -020 2120798			TEST EACH SAMPLE FOR:	
2	23708-021 2120799			TOTAL METALS: Sb, As, Be, Cd, Cr,	
3	23708-022 2120800			Co, Pb, Mn, Hg, N; Se, Tl	
4				PHOSPHORUS	
5				8270 + OPEN SCAN	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Sample Condition: **Violated:** Y (N) **Preserved:** (Y) N **In Good Condition:** (Y) N

Relinquished:	Date/Time:	Recieved: Lesley Dankanich
Relinquished:	Date/Time:	Recieved: 12/22/92 0800
Relinquished:	Date/Time:	Recieved:

Comments: SAMPLES COMPOSITED UPON RECEIPT

Bethlehem Steel / 23708

$MeCl_2$ - MeOH Fraction

	Run 1	Run 2	Run 3
	94 mL	925 mL	253 mL
	128 mL	26 mL	257 mL
Sub Total	222 mL	Sub Total 951 mL	Sub Total 510 mL
plus	555 mL	265 mL	265 mL
	777 mL	1216 mL	775 mL

Avg wt. of 12 Empty Bottles + Labels 477.2g
RSD of 12 wts. = 0.20 %

H_2O Fraction - Temp of Samples 17.4 °C

	Run 1	Run 2	Run 3
	1294.7	1207.7	1222.8
	1347.1	1211.0	1183.0
	1273.8	960.8	1009.9
	1318.0		1271.2
Sample + Bottle + Label →	5233.6 g	3379.5 g	4686.9 g
Bottle + Label →	- 1908.8 ± 3.8 g	- 1431.6 ± 2.9 g	- 1908.8 g ± 3.8 g
Sample	3324.8 ± 3.8 g	1947.9 ± 2.9 g	2778.1 ± 3.8 g
Density g/mL	0.998712	0.998712	0.998712
1 L of Sample	3329.1 mL ± 3.8 mL	1950.4 ± 2.9 mL	2781.7 ± 3.8 mL
mL of Sample	3329 mL ± 0.11 %	1950 ± 0.15 %	2782 mL ± 0.14 %

23708

Mostardi-Platt Associates Weight Record Sheet

Description	Initial Weight	Analyst/Date
	Volumes:	
Sample No		
012	28 mL	
013	51 mL	
026	50 mL	
014	50 mL	
015	55 mL	
016	50 mL	