A Study of Hazardous Air Pollutants at the Tidd PFBC Demonstration Plant

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APPENDIX A: SAMPLE COLLECTION, PRETREATMENT, AND ANALYTICAL PROCEDURES

This appendix describes in detail the procedures Radian used during the HAPs testing at Plant Tidd to collect, handle, and analyze each process stream sample. An overview of the gas, solid, and liquid sample collection and analysis performed for this project is presented in Tables A-1, A-2, and A-3. Where analyte groups such as "metals" or "semivolatile organics" are referenced, a complete list of the target analytes is provided in Tables A-4 through A-6.

Radian used established sampling and analytical methods wherever possible to provide comparable and useable data. Modifications or adaptations to these methods are noted and described appropriately. All deviations from the procedures outlined in the test plan are discussed.

Gas Streams

Gas stream samples were collected at the ESP inlet and outlet and APF inlet and outlet ducts. Samples from each of these streams were analyzed for particulate loading, metals, acid gases (anions), ammonia and cyanide, formaldehyde, volatile organics, semivolatile organics, and dioxins/furans. Particle size distribution (PSD) measurements were performed at the ESP inlet and outlet only, and samples for hexavalent chromium emissions were collected only at the ESP outlet.

Gas sampling at the APF inlet and outlet ducts required a fixed sampling probe because of the high process gas temperature and pressure. Consequently, the APF inlet and outlet gas

Table A-1
Field Sampling Completed for Gas Streams

Analysis	ESP Inlet	ESP Outlet	APF Inlet	APF Outlet	Field Blanks[a]	Media Blanks[b]	PE Audit Samples
Particulate Loading	3/3[c]	3/3	3/3	3/3	2/2	1/1	1/1
Metals[d]	3/3	3/3	3/3	3/3	2/2	1/1	1/1
Anions[d]	3/3	3/3	3/3	3/3	2/2	1/1	1/1
Ammonia/Cyanide[e]	3/3	3/3	3/3	3/3	2/2	1/1	1/1
Formaldehyde[e]	3/3	3/3	3/3	3/3	2/2	1/1	--
Volatile Organics[e]	6/6[f]	6/6[f]	6/6[f]	6/6[f]	12/12[g]	1/1	--
Semivolatile Organics[d]	3/3	3/3	3/3	3/3	2/2	1/1	--
Dioxins/Furans	3/3[h]	3/3[h]	3[h]/3	3/3[d]	2/2	1/1	--
Particle Size Distribution	3/3	3/3	--	--	--	1/1	--
Hexavalent Chromium[h]	--	3/3	--	--	1/1	1/1	1/1

[a] A field blank is collected at the ESP inlet and at the APF inlet to assess the effect of sample handling at these two locations.

[b] Media blanks refer to prepared reagents for impinger solutions, blank VOST tubes, XAD resin cartridges, and blank filters.

[c] Samples planned/samples completed.

[d] Both particulate and vapor phases analyzed, separately.

[e] Vapor phase analysis only.

[f] Two 20-L samples collected per run.

[g] One field blank collected per location per run.

[h] Particulate and vapor phases combined for single analysis.

Table A-2
Field Sampling Completed for Coal, Sorbent, and Service Water

Analysis	Raw Coal[a]	Coal Paste			Sorbent (Dolomite)			Service Water		
	Field Samples	Field Samples	Field Duplicates	PE Audit Samples	Field Samples	Field Duplicates	PE Audit Samples	Field Samples	Field Duplicates	PE Audit Samples
Ultimate/Proximate/HHV	1/1[b]	3/3	1/1	1/1	--	--	--	--	--	--
Metals	1/1	3/3	1/1	1/1	3/3	1/1	1/1	3/3	1/1	1/1
Anions	1/1	3/3	1/1	1/1	3/3	1/1	1/1	3/3	1/1	1/1
Radionuclides	1/1	3/3	1/1	--	--	--	--	--	--	--
% Moisture	1/1	3/3	1/1	--	3/3	1/1	--	--	--	--

[a] Raw coal samples held for possible analysis pending data quality assessment of coal paste results.

[b] Samples planned/samples completed.

Table A-3
Field Sampling Completed for Ash Samples

Analysis	Bed Ash		Primary Cyclone Ash		ESP Ash (4 Hoppers)		APF Ash		QC Audit Samples
	Field Samples	Field Duplicates	Field Samples	Field Duplicates	Field Samples	Field Duplicates	Field Samples	Field Duplicates	
Metals	3/3[a]	1/1	3/3	1/1	3/3[b]	1/1	3/3	1/1	1/1
Anions	3/3	1/1	3/3	1/1	3/3[b]	1/1	3/3	1/1	1/1
Radionuclides	3/3	1/1	3/3	1/1	3/3[b]	1/1	3/3	1/1	--
Carbon	3/3	1/1	3/3	1/1	3/3[b]	1/1	3/3	1/1	--
Semivolatile Organics	3/3	1/1	3/3	1/1	3/3[b]	1/1	3/3	1/1	--
Dioxins/Furans	--	--	3/3	1/1	3/3[b]	1/1	3/3	1/1	--
Particle Size Distribution	--	--	--	--	12/8[c]	4/4	--	--	--

[a] Samples planned/samples completed.

[b] ESP fly ash composite samples.

[c] ESP Fields 1 and 2 were sampled in triplicate; Fields 1-4 were sampled in duplicate during final run.

Table A-4
Analyte List for Inorganic Parameters

Trace Elements	Major Elements
Antimony[a]	Aluminum
Arsenic[a]	Calcium
Barium[a]	Iron
Beryllium[a]	Magnesium
Boron	Potassium
Cadmium[a]	Sodium
Hexavalent Chromium[b]	Titanium
Chromium, total[a]	**Ultimate/Proximate Parameters**
Cobalt[a]	Carbon
Copper[a]	Hydrogen
Lead[a]	Nitrogen
Manganese[a]	Sulfur
Mercury[a]	Ash
Molybdenum[a]	Volatile Matter
Nickel[a]	Fixed Carbon
Selenium[a]	
Silver	
Vanadium[a]	
Ionic Species	
Chloride (Cl^-)	
Fluoride (F^-)	
Phosphates (as Total P)	
Sulfates (SO_4^{-2})	
Ammonia	
Cyanide	

[a] These elements were analyzed by ICP-MS in the gas impinger samples.

[b] Hexavalent chromium in ESP outlet flue gas only.

Table A-5
Analyte List for Organic Parameters

Volatile Organics[a] (Method 8240)	Semivolatile Organics (Method 8270/CARB 429[b])	
Benzene	Acenaphthene[b]	2,4-Dimethylphenol
Bromoform	Acenaphthylene[b]	Dimethylphthalate
Carbon Disulfide	Acetophenone	4,6-Dinitro-2-methylphenol
Carbon Tetrachloride	4-Aminobiphenyl	2,4-Dinitrophenol
Chlorobenzene	Aniline	2,4-Dinitrotoluene
Chloroform	Anthracene[b]	2,6-Dinitrotoluene
1,4-Dichlorobenzene	Benzidine	bis(2-Ethylhexyl)phthalate
cis-1,3-Dichloropropene	Benzo(a)anthracene[b]	Fluoranthene[b]
trans-1,3-Dichloropropene	Benzo(a)pyrene[b]	Fluorene[b]
Ethyl Benzene	Benzo(b)fluoranthene[b]	Hexachlorobenzene
Ethyl Chloride (Chloroethane)	Benzo(g,h,i)perylene[b]	Hexachlorobutadiene
Ethylene Dichloride (1,2-Dichloroethane)	Benzo(k)fluoranthene[b]	Hexachlorocyclopentadiene
Ethylidene Dichloride (1,1-Dichloroethane)	Benzoic Acid	Hexachloroethane
Methyl Bromide (Bromomethane)	Benzyl Alcohol	Indeno(1,2,3-cd)pyrene[b]
Methyl Chloride (Chloromethane)	4-Bromophenyl Phenyl Ether	Isophorone
Methyl Chloroform (1,1,1-Trichloroethane)	Butylbenzylphthalate	2-Methylnaphthalene[b]
Methyl Ethyl Ketone (2-Butanone)	4-Chloro-3-Methylphenol	2-Methylphenol (o-cresol)
Methylene Chloride (Dichloromethane)	p-Chloroaniline	4-Methylphenol (p-cresol)
Propylene Dichloride (1,2-Dichloropropane)	bis(2-Chloroethoxy)methane	N-Nitrosodimethylamine
Styrene	bis(2-Chloroethyl)ether	N-Nitrosodiphenylamine
1,1,2,2-Tetrachloroethane	bis(2-Chloroisopropyl)ether	N-Nitrosopropylamine
Tetrachloroethene	2-Chloronaphthalene[b]	Naphthalene[b]
Toluene	2-Chlorophenol	2-Nitroaniline
1,1,2-Trichloroethane	4-Chlorophenyl Phenyl Ether	3-Nitroaniline
Trichloroethene	Chrysene[b]	4-Nitroaniline
Vinyl Acetate	Di-n-octylphthalate	Nitrobenzene
Vinyl Chloride	Dibenz(a,h)anthracene[b]	2-Nitrophenol
Vinylidene Chloride (1,1-Dichloroethene)	Dibenzofuran	4-Nitrophenol
m,p-Xylene	Dibutylphthalate	Pentachloronitrobenzene
o-Xylene	1,2-Dichlorobenzene	Pentachlorophenol
	1,3-Dichlorobenzene	Phenanthrene[b]
	1,4-Dichlorobenzene	Phenol
	3,3-Dichlorobenzidine	Pyrene[b]
	2,4-Dichlorophenol	1,2,4-Trichlorobenzene
	Diethylphthalate	2,4,5-Trichlorophenol
	p-Dimethylaminoazobenzene	2,4,6-Trichlorophenol

[a] These are the volatile organic compounds detected by VOST (Method 8240) that are listed in the Clean Air Act list of hazardous air pollutants.
[b] These semivolatile organic compounds were analyzed in the gas samples by CARB Method 429 using high resolution GC/MS.

Table A-6
List of Radionuclide

Gan
Actinium-228 @ 338 K
Actinium-228 @ 911 K
Actinium-228 @ 968 K
Bismuth-212 @ 727 Ke
Bismuth-214 @ 609.4 K

sampling approach varied from the standard EPA Method 5[1] sampling approach used at the ESP inlet and outlet ducts. The difference, however, was limited to the collection of particulate matter. In the fixed probe system, hot-gas filters were used to collect particulate matter. Multiple gas samples were then collected for vapor-phase species from a header downstream of the filter. The Method 5 approach specifies a single filter for each independent sampling train.

A schematic of the fixed probe sampling system designed for the Plant Tidd APF unit is shown in Figure A-1. The system was designed to sample the process gas isokinetically at a single point in the center of the duct. Gas cooling was accomplished by thermal convection through the sample line. Sample gas was cooled from 1350°F to approximately 600°F to safely operate the isolation ball valve. A flow orifice and sample control valve downstream of the filter were used to maintain isokinetic sampling rates.

To keep volatile species from condensing in the sample line downstream of the filter, the filter holder and all downstream components were heat traced and kept at or above the temperature of the gas entering the filter holder. The system was designed to allow gas samples to cool only after the gas entered the recoverable quartz tubing portion of the sampling train. However, the quartz tubing broke repeatedly during the initial test runs because the ball joint could not withstand the thermal stresses at 600°F. To solve this problem, the heat tracing tape was removed from the sample line downstream of the orifice meter to allow the gas to cool slightly. Skin temperatures at the header sample valves were typically 250-350°F after this modification. Because most of the quartz tubes were broken during the initial test, subsequent tests at the APF inlet were conducted using Teflon® tubing instead of quartz. This modification is not judged to have any affect on the gas samples. The tubing that connects the impinger train to the fixed probe sample header was directly comparable to the sampling train components found downstream of the heated filter in the EPA Method 5 sampling train and was rinsed and recovered accordingly.

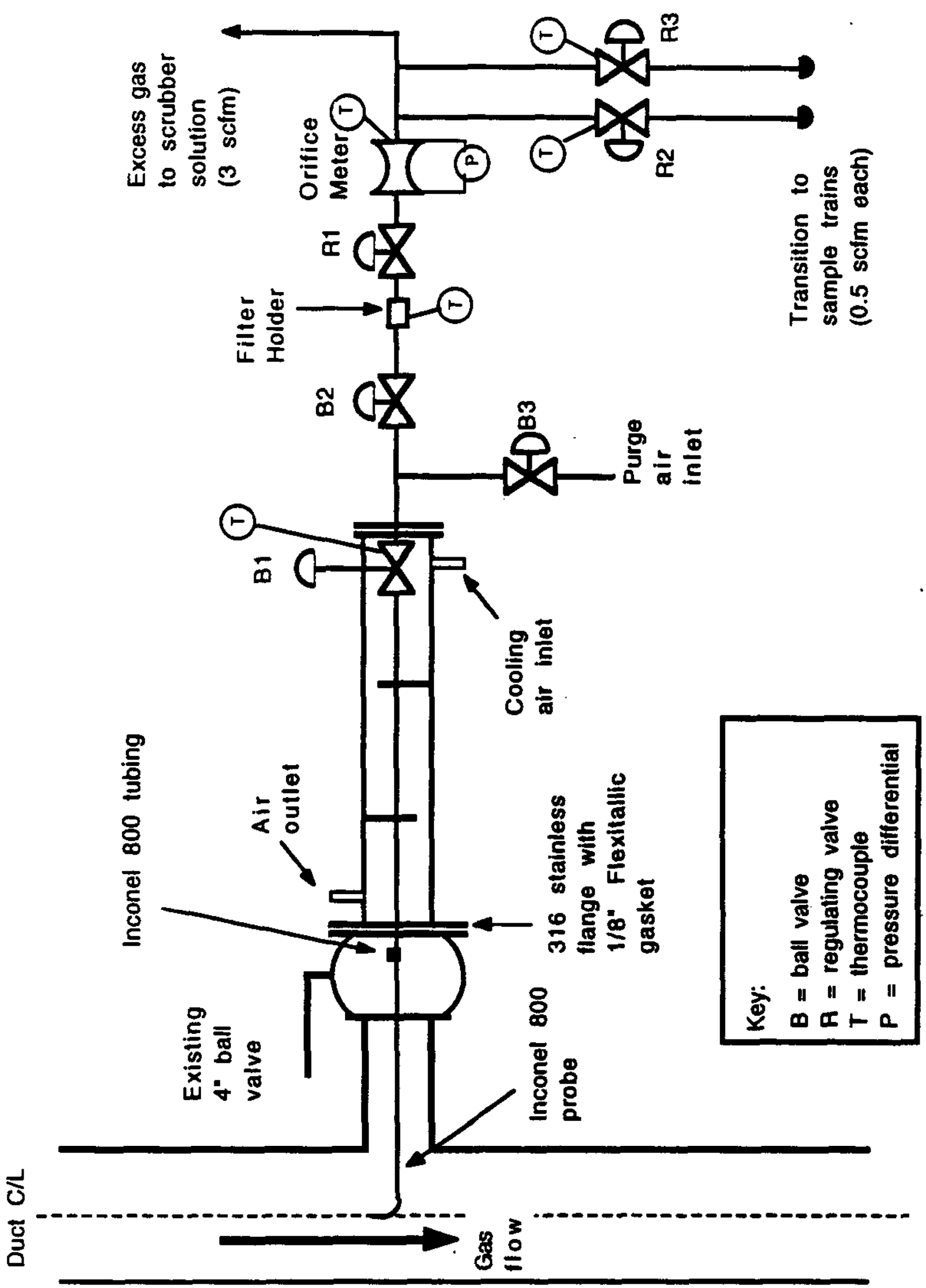

Figure A-1
APF High Pressure Sampling System

Particulate Loading

EPA Reference Method 5 was used to determine the particulate loading at the ESP inlet and outlet sampling locations. This method was performed in conjunction with the multi-metals sampling train to provide compatible particulate loading and particulate metals concentration data. Although not specified in Method 5 for determining particulate loading, quartz-fiber filters were used in place of glass-fiber filters to reduce background trace element contamination. Samples were collected isokinetically at multiple points across the duct as specified by EPA Reference Methods 1[2] and 2.[3]

At the APF inlet sampling location, the fixed probe system equipped with an allundum-ceramic thimble filter was used to collect isokinetic samples from a single point in the center of the duct. A 47 mm quartz-fiber filter in a high pressure Gelman filter holder was used in place of the allundum thimble at the APF outlet. Breakthrough of particulate occurred across the thimble filter during initial tests at the APF inlet because of the higher than expected particulate loading. To solve this problem, a second thimble filter assembly was installed in series and filters were changed out approximately every two hours to avoid exceeding the filter capacity. On Days 3 and 4, a third backup filter (high-pressure Gelman) was added downstream of the two thimble filters. The gas flow through the filter was determined by taking pressure differential readings and gas temperature readings across the flow orifice. The total gas flow through the filter was calculated using the orifice diameter, gas temperature and pressure at the orifice, and the sampling time.

Filters from both systems were recovered and weighed to determine the particulate mass collected. At the ESP sampling locations, particulate matter was also rinsed and recovered from the sampling nozzle and probe. Rinsing of the fixed high-pressure sampling probe was not feasible. Any wall losses or solids deposition inside the probe were assumed to be insignificant relative to the overall sample mass collected.

Particulate- and Vapor-Phase Metals

Collection of particulate- and vapor-phase metals was performed in conjunction with the particulate loading runs using the procedures detailed in EPA Draft Method 29.[4] Method 29 is similar to Method 5 with a few sample train modifications. Method 29 requires replacement of the stainless steel nozzle and probe liner used in Method 5 with glass components. The particulate material was collected on quartz fiber filters, replacing the standard glass fiber filters normally used with Method 5.

At the APF inlet and outlet, the sampling probe was constructed of a high chromium-nickel alloy (Inconel 800) for strength and corrosion resistance a the high process temperature. The use of probe materials other than glass or quartz is a modification to Method 29 specific to the APF inlet and outlet sample locations.

Vapor-phase metals were collected in a series of impinger solutions. The first two impingers contained a dilute nitric acid and hydrogen peroxide (HNO_3/H_2O_2) solution. The third impinger was empty. The next two impingers contained acidic potassium permanganate ($KMnO_4/H_2SO_4$) solution for mercury collection. These impingers were followed by one dry impinger, and an impinger filled with silica gel. Approximately 90 to 100 dry standard cubic feet (dscf) of gas were collected isokinetically.

A description of the sampling train and sample fraction recovery for the multi-metals sampling train is presented in Table A-7. The sample fractions generated by the multi-metals sampling train and an overview of the sample handling process are shown in Figures A-2 through A-7. These particulate- and vapor-phase sample fractions were prepared and analyzed separately for the elements listed in Table A-4.

Particulate Phase. The filter samples were desiccated and weighed to a constant weight (defined as successive weight determinations within 0.5 mg at 6-hour intervals). For samples collected at the ESP, the acetone probe and nozzle rinses (PNR) were evaporated, desiccated, and also weighed to a constant weight. For the ESP outlet, the nitric acid PNR was added to

Table A-7
Description and Recovery of Method 29 (Multi-Metals) Sampling Train

Component	Contents	Recovery[a]	Container	Preparation & Analysis
Probe Nozzle Rinse and front half of filter holder rinse[b]	NA	Rinse probe, nozzle, and front half of filter holder with acetone into sample container.	500 mL amber glass bottle	See Figures A-2 and A-3
Probe Nozzle Rinse and front half of filter holder rinse[b]	NA	Rinse probe, nozzle, and front half of filter holder with 0.1 N HNO_3 into sample container.	500 mL amber glass bottle	See Figures A-2 and A-3
Filter[b]	Tared quartz filter	Place filter in sample container.	*Plastic petri dish*	*See Figures* A-2 through A-4
Thimble[c]	Tared thimble ceramic	Place thimble in sample container.	Glass jar	See Figure A-5
Transfer Line Rinse[d]	NA	Rinse transfer line with 0.1 N HNO_3 into sample container.	Combine transfer line rinse and Impingers 1 and 2 in a 1000 mL amber glass bottle	See Figure A-6
Impinger #1	5% nitric acid in 10% hydrogen peroxide (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with 0.1 N HNO_3 into sample container.		
Impinger #2	*5% nitric acid in 10%* hydrogen peroxide (200 mL)	*Recover impinger solution, then rinse impinger* and connecting glassware with 0.1 N HNO_3 into sample container.		
Impinger #3	Dry	Recover condensate, then rinse impinger and connecting glassware with 0.1 N HNO_3 into sample container.	Combine Impingers 3,4, and 5 in a 1000 mL amber glass bottle.	See Figure A-7
Impinger #4	4% potassium permanganate in 10% sulfuric acid (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with fresh $KMnO_4$ solution into sample container.		
Impinger #5	4% potassium permanganate in 10% sulfuric acid (200 mL)	Recover impinger solution, then rinse impinger with fresh $KMnO_4$ solution into sample container.		
Impinger #4 - Second Rinse	NA	Rinse impinger with 8N HCl into sample container. Not to exceed 25 mL HCl.	250 mL amber glass bottle	See Figure A-7
Impinger #5 - Second Rinse	NA	Rinse impinger with 8N HCl into sample container. Not to exceed 25 mL HCl.		
Impinger #6	Silica Gel (300 g)	Replace when exhausted.	None	None

NA = Not applicable.
[a] All impingers were weighed prior to recovery to determine gas sample moisture content by EPA Reference Method 4.
[b] ESP inlet and outlet and APF outlet.
[c] APF inlet only.
[d] Includes back half of filter holder at ESP inlet and outlet; and gas cooling system at APF inlet and outlet.

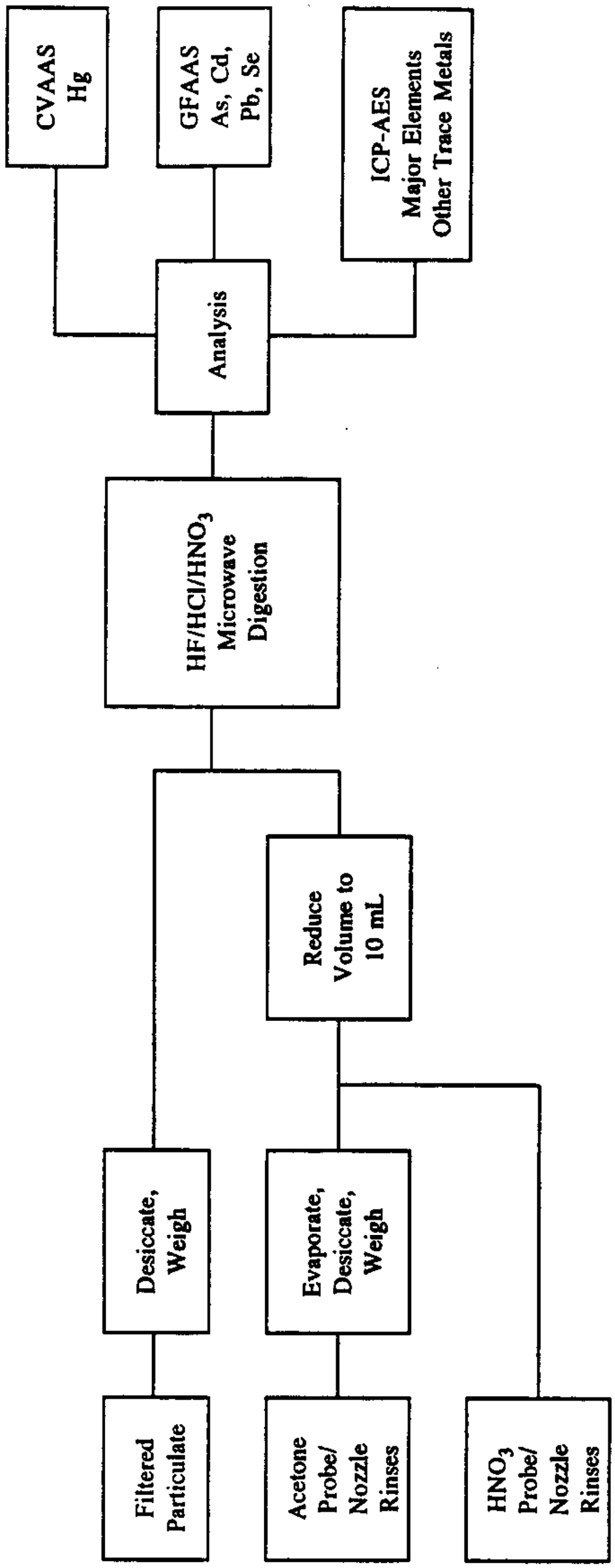

Figure A-2
Gas Particulate Sample Preparation and Analysis Plan for Metals (ESP Outlet)

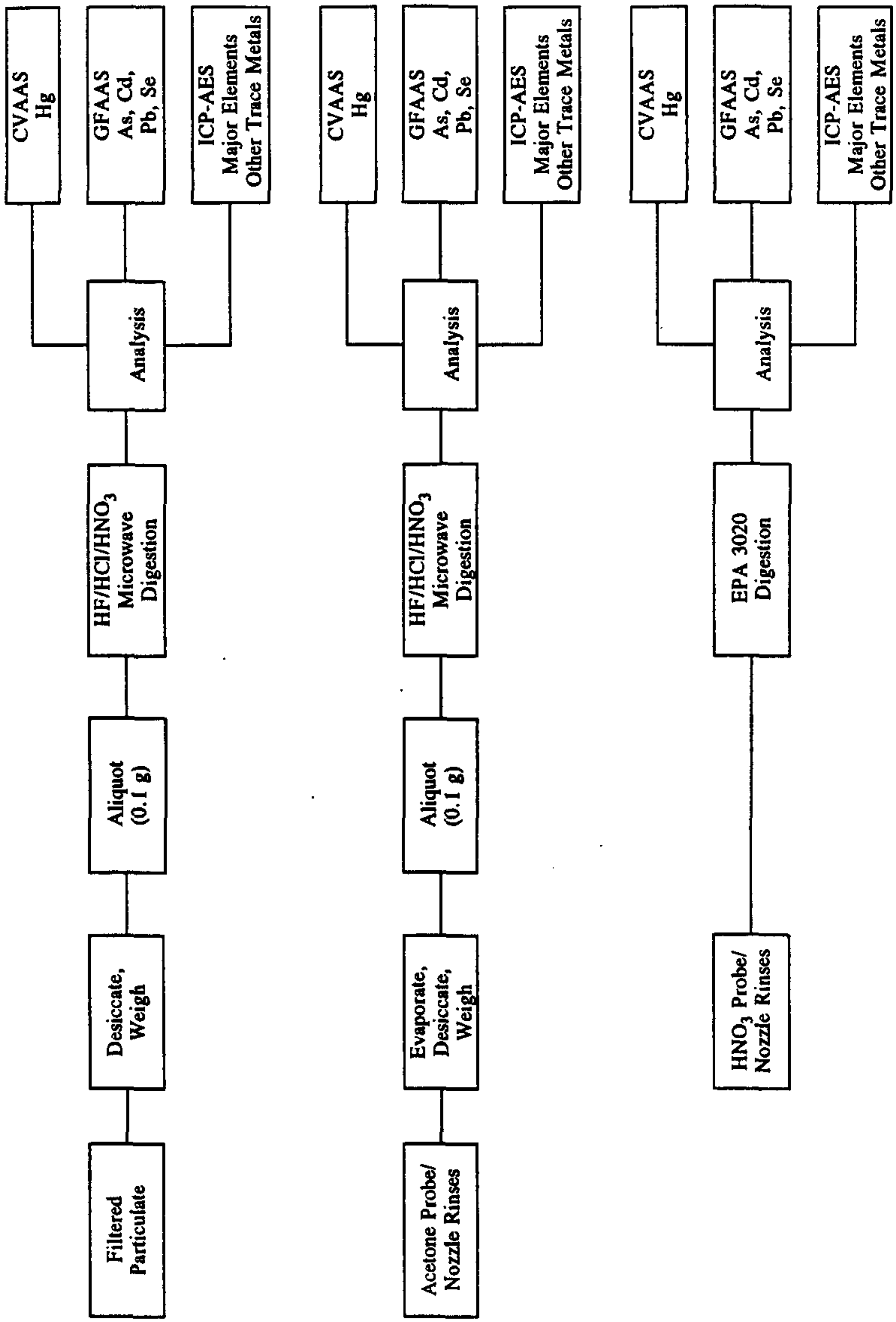

Figure A-3
Gas Particulate Sample Preparation and Analysis Plan for Metals (ESP Inlet)

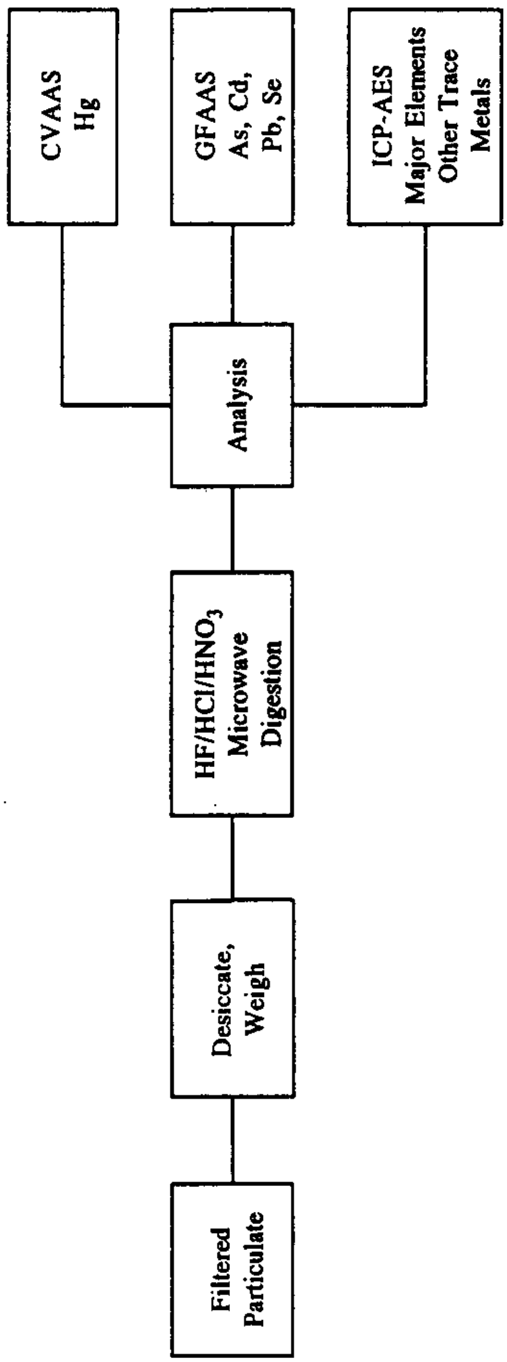

Figure A-4
Gas Particulate Sample Preparation and Analysis Plan for Metals (APF Outlet)

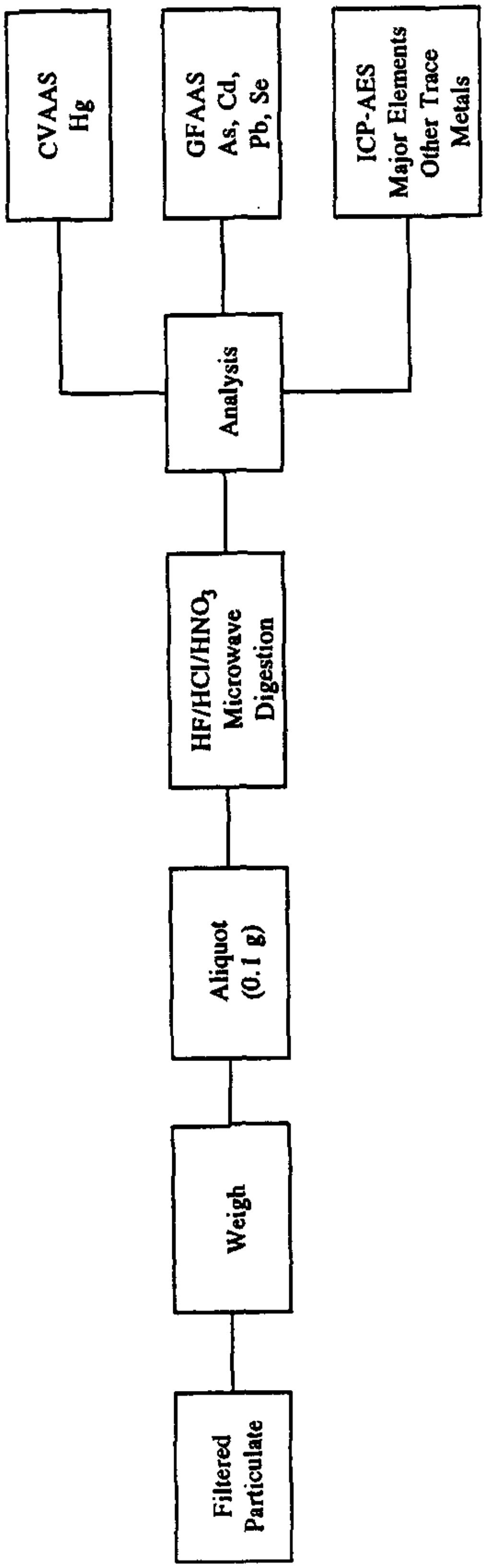

Figure A-5
Gas Particulate Sample Preparation and Analysis Plan for Metals (APF Inlet)

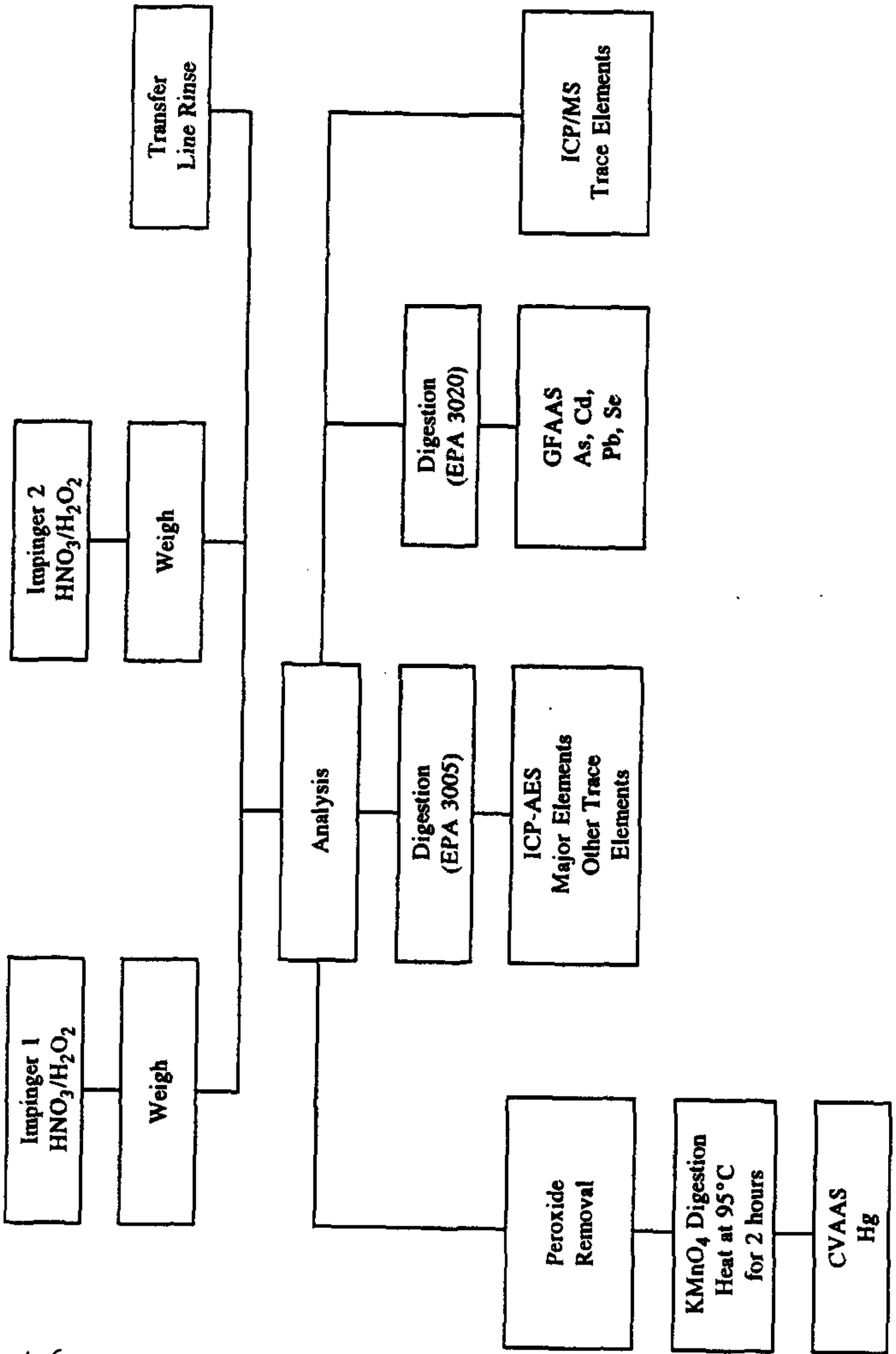

Figure A-6
Flue Gas Impinger Sample Preparation and Analysis Plan for Metals

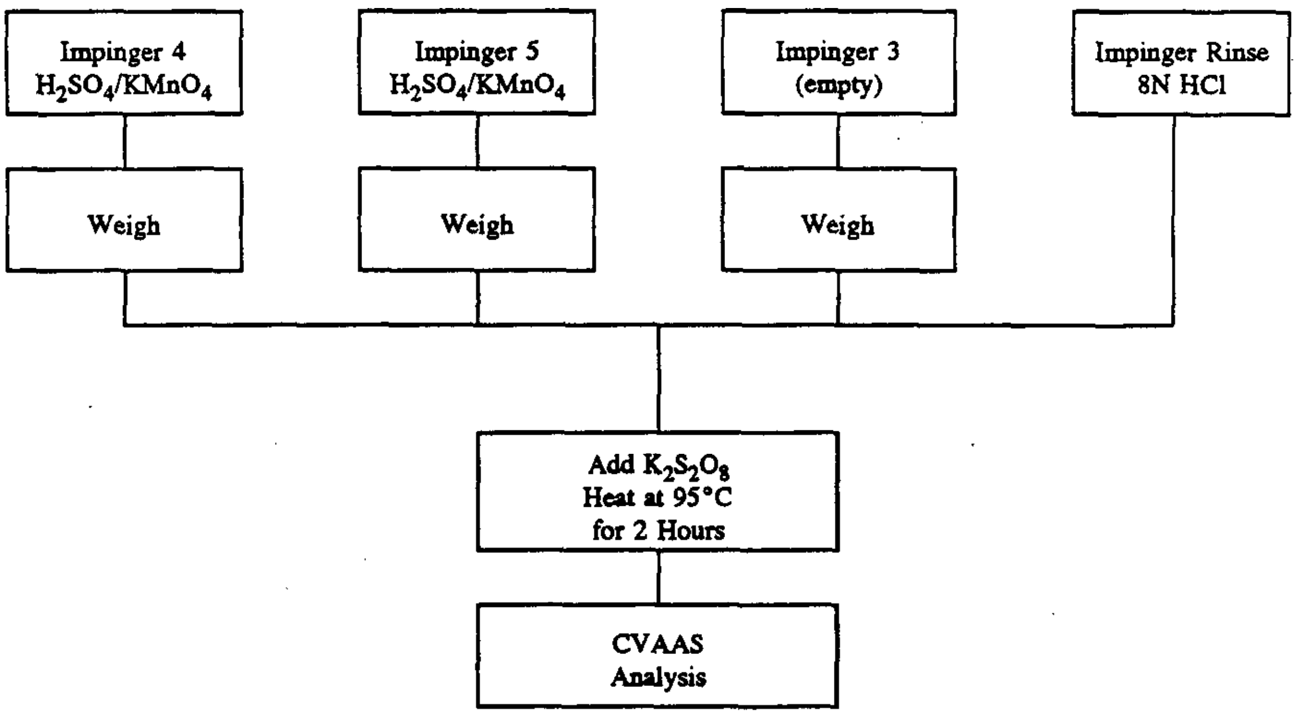

Figure A-7. Flue Gas Impinger Sample Preparation and Analysis Plan for Mercury the solids recovered from the acetone PNR, and the volume reduced to 10 mL by evaporation on a hot plate. This volume was quantitatively transferred, along with the filter, to a microwave-digestion vessel. The total particulate sample from the collected gas was microwave digested[5] with a mixture of hydrofluoric, hydrochloric, and nitric acids. For the ESP inlet, the nitric acid PNR and the acetone PNR were analyzed separately due to the high mass loadings recovered on the filter and in the acetone PNR. The APF outlet samples were analyzed similarly to the ESP outlet samples, without the presence of probe rinses. The APF inlet particulate was collected and analyzed directly.

The digestates were analyzed for metals (except boron) by a combination of techniques including inductively coupled plasma atomic emission spectroscopy (ICP-AES)[6] and graphite furnace atomic absorption spectroscopy (GFAAS).[7,8,9,10] Mercury was determined from an aliquot of the microwave digestate by cold vapor atomic absorption spectroscopy (CVAAS).[11] Boric acid was added to the digestate to solubilize metal fluorides that precipitate during the digestion. This addition of boric acid makes the analysis of boron in these samples impractical; however, boron was determined in all collected ash samples from the ESP, APF, and cyclone systems as described later.

Vapor Phase. The two HNO_3/H_2O_2 impinger samples were combined, digested, and analyzed for metals by ICP-AES and GFAAS. Aliquots of undigested impinger solutions were analyzed by ICP/MS.[12] A separate aliquot was removed for mercury analysis and the excess peroxide in the sample matrix was eliminated by the addition of solid $KMnO_4$ until a pale pink color persisted. The sample was then digested in $KMnO_4/H_2SO_4$ solution and analyzed for mercury by CVAAS.[13]

The contents of the third impinger, the two $KMnO_4/H_2SO_4$ impingers, and the hydrogen chloride (HCl) impinger rinse sample were combined and an aliquot was digested in $KMnO_4/H_2SO_4$ solution and analyzed for mercury by CVAAS.

Anions

The Method 5 train was used to collect vapor phase and particulate samples for acid gas species. Hydrochloric, hydrofluoric, and sulfuric acids along with sulfur dioxide and sulfur trioxide were collected using two impingers each containing 200 mL of a carbonate/bicarbonate solution containing hydrogen peroxide. Approximately 30-45 dscf of gas was collected at each location.

A description of the sampling train and sample fraction recovery for the Method 5 anions sampling train is presented in Table A-7. The sample fractions generated by the anions/acid gas sampling train and an overview of the sample handling process are shown in Figures A-8 through A-11. The particulate and vapor phases were prepared and analyzed separately for chloride, fluoride, and sulfate.

Particulate Phase. The filter was desiccated and weighed prior to being combined with the PNR. The PNR sample was evaporated, desiccated, and weighed before being combined with the filter sample. The particulate matter was then sonicated with 100 mL of fresh carbonate/bicarbonate solution. The carbonate solution was analyzed for chloride and sulfate by ion chromatography (IC)[14] and fluoride was determined by specific ion electrode (SIE).[15]

Vapor Phase. The impinger solutions received from the test site were sent directly to the analytical laboratory for chloride and sulfate analysis by IC, and fluoride analysis by SIE[16].

Ammonia/Hydrogen Cyanide

Sample collection for ammonia and hydrogen cyanide in the gas streams was performed in conjunction with the Method 5 anions sampling train. Similarly, gas was extracted isokinetically at a single point in the duct through the anions train filter, then directed to an impinger train. For ammonia collection, 0.1 N sulfuric acid was placed in the first two impingers of the sampling train. The low pH of the H_2SO_4 solution allowed HCN to pass

Table A-8
Description and Recovery of Anions Sampling Train

Component	Solution	Recovery[a]	Container	Preparation & Analysis
Probe Nozzle Rinse and front half of filter holder rinse[b]	NA	Rinse probe, nozzle, and front half of filter holder with acetone/water into sample container.	500 mL plastic nalgene	See Figures A-8 through A-10
Filter[b]	Tared quartz filter	Place filter in sample container.	Plastic petri dish	See Figures A-8 through A-10
Thimble[c]	Tared ceramic thimble	Place thimble in sample container.	Glass jar	See Figure A-8 through A-10
Transfer Line Rinse[d]	NA	Rinse transfer line with absorbing solution into sample container.	1000 mL plastic nalgene Cool to 4°C	See Figure A-11
Impinger #1	Absorbing solution (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with absorbing solution into sample container.		
Impinger #2	Absorbing solution (200 mL)	Recover impinger solution, then rinse impingers and connecting glassware with absorbing solution into sample container.		
Impinger #3	Dry	Recover condensate, then rinse impinger and connecting glassware with absorbing solution into sample container.		
Impinger #4	Silica gel (300 g)	Not recovered.	None	None

[a] All impingers were weighed prior to recovery.
[b] ESP inlet and outlet and APF outlet.
[c] APF inlet only.
[d] Includes back half of filter holder at ESP inlet and outlet and gas cooling system at APF inlet and outlet.
NA = Not applicable.

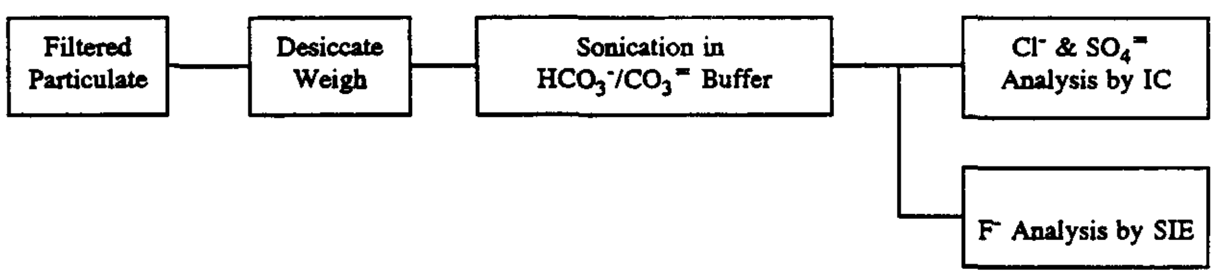

Figure A-8
Gas Particulate Sample Preparation and Analysis Plan for Anions (APF Outlet)

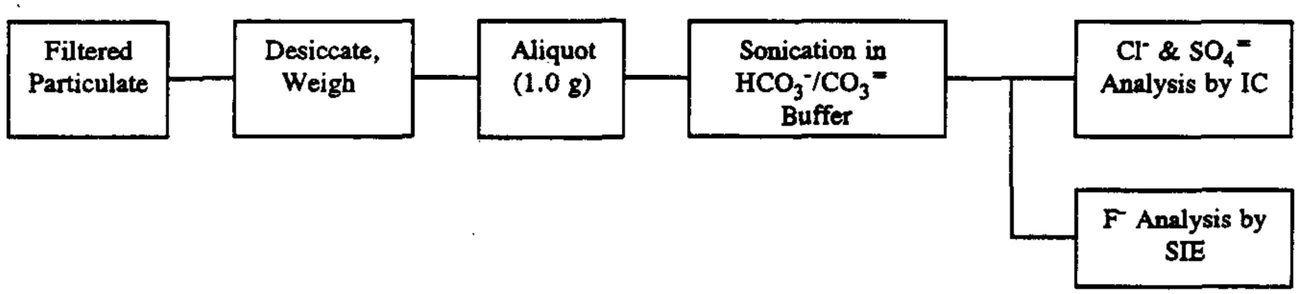

Figure A-9
Gas Particulate Sample Preparation and Analysis Plan for Anions (APF Inlet and ESP Inlet)

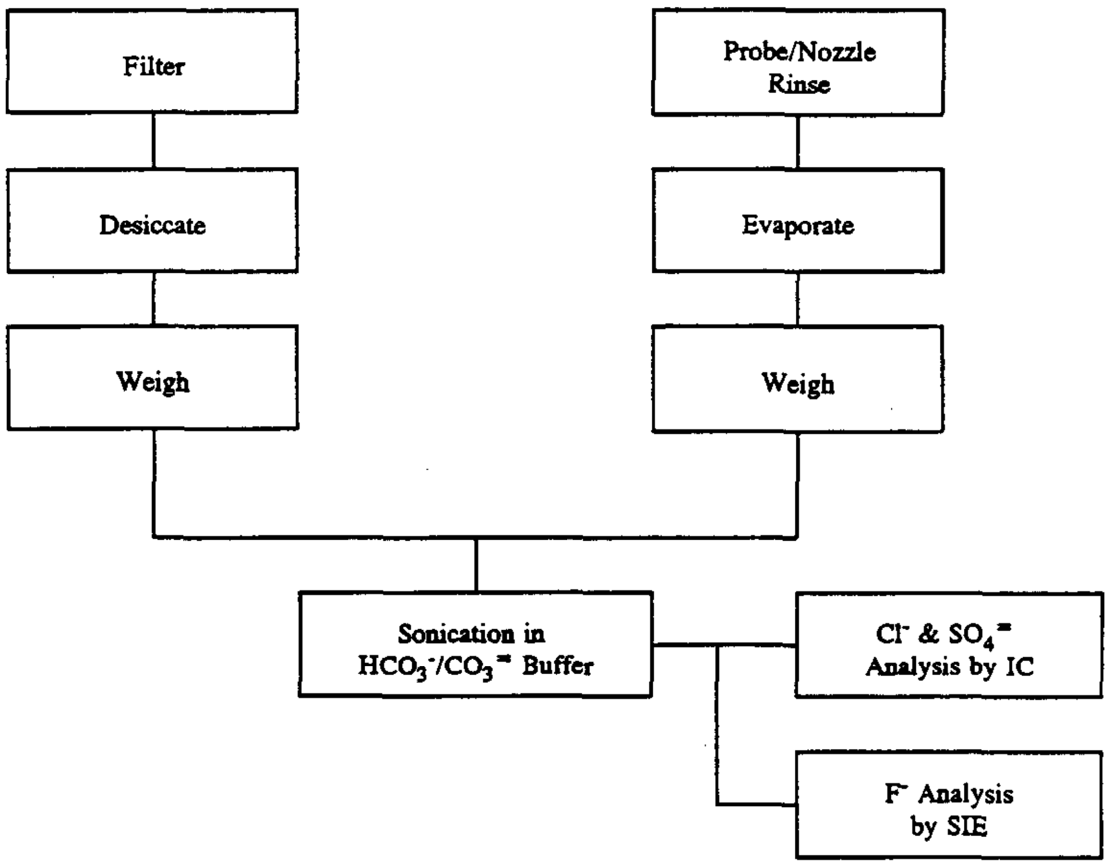

Figure A-10
Gas Particulate Sample Preparation and Analysis Plan for Anions (ESP Outlet)

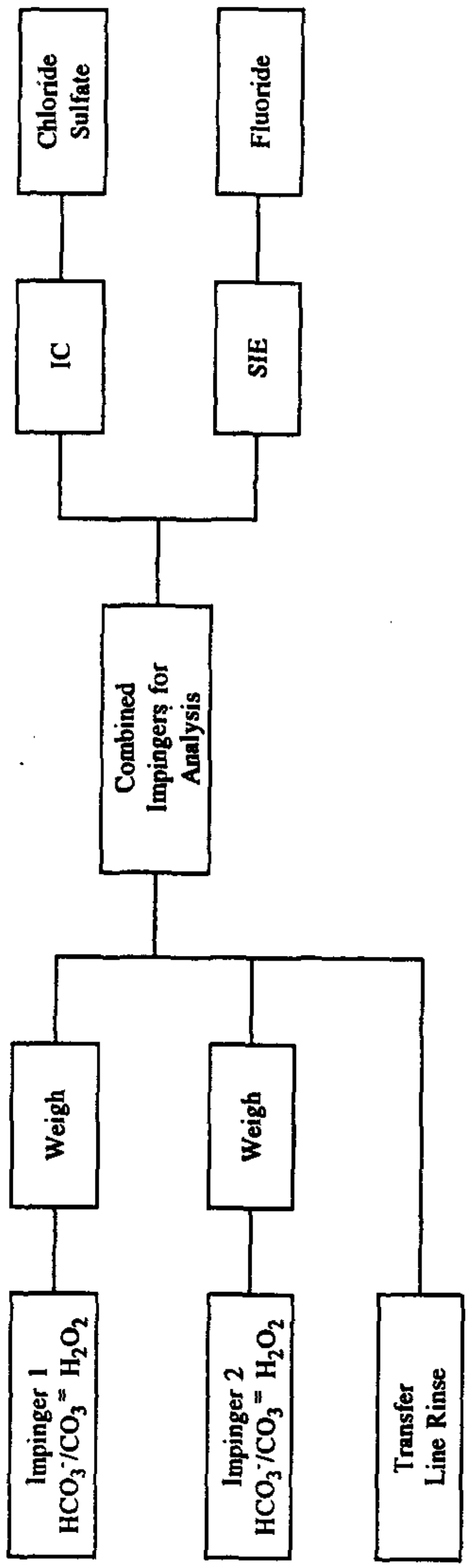

Figure A-11
Flue Gas Impinger Sample Preparation and Analysis Plan for Anions

through. A 2% zinc acetate solution was placed in the fourth and fifth impingers for the collection of cyanide. The gas sample volume for each run was approximately 40 to 60 dscf.

A description of the sampling train and sample fraction recovery for the ammonia/hydrogen cyanide trains is presented in Table A-9. The sample fractions generated by the combined ammonia/hydrogen cyanide sampling train were sent directly to the laboratory for analysis as shown in Figure A-12. The sulfuric acid impinger solutions (0.1 N H_2SO_4) were prepared for analysis by distillation according to EPA Method 350.2[17] and the recovered distillates were analyzed by EPA 350.1,[18] an automated colorimetric method. Cyanide impinger samples (0.1 M zinc acetate) were digested and analyzed according to EPA Method 9012.[19]

Formaldehyde

Formaldehyde was collected using an acidic solution of 2,4-dinitrophenylhydrazine (DNPH) according to EPA Method 0011.[20] Approximately 60 dscf of gas was collected isokinetically in conjunction with the anions sampling train using the same filter for particulate removal. The impinger solutions were combined into one sample along with the methylene chloride glassware rinses. The solutions were sealed in amber glass containers with Teflon® closures and stored at 4°C.

A description of the sampling train and sample fraction recovery for the aldehydes sampling train is presented in Table A-10. The sample fractions generated by the aldehydes sampling train and an overview of the sample handling process are shown in Figure A-13. The aqueous and methylene chloride layers of the sample were separated, and the aqueous fraction was then extracted with fresh methylene chloride. The methylene chloride portion of the sample and the aqueous extract are then combined. Since low levels of formaldehyde were expected, if any, an aliquot of this extract was concentrated during a solvent exchange procedure into acetonitrile. The resulting extract was then analyzed by high performance liquid chromatography (HPLC) according to EPA Method 0011A. Air Toxics, Ltd. was subcontracted to perform this analysis.

Table A-9
Description and Recovery of Ammonia and Hydrogen Cyanide Sampling Train

Component	Solution	Recovery[a]	Container	Preparation & Analysis
Transfer Line Rinse[b]	NA	Rinse transfer line with deionized water into sample container.	1000 mL Nalgene bottle	See Figure A-12
Impinger #1 (NH_3)	0.1N H_2SO_4 (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with deionized water into sample container.		
Impinger #2 (NH_3)	0.1N H_2SO_4 (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with deionized water into sample container.		
Impinger #3	Dry	Recover condensate, then rinse impinger and connecting glassware with deionized water into sample container.		
Impinger #4 (CN)	0.1M ZnOAc (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with deionized water into sample container.	1000 mL Nalgene bottle Cool to 4°C	See Figure A-12
Impinger #5 (CN)	0.1M ZnOAc (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with deionized water into sample container.		
Impinger #6	Silica Gel (300 g)	Not recovered.	None	None

[a] All impingers were weighed prior to analysis.

[b] Includes back half of filter holder at ESP inlet and outlet and gas cooling system at APF inlet and outlet.

NA = Not applicable.

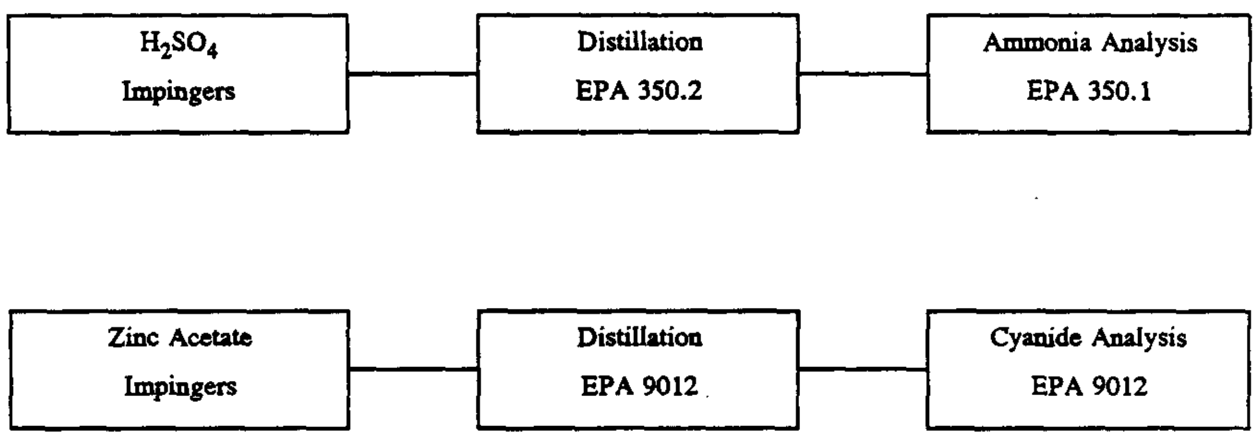

Figure A-12
Flue Gas Impinger Sample Preparation and Analysis Plan for Ammonia and Cyanide

Table A-10
Description and Recovery of Aldehydes Sampling Train

Component	Solution	Recovery[a]	Container	Preparation & Analysis
Transfer Line Rinse[b]	NA	Rinse transfer line with $MeCl_2$ into sample container.	1000 mL amber glass bottle Cool to 4°C	See Figure A-13
Impinger #1	DNPH solution (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with $MeCl_2$ into sample container.		
Impinger #2	DNPH solution (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with $MeCl_2$ into sample container.		
Impinger #3	Dry	Recover condensate into sample container.		
Impinger #4	Silica gel (300 g)	Not recovered.	None	None

[a] All impingers will be weighed prior to recovery.

[b] Includes back half of filter holder at ESP inlet and outlet and gas cooling system at APF inlet and outlet.

NA = Not applicable.

Figure A-13
Flue Gas Impinger Sample Preparation and Analysis Plan for Formaldehyde

Volatile Organics

Benzene, toluene, and other volatile organic compounds were sampled using a volatile organic sampling train (VOST). The VOST is described in Method 0030[21] in SW-846. Volatile organics were removed from the sample gas by sorbent traps maintained at 20°C. The first sorbent trap contains Tenax resin and the second trap contains Tenax resin and petroleum-based charcoal. A dry gas meter was used to measure the volume of gas passed through the pair of traps. Sample volumes of 20 L were collected on two separate pairs of traps at a rate of 0.5 L/min.

Leak checks were performed before and after collection of each pair of resin traps. After the post-collection leak check was been completed, the traps were sealed with their end caps and returned to their respective glass containers for storage and transport. During storage and transportation, the traps were kept cool ($<4°C$).

The sample fractions generated by the VOST and an overview of the sample handling process are shown in Figure A-14. The Tenax and Tenax/charcoal cartridges were sent directly from the test site to the analytical laboratory for volatile organic compound analysis. The contents of the Tenax and Tenax/charcoal cartridges were spiked with internal standards and surrogates, thermally desorbed according to EPA Method 5040[22], and directly analyzed for the compounds listed in Table A-5 by GC/MS according to EPA Method 8240.[23] Air Toxics, Ltd. was subcontracted to perform VOST analyses.

Semivolatile Compounds

Semivolatile organic compounds (SVOCs) were collected using a Modified Method 5 (MM5)[24] sampling train. The probe washes, filter catches, XAD sorbent traps, and aqueous condensate were extracted and analyzed for SVOCs by a combination of analytical protocols, SW-846 Method 8270[25] and CARB Method 429.[26]

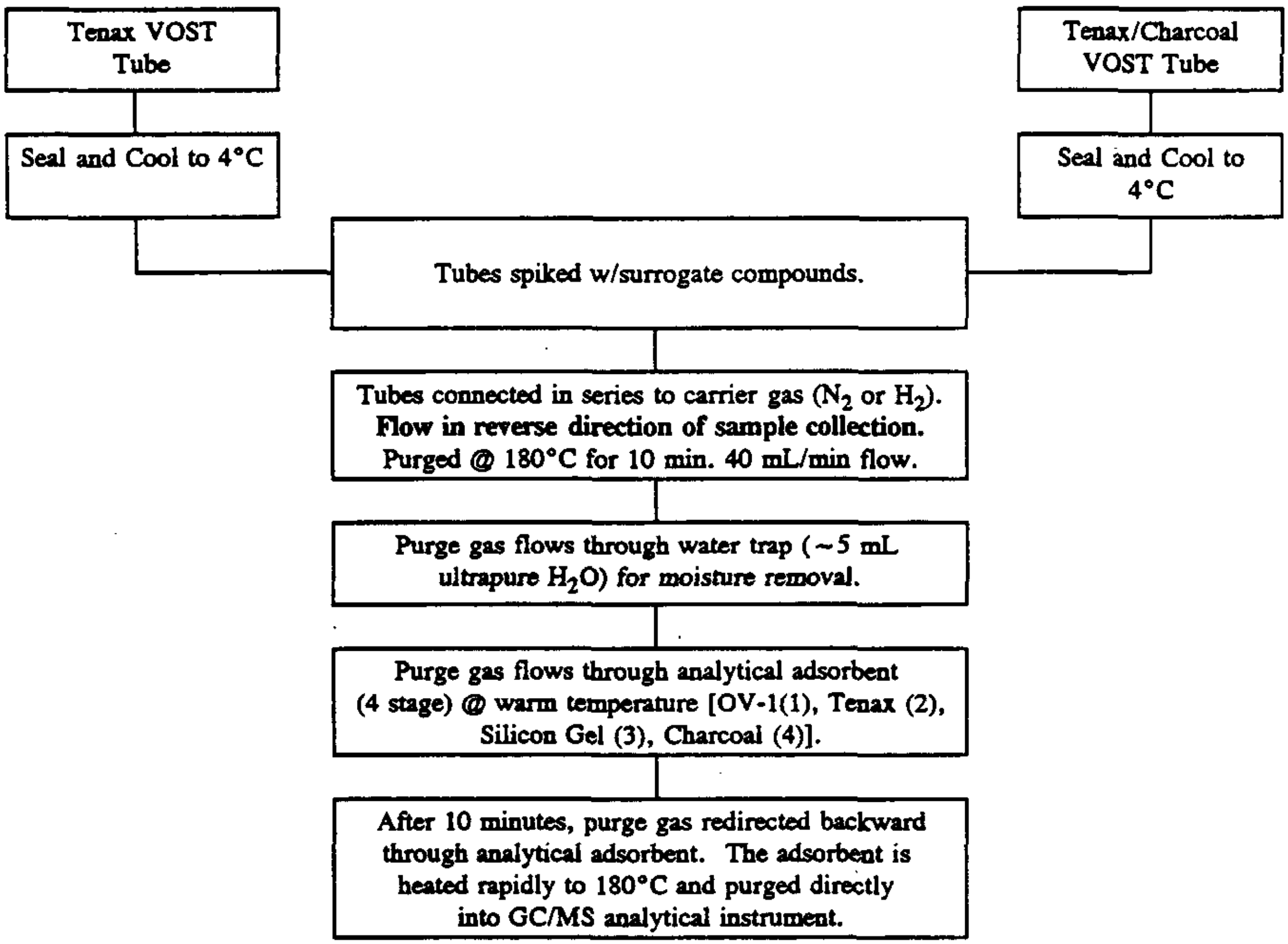

Figure A-14
VOST Sorbent Sample Preparation and Analysis Plan for Volatile Organic Compounds

The MM5 sampling protocol is Method 0010 in SW-846. The sampling system consists of a heated probe, heated filter, sorbent module, and pumping and metering unit.

From the heated filter, sample gas entered a sorbent module. The sorbent module consists of a water-cooled condenser followed by an XAD-2 resin trap. After the resin trap was a dry, modified Greenburg-Smith impinger which collected the aqueous condensate.

Samples were collected isokinetically at a sampling rate of approximately 0.5 dscfm for each train. Approximately 100 to 125 dscf of gas were collected by each train over a minimum sampling period of two hours.

Sampling train preparation and sample retrieval was performed in a controlled environment to reduce the possibility of sample contamination. Prior to assembly, each component of the sampling train was thoroughly rinsed with methylene chloride.

After sample collection, the ends of the sampling train were sealed with solvent-rinsed foil and returned to the clean-up area for sample retrieval. The filter was recovered and placed in a glass petri dish that was rinsed with methylene chloride. Aqueous condensate collected in the first two impingers and in the sorbent trap were transferred to amber glass bottles rinsed with methylene chloride with Teflon®-lined screw cap closures.

A description of the sampling train and sample fraction recovery for the MM5 sampling train is presented in Table A-11. The sample fractions generated by the MM5 sampling train and an overview of the sample handling process are shown in Figure A-15. The particulate-phase and vapor-phase sample fractions were analyzed separately for the semivolatile organic compounds presented in Table A-5. The sample extracts were split to provide analysis of the particulate and vapor phase samples by both SW-8270 and CARB Method 429 protocols.

The particulate phase consisted of the front-half acetone/methylene chloride PNR and the filter. The vapor phase consisted of the back-half acetone/methylene chloride rinse, the

Table A-11
Description and Recovery of Modified Method 5 (Semivolatile and PAHs 429) Sampling Train

Component	Solution	Recovery[a]	Container	Preparation & Analysis
Probe/Nozzle Rinse[b]	NA	Rinse probe, nozzle, and front half of filter holder with $MeCl_2$ into sample container.	500 mL amber glass bottle. Cool to 4°C.	See Figure A-15
Filter[b]	Pretreated quartz filter	Place filter in sample container.	Glass petri dish. Cool to 4°C.	See Figure A-15
Thimble[c]	Tared thimble	Place thimble in sample container.	Glass jar. Cool to 4°C.	See Figure A-15
XAD Cartridge	XAD-2 resin	Seal resin cartridge.	Wrap in aluminum foil. Cool to 4°C.	See Figure A-15
Transfer Line Rinse[d]	NA	Rinse transfer line with $MeCl_2$ into sample container.	1000 mL amber glass bottle. Cool to 4°C	See Figure A-15
Condenser	NA	Rinse condenser with $MeCl_2$ into sample container.		
Impinger #1	Dry	Recover condensate, then rinse impinger and connecting glassware with $MeCl_2$ into sample container.		
Impinger #2	Ultrapure water (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with $MeCl_2$ into sample container.		
Impinger #3	Ultrapure water (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with $MeCl_2$ into sample container.		
Impinger #4	Silica gel (300 g)	Not recovered.	None	None

[a] All impingers were weighed prior to analysis.
[b] ESP inlet and outlet and APF outlet.
[c] APF inlet only.
[d] *Includes back half of filter holder at ESP inlet and outlet and gas cooling system at APF inlet and outlet.*
NA = Not applicable.

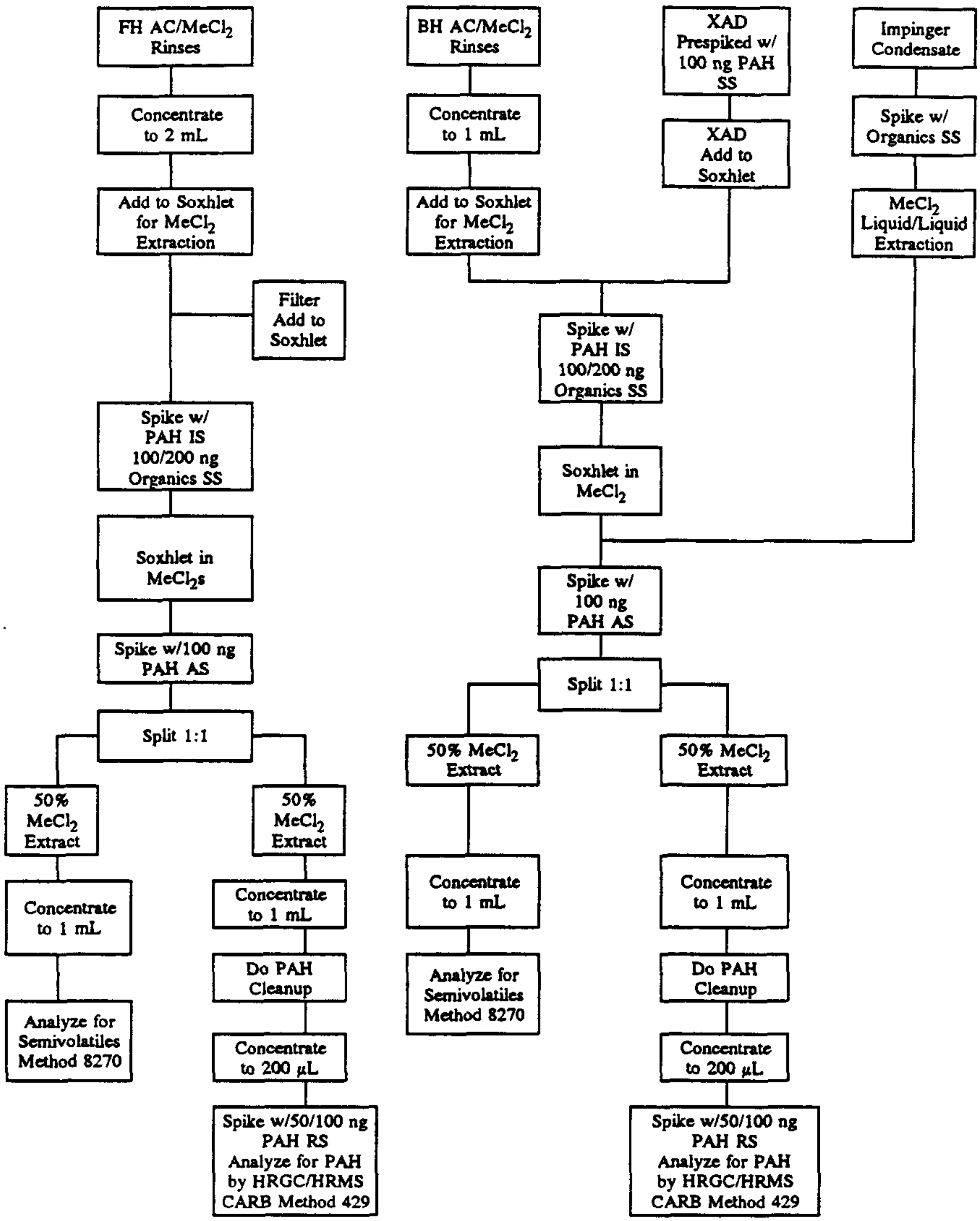

Figure A-15
Flue Gas Sample Preparation and Analysis Plan for Semivolatile Organic Compounds and PAHs

XAD resin, and the impinger condensate. The combined acetone/methylene chloride PNR/filter fraction and XAD fractions were soxhlet-extracted separately with methylene chloride. The impinger condensate fraction was liquid-liquid extracted with methylene chloride. The XAD extract and the impinger condensate extract were then combined, concentrated to 1 mL, and analyzed by gas chromatography/mass spectrometry (GC/MS) according to EPA Method 8270 and by high resolution GC/MS according to CARB Method 429. Triangle Laboratories, Inc. was subcontracted to perform these analyses.

Dioxins and Furans

Sampling for dioxins and furans in the selected gas streams was performed using EPA Reference Method 23.[27] Sample collection procedures specified in Method 23 were followed with the following exception: All train component rinses were performed with methylene chloride and acetone. The toluene rinse was then performed and added to the respective front half and back half acetone/methylene chloride rinse samples.

Adding the toluene rinses to the other solvent rinses provided a single sample for analysis of all congeners of dioxins and furans. Sample rate, volume and procedures were identical to the MM5 procedures described previously.

At the APF outlet, the particulate- and vapor-phase sample fractions were prepared and analyzed separately. At all other sampling locations, the particulate- and vapor-phase samples were combined for a single analysis. A description of the sampling train and sample fraction recovery for the Method 23 sampling train is presented in Table A-12. The sample fractions generated by the Method 23 sampling train and an overview of the sample handling process are shown in Figures A-16 and A-17.

Particulate Phase. The particulate phase consisted of the combined front-half toluene and acetone/methylene chloride rinses, and the filtered particulate matter. The toluene/acetone/methylene chloride rinse was concentrated to 2 mL and added to the filter fraction (and XAD fraction if particulate and vapor phases were combined). This was then spiked

Table A-12
Description and Recovery of Method 23 (Dioxins/Furans) Sampling Train

Component	Solution	Recovery[a]	Container	Preparation & Analysis
Probe/Nozzle Rinse[b]	NA	Rinse probe, nozzle, and front half of filter holder with $MeCl_2$, acetone, then toluene into sample container.	500 mL amber glass bottle. Cool to 4°C.	See Figures A-16 and A-17
Filter[b]	Pretreated quartz filter	Place filter in sample container.	Glass petri dish. Cool to 4°C.	See Figures A-16 and A-17
Thimble[c]	Thimble	Place thimble in sample container.	Glass jar. Cool to 4°C.	See Figures A-16 and A-17
Transfer Line Rinse[d]	NA	Rinse transfer line with $MeCl_2$, acetone, then toluene into sample container.	1000 mL amber glass bottle. Cool to 4°C.	See Figure A-16 and A-17
Condenser	NA	Rinse condenser with $MeCl_2$, acetone, then toluene into sample container.		
XAD Cartridge	Spiked XAD-2 resin	Seal resin cartridge.	Wrap in aluminum foil. Cool to 4°C.	See Figure A-16 and A-17
Impinger #1	Dry	Recover condensate, then rinse impinger and connecting glassware with $MeCl_2$, acetone, then toluene into sample container.	Discard.	None
Impinger #2	Ultrapure water (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with $MeCl_2$, acetone, then toluene into sample container.		
Impinger #3	Ultrapure water (200 mL)	Recover impinger solution, then rinse impinger and connecting glassware with $MeCl_2$, acetone, then toluene into sample container.		
Impinger #4	Silica Gel (300 g)	Not recovered.	None	None

[a] All impingers were weighed prior to recovery.

[b] ESP inlet and outlet and APF outlet.

[c] APF inlet only.

[d] Includes back half of filter holder at ESP inlet and outlet and gas cooling system at APF inlet and outlet.

NA = Not applicable.

prevent an SO_2-induced drop in pH. Therefore, for the Cr(VI) tests at Plant Tidd, a 1.0 normal KOH solution was used to prevent the pH from dropping below that of the resulting carbonate/bicarbonate buffer.

Increasing the KOH concentration above 1.0 N is counterproductive. The concentration of CO_2 in the flue gas would have required a KOH concentration in excess of 20 normal to maintain a pH >8.3. This concentration is unattainable. In addition, the background level of Cr(VI) in the KOH reagent tends to obscure the low levels of Cr(VI) potentially detectable in the sample.

The impinger solutions recovered from the EPA Cr(VI) sampling train were analyzed on site immediately after collection to minimize reduction of any Cr(VI) to Cr(III). The analysis was performed using an IC equipped with a post-column reactor and UV-VIS detector as specified in the sampling method. A concentrator column was used to load samples and an eluent solution of ammonium sulfate and ammonium hydroxide was used as the mobil phase. An acidic solution of 1,5-diphenyl carbazide was applied in the post-column reactor to develop a colored chromium complex with an absorbance maximum of 540 nm. The absorbance of the sample was measured at this wavelength to determine the concentration of Cr(VI) in the impinger sample. Following recovery of the caustic impinger solution, the sampling train was rinsed with 0.1 N HNO_3. These rinses and the caustic impinger solution were returned to Radian's Austin laboratory for total chromium analysis as a cross-check against the Cr(VI) results. Total chromium was determined on these samples by ICP emission spectroscopy.

A description of the sampling train and sample fraction recovery for the Cr(VI) sampling train is presented in Table A-14. The sample fractions generated by the Cr(VI) sampling train and an overview of the sample handling process are shown in Figure A-18.

Table A-14
Description and Recovery of Cr^{+6} Sampling Train

Component	Solution	Recovery	Container	Preparation & Analysis
Probe/Nozzle Rinse	NA	Rinse probe nozzle, aspirator sample and recirculation lines with DI water into sample container.	500 mL plastic bottle	See Figure A-18
Impinger #1	1.0 N KOH (150 mL)	Recover impinger, then rinse impinger and connecting Teflon® with DI water into sample container.		
Impinger #2	1.0 N KOH (75 mL)	Recover impinger, then rinse impinger and connecting Teflon® with DI water into sample container.		
Impinger #3	1.0 N KOH (75 mL)	Recover impinger, then rinse impinger and connecting Teflon® with DI water into sample container.		
Impinger #4	Dry	Not recovered.	None	None
Impinger #5	Silica gel (300 g)	Not recovered.	None	None
Nitric Acid Impinger Rinses	NA	Rinse all impingers and connecting Teflon® with 0.1 N HNO_3.	500 mL plastic bottle	Analyze for total chromium

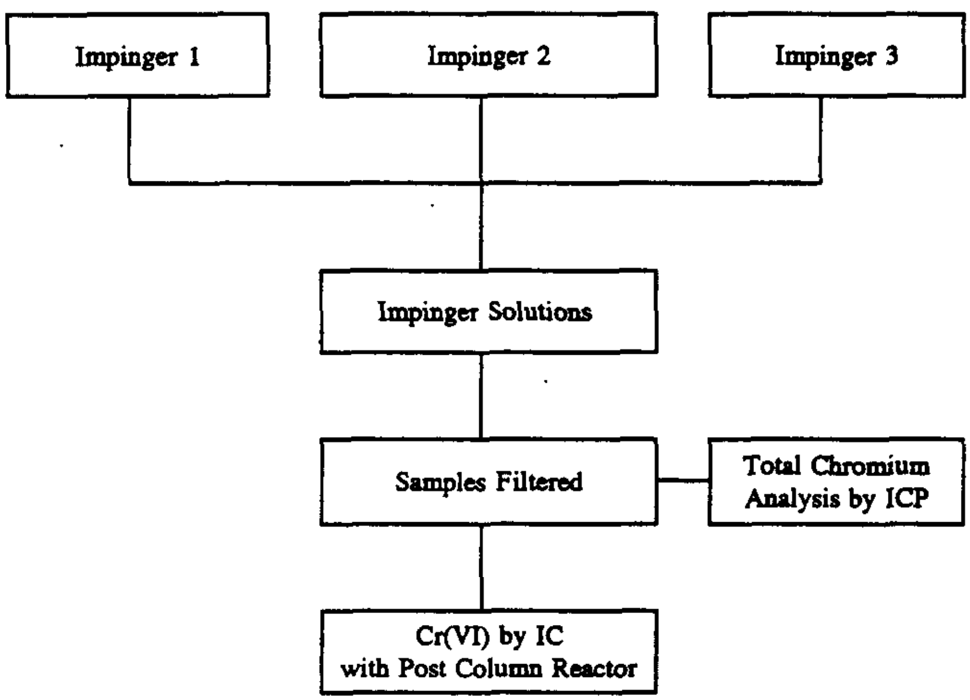

Figure A-18
Gas Impinger Sample Preparation and Analysis for Cr^{+6} and Total Chromium

Solid Streams

There were seven solid process streams identified for HAP sampling. Feed streams included the raw coal fed to the grinding mill, the coal-water paste fed to the PFBC, and the dry dolomite sorbent. Collected ash streams included the bed ash from the bottom of the PFBC unit, the primary cyclone ash, the APF ash, and the ESP hopper ash (four hoppers). The sample collection and analysis approach for each of these streams is presented in this section. An overview of the field sampling requirements for solids is shown in Tables A-2 and A-3. Duplicate samples were collected during one of the three test runs to assess sample collection precision.

Raw Coal

Samples of raw coal were collected from the coal conveyer by an ASTM autosampler. This sample, although it may be representative of the coal feedstock, was not the best representation of the coal fed to the PFBC unit since a four- to six-hour delay exists between sample collection and actual feed to the PFBC unit. The raw coal is mixed with water and pulverized to make a paste (70-75% coal by weight) which is fed to a mixing tank that supplies the unit with fuel. The coal paste provided the most representative fuel sample since it is closest to the point of injection. Nevertheless, raw coal samples were collected daily and held as a backup should coal paste sample integrity be questioned. Sample splits of the raw coal collected by the ASTM sampling system were stored at room temperature in sealed plastic bags.

Coal Paste Sampling

Coal paste is a 70-75 wt% slurry that is fed to the PFBC boiler. The paste is mixed in a run tank before being fed to the PFBC. The residence time is approximately two hours. For each run, multiple grab samples were taken at half-hour intervals from the paddle feeder when the paddle feeder was actively feeding coal paste to the mixing tank. The collection started approximately one hour before gas sampling to ensure that the sample was representative of the burned mixture. The samples were composited and collected into a five-gallon bucket which was labeled, sealed, and sent to Radian's laboratories for preparation and analysis. Table A-15 presents the sampling plan.

Coal Paste Preparation. The coal paste in each bucket was thoroughly mixed and subsampled for drying. Weights were obtained on one subsample of the coal paste before and after drying at 104°C to determine the weight percent of solids in the paste. A second subsample was air dried, ground to -60 mesh, and sealed in plastic bags for the analyses shown in Figure A-19. All results were reported on a dry coal basis.

Coal Paste Analysis

Metals. A fraction of the subsample was analyzed by instrumental neutron activation (INAA).[29] A second subsample was prepared and analyzed by ASTM D3683[30] for target elements (beryllium, phosphorus, and lead) which cannot be determined by INAA. In addition, ASTM D3684[31] was used to prepare and analyze samples for some of the more volatile metals such as arsenic, cadmium, and selenium. This technique combusts the prepared coal sample in a closed oxygen combustion bomb containing a small amount of nitric acid. The bomb washings were recovered and analyzed by GFAAS. Mercury was determined by combusting a sample and trapping the mercury vapors using a double gold amalgamation technique. The amalgamated mercury was thermally desorbed and analyzed by cold vapor atomic absorption spectroscopy (DGAA-CVAAS).[32]

Anions. Chlorine and fluorine in coal were determined by ASTM D4208[33] and D3761,[34] respectively. Prepared coal samples were combusted in a closed oxygen combustion bomb containing a dilute basic solution. The bomb washings were analyzed by SIE.

Ultimate, Proximate, and Higher Heating Value. In conjunction with the other analyses, higher heating value (HHV), proximate (intrinsic moisture, volatile and fixed carbon, and ash), and ultimate (percent carbon, hydrogen, nitrogen, sulfur, oxygen, and ash) analyses were performed according to standard ASTM procedures.[35,36,37]

Table A-15
Description and Recovery of Coal Paste

Parameter	Sample Frequency	Sample Handling	Preservation	Container	Preparation & Analysis
Metals	Hourly during coal paste feed to storage tank.	Grab samples composited directly into a 5 gallon plastic bucket	Sealed container	Air-dried sample aliquots split into sealed plastic bags	See Figure A-19
Anions (Cl, F)					
Radionuclides					
HHV					
Ultimate/ Proximate					

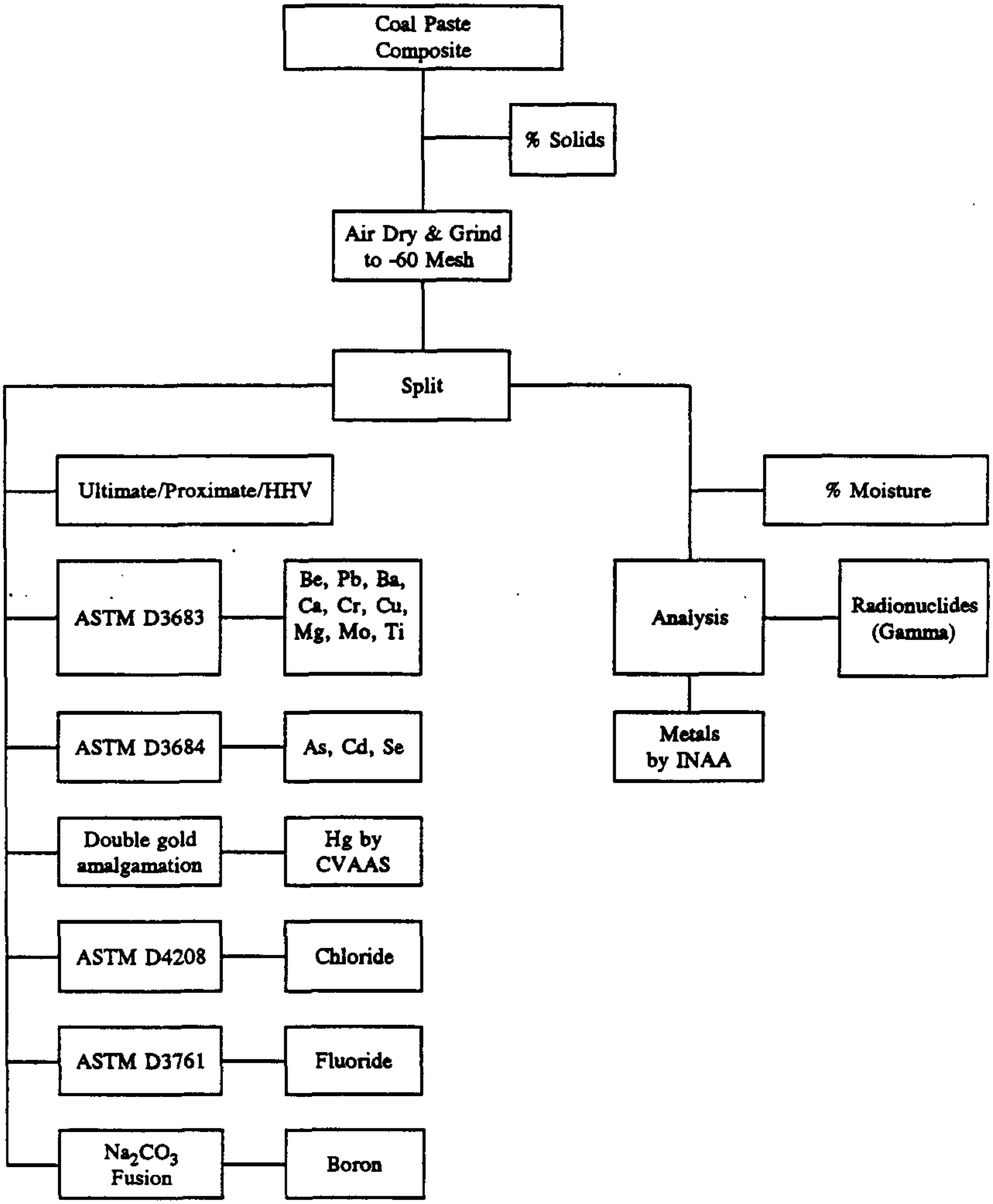

Figure A-19
Coal Sample Preparation and Analysis Plan

Radionuclides. Coal samples were analyzed by EPA Method 901.1.[38] This method uses gamma emitting spectrometry to measure radioactivity through gamma decay.

Dolomite Sorbent Sampling

The original plan called for collection of a run composite from the autosampler at the sorbent storage silo. However, the autosampler experienced mechanical problems on Days 1 and 2 of the test, so Run 3 samples were collected from the diversion gate upstream of the east and west silos. A single grab sample was collected 12 hours before the beginning of Run 3 to account for the lag time in the hopper. The samples were collected in plastic bottles, labeled, and sent to Radian laboratories for preparation and analysis. Table A-16 presents the sampling plan.

Dolomite Sorbent Analysis

Metals. The sorbent samples were air dried, ground to pass through a 60-mesh sieve, then subsampled for mercury analysis by CVAAS. Aliquots of the remaining material were digested with nitric acid by EPA Method 3050.[39] The digestate was analyzed by ICP-AES and GFAAS.

Anions. Separate preparatory techniques were necessary for the analysis of fluoride, chloride, and sulfate in these solids. All sample aliquots were taken from the ground, air-dried material prepared for metal analysis. Fluoride sample aliquots were prepared by fusion with sodium hydroxide.[40] The fusion melt was dissolved in deionized water and analyzed potentiometrically by fluoride-specific ion electrode. Samples for chloride analysis were prepared by mild digestion in nitric acid. The digestate was analyzed potentiometrically by chloride-specific ion electrode. For the analysis of sulfate, the sample was digested in HCl[41] and the digestate was analyzed by IC.

Table A-16
Description and Recovery of Dolomite Sorbent

Parameter	Sample Frequency	Sample Handling	Preservation	Container	Preparation & Analysis
Metals	1 daily run sample from autosampler or diversion gate upstream of silos.	Grab sample collected from autosampler into a sealed plastic container.	None	Air dried sample aliquots split into sealed plastic bags.	See Figure A-20
Anions (Cl, F, SO_4)					

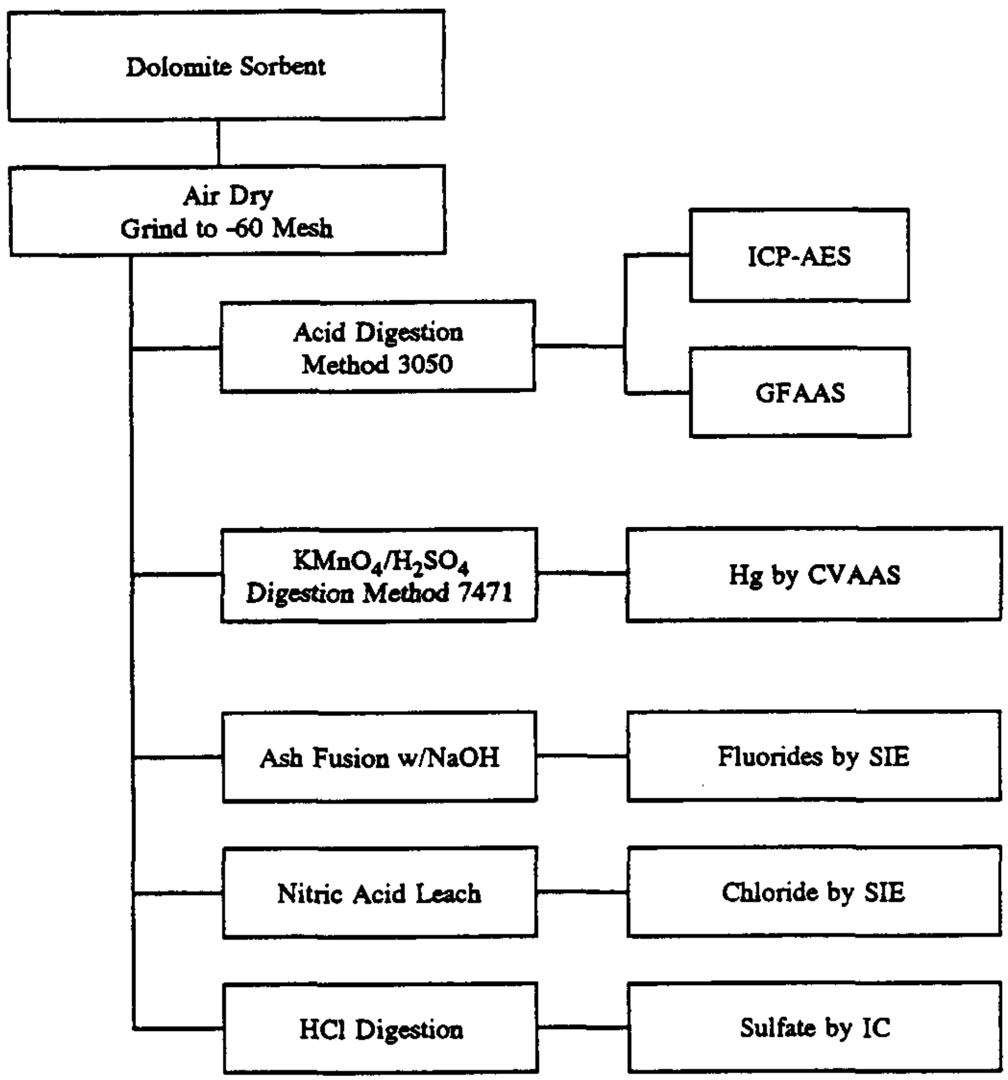

Figure A-20
Sorbent Sample Preparation and Analysis Plan

Ash Sampling

Ash was collected by autosampler at the primary cyclone and by composited grab samples at the other locations. Each composite was collected on site in two separate labeled containers. Plastic containers were used for samples targeted for inorganic analysis, and 1 L amber glass bottles were used for samples for organic analysis. Samples for organic analysis were cooled immediately after collection and stored at 4°C.

Bed Ash. Bed ash was grab-sampled manually as the ash was dumped to the ash conveyer. The grab samples were collected during each ash dumping cycle during the sample run and composited directly into a galvanized metal container. The daily composite was tumbled, riffled, and split for inorganic and organic analysis. Table A-17 presents the sample handling and preservation techniques.

Primary Cyclone Ash. This ash was collected from the facility's autosampler located at the ash feed line into the storage silo. The sampler was purged prior to a run and allowed to fill throughout the run period. The sampling frequency of the autosampler was set for sample collection every 15 minutes. The autosampler was not functioning properly during Run 3, so fewer sample cuts were obtained for the composite. Table A-18 presents the sample handling and preservation techniques.

APF Ash. The initial plan was to collect multiple grab samples of the APF ash from the ash collection truck. However, an alternate sampling location at the bottom of the APF ash lockhopper was identified once the crew arrived on site. The lockhopper system was disengaged a minimum of two times during each run to allow collection of grab samples from the system. These grab samples were then composited to obtain a run composite. Table A-19 presents the sample handling and preservation techniques.

ESP Ash. The ESP system was made up of four fields with two hoppers per field. ESP Fields 1 and 2 were dumped each morning before the test began and samples were collected at the end each test period for metals and anions analyses. ESP Fields 3 and 4 were dumped

Table A-17
Description and Recovery of Bed Ash

Parameter	Sample Frequency	Sample Handling	Preservation	Container	Preparation & Analysis
Metals	Grab samples collected during each ash dumping cycle.	Grab samples composited directly into a galvanized metal can. Riffle bulk composite collect into a plastic container.	None	Plastic bottle or sealed plastic bags	See *Figure A-21*
Anions (Cl, F, PO_4, SO_4)					
Radionuclides					
Carbon					
PSD					
Semivolatile Organics		Riffle bulk composite collect into separate sample bottles.	Cool to 4°C	1000 mL amber glass bottle	

Table A-18
Description and Recovery of Primary Cyclone Ash

Parameter	Sample Frequency	Sample Handling	Preservation	Container	Preparation & Analysis
Metals	Every 15 minutes by autosampler.	Daily run composite collected from autosampler into a plastic bottle.	None	Plastic bottle or sealed plastic bag	See Figure A-21
Anions (Cl, F, PO_4, SO_4)					
Radionuclides					
Carbon					
Dioxins and Furans		Bulk composite split into separate sample bottles.	Cool to 4°C	1000 mL amber glass bottle	
Semivolatile Organics					

Table A-19
Description and Recovery of APF Ash

Parameter	Sample Frequency	Sample Handling	Preservation	Container	Preparation & Analysis
Metals	Minimum of two grab samples during each test run.	Multiple grab samples taken from the APF ash hopper. Collected as a bulk composite in a plastic bottle.	None	Plastic bottle	See Figure A-21
Anions (Cl, F, PO_4, SO_4)					
Radionuclides					
Carbon					
Dioxins and Furans		Bulk composite split into amber glass bottles.	Cool to 4°C	1000 mL amber glass bottle	
Semivolatile Organics					

at the beginning of the first test period. Samples were collected after the ash was allowed to accumulate over a three-day period so that enough material could be obtained for analysis. Table A-20 presents the sample handling and preservation techniques.

Ash Preparation. All ash samples were collected dry. Bed ash samples were ground to pass through a 60-mesh sieve prior to taking aliquots for mercury analysis. All other ash samples did not require grinding. Figure A-21 presents the sampling handling and preparation procedures for each ash sample analyzed for the following analytes.

Ash Analysis

Metals. Samples were digested in a microwave digestion vessel using nitric, hydrochloric, and hydrofluoric acids. The digestate was analyzed by ICP-AES and GFAAS. Mercury was analyzed by CVAAS (EPA Method 7471).

Anions. Separate preparatory techniques were necessary for analysis of fluoride, chloride, and sulfur in ash. All sample aliquots were taken from the ground, air-dried material prepared for trace element analysis. Subsamples for fluoride analysis were fused with sodium hydroxide. The fusion melt was dissolved in deionized water and analyzed potentiometrically by fluoride-specific ion electrode. Ash samples for chloride analysis were prepared by mild digestion in nitric acid. The digestate was analyzed potentiometrically by chloride-specific ion electrode. Sulfur analysis was performed directly on the ground sample by ASTM Method D4239.[42]

Semivolatile Organic Compounds. Ash samples targeted for SVOC analyses were separated at the test site and shipped directly to the laboratory. The ash samples were soxhlet-extracted in methylene chloride by EPA Method 3540.[43] The extracts were then analyzed by GC/MS according to EPA Method 8270.

Table A-20
Description and Recovery of ESP Ash

Parameter	Sample Frequency	Sample Handling	Preservation	Container	Preparation & Analysis
Metals	Fields 1 & 2: Daily at end of test period. Fields 3 & 4: At conclusion of test run.	Grab samples composited into plastic containers as a bulk composite for each field.	None	Plastic bottle or sealed plastic bag.	See Figure A-21
Anions (Cl, F, SO_4)					
Radionuclides					
Carbon					
PSD					
Dioxins and Furans	Fields 1 & 2: Daily at end of test period. Fields 3 & 4: At conclusion of test run.	Bulk composite split into amber glass bottles.	Cool to 4°C	1000 mL amber glass bottle.	
Semivolatile Organics					

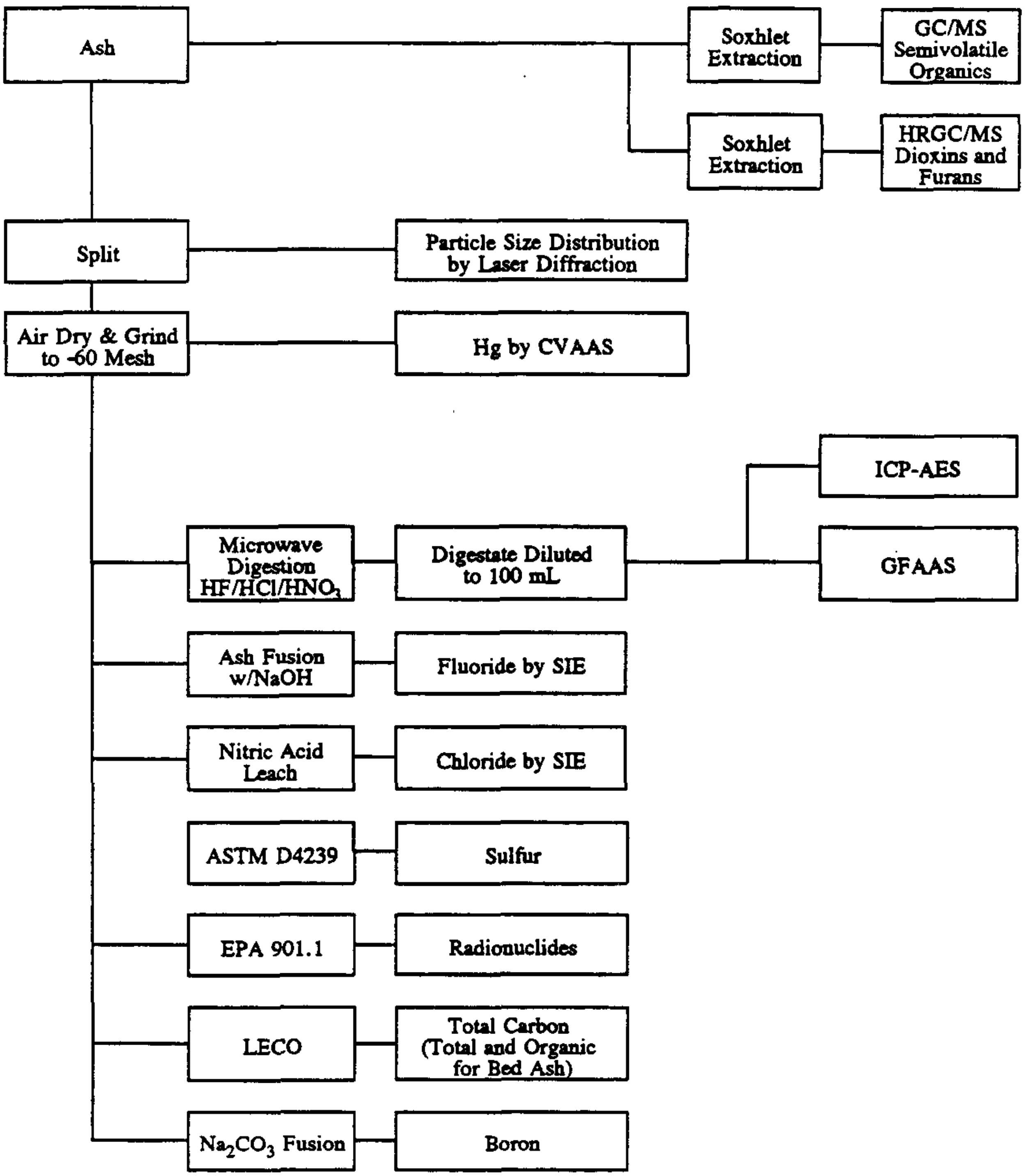

Figure A-21
Ash Sample Preparation and Analysis Plan

Dioxins and Furans. Ash samples analyzed for dioxins and furans were separated on site and shipped chilled directly to the laboratory for analysis. The ashes were toluene soxhlet-extracted and purified. The extract was analyzed using high resolution GC/MS. Both preparation and analysis are a part of EPA Method 8290.[44]

Particle Size Distribution. Dry ash samples from the individual ESP fields were analyzed for PSD by laser diffraction using the Microtrac analyzer. Sample aliquots of well-mixed ash were suspended in either water or alcohol and injected into the recirculation system of a Microtrac particle-size analyzer.

Radionuclides. Ash samples were analyzed by EPA Method 901.1. This method uses gamma emitting spectrometry to measure radioactivity through gamma decay.

Carbon. Ash samples were analyzed for percent carbon by a LECO carbon-hydrogen-nitrogen analyzer. This analyzer combusts the sample in an oxygen atmosphere and measures the carbon dioxide in the combustion gas.

Service Water Sampling and Analysis

Plant service water was the only liquid stream sampled. A single grab sample was collected daily to represent the coal paste make-up water source during active paste preparation. The daily composite was collected into plastic sample bottles. Samples for metals analysis were preserved on site with HNO_3 to a pH <2. Samples for anions were cooled to 4°C. Table A-21 presents the sampling plan, and Figure A-16 lists the sample preparation and analysis procedures.

Metals

The unfiltered service water samples were prepared for total metal analysis according to EPA Methods 3005[45] and 3020.[46] The samples were vigorously digested in concentrated nitric acid to dissolve any suspended material that may be present in the samples. The

Table A-21
Description and Recovery of Service Water

Parameter	Sample Frequency	Sample Handling	Preservation	Container	Preparation & Analysis
Metals	Once daily during coal paste preparation.	Grab samples collected directly into plastic bottle containing preservative.	HNO_3 to pH <2	1000 mL plastic bottle	See Figure A-22
Anions (Cl, F, PO_4, SO_4)		Grab samples collected directly into 1 L plastic bottle.	Cool to 4°C		

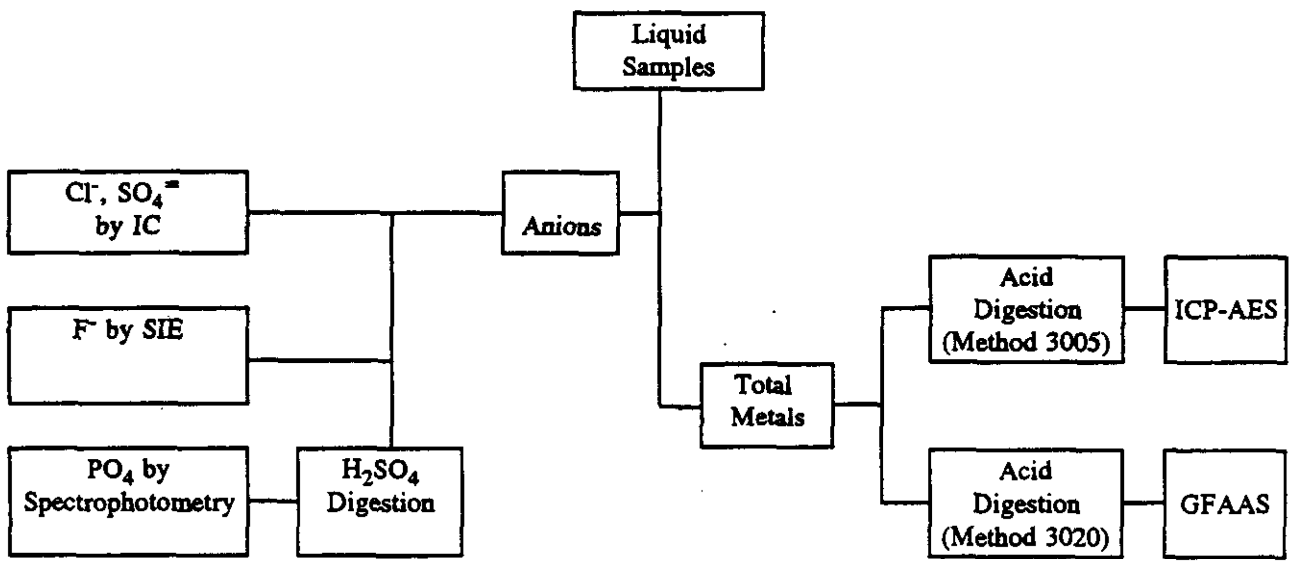

Figure A-22
Liquid Sample Preparation and Analysis Plan

digestates were diluted to a known volume and analyzed by ICP-AES and GFAAS. Mercury was determined by EPA Method 7470.

Anions

Sample aliquots for the analysis of chloride, fluoride, sulfate, sulfite, and phosphate were collected in separate containers and filtered. Chloride and sulfate were determined by IC according to EPA Method 300.0. Fluoride was determined potentiometrically by fluoride SIE. Phosphate was determined spectrophotometrically as a measure of total phosphorus after the sample was digested according to EPA Method 365.1.

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APPENDIX B: DETAILED ANALYTICAL DATA

Key to Appendix B Data Flags

Comment	Description
B	Analyte detected in method blank.
C	Result corrected with reagent blank result.
E	Result exceeds instrument calibration range.
F	PCDF peak eluted at the same time as the associated diphenyl ether (DPE) and the DPE peak intensity is 10% or more of the PCDF peak intensity.
G	Estimated result because of coelution with sulfur dioxide.
J	Result is less than the quantitation limit but greater than the detection limit.
S	Result is an estimate because of saturated peak.

DATA USED IN CALCULATIONS

Analytical Data Used In Calculations

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg	ND (0.012)		ND (0.012)		ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g	ND (0.0063)		ND (0.0064)		ND (0.0063)	
1,2-Dichlorobenzene	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
1,4-Dichlorobenzene	GCMS	ug/g	ND (0.023)		ND (0.023)		ND (0.023)	
2,4,5-Trichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4,6-Trichlorophenol	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g	ND (0.042)		ND (0.042)		ND (0.042)	
2,4-Dinitrophenol	GCMS	ug/g	ND (0.086)		ND (0.086)		ND (0.085)	
2,4-Dinitrotoluene	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
2,6-Dinitrotoluene	GCMS	ug/g	ND (0.035)		ND (0.035)		ND (0.035)	
2-Chloronaphthalene	GCMS	ug/g	ND (0.030)		ND (0.030)		ND (0.030)	
2-Chlorophenol	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
2-Methylphenol	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
2-Nitroaniline	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
2-Nitrophenol	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g	ND (0.036)		ND (0.036)		ND (0.036)	
3-Nitroaniline	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
4,6-Dinitro-2-methylphenol	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-Chloro-3-methylphenol	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
4-Methylphenol/3-Methylphenol	GCMS	ug/g	ND (0.041)		ND (0.041)		ND (0.041)	
4-Nitroaniline	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-Nitrophenol	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
Acenaphthene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Acenaphthylene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Anthracene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benz(a)anthracene	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
Benz(a)pyrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g	ND (0.032)		ND (0.032)		ND (0.032)	

Analytical Data Used In Calculations

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzo(g,h,i)perylene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g	ND (0.027)		ND (0.027)		ND (0.027)	
Benzoic acid	GCMS	ug/g	ND (0.099)		ND (0.099)		ND (0.099)	
Benzyl alcohol	GCMS	ug/g	ND (0.048)		ND (0.048)		ND (0.047)	
Butylbenzylphthalate	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
Chrysene	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Di-n-butylphthalate	GCMS	ug/g	ND (0.010)		ND (0.010)		ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g	ND (0.023)		ND (0.023)		ND (0.022)	
Dibenzofuran	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	
Diethylphthalate	GCMS	ug/g	ND (0.012)		ND (0.012)		ND (0.012)	
Dimethylphthalate	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.015)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
Fluoranthene	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
Fluorene	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
Hexachlorobenzene	GCMS	ug/g	ND (0.017)		ND (0.018)		ND (0.017)	
Hexachlorobutadiene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Hexachlorocyclopentadiene	GCMS	ug/g	ND (0.054)		ND (0.054)		ND (0.054)	
Hexachloroethane	GCMS	ug/g	ND (0.033)		ND (0.033)		ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Isophorone	GCMS	ug/g	ND (0.0100)		ND (0.010)		ND (0.0100)	
N-Nitroso-di-n-propylamine	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
Naphthalene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Nitrobenzene	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	
Pentachlorophenol	GCMS	ug/g	ND (0.0063)		ND (0.0064)		ND (0.0063)	
Phenanthrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Phenol	GCMS	ug/g	ND (0.033)		ND (0.034)		ND (0.033)	
Pyrene	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g	ND (0.054)		ND (0.054)		ND (0.054)	
p-Chloroaniline	GCMS	ug/g	ND (0.032)		ND (0.033)		ND (0.032)	

Analytical Data Used In Calculations

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	mg/kg	235	B	274	B	291	B
Cadmium	GFAA	mg/kg	1.54	B	1.54	B	1.61	B
Lead	GFAA	mg/kg	63.7		78.2		66.4	
Selenium	GFAA	mg/kg	ND (0.99)		1.08		ND (0.96)	
1,2,3,4,6,7,8-HpCDD	HR GCMS	ppt	ND (0.60)		ND (0.30)		ND (0.10)	
1,2,3,4,6,7,8-HpCDF	HR GCMS	ppt	ND (0.30)		ND (0.10)		0.130	
1,2,3,4,7,8,9-HpCDF	HR GCMS	ppt	ND (0.50)		ND (0.20)		ND (0.10)	
1,2,3,4,7,8-HxCDD	HR GCMS	ppt	ND (0.50)		ND (0.20)		ND (0.10)	
1,2,3,4,7,8-HxCDF	HR GCMS	ppt	ND (0.30)		ND (0.10)		ND (0.070)	
1,2,3,6,7,8-HxCDD	HR GCMS	ppt	ND (0.40)		ND (0.20)		ND (0.10)	
1,2,3,6,7,8-HxCDF	HR GCMS	ppt	ND (0.20)		ND (0.10)		ND (0.060)	
1,2,3,7,8,9-HxCDD	HR GCMS	ppt	ND (0.40)		ND (0.20)		ND (0.10)	
1,2,3,7,8,9-HxCDF	HR GCMS	ppt	ND (0.30)		ND (0.20)		ND (0.080)	
1,2,3,7,8-PeCDD	HR GCMS	ppt	ND (0.40)		ND (0.20)		ND (0.10)	
1,2,3,7,8-PeCDF	HR GCMS	ppt	ND (0.30)		ND (0.10)		ND (0.080)	
2,3,4,6,7,8-HxCDF	HR GCMS	ppt	0.480		0.270		0.260	
2,3,4,7,8-PeCDF	HR GCMS	ppt	ND (0.20)		ND (0.10)		ND (0.080)	
2,3,7,8-TCDD	HR GCMS	ppt	ND (0.30)		ND (0.10)		ND (0.10)	
2,3,7,8-TCDF	HR GCMS	ppt	ND (0.20)		ND (0.090)		ND (0.080)	
OCDD	HR GCMS	ppt	ND (0.80)		0.290		0.220	
OCDF	HR GCMS	ppt	ND (0.70)		ND (0.30)		ND (0.20)	
Total HpCDD	HR GCMS	ppt	ND (0.60)		ND (0.30)		ND (0.10)	
Total HpCDF	HR GCMS	ppt	ND (0.30)		ND (0.20)		0.160	
Total HxCDD	HR GCMS	ppt	ND (0.40)		ND (0.20)		ND (0.10)	
Total HxCDF	HR GCMS	ppt	0.480		0.270		0.260	
Total PeCDD	HR GCMS	ppt	ND (0.40)		ND (0.20)		ND (0.10)	
Total PeCDF	HR GCMS	ppt	ND (0.20)		ND (0.10)		ND (0.080)	
Total TCDD	HR GCMS	ppt	ND (0.30)		0.150		ND (0.10)	
Total TCDF	HR GCMS	ppt	ND (0.20)		ND (0.090)		ND (0.080)	
Aluminum	ICAP	mg/kg	55100	B	52500		56800	B
Antimony	ICAP	mg/kg	ND (45)		ND (49)		ND (50)	
Barium	ICAP	mg/kg	198		189		214	

Analytical Data Used In Calculations

Stream: *APF Ash* **Collection Method:** *Grab Composite* **Sample Type:** *Fly Ash*

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Beryllium	ICAP	mg/kg	7.30		5.75		6.54	
Boron	ICAP	ug/g	180		600		150	
Calcium	ICAP	mg/kg	90200	B	88100		84300	B
Chromium	ICAP	mg/kg	73.7	B	70.5		76.6	B
Cobalt	ICAP	mg/kg	13.0	B	18.6		17.2	B
Copper	ICAP	mg/kg	4.14		ND (4.2)		4.40	
Iron	ICAP	mg/kg	28200		28800		29200	
Magnesium	ICAP	mg/kg	48200	B	46800		44400	B
Manganese	ICAP	mg/kg	100	B	97.8		102	B
Molybdenum	ICAP	mg/kg	ND (3.0)		ND (3.2)		ND (3.3)	
Nickel	ICAP	mg/kg	41.4	B	17.8		28.0	B
Phosphorus	ICAP	mg/kg	ND (71)		ND (68)		ND (69)	
Potassium	ICAP	mg/kg	12500		12200		13100	
Silver	ICAP	mg/kg	ND (3.4)		ND (3.7)		ND (3.8)	
Sodium	ICAP	mg/kg	2150	B	1980		2150	B
Titanium	ICAP	mg/kg	2950	B	2760		3050	B
Vanadium	ICAP	mg/kg	86.0		82.7		93.2	
Chloride	SIE	mg/kg	ND (78)		279		ND (78)	
Fluoride	SIE	mg/kg	ND (12)	B	16.3	B	13.3	B
Carbon	Ultimate	%	0.0600		0.100		0.0700	
Sulfur	Ultimate	%	14.8		16.6		16.1	
Actinium-228 @338	gamma	pCi/g	1.20		0.700		1.30	
Actinium-228 @911	gamma	pCi/g	0.880		0.860		1.50	
Actinium-228 @968	gamma	pCi/g	0.670		0.390		0.800	
Bismuth-212 @727	gamma	pCi/g	1.10		0.510		2.00	
Bismuth-214 @1120.4	gamma	pCi/g	1.70		1.40		3.20	
Bismuth-214 @1764.7	gamma	pCi/g	3.10		0.910		2.40	
Bismuth-214 @609.4	gamma	pCi/g	2.10		1.40		2.30	
K-40 @1460	gamma	pCi/g	16.0		9.00		18.0	
Lead-210 @46	gamma	pCi/g	2.90		3.70		5.30	
Lead-212 @238	gamma	pCi/g	2.00		1.00		2.40	
Lead-214 @295.2	gamma	pCi/g	1.80		1.10		2.20	

Analytical Data Used In Calculations

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Lead-214 @352.0	gamma	pCi/g	2.40		1.40		2.80	
Radium-226 @186.0	gamma	pCi/g	5.10		1.90		3.00	
Thallium-208 @583	gamma	pCi/g	0.390		0.300		0.560	
Thallium-208 @860	gamma	pCi/g	0.610		ND (0.12)		0.0700	
Thorium-234 @63.3	gamma	pCi/g	2.60		2.50		5.30	
Thorium-234 @92.6	gamma	pCi/g	0.200		0.0900		1.20	
Uranium-235 @143.8	gamma	pCi/g	0.310		0.120		0.190	

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg					ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g					ND (0.0064)	
1,2-Dichlorobenzene	GCMS	ug/g					ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g					ND (0.024)	
1,4-Dichlorobenzene	GCMS	ug/g					ND (0.023)	
2,4,5-Trichlorophenol	GCMS	ug/g					ND (0.019)	
2,4,6-Trichlorophenol	GCMS	ug/g					ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g					ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g					ND (0.042)	
2,4-Dinitrophenol	GCMS	ug/g					ND (0.086)	
2,4-Dinitrotoluene	GCMS	ug/g					ND (0.025)	
2,6-Dinitrotoluene	GCMS	ug/g					ND (0.035)	
2-Chloronaphthalene	GCMS	ug/g					ND (0.030)	
2-Chlorophenol	GCMS	ug/g					ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g					ND (0.020)	
2-Methylphenol	GCMS	ug/g					ND (0.026)	
2-Nitroaniline	GCMS	ug/g					ND (0.026)	
2-Nitrophenol	GCMS	ug/g					ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g					ND (0.036)	
3-Nitroaniline	GCMS	ug/g					ND (0.011)	

Analytical Data Used In Calculations

Stream: APF Ash   Collection Method: Grab Composite   Sample Type: Fly Ash   FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
4,6-Dinitro-2-methylphenol	GCMS	ug/g					ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g					ND (0.020)	
4-Chloro-3-methylphenol	GCMS	ug/g					ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g					ND (0.024)	
4-Methylphenol/3-Methylphenol	GCMS	ug/g					ND (0.041)	
4-Nitroaniline	GCMS	ug/g					ND (0.020)	
4-Nitrophenol	GCMS	ug/g					ND (0.021)	
Acenaphthene	GCMS	ug/g					ND (0.016)	
Acenaphthylene	GCMS	ug/g					ND (0.022)	
Anthracene	GCMS	ug/g					ND (0.018)	
Benz(a)anthracene	GCMS	ug/g					ND (0.011)	
Benz(a)pyrene	GCMS	ug/g					ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g					ND (0.032)	
Benzo(g,h,i)perylene	GCMS	ug/g					ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g					ND (0.027)	
Benzoic acid	GCMS	ug/g					ND (0.099)	
Benzyl alcohol	GCMS	ug/g					ND (0.048)	
Butylbenzylphthalate	GCMS	ug/g					ND (0.025)	
Chrysene	GCMS	ug/g					ND (0.019)	
Di-n-butylphthalate	GCMS	ug/g					ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g					ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g					ND (0.023)	
Dibenzofuran	GCMS	ug/g					ND (0.013)	
Diethylphthalate	GCMS	ug/g					ND (0.012)	
Dimethylphthalate	GCMS	ug/g					ND (0.016)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g					ND (0.025)	
Fluoranthene	GCMS	ug/g					ND (0.014)	
Fluorene	GCMS	ug/g					ND (0.011)	
Hexachlorobenzene	GCMS	ug/g					ND (0.018)	
Hexachlorobutadiene	GCMS	ug/g					ND (0.022)	
Hexachlorocyclopentadiene	GCMS	ug/g					ND (0.054)	
Hexachloroethane	GCMS	ug/g					ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g					ND (0.016)	

Analytical Data Used In Calculations

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Isophorone	GCMS	ug/g					ND (0.010)	
N-Nitroso-di-n-propylamine	GCMS	ug/g					ND (0.026)	
Naphthalene	GCMS	ug/g					ND (0.022)	
Nitrobenzene	GCMS	ug/g					ND (0.013)	
Pentachlorophenol	GCMS	ug/g					ND (0.0064)	
Phenanthrene	GCMS	ug/g					ND (0.018)	
Phenol	GCMS	ug/g					ND (0.034)	
Pyrene	GCMS	ug/g					ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g					ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g					ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g					ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g					ND (0.054)	
p-Chloroaniline	GCMS	ug/g					ND (0.033)	
Arsenic	GFAA	mg/kg					285	B
Cadmium	GFAA	mg/kg					1.53	B
Lead	GFAA	mg/kg					60.3	
Selenium	GFAA	mg/kg					ND (0.96)	
1,2,3,4,6,7,8-HpCDD	HR GCMS	ppt					ND (0.40)	
1,2,3,4,6,7,8-HpCDF	HR GCMS	ppt					ND (0.20)	
1,2,3,4,7,8,9-HpCDF	HR GCMS	ppt					ND (0.30)	
1,2,3,4,7,8-HxCDD	HR GCMS	ppt					ND (0.30)	
1,2,3,4,7,8-HxCDF	HR GCMS	ppt					ND (0.20)	
1,2,3,6,7,8-HxCDD	HR GCMS	ppt					ND (0.30)	
1,2,3,6,7,8-HxCDF	HR GCMS	ppt					ND (0.10)	
1,2,3,7,8,9-HxCDD	HR GCMS	ppt					ND (0.30)	
1,2,3,7,8,9-HxCDF	HR GCMS	ppt					ND (0.20)	
1,2,3,7,8-PeCDD	HR GCMS	ppt					ND (0.40)	
1,2,3,7,8-PeCDF	HR GCMS	ppt					ND (0.20)	
2,3,4,6,7,8-HxCDF	HR GCMS	ppt					0.210	
2,3,4,7,8-PeCDF	HR GCMS	ppt					ND (0.20)	
2,3,7,8-TCDD	HR GCMS	ppt					ND (0.20)	
2,3,7,8-TCDF	HR GCMS	ppt					0.180	

Analytical Data Used In Calculations

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
OCDD	HR GCMS	ppt					ND (0.60)	
OCDF	HR GCMS	ppt					ND (0.50)	
Total HpCDD	HR GCMS	ppt					ND (0.40)	
Total HpCDF	HR GCMS	ppt					ND (0.30)	
Total HxCDD	HR GCMS	ppt					ND (0.30)	
Total HxCDF	HR GCMS	ppt					0.210	
Total PeCDD	HR GCMS	ppt					ND (0.40)	
Total PeCDF	HR GCMS	ppt					ND (0.20)	
Total TCDD	HR GCMS	ppt					ND (0.20)	
Total TCDF	HR GCMS	ppt					0.180	
Aluminum	ICAP	mg/kg					56500	B
Antimony	ICAP	mg/kg					ND (41)	
Barium	ICAP	mg/kg					217	
Beryllium	ICAP	mg/kg					6.61	
Boron	ICAP	ug/g					105	
Calcium	ICAP	mg/kg					83600	B
Chromium	ICAP	mg/kg					76.4	B
Cobalt	ICAP	mg/kg					18.6	B
Copper	ICAP	mg/kg					6.61	
Iron	ICAP	mg/kg					29100	
Magnesium	ICAP	mg/kg					44500	B
Manganese	ICAP	mg/kg					103	B
Molybdenum	ICAP	mg/kg					ND (2.7)	
Nickel	ICAP	mg/kg					26.2	B
Phosphorus	ICAP	mg/kg					ND (69)	
Potassium	ICAP	mg/kg					13600	
Silver	ICAP	mg/kg					ND (3.1)	
Sodium	ICAP	mg/kg					2250	B
Titanium	ICAP	mg/kg					3090	B
Vanadium	ICAP	mg/kg					93.4	
Chloride	SIE	mg/kg					261	
Fluoride	SIE	mg/kg					23.2	B

Analytical Data Used In Calculations

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Carbon	Ultimate	%					0.0900	
Sulfur	Ultimate	%					15.2	
Actinium-228 @338	gamma	pCi/g					1.00	
Actinium-228 @911	gamma	pCi/g					0.800	
Actinium-228 @968	gamma	pCi/g					0.560	
Bismuth-212 @727	gamma	pCi/g					1.30	
Bismuth-214 @1120.4	gamma	pCi/g					1.80	
Bismuth-214 @1764.7	gamma	pCi/g					0.980	
Bismuth-214 @609.4	gamma	pCi/g					1.30	
K-40 @1460	gamma	pCi/g					9.50	
Lead-210 @46	gamma	pCi/g					2.90	
Lead-212 @238	gamma	pCi/g					0.920	
Lead-214 @295.2	gamma	pCi/g					1.20	
Lead-214 @352.0	gamma	pCi/g					1.60	
Radium-226 @186.0	gamma	pCi/g					2.00	
Thallium-208 @583	gamma	pCi/g					0.310	
Thallium-208 @860	gamma	pCi/g					0.110	
Thorium-234 @63.3	gamma	pCi/g					0.650	
Thorium-234 @92.6	gamma	pCi/g					0.590	
Uranium-235 @143.8	gamma	pCi/g					0.0100	

Stream: APF Inlet **Collection Method:** Ammonia/Cyanide **Sample Type:** Ammonia Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Ammonia - Distilled	distil	ug/Nm3	255	B	179	B	165	B

Stream: APF Inle **Collection Method:** Ammonia/Cyanide **Sample Type:** Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Cyanide	tot CN	ug/Nm3	1610		1580		955	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** Anions Train **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chloride	IC	ug/Nm3	1050		1100		5260	
Chloride	IC	ug/g	287		231		1520	
Sulfate	IC	ug/Nm3	2680000		3850000		4590000	
Sulfate	IC	ug/g	736000		805000		1330000	
Fluoride	SIE	ug/Nm3	639	C	772	C	1840	C
Fluoride	SIE	ug/g	175	C	162	C	532	C

Stream: APF Inlet **Collection Method:** Anions Train **Sample Type:** Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chloride	IC	ug/Nm3	79100		71700		65400	
Sulfate	IC	ug/Nm3	791000		953000		811000	
Fluoride	SIE	ug/Nm3	7240	B	6860	B	5950	B

Stream: APF Inlet **Collection Method:** M0011a **Sample Type:** Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Formaldehyde	HPLC	ug/Nm3	39.9		146		17.0	

Stream: APF Inlet **Collection Method:** M29 **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	ND (0.042)		ND (0.050)		ND (0.046)	
Arsenic	GFAA	ug/Nm3	831		1420		1030	
Cadmium	GFAA	ug/Nm3	4.96		6.93		8.23	
Lead	GFAA	ug/Nm3	196		287		236	
Selenium	GFAA	ug/Nm3	50.7		54.0		48.6	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** M29 **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Aluminum	ICAP	ug/Nm3	210000	C	271000	C	235000	C
Antimony	ICAP	ug/Nm3	ND (190)		ND (270)		ND (220)	
Barium	ICAP	ug/Nm3	711	C	970	C	892	C
Beryllium	ICAP	ug/Nm3	24.4		28.3		27.2	
Calcium	ICAP	ug/Nm3	323000	C	474000	C	356000	C
Chromium	ICAP	ug/Nm3	616	C	492	C	402	C
Cobalt	ICAP	ug/Nm3	48.1	C	87.9	C	73.1	C
Copper	ICAP	ug/Nm3	170		95.1		63.2	
Iron	ICAP	ug/Nm3	114000		152000		120000	
Magnesium	ICAP	ug/Nm3	170000	C	249000	C	186000	C
Manganese	ICAP	ug/Nm3	376	C	521	C	436	C
Molybdenum	ICAP	ug/Nm3	66.4		ND (18)		ND (14)	
Nickel	ICAP	ug/Nm3	298		108		163	
Phosphorus	ICAP	ug/Nm3	ND (240)	C	ND (310)	C	ND (260)	C
Potassium	ICAP	ug/Nm3	44300	C	62600	C	54000	C
Silver	ICAP	ug/Nm3	ND (14)	C	ND (20)	C	ND (16)	C
Sodium	ICAP	ug/Nm3	7750		10100		8880	
Titanium	ICAP	ug/Nm3	10600	C	14100	C	12600	C
Vanadium	ICAP	ug/Nm3	325	C	445	C	380	C

Stream: APF Inlet **Collection Method:** MM5 **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (2.9)		ND (2.8)		ND (2.9)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.8)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (2.6)		ND (2.5)		ND (2.7)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (2.5)		ND (2.4)		ND (2.6)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (4.3)		ND (4.3)		ND (4.5)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (4.6)		ND (4.6)		ND (4.8)	
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (3.4)		ND (3.3)		ND (3.5)	
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (3.8)		ND (3.7)		ND (3.9)	
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (13)		ND (13)		ND (13)	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** MM5 **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (4.2)		ND (4.2)		ND (4.4)	
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (6.0)		ND (6.0)		ND (6.2)	
2-Chloronaphthalene	GCMS	ug/Nm3	ND (1.7)		ND (1.7)		ND (1.8)	
2-Chlorophenol	GCMS	ug/Nm3	ND (2.8)		ND (2.8)		ND (2.9)	
2-Methylnaphthalene	GCMS	ug/Nm3	ND (1.7)		ND (1.6)		ND (1.7)	
2-Methylphenol	GCMS	ug/Nm3	ND (3.4)		ND (3.3)		ND (3.5)	
2-Nitroaniline	GCMS	ug/Nm3	ND (6.1)		ND (6.1)		ND (6.3)	
2-Nitrophenol	GCMS	ug/Nm3	ND (5.1)		ND (5.1)		ND (5.3)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (3.1)		ND (3.1)		ND (3.4)	
3-Nitroaniline	GCMS	ug/Nm3	ND (5.4)		ND (5.3)		ND (5.5)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (7.6)		ND (7.7)		ND (8.3)	
4-Aminobiphenyl	GCMS	ug/Nm3	ND (1.6)		ND (1.6)		ND (1.8)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (3.7)		ND (3.7)		ND (3.9)	
4-Nitroaniline	GCMS	ug/Nm3	ND (5.0)		ND (5.0)		ND (5.2)	
4-Nitrophenol	GCMS	ug/Nm3	ND (12)		ND (12)		ND (13)	
Acenaphthene	GCMS	ug/Nm3	ND (1.9)		ND (1.9)		ND (2.0)	
Acenaphthylene	GCMS	ug/Nm3	ND (1.1)		ND (1.1)		ND (1.1)	
Acetophenone	GCMS	ug/Nm3	ND (2.8)		ND (2.7)		ND (2.9)	
Aniline	GCMS	ug/Nm3	ND (2.2)		ND (2.2)		ND (2.3)	
Anthracene	GCMS	ug/Nm3	ND (1.1)		ND (1.1)		ND (1.2)	
Benzidine	GCMS	ug/Nm3	ND (2.2)		ND (2.1)		ND (2.3)	
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (0.94)		ND (0.95)		ND (0.96)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (0.91)		ND (0.91)		ND (0.93)	
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (1.0)		ND (1.0)		ND (1.0)	
Benzoic acid	GCMS	ug/Nm3	ND (10)		ND (10)		ND (11)	
Benzyl alcohol	GCMS	ug/Nm3	ND (5.2)		ND (5.1)		ND (5.3)	
Butylbenzylphthalate	GCMS	ug/Nm3	ND (1.5)		ND (1.5)		ND (1.6)	
Chrysene	GCMS	ug/Nm3	ND (0.89)		ND (0.87)		ND (0.95)	
Di-n-butylphthalate	GCMS	ug/Nm3	3.09	BJ	20.3	B	10.9	B
Di-n-octylphthalate	GCMS	ug/Nm3	ND (0.82)		ND (0.82)		ND (0.84)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (1.1)		ND (1.1)		ND (1.1)	
Dibenzofuran	GCMS	ug/Nm3	ND (1.2)		ND (1.2)		ND (1.3)	
Diethylphthalate	GCMS	ug/Nm3	ND (1.4)		ND (1.4)		ND (1.5)	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** MM5 **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Dimethylphthalate	GCMS	ug/Nm3	ND (1.6)		ND (1.6)		ND (1.6)	
Fluoranthene	GCMS	ug/Nm3	ND (0.87)		ND (0.88)		ND (0.95)	
Fluorene	GCMS	ug/Nm3	ND (1.6)		ND (1.6)		ND (1.7)	
Hexachlorobenzene	GCMS	ug/Nm3	ND (3.5)		ND (3.6)		ND (3.8)	
Hexachlorobutadiene	GCMS	ug/Nm3	ND (4.7)		ND (4.7)		ND (4.9)	
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (6.4)		ND (6.4)		ND (6.6)	
Hexachloroethane	GCMS	ug/Nm3	ND (5.1)		ND (5.1)		ND (5.3)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (0.81)		ND (0.82)		ND (0.83)	
Isophorone	GCMS	ug/Nm3	ND (1.7)		ND (1.7)		ND (1.8)	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (5.1)		ND (5.0)		ND (5.3)	
Naphthalene	GCMS	ug/Nm3	ND (1.1)		ND (1.1)		ND (1.1)	
Nitrobenzene	GCMS	ug/Nm3	ND (2.9)		ND (2.9)		ND (3.0)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (16)		ND (16)		ND (17)	
Pentachlorophenol	GCMS	ug/Nm3	ND (8.1)		ND (8.1)		ND (8.8)	
Phenanthrene	GCMS	ug/Nm3	ND (1.1)		ND (1.1)		ND (1.2)	
Phenol	GCMS	ug/Nm3	ND (2.3)		ND (2.3)		ND (2.4)	
Pyrene	GCMS	ug/Nm3	ND (0.75)		ND (0.74)		ND (0.81)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (2.5)		ND (2.5)		ND (2.6)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (3.0)		ND (3.0)		ND (3.1)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	1.20	BJ	ND (1.1)		ND (1.2)	

Stream: APF Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (2.3)		ND (1.5)		ND (0.88)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (2.0)		ND (1.3)		ND (0.76)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (1.9)		ND (1.2)		ND (0.71)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (1.9)		ND (1.2)		ND (0.70)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (3.4)		ND (1.8)		ND (1.1)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (3.5)		ND (1.9)		ND (1.2)	
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (2.6)		ND (0.71)		ND (0.48)	
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (2.5)		ND (1.5)		ND (0.81)	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (9.6)		ND (5.3)		ND (2.7)	
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (3.1)		ND (1.8)		ND (1.0)	
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (4.6)		ND (2.6)		ND (1.5)	
2-Chloronaphthalene	GCMS	ug/Nm3	ND (1.3)		ND (0.73)		ND (0.47)	
2-Chlorophenol	GCMS	ug/Nm3	ND (2.0)		ND (1.2)		ND (0.77)	
2-Methylnaphthalene	GCMS	ug/Nm3	ND (1.3)		ND (0.70)		0.0824	J
2-Methylphenol	GCMS	ug/Nm3	ND (2.5)		ND (1.7)		ND (0.88)	
2-Nitroaniline	GCMS	ug/Nm3	ND (4.0)		ND (2.5)		ND (1.2)	
2-Nitrophenol	GCMS	ug/Nm3	ND (3.8)		ND (2.7)		0.285	J
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (1.7)		ND (2.1)		ND (1.2)	
3-Nitroaniline	GCMS	ug/Nm3	ND (3.9)		ND (2.2)		ND (1.3)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (5.3)		ND (3.2)		ND (1.8)	
4-Aminobiphenyl	GCMS	ug/Nm3	ND (1.0)		ND (0.50)		ND (0.43)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (2.8)		ND (1.5)		ND (0.85)	
4-Nitroaniline	GCMS	ug/Nm3	ND (3.5)		ND (1.9)		ND (1.2)	
4-Nitrophenol	GCMS	ug/Nm3	ND (8.5)		0.645	J	0.539	J
Acenaphthene	GCMS	ug/Nm3	ND (1.4)		ND (0.76)		ND (0.49)	
Acenaphthylene	GCMS	ug/Nm3	ND (0.80)		ND (0.45)		ND (0.28)	
Acetophenone	GCMS	ug/Nm3	1.35	J	1.75	J	2.62	J
Aniline	GCMS	ug/Nm3	ND (1.6)		ND (1.2)		ND (0.96)	
Anthracene	GCMS	ug/Nm3	ND (0.78)		ND (0.36)		ND (0.26)	
Benzidine	GCMS	ug/Nm3	ND (1.2)		ND (1.1)		ND (0.71)	
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (0.49)		ND (0.61)		ND (0.45)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (0.52)		ND (0.56)		ND (0.49)	
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (0.51)		ND (0.61)		ND (0.48)	
Benzoic acid	GCMS	ug/Nm3	88.4		124	E	113	
Benzyl alcohol	GCMS	ug/Nm3	ND (3.8)		ND (2.5)		ND (1.4)	
Butylbenzylphthalate	GCMS	ug/Nm3	ND (0.90)		ND (0.74)		ND (0.40)	
Chrysene	GCMS	ug/Nm3	ND (0.54)		ND (0.54)		ND (0.35)	
Di-n-butylphthalate	GCMS	ug/Nm3	1.34	J	5.43	J	54.6	
Di-n-octylphthalate	GCMS	ug/Nm3	ND (0.38)		ND (0.50)		ND (0.27)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (0.61)		ND (0.75)		ND (0.55)	
Dibenzofuran	GCMS	ug/Nm3	ND (0.92)		ND (0.46)		ND (0.31)	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Diethylphthalate	GCMS	ug/Nm3	ND (1.1)		ND (0.46)		ND (0.30)	
Dimethylphthalate	GCMS	ug/Nm3	ND (1.2)		ND (0.61)		ND (0.37)	
Fluoranthene	GCMS	ug/Nm3	ND (0.55)		ND (0.34)		ND (0.25)	
Fluorene	GCMS	ug/Nm3	ND (1.2)		ND (0.54)		ND (0.37)	
Hexachlorobenzene	GCMS	ug/Nm3	ND (2.6)		ND (1.4)		ND (1.2)	
Hexachlorobutadiene	GCMS	ug/Nm3	ND (3.7)		ND (2.3)		ND (1.5)	
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (4.4)		ND (2.3)		ND (1.3)	
Hexachloroethane	GCMS	ug/Nm3	ND (4.0)		ND (2.5)		ND (1.5)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (0.45)		ND (0.56)		ND (0.43)	
Isophorone	GCMS	ug/Nm3	ND (1.3)		ND (0.91)		ND (0.38)	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (3.6)		ND (2.8)		ND (1.1)	
Naphthalene	GCMS	ug/Nm3	ND (0.81)		ND (0.45)		0.734	BJ
Nitrobenzene	GCMS	ug/Nm3	ND (2.2)		ND (1.7)		ND (0.66)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (10)		ND (3.1)		ND (2.6)	
Pentachlorophenol	GCMS	ug/Nm3	ND (6.7)		ND (3.0)		ND (2.6)	
Phenanthrene	GCMS	ug/Nm3	ND (0.79)		ND (0.36)		ND (0.26)	
Phenol	GCMS	ug/Nm3	ND (1.7)		ND (1.4)		0.659	J
Pyrene	GCMS	ug/Nm3	ND (0.52)		ND (0.36)		ND (0.22)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (1.9)		ND (1.5)		ND (0.70)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (2.3)		ND (1.9)		ND (0.90)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	1.08	J	ND (0.62)		1.47	J

Stream: APF Inlet **Collection Method:** Multimetals Train **Sample Type:** Mercury Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	0.299		0.530		0.284	

Stream: APF Inlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	16.2		15.0		16.4	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Aluminum	ICAP	ug/Nm3	263	BC	1190	BC	395	BC
Barium	ICAP	ug/Nm3	1.59	BC	6.05	BC	2.32	BC
Boron	ICAP	ug/Nm3	246	BC	209	BC	205	BC
Calcium	ICAP	ug/Nm3	703	BC	2510	BC	1220	BC
Iron	ICAP	ug/Nm3	136	BC	332	BC	174	BC
Magnesium	ICAP	ug/Nm3	214	C	1070	C	817	C
Phosphorus	ICAP	ug/Nm3	ND (17)		ND (19)		ND (16)	
Potassium	ICAP	ug/Nm3	ND (220)	BC	282	BC	ND (220)	BC
Silver	ICAP	ug/Nm3	ND (1.4)	B	ND (1.6)	B	ND (1.4)	B
Sodium	ICAP	ug/Nm3	148	BC	123	BC	135	BC
Titanium	ICAP	ug/Nm3	12.7		63.3		18.7	
Antimony	ICPMS	ug/Nm3	0.0433	C	0.0852	C	2.76	C
Arsenic	ICPMS	ug/Nm3	1.71	C	7.85	C	2.23	C
Barium	ICPMS	ug/Nm3	ND (0.0047)	C	4.83	C	1.55	C
Beryllium	ICPMS	ug/Nm3	0.0528	C	0.233	C	0.0635	C
Cadmium	ICPMS	ug/Nm3	0.309	C	ND (0.0063)	C	ND (0.0055)	C
Chromium	ICPMS	ug/Nm3	41.1	C	2.95	C	12.9	C
Cobalt	ICPMS	ug/Nm3	0.431	C	0.218	C	0.149	C
Copper	ICPMS	ug/Nm3	67.5	C	7.68	C	44.3	C
Lead	ICPMS	ug/Nm3	1.23	C	2.90	C	1.09	C
Manganese	ICPMS	ug/Nm3	33.2	C	8.73	C	3.21	C
Molybdenum	ICPMS	ug/Nm3	5.87	C	0.702	C	1.22	C
Nickel	ICPMS	ug/Nm3	58.3	C	19.4	C	25.3	C
Selenium	ICPMS	ug/Nm3	14.4		18.4		14.8	
Vanadium	ICPMS	ug/Nm3	1.88	C	3.06	C	1.67	C

Stream: APF Inlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resin

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1234678-HpCDD	Meth 23X	ug/Nm3	0.000268		0.000458		0.000866	
1234678-HpCDF	Meth 23X	ug/Nm3	0.000189		0.000206		0.000693	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resin

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
123478-HxCDD	Meth 23X	ug/Nm3	0.0000510		0.000105		0.000248	
123478-HxCDF	Meth 23X	ug/Nm3	0.000160		0.000213		0.000802	
1234789-HpCDF	Meth 23X	ug/Nm3	0.0000394		0.0000493		0.0000874	
123678-HxCDD	Meth 23X	ug/Nm3	0.0000723		0.000128		0.000209	
123678-HxCDF	Meth 23X	ug/Nm3	0.0000530		0.0000758		0.000243	
12378-PeCDD	Meth 23X	ug/Nm3	0.0000466		0.0000813		0.000132	
12378-PeCDF	Meth 23X	ug/Nm3	0.0000333	F	0.0000648	F	0.000185	
123789-HxCDD	Meth 23X	ug/Nm3	0.0000831		0.000174		0.000269	
123789-HxCDF	Meth 23X	ug/Nm3	0.00000934		0.0000182		0.0000663	
234678-HxCDF	Meth 23X	ug/Nm3	0.0000526	B	0.0000900		0.000234	
23478-PeCDF	Meth 23X	ug/Nm3	0.0000530		0.000107	F	0.000300	
2378-TCDD	Meth 23X	ug/Nm3	0.00000575	B	0.00000648	B	0.0000182	B
2378-TCDF	Meth 23X	ug/Nm3	0.0000933		0.000174		0.000628	
OCDD	Meth 23X	ug/Nm3	0.000331		0.000492		0.00114	
OCDF	Meth 23X	ug/Nm3	0.000237		0.000156		0.000353	
TOTAL HpCDD	Meth 23X	ug/Nm3	0.000564		0.000939		0.00191	
TOTAL HpCDF	Meth 23X	ug/Nm3	0.000309		0.000340		0.00106	
TOTAL HxCDD	Meth 23X	ug/Nm3	0.00114		0.00187		0.00308	
TOTAL HxCDF	Meth 23X	ug/Nm3	0.000509		0.000698		0.00253	
TOTAL PeCDD	Meth 23X	ug/Nm3	0.00136		0.00263		0.00351	
TOTAL PeCDF	Meth 23X	ug/Nm3	0.000538		0.000609		0.00334	
TOTAL TCDD	Meth 23X	ug/Nm3	0.00116		0.00258		0.00327	
TOTAL TCDF	Meth 23X	ug/Nm3	0.000744		0.00159		0.00490	

Stream: APF Inlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	ND (0.58)		ND (0.57)		ND (0.57)	
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (0.58)		ND (0.57)		ND (0.57)	
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (0.58)		ND (0.57)		ND (0.57)	
1,1-Dichloroethane	GCMS	ug/Nm3	ND (0.58)		ND (0.57)		ND (0.57)	
1,1-Dichloroethene	GCMS	ug/Nm3	ND (0.58)		ND (0.57)		ND (0.57)	

Com 2	Run 3	Com 3
	ND (0.57) ND (0.57	

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
trans-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.58)		ND (0.57)		ND (0.57)	

Stream: APF Inlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal B

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,1-Dichloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,1-Dichloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,2-Dichloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,2-Dichloropropane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
2-Butanone	GCMS	ug/Nm3	ND (2.6)		ND (2.9)		ND (2.9)	
2-Hexanone	GCMS	ug/Nm3	ND (2.6)		ND (2.9)		ND (2.9)	
4-Methyl-2-Pentanone	GCMS	ug/Nm3	ND (2.6)		ND (2.9)		ND (2.9)	
Acetone	GCMS	ug/Nm3	ND (2.6)		ND (2.9)		ND (2.9)	
Benzene	GCMS	ug/Nm3	1.11		4.32		5.15	
Bromodichloromethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Bromoform	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Bromomethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Carbon Disulfide	GCMS	ug/Nm3	1.90		4.03		6.44	
Carbon Tetrachloride	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Chlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Chloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		35.7	
Chloroform	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		1.29	
Chloromethane	GCMS	ug/Nm3	0.793		3.57		5.21	
Dibromochloromethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Ethyl Benzene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Methylene Chloride	GCMS	ug/Nm3	ND (0.53)		8.07		105	E

Analytical Data Used In Calculations

Stream: APF Inlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal B

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Styrene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Tetrachloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		0.644	
Toluene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		2.46	
Trichloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Trichlorofluoromethane	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
Vinyl Acetate	GCMS	ug/Nm3	ND (2.6)		ND (2.9)		ND (2.9)	
Vinyl Chloride	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
cis-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
m,p-Xylene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		1.17	
o-Xylene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
trans-1,2-Dichloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	
trans-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.53)		ND (0.58)		ND (0.59)	

Stream: APF Outlet **Collection Method:** Ammonia/Cyanide **Sample Type:** Ammonia Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Ammonia - Distilled	distil	ug/Nm3	168	B	154	B	124	B

Stream: APF Outle **Collection Method:** Ammonia/Cyanide **Sample Type:** Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Cyanide	tot CN	ug/Nm3	509		432		358	

Stream: APF Outlet **Collection Method:** Anions Train **Sample Type:** 47 mm Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chloride	IC	ug/Nm3	0.192	C	0.155	C	ND (0.11)	C
Chloride	IC	ug/g	4060	C	407	C	ND (570)	C
Sulfate	IC	ug/Nm3	37.8		83.6		52.3	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** Anions Train **Sample Type:** 47 mm Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Sulfate	IC	ug/g	801000		219000		262000	
Fluoride	SIE	ug/Nm3	0.0463	C	0.219	C	0.117	C
Fluoride	SIE	ug/g	980	C	575	C	584	C

Stream: APF Outlet **Collection Method:** Anions Train **Sample Type:** Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chloride	IC	ug/Nm3	60100		72700		50400	
Sulfate	IC	ug/Nm3	474000		532000		470000	
Fluoride	SIE	ug/Nm3	8500	B	9430	B	8870	B

Stream: APF Outlet **Collection Method:** M0011a **Sample Type:** Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Formaldehyde	HPLC	ug/Nm3	3.65		4.08		3.81	

Stream: APF Outlet **Collection Method:** M29 **Sample Type:** 47 mm Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	ND (0.00027)	C	ND (0.00030)	C	ND (0.00021)	C
Arsenic	GFAA	ug/Nm3	0.212	C	0.361	C	0.271	C
Cadmium	GFAA	ug/Nm3	ND (0.0043)		ND (0.0048)		ND (0.0035)	
Lead	GFAA	ug/Nm3	0.0191		0.0346		0.0334	
Selenium	GFAA	ug/Nm3	ND (0.0044)	C	ND (0.0050)	C	ND (0.0036)	C
Aluminum	ICAP	ug/Nm3	0.875	C	4.81	C	2.41	C
Antimony	ICAP	ug/Nm3	ND (0.32)		ND (0.36)		ND (0.26)	
Barium	ICAP	ug/Nm3	0.0914	C	0.0174	C	0.00491	C

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** M29 **Sample Type:** 47 mm Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Beryllium	ICAP	ug/Nm3	ND (0.0018)		ND (0.0020)		ND (0.0015)	
Calcium	ICAP	ug/Nm3	0.0923	C	5.82	C	2.68	C
Chromium	ICAP	ug/Nm3	8.00	C	12.9	C	8.89	C
Cobalt	ICAP	ug/Nm3	ND (0.030)	C	ND (0.033)	C	ND (0.024)	C
Copper	ICAP	ug/Nm3	ND (0.028)		ND (0.031)		ND (0.022)	
Iron	ICAP	ug/Nm3	1.39	C	7.29	C	2.84	C
Magnesium	ICAP	ug/Nm3	ND (0.53)	C	2.79	C	1.30	C
Manganese	ICAP	ug/Nm3	0.205		0.619		0.137	
Molybdenum	ICAP	ug/Nm3	3.35	C	6.48	C	2.92	C
Nickel	ICAP	ug/Nm3	0.257	C	1.26	C	0.344	C
Phosphorus	ICAP	ug/Nm3	ND (0.40)	C	ND (0.45)	C	ND (0.33)	C
Potassium	ICAP	ug/Nm3	ND (2.4)	C	ND (2.7)	C	ND (2.0)	C
Silver	ICAP	ug/Nm3	0.312		0.372		0.138	
Sodium	ICAP	ug/Nm3	ND (0.17)	C	1.39	C	ND (0.14)	C
Titanium	ICAP	ug/Nm3	0.0606	C	0.409	C	0.232	C
Vanadium	ICAP	ug/Nm3	0.959	C	0.814	C	0.848	C

Stream: APF Outlet **Collection Method:** MM5 **Sample Type:** 47 mm Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (0.44)		ND (0.37)		ND (0.42)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.43)		ND (0.35)		ND (0.39)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.40)		ND (0.34)		ND (0.37)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.39)		ND (0.32)		ND (0.36)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (0.68)		ND (0.58)		ND (0.63)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (0.72)		ND (0.62)		ND (0.67)	
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (0.52)		ND (0.44)		ND (0.49)	
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (0.58)		ND (0.49)		ND (0.55)	
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (2.0)		ND (1.7)		ND (1.9)	
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (0.66)		ND (0.56)		ND (0.61)	
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (0.94)		ND (0.80)		ND (0.87)	
2-Chloronaphthalene	GCMS	ug/Nm3	ND (0.27)		ND (0.23)		ND (0.25)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** MM5 **Sample Type:** 47 mm Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2-Chlorophenol	GCMS	ug/Nm3	ND (0.44)		ND (0.37)		ND (0.40)	
2-Methylnaphthalene	GCMS	ug/Nm3	ND (0.26)		ND (0.22)		ND (0.24)	
2-Methylphenol	GCMS	ug/Nm3	ND (0.53)		ND (0.44)		ND (0.49)	
2-Nitroaniline	GCMS	ug/Nm3	ND (0.95)		ND (0.81)		ND (0.88)	
2-Nitrophenol	GCMS	ug/Nm3	ND (0.80)		ND (0.67)		ND (0.75)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (0.46)		ND (0.39)		ND (0.44)	
3-Nitroaniline	GCMS	ug/Nm3	ND (0.84)		ND (0.71)		ND (0.78)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (1.2)		ND (1.1)		ND (1.2)	
4-Aminobiphenyl	GCMS	ug/Nm3	ND (0.26)		ND (0.23)		ND (0.25)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (0.58)		ND (0.49)		ND (0.55)	
4-Nitroaniline	GCMS	ug/Nm3	ND (0.78)		ND (0.67)		ND (0.73)	
4-Nitrophenol	GCMS	ug/Nm3	ND (1.9)		ND (1.6)		ND (1.8)	
Acenaphthene	GCMS	ug/Nm3	ND (0.30)		ND (0.26)		ND (0.28)	
Acenaphthylene	GCMS	ug/Nm3	ND (0.17)		ND (0.15)		ND (0.16)	
Acetophenone	GCMS	ug/Nm3	ND (0.44)		ND (0.36)		ND (0.40)	
Aniline	GCMS	ug/Nm3	ND (0.35)		ND (0.29)		ND (0.32)	
Anthracene	GCMS	ug/Nm3	ND (0.18)		ND (0.16)		ND (0.17)	
Benzidine	GCMS	ug/Nm3	ND (0.32)		ND (0.27)		ND (0.30)	
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (0.14)		ND (0.11)		ND (0.11)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (0.14)		ND (0.11)		ND (0.11)	
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (0.15)		ND (0.12)		ND (0.12)	
Benzoic acid	GCMS	ug/Nm3	ND (1.6)		ND (1.4)		ND (1.5)	
Benzyl alcohol	GCMS	ug/Nm3	ND (0.81)		ND (0.67)		ND (0.74)	
Butylbenzylphthalate	GCMS	ug/Nm3	ND (0.22)		ND (0.18)		ND (0.21)	
Chrysene	GCMS	ug/Nm3	ND (0.13)		ND (0.11)		ND (0.12)	
Di-n-butylphthalate	GCMS	ug/Nm3	17.8	B	1.19	B	10.0	B
Di-n-octylphthalate	GCMS	ug/Nm3	ND (0.12)		ND (0.099)		ND (0.096)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (0.16)		ND (0.13)		ND (0.13)	
Dibenzofuran	GCMS	ug/Nm3	ND (0.19)		ND (0.16)		ND (0.18)	
Diethylphthalate	GCMS	ug/Nm3	ND (0.23)		ND (0.19)		ND (0.21)	
Dimethylphthalate	GCMS	ug/Nm3	ND (0.25)		ND (0.21)		ND (0.23)	
Fluoranthene	GCMS	ug/Nm3	ND (0.14)		ND (0.12)		ND (0.13)	
Fluorene	GCMS	ug/Nm3	ND (0.25)		ND (0.21)		ND (0.23)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** MM5 **Sample Type:** 47 mm Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Hexachlorobenzene	GCMS	ug/Nm3	ND (0.56)		ND (0.50)		ND (0.53)	
Hexachlorobutadiene	GCMS	ug/Nm3	ND (0.73)		ND (0.62)		ND (0.69)	
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (1.0)		ND (0.85)		ND (0.93)	
Hexachloroethane	GCMS	ug/Nm3	ND (0.81)		ND (0.67)		ND (0.74)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (0.12)		ND (0.099)		ND (0.095)	
Isophorone	GCMS	ug/Nm3	ND (0.26)		ND (0.22)		ND (0.25)	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (0.80)		ND (0.67)		ND (0.73)	
Naphthalene	GCMS	ug/Nm3	ND (0.17)		ND (0.14)		ND (0.16)	
Nitrobenzene	GCMS	ug/Nm3	ND (0.45)		ND (0.38)		ND (0.43)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (2.5)		ND (2.3)		ND (2.4)	
Pentachlorophenol	GCMS	ug/Nm3	ND (1.3)		ND (1.1)		ND (1.2)	
Phenanthrene	GCMS	ug/Nm3	ND (0.17)		ND (0.16)		ND (0.16)	
Phenol	GCMS	ug/Nm3	ND (0.37)		ND (0.30)		ND (0.33)	
Pyrene	GCMS	ug/Nm3	ND (0.11)		ND (0.094)		ND (0.10)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (0.39)		ND (0.33)		ND (0.37)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (0.48)		ND (0.40)		ND (0.44)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	0.0940	BJ	0.103	BJ	0.0703	BJ

Stream: APF Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (1.4)		ND (0.89)		ND (0.94)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (1.3)		ND (0.75)		ND (0.83)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (1.2)		ND (0.70)		ND (0.78)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (1.1)		ND (0.69)		ND (0.76)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (2.1)		ND (1.1)		ND (1.1)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (2.2)		ND (1.2)		ND (1.2)	
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (0.68)		ND (0.49)		ND (0.51)	
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (1.5)		ND (0.82)		ND (0.86)	
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (6.1)		ND (2.7)		ND (2.7)	
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (2.0)		ND (1.0)		ND (1.0)	
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (3.0)		ND (1.5)		ND (1.5)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2-Chloronaphthalene	GCMS	ug/Nm3	ND (0.84)		ND (0.46)		ND (0.47)	
2-Chlorophenol	GCMS	ug/Nm3	ND (1.2)		ND (0.76)		ND (0.84)	
2-Methylnaphthalene	GCMS	ug/Nm3	ND (0.66)		ND (0.46)		ND (0.49)	
2-Methylphenol	GCMS	ug/Nm3	ND (1.7)		ND (0.87)		ND (0.96)	
2-Nitroaniline	GCMS	ug/Nm3	ND (2.8)		ND (1.1)		ND (1.2)	
2-Nitrophenol	GCMS	ug/Nm3	ND (2.6)		ND (1.2)		ND (1.3)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (2.5)		ND (1.2)		ND (1.3)	
3-Nitroaniline	GCMS	ug/Nm3	ND (2.6)		ND (1.3)		ND (1.3)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (3.1)		ND (1.7)		ND (1.8)	
4-Aminobiphenyl	GCMS	ug/Nm3	ND (0.49)		ND (0.43)		ND (0.44)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (1.4)		ND (0.86)		ND (0.91)	
4-Nitroaniline	GCMS	ug/Nm3	ND (2.2)		ND (1.1)		ND (1.2)	
4-Nitrophenol	GCMS	ug/Nm3	ND (4.1)		ND (1.7)		ND (1.7)	
Acenaphthene	GCMS	ug/Nm3	ND (0.88)		ND (0.48)		ND (0.48)	
Acenaphthylene	GCMS	ug/Nm3	ND (0.52)		ND (0.27)		ND (0.28)	
Acetophenone	GCMS	ug/Nm3	2.02	J	1.59	J	2.81	J
Aniline	GCMS	ug/Nm3	ND (1.1)		ND (0.95)		ND (1.1)	
Anthracene	GCMS	ug/Nm3	ND (0.35)		ND (0.26)		ND (0.26)	
Benzidine	GCMS	ug/Nm3	ND (1.4)		ND (0.73)		ND (0.74)	
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (16)		ND (0.51)		ND (0.44)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (15)		ND (0.56)		ND (0.48)	
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (16)		ND (0.54)		ND (0.47)	
Benzoic acid	GCMS	ug/Nm3	125	E	106		194	E
Benzyl alcohol	GCMS	ug/Nm3	ND (2.5)		ND (1.4)		ND (1.5)	
Butylbenzylphthalate	GCMS	ug/Nm3	ND (0.92)		ND (0.41)		ND (0.42)	
Chrysene	GCMS	ug/Nm3	ND (0.66)		ND (0.36)		ND (0.37)	
Di-n-butylphthalate	GCMS	ug/Nm3	3.73	J	1.01	J	102	
Di-n-octylphthalate	GCMS	ug/Nm3	ND (13)		ND (0.30)		ND (0.26)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (20)		ND (0.63)		ND (0.55)	
Dibenzofuran	GCMS	ug/Nm3	ND (0.54)		ND (0.30)		ND (0.31)	
Diethylphthalate	GCMS	ug/Nm3	ND (0.54)		ND (0.29)		ND (0.30)	
Dimethylphthalate	GCMS	ug/Nm3	ND (0.71)		ND (0.37)		ND (0.37)	
Fluoranthene	GCMS	ug/Nm3	ND (0.34)		ND (0.25)		ND (0.26)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Fluorene	GCMS	ug/Nm3	ND (0.63)		ND (0.37)		ND (0.37)	
Hexachlorobenzene	GCMS	ug/Nm3	ND (1.3)		ND (1.2)		ND (1.3)	
Hexachlorobutadiene	GCMS	ug/Nm3	ND (2.2)		ND (1.5)		ND (1.6)	
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (2.7)		ND (1.3)		ND (1.3)	
Hexachloroethane	GCMS	ug/Nm3	ND (2.5)		ND (1.4)		ND (1.6)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (15)		ND (0.48)		ND (0.42)	
Isophorone	GCMS	ug/Nm3	1.71	J	ND (0.38)		ND (0.40)	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (2.8)		ND (1.1)		ND (1.2)	
Naphthalene	GCMS	ug/Nm3	ND (0.43)		ND (0.29)		0.562	BJ
Nitrobenzene	GCMS	ug/Nm3	ND (1.6)		ND (0.67)		ND (0.71)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (3.1)		ND (2.6)		ND (2.7)	
Pentachlorophenol	GCMS	ug/Nm3	ND (3.0)		ND (2.5)		ND (2.6)	
Phenanthrene	GCMS	ug/Nm3	ND (0.35)		ND (0.26)		ND (0.27)	
Phenol	GCMS	ug/Nm3	1.28	J	0.646	J	1.18	J
Pyrene	GCMS	ug/Nm3	ND (0.44)		ND (0.22)		ND (0.23)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (1.5)		ND (0.71)		ND (0.75)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (1.8)		ND (0.89)		ND (0.98)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	1.03	J	0.522	J	9.87	

Stream: APF Outlet **Collection Method:** Multimetals Train **Sample Type:** Mercury Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	4.76		2.88		4.87	

Stream: APF Outle **Collection Method:** Multimetals Trai **Sample Type:** Nitric Acid Impingers + TL

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	9.30		13.1		9.44	
Aluminum	ICAP	ug/Nm3	53.2	BC	55.0	BC	58.9	BC
Barium	ICAP	ug/Nm3	0.543	BC	0.740	BC	0.788	BC

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Boron	ICAP	ug/Nm3	377	BC	382	BC	321	BC
Calcium	ICAP	ug/Nm3	214	BC	280	BC	361	BC
Iron	ICAP	ug/Nm3	58.0	BC	36.8	BC	810	BC
Magnesium	ICAP	ug/Nm3	19.7	C	23.1	C	25.3	C
Phosphorus	ICAP	ug/Nm3	ND (18)		ND (21)		ND (17)	
Potassium	ICAP	ug/Nm3	ND (250)	BC	ND (280)	BC	ND (230)	BC
Silver	ICAP	ug/Nm3	ND (1.6)	B	ND (1.8)	B	ND (1.5)	B
Sodium	ICAP	ug/Nm3	260	BC	363	BC	413	BC
Titanium	ICAP	ug/Nm3	1.87		2.10		2.08	
Antimony	ICPMS	ug/Nm3	0.0223	C	0.0230	C	0.0331	C
Arsenic	ICPMS	ug/Nm3	2.95	C	3.89	C	4.12	C
Barium	ICPMS	ug/Nm3	ND (0.0052)	C	ND (0.0059)	C	ND (0.0049)	C
Beryllium	ICPMS	ug/Nm3	ND (0.0047)	C	ND (0.0054)	C	ND (0.0045)	C
Cadmium	ICPMS	ug/Nm3	ND (0.0062)	C	ND (0.0071)	C	ND (0.0059)	C
Chromium	ICPMS	ug/Nm3	3.22	C	1.67	C	147	C
Cobalt	ICPMS	ug/Nm3	0.0616	C	0.0204	C	0.832	C
Copper	ICPMS	ug/Nm3	0.751	C	0.771	C	0.885	C
Lead	ICPMS	ug/Nm3	ND (0.0050)	C	ND (0.0057)	C	ND (0.0047)	C
Manganese	ICPMS	ug/Nm3	0.565	C	0.717	C	22.0	C
Molybdenum	ICPMS	ug/Nm3	7.75	C	3.36	C	3.43	C
Nickel	ICPMS	ug/Nm3	54.5	C	6.73	C	89.1	C
Selenium	ICPMS	ug/Nm3	58.5		46.1		41.2	
Vanadium	ICPMS	ug/Nm3	1.03	C	1.01	C	1.36	C

Stream: APF Outlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** 47 mm Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1234678-HpCDD	Meth 23X	ug/Nm3	ND (0.00000049)		ND (0.00000080)		ND (0.0000021)	
1234678-HpCDF	Meth 23X	ug/Nm3	ND (0.00000027)		ND (0.00000043)		ND (0.0000011)	
123478-HxCDD	Meth 23X	ug/Nm3	ND (0.00000044)		ND (0.00000068)		ND (0.0000018)	
123478-HxCDF	Meth 23X	ug/Nm3	ND (0.00000027)		ND (0.00000043)		ND (0.0000011)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** 47 mm Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1234789-HpCDF	Meth 23X	ug/Nm3	ND (0.00000040)		ND (0.00000068)		ND (0.0000018)	
123678-HxCDD	Meth 23X	ug/Nm3	ND (0.00000035)		ND (0.00000055)		ND (0.0000016)	
123678-HxCDF	Meth 23X	ug/Nm3	ND (0.00000022)		ND (0.00000031)		ND (0.00000085)	
12378-PeCDD	Meth 23X	ug/Nm3	ND (0.00000040)		ND (0.00000062)		ND (0.0000016)	
12378-PeCDF	Meth 23X	ug/Nm3	ND (0.00000022)		ND (0.00000037)		ND (0.00000092)	
123789-HxCDD	Meth 23X	ug/Nm3	ND (0.00000040)		ND (0.00000062)		ND (0.0000016)	
123789-HxCDF	Meth 23X	ug/Nm3	ND (0.00000027)		ND (0.00000043)		ND (0.0000011)	
234678-HxCDF	Meth 23X	ug/Nm3	0.000000350	F	ND (0.00000037)		ND (0.00000099)	
23478-PeCDF	Meth 23X	ug/Nm3	ND (0.00000022)		ND (0.00000031)		ND (0.00000092)	
2378-TCDD	Meth 23X	ug/Nm3	ND (0.00000022)		ND (0.00000037)		ND (0.00000092)	
2378-TCDF	Meth 23X	ug/Nm3	ND (0.00000018)		ND (0.00000025)		ND (0.00000078)	
OCDD	Meth 23X	ug/Nm3	ND (0.00000080)		ND (0.0000013)		ND (0.0000049)	
OCDF	Meth 23X	ug/Nm3	ND (0.00000066)		ND (0.0000011)		ND (0.0000042)	
TOTAL HpCDD	Meth 23X	ug/Nm3	ND (0.00000049)		ND (0.00000080)		ND (0.0000021)	
TOTAL HpCDF	Meth 23X	ug/Nm3	ND (0.00000031)		ND (0.00000055)		ND (0.0000013)	
TOTAL HxCDD	Meth 23X	ug/Nm3	ND (0.00000040)		ND (0.00000062)		ND (0.0000016)	
TOTAL HxCDF	Meth 23X	ug/Nm3	0.000000350	F	ND (0.00000037)		ND (0.00000099)	
TOTAL PeCDD	Meth 23X	ug/Nm3	ND (0.00000040)		ND (0.00000062)		ND (0.0000016)	
TOTAL PeCDF	Meth 23X	ug/Nm3	ND (0.00000022)		ND (0.00000037)		ND (0.00000092)	
TOTAL TCDD	Meth 23X	ug/Nm3	ND (0.00000022)		ND (0.00000037)		ND (0.00000092)	
TOTAL TCDF	Meth 23X	ug/Nm3	ND (0.00000018)		ND (0.00000025)		ND (0.00000078)	

Stream: APF Outle **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23 **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resi

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1234678-HpCDD	Meth 23X	ug/Nm3	0.00000877		0.0000223		0.0000103	
1234678-HpCDF	Meth 23X	ug/Nm3	0.0000113	B	0.0000174	B	0.0000128	B
123478-HxCDD	Meth 23X	ug/Nm3	ND (0.0000071)		0.00000346	F	ND (0.0000056)	
123478-HxCDF	Meth 23X	ug/Nm3	0.00000907	B	0.0000239	B	0.0000145	B
1234789-HpCDF	Meth 23X	ug/Nm3	ND (0.0000071)		0.00000446	F	0.00000523	
123678-HxCDD	Meth 23X	ug/Nm3	ND (0.0000060)		0.00000570		ND (0.0000045)	
123678-HxCDF	Meth 23X	ug/Nm3	ND (0.0000030)		0.00000545		0.00000346	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resin

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
12378-PeCDD	Meth 23X	ug/Nm3	ND (0.0000060)		0.00000292	F	ND (0.0000053)	
12378-PeCDF	Meth 23X	ug/Nm3	ND (0.0000030)		0.00000684		ND (0.0000030)	
123789-HxCDD	Meth 23X	ug/Nm3	ND (0.0000063)		0.00000567		ND (0.0000053)	
123789-HxCDF	Meth 23X	ug/Nm3	ND (0.0000041)		0.00000253		ND (0.0000034)	
234678-HxCDF	Meth 23X	ug/Nm3	0.00000332	F	0.00000599		0.00000508	F
23478-PeCDF	Meth 23X	ug/Nm3	ND (0.0000030)		0.00000499	F	ND (0.0000030)	
2378-TCDD	Meth 23X	ug/Nm3	ND (0.0000030)		0.00000121	F	ND (0.0000034)	
2378-TCDF	Meth 23X	ug/Nm3	ND (0.0000011)		0.0000120		0.00000450	
OCDD	Meth 23X	ug/Nm3	0.0000351	B	0.0000446	BF	0.0000345	BF
OCDF	Meth 23X	ug/Nm3	0.0000321	F	0.0000661		0.0000423	
TOTAL HpCDD	Meth 23X	ug/Nm3	0.00000877		0.0000223		0.0000103	
TOTAL HpCDF	Meth 23X	ug/Nm3	0.0000140		0.0000243		0.0000199	
TOTAL HxCDD	Meth 23X	ug/Nm3	0.00000522		0.0000458		0.00000520	F
TOTAL HxCDF	Meth 23X	ug/Nm3	0.00000858		0.0000512		0.0000178	
TOTAL PeCDD	Meth 23X	ug/Nm3	ND (0.0000060)		0.0000412		0.0000104	F
TOTAL PeCDF	Meth 23X	ug/Nm3	0.00000396		0.0000529		0.00000719	F
TOTAL TCDD	Meth 23X	ug/Nm3	ND (0.0000030)		0.000127		0.0000136	
TOTAL TCDF	Meth 23X	ug/Nm3	0.00000282		0.0000988		0.0000122	

Stream: APF Outlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,1-Dichloroethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,1-Dichloroethene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,2-Dichloroethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,2-Dichloropropane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2-Butanone	GCMS	ug/Nm3	ND (2.3)		ND (2.3)		ND (2.8)	
2-Hexanone	GCMS	ug/Nm3	ND (2.3)		ND (2.3)		ND (2.8)	
4-Methyl-2-Pentanone	GCMS	ug/Nm3	ND (2.3)		ND (2.3)		ND (2.8)	
Acetone	GCMS	ug/Nm3	ND (2.3)		ND (2.3)		ND (2.8)	
Benzene	GCMS	ug/Nm3	10.2		ND (0.47)		0.938	
Bromodichloromethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Bromoform	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Bromomethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Carbon Disulfide	GCMS	ug/Nm3	14.9		12.6		46.3	
Carbon Tetrachloride	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Chlorobenzene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Chloroethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Chloroform	GCMS	ug/Nm3	1.30		ND (0.47)		ND (0.55)	
Chloromethane	GCMS	ug/Nm3	9.32		ND (0.47)		1.16	
Dibromochloromethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Ethyl Benzene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Methylene Chloride	GCMS	ug/Nm3	> 1860	S	> 419	S	662	E
Styrene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Tetrachloroethene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Toluene	GCMS	ug/Nm3	4.66		0.559		0.993	
Trichloroethene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Trichlorofluoromethane	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
Vinyl Acetate	GCMS	ug/Nm3	ND (2.3)		ND (2.3)		ND (2.8)	
Vinyl Chloride	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
cis-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
m,p-Xylene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
o-Xylene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
trans-1,2-Dichloroethene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	
trans-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.47)		ND (0.47)		ND (0.55)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal B

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,1-Dichloroethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,1-Dichloroethene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,2-Dichloroethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,2-Dichloropropane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
2-Butanone	GCMS	ug/Nm3	ND (1.7)		ND (2.7)		ND (2.5)	
2-Hexanone	GCMS	ug/Nm3	ND (1.7)		ND (2.7)		ND (2.5)	
4-Methyl-2-Pentanone	GCMS	ug/Nm3	ND (1.7)		ND (2.7)		ND (2.5)	
Acetone	GCMS	ug/Nm3	ND (1.7)		ND (2.7)		ND (2.5)	
Benzene	GCMS	ug/Nm3	5.79		0.850		0.641	
Bromodichloromethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Bromoform	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Bromomethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		4.19	
Carbon Disulfide	GCMS	ug/Nm3	27.9		48.9		ND (0.49)	
Carbon Tetrachloride	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Chlorobenzene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Chloroethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Chloroform	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Chloromethane	GCMS	ug/Nm3	0.953		ND (0.53)		3.40	
Dibromochloromethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Ethyl Benzene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Methylene Chloride	GCMS	ug/Nm3	> 1230	S	154	E	ND (0.49)	
Styrene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Tetrachloroethene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Toluene	GCMS	ug/Nm3	0.613		ND (0.53)		ND (0.49)	
Trichloroethene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Trichlorofluoromethane	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
Vinyl Acetate	GCMS	ug/Nm3	ND (1.7)		ND (2.7)		ND (2.5)	

Analytical Data Used In Calculations

Stream: APF Outlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal B

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Vinyl Chloride	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
cis-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
m,p-Xylene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
o-Xylene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
trans-1,2-Dichloroethene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	
trans-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.34)		ND (0.53)		ND (0.49)	

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Ash + Mg + Ca

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Boron	ICAP	ug/g	100		100		89.0	
Carbon	Ultimate	%	3.44		3.42		3.75	
Sulfur	Ultimate	%	7.47		8.06		7.97	
Actinium-228 @338	gamma	pCi/g	0.240		0.150		0.310	
Actinium-228 @911	gamma	pCi/g	0.0200		0.0500		0.100	
Actinium-228 @968	gamma	pCi/g	0.0700		0.0700		ND (0.010)	
Bismuth-212 @727	gamma	pCi/g	0.260		0.260		ND (0.21)	
Bismuth-214 @1120.4	gamma	pCi/g	0.370		0.280		0.770	
Bismuth-214 @1764.7	gamma	pCi/g	0.290		0.450		0.520	
Bismuth-214 @609.4	gamma	pCi/g	0.680		0.440		0.650	
K-40 @1460	gamma	pCi/g	1.00		0.890		1.10	
Lead-210 @46	gamma	pCi/g	0.200		ND (0.10)		0.580	
Lead-212 @238	gamma	pCi/g	0.310		0.0800		0.190	
Lead-214 @295.2	gamma	pCi/g	0.470		0.450		0.600	
Lead-214 @352.0	gamma	pCi/g	0.510		0.610		0.640	
Radium-226 @186.0	gamma	pCi/g	0.620		0.900		1.60	
Thallium-208 @583	gamma	pCi/g	0.0300		0.0900		0.0600	
Thallium-208 @860	gamma	pCi/g	ND (0.28)		0.0500		0.200	
Thorium-234 @63.3	gamma	pCi/g	0.440		1.70		0.830	
Thorium-234 @92.6	gamma	pCi/g	0.210		ND (0.010)		0.190	
Uranium-235 @143.8	gamma	pCi/g	0.0400		0.0600		0.100	

Analytical Data Used In Calculations

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Ash + Mg + Ca FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Boron	ICAP	ug/g					81.5	
Carbon	Ultimate	%					3.74	
Sulfur	Ultimate	%					7.94	
Actinium-228 @338	gamma	pCi/g					0.290	
Actinium-228 @911	gamma	pCi/g					0.150	
Actinium-228 @968	gamma	pCi/g					ND (0.050)	
Bismuth-212 @727	gamma	pCi/g					ND (0.20)	
Bismuth-214 @1120.4	gamma	pCi/g					0.610	
Bismuth-214 @1764.7	gamma	pCi/g					0.550	
Bismuth-214 @609.4	gamma	pCi/g					0.560	
K-40 @1460	gamma	pCi/g					0.710	
Lead-210 @46	gamma	pCi/g					ND (0.60)	
Lead-212 @238	gamma	pCi/g					0.230	
Lead-214 @295.2	gamma	pCi/g					0.440	
Lead-214 @352.0	gamma	pCi/g					0.520	
Radium-226 @186.0	gamma	pCi/g					0.900	
Thallium-208 @583	gamma	pCi/g					0.0400	
Thallium-208 @860	gamma	pCi/g					0.0200	
Thorium-234 @63.3	gamma	pCi/g					0.410	
Thorium-234 @92.6	gamma	pCi/g					0.760	
Uranium-235 @143.8	gamma	pCi/g					0.0600	

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg	ND (0.012)		ND (0.012)		ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g	ND (0.0064)		ND (0.0063)		ND (0.0064)	
1,2-Dichlorobenzene	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
1,4-Dichlorobenzene	GCMS	ug/g	ND (0.023)		ND (0.023)		ND (0.023)	

Analytical Data Used In Calculations

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4,5-Trichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4,6-Trichlorophenol	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g	ND (0.042)		ND (0.042)		ND (0.042)	
2,4-Dinitrophenol	GCMS	ug/g	ND (0.086)		ND (0.085)		ND (0.086)	
2,4-Dinitrotoluene	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
2,6-Dinitrotoluene	GCMS	ug/g	ND (0.035)		ND (0.035)		ND (0.035)	
2-Chloronaphthalene	GCMS	ug/g	ND (0.030)		ND (0.030)		ND (0.030)	
2-Chlorophenol	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
2-Methylphenol	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
2-Nitroaniline	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
2-Nitrophenol	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g	ND (0.036)		ND (0.036)		ND (0.036)	
3-Nitroaniline	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
4,6-Dinitro-2-methylphenol	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-*Chloro*-3-*methylphenol*	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
4-Methylphenol/3-Methylphenol	GCMS	ug/g	ND (0.041)		ND (0.041)		ND (0.041)	
4-Nitroaniline	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-Nitrophenol	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
Acenaphthene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Acenaphthylene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Anthracene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benz(a)anthracene	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
Benz(a)pyrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g	ND (0.032)		ND (0.032)		ND (0.032)	
Benzo(g,h,i)perylene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g	ND (0.027)		ND (0.027)		ND (0.027)	
Benzoic acid	GCMS	ug/g	ND (0.099)		ND (0.099)		ND (0.099)	
Benzyl alcohol	GCMS	ug/g	ND (0.048)		ND (0.048)		ND (0.048)	
Butylbenzylphthalate	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	

Analytical Data Used In Calculations

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chrysene	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Di-n-butylphthalate	GCMS	ug/g	ND (0.010)		ND (0.010)		ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g	ND (0.023)		ND (0.022)		ND (0.023)	
Dibenzofuran	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	
Diethylphthalate	GCMS	ug/g	ND (0.012)		ND (0.012)		ND (0.012)	
Dimethylphthalate	GCMS	ug/g	ND (0.016)		ND (0.015)		ND (0.016)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
Fluoranthene	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
Fluorene	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
Hexachlorobenzene	GCMS	ug/g	ND (0.018)		ND (0.017)		ND (0.018)	
Hexachlorobutadiene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Hexachlorocyclopentadiene	GCMS	ug/g	ND (0.054)		ND (0.054)		ND (0.054)	
Hexachloroethane	GCMS	ug/g	ND (0.033)		ND (0.033)		ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Isophorone	GCMS	ug/g	ND (0.010)		ND (0.0100)		ND (0.010)	
N-Nitroso-di-n-propylamine	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
Naphthalene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Nitrobenzene	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	
Pentachlorophenol	GCMS	ug/g	ND (0.0064)		ND (0.0063)		ND (0.0064)	
Phenanthrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Phenol	GCMS	ug/g	ND (0.033)		ND (0.033)		ND (0.034)	
Pyrene	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g	ND (0.054)		ND (0.054)		ND (0.054)	
p-Chloroaniline	GCMS	ug/g	ND (0.032)		ND (0.032)		ND (0.033)	
Arsenic	GFAA	mg/kg	67.8	B	82.6	B	61.2	B
Cadmium	GFAA	mg/kg	ND (1.6)	B	ND (0.22)	B	ND (0.23)	B
Lead	GFAA	mg/kg	6.26		5.06		3.65	
Selenium	GFAA	mg/kg	5.27		4.25	B	4.33	B

Analytical Data Used In Calculations

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Aluminum	ICAP	mg/kg	6770	B	12500	B	7690	B
Antimony	ICAP	mg/kg	ND (46)		ND (54)		ND (50)	
Barium	ICAP	mg/kg	26.1		45.8		31.0	
Beryllium	ICAP	mg/kg	0.510		0.877		0.570	
Calcium	ICAP	mg/kg	160000	B	166000	B	166000	B
Chromium	ICAP	mg/kg	19.5	B	21.8	B	17.1	B
Cobalt	ICAP	mg/kg	11.1	B	15.0	B	11.4	B
Copper	ICAP	mg/kg	ND (3.9)		ND (4.6)		ND (4.3)	
Iron	ICAP	mg/kg	11300		21600		13000	
Magnesium	ICAP	mg/kg	120000	B	133000	B	121000	B
Manganese	ICAP	mg/kg	96.3	B	119	B	97.6	B
Molybdenum	ICAP	mg/kg	ND (3.0)		ND (3.5)		ND (3.3)	
Nickel	ICAP	mg/kg	9.30	B	ND (11)	B	ND (9.7)	B
Phosphorus	ICAP	mg/kg	ND (70)		ND (68)		ND (69)	
Potassium	ICAP	mg/kg	679		1460		896	
Silver	ICAP	mg/kg	ND (3.5)		ND (4.1)		ND (3.8)	
Sodium	ICAP	mg/kg	210	B	198	B	248	B
Titanium	ICAP	mg/kg	373	B	664	B	417	B
Vanadium	ICAP	mg/kg	19.0		24.3		16.1	
Chloride	SIE	mg/kg	750		1050		866	
Fluoride	SIE	mg/kg	105	B	104	B	94.5	B

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg					ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g					ND (0.0063)	
1,2-Dichlorobenzene	GCMS	ug/g					ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g					ND (0.024)	
1,4-Dichlorobenzene	GCMS	ug/g					ND (0.023)	
2,4,5-Trichlorophenol	GCMS	ug/g					ND (0.019)	

Analytical Data Used In Calculations

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4,6-Trichlorophenol	GCMS	ug/g					ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g					ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g					ND (0.042)	
2,4-Dinitrophenol	GCMS	ug/g					ND (0.086)	
2,4-Dinitrotoluene	GCMS	ug/g					ND (0.025)	
2,6-Dinitrotoluene	GCMS	ug/g					ND (0.035)	
2-Chloronaphthalene	GCMS	ug/g					ND (0.030)	
2-Chlorophenol	GCMS	ug/g					ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g					ND (0.020)	
2-Methylphenol	GCMS	ug/g					ND (0.026)	
2-Nitroaniline	GCMS	ug/g					ND (0.026)	
2-Nitrophenol	GCMS	ug/g					ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g					ND (0.036)	
3-Nitroaniline	GCMS	ug/g					ND (0.011)	
4,6-Dinitro-2-methylphenol	GCMS	ug/g					ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g					ND (0.020)	
4-Chloro-3-methylphenol	GCMS	ug/g					ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g					ND (0.024)	
4-Methylphenol/3-Methylphenol	GCMS	ug/g					ND (0.041)	
4-Nitroaniline	GCMS	ug/g					ND (0.020)	
4-Nitrophenol	GCMS	ug/g					ND (0.021)	
Acenaphthene	GCMS	ug/g					ND (0.016)	
Acenaphthylene	GCMS	ug/g					ND (0.022)	
Anthracene	GCMS	ug/g					ND (0.018)	
Benz(a)anthracene	GCMS	ug/g					ND (0.011)	
Benz(a)pyrene	GCMS	ug/g					ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g					ND (0.032)	
Benzo(g,h,i)perylene	GCMS	ug/g					ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g					ND (0.027)	
Benzoic acid	GCMS	ug/g					ND (0.099)	
Benzyl alcohol	GCMS	ug/g					ND (0.048)	
Butylbenzylphthalate	GCMS	ug/g					ND (0.025)	
Chrysene	GCMS	ug/g					ND (0.019)	

Analytical Data Used In Calculations

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Di-n-butylphthalate	GCMS	ug/g					ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g					ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g					ND (0.023)	
Dibenzofuran	GCMS	ug/g					ND (0.013)	
Diethylphthalate	GCMS	ug/g					ND (0.012)	
Dimethylphthalate	GCMS	ug/g					ND (0.016)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g					ND (0.025)	
Fluoranthene	GCMS	ug/g					ND (0.014)	
Fluorene	GCMS	ug/g					ND (0.011)	
Hexachlorobenzene	GCMS	ug/g					ND (0.018)	
Hexachlorobutadiene	GCMS	ug/g					ND (0.022)	
Hexachlorocyclopentadiene	GCMS	ug/g					ND (0.054)	
Hexachloroethane	GCMS	ug/g					ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g					ND (0.016)	
Isophorone	GCMS	ug/g					ND (0.0100)	
N-Nitroso-di-n-propylamine	GCMS	ug/g					ND (0.026)	
Naphthalene	GCMS	ug/g					ND (0.022)	
Nitrobenzene	GCMS	ug/g					ND (0.013)	
Pentachlorophenol	GCMS	ug/g					ND (0.0063)	
Phenanthrene	GCMS	ug/g					ND (0.018)	
Phenol	GCMS	ug/g					ND (0.033)	
Pyrene	GCMS	ug/g					ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g					ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g					ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g					ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g					ND (0.054)	
p-Chloroaniline	GCMS	ug/g					ND (0.032)	
Arsenic	GFAA	mg/kg					67.9	B
Cadmium	GFAA	mg/kg					0.336	B
Lead	GFAA	mg/kg					3.57	
Selenium	GFAA	mg/kg					3.20	B
Aluminum	ICAP	mg/kg					7270	B

Analytical Data Used In Calculations

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Antimony	ICAP	mg/kg					ND (46)	
Barium	ICAP	mg/kg					26.6	
Beryllium	ICAP	mg/kg					0.513	
Calcium	ICAP	mg/kg					146000	B
Chromium	ICAP	mg/kg					14.6	B
Cobalt	ICAP	mg/kg					7.91	B
Copper	ICAP	mg/kg					ND (4.0)	
Iron	ICAP	mg/kg					13200	
Magnesium	ICAP	mg/kg					125000	B
Manganese	ICAP	mg/kg					107	B
Molybdenum	ICAP	mg/kg					ND (3.0)	
Nickel	ICAP	mg/kg					ND (9.0)	B
Phosphorus	ICAP	mg/kg					ND (70)	
Potassium	ICAP	mg/kg					1100	
Silver	ICAP	mg/kg					ND (3.5)	
Sodium	ICAP	mg/kg					123	B
Titanium	ICAP	mg/kg					409	B
Vanadium	ICAP	mg/kg					18.3	
Chloride	SIE	mg/kg					930	
Fluoride	SIE	mg/kg					146	B

Stream: Coal Paste **Collection Method:** Grab Composite **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/g	0.160		0.155		0.130	
Fluorine	D3761	ug/g	120		99.0		120	
Chlorine	D4208	ug/g	990		1260		1230	
Cadmium	GFAA	ug/g	0.0800		0.0600		0.190	
Lead	GFAA	ug/g	6.00		6.00		7.00	

Analytical Data Used In Calculations

Stream: Coal Past **Collection Method:** Grab Composit **Sample Type:** Filtered Solid

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Barium	ICAP	ug/g	49.0		51.0		61.0	
Beryllium	ICAP	ug/g	1.70		1.50		1.55	
Boron	ICAP	ug/g	79.0		83.0		ND (3.0)	
Calcium	ICAP	ug/g	1100		1400		1400	
Chromium	ICAP	ug/g	15.0		17.0		17.0	
Copper	ICAP	ug/g	6.80		6.70		7.40	
Magnesium	ICAP	ug/g	840		820		910	
Phosphorus	ICAP	ug/g	90.0		97.0		99.5	
Titanium	ICAP	ug/g	680		680		720	
Aluminum	NAA	ug/g	14800		15300		16800	
Antimony	NAA	ug/g	0.441		0.469		0.518	
Arsenic	NAA	ug/g	37.5		50.4		47.6	
Cobalt	NAA	ug/g	3.69		3.85		4.20	
Iron	NAA	ug/g	20200		17200		23200	
Manganese	NAA	ug/g	21.8		25.9		28.8	
Molybdenum	NAA	ug/g	1.19		0.304		ND (0.51)	
Nickel	NAA	ug/g	12.3		8.48		17.9	
Potassium	NAA	ug/g	5040		4310		3540	
Silver	NAA	ug/g	0.799		0.437		0.644	
Sodium	NAA	ug/g	310		407		297	
Vanadium	NAA	ug/g	24.8		21.2		25.8	
Fixed Carbon	Proximate	%	53.0		53.2		50.8	
HHV	Proximate	Btu/lb	12900		12700		12600	
Volatile	Proximate	%	35.8		34.9		35.1	
Ash	Ultimate	%	11.2		11.8		14.1	
Carbon	Ultimate	%	72.3		71.7		70.3	
Hydrogen	Ultimate	%	4.62		4.55		4.68	
Moisture	Ultimate	%	3.20		4.17		2.80	
Nitrogen	Ultimate	%	1.58		1.35		1.37	
Oxygen	Ultimate	%	7.15		7.21		5.98	
Sulfur	Ultimate	%	3.11		3.35		3.62	

Analytical Data Used In Calculations

Stream: Coal Past **Collection Method:** Grab Composit **Sample Type:** Filtered Solid

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Actinium-228 @338	gamma	pCi/g	ND (0.010)		0.146		0.206	
Actinium-228 @911	gamma	pCi/g	0.145		0.146		0.0720	
Actinium-228 @968	gamma	pCi/g	0.155		ND (0.021)		0.216	
Bismuth-212 @727	gamma	pCi/g	0.475		ND (0.31)		0.113	
Bismuth-214 @1120.4	gamma	pCi/g	0.0207		0.0939		0.391	
Bismuth-214 @1764.7	gamma	pCi/g	0.279		0.0522		0.0103	
Bismuth-214 @609.4	gamma	pCi/g	0.217		0.271		0.278	
K-40 @1460	gamma	pCi/g	1.34		1.57		1.95	
Lead-210 @46	gamma	pCi/g	0.878		0.0939		0.494	
Lead-212 @238	gamma	pCi/g	0.0826		0.115		0.298	
Lead-214 @295.2	gamma	pCi/g	0.165		0.230		0.144	
Lead-214 @352.0	gamma	pCi/g	0.341		0.323		0.154	
Radium-226 @186.0	gamma	pCi/g	0.186		0.616		ND (0.10)	
Thallium-208 @583	gamma	pCi/g	0.0413		0.0522		0.0412	
Thallium-208 @860	gamma	pCi/g	ND (0.14)		0.104		0.0514	
Thorium-234 @63.3	gamma	pCi/g	0.0207		ND (0.10)		0.607	
Thorium-234 @92.6	gamma	pCi/g	ND (0.10)		0.219		ND (0.082)	
Uranium-235 @143.8	gamma	pCi/g	0.0103		0.0417		ND (0.010)	

Stream: Coal Paste **Collection Method:** Grab Composite **Sample Type:** Filtered Solids FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/g					0.270	
Fluorine	D3761	ug/g					120	
Chlorine	D4208	ug/g					1080	
Cadmium	GFAA	ug/g					0.120	
Lead	GFAA	ug/g					7.00	
Barium	ICAP	ug/g					58.0	
Beryllium	ICAP	ug/g					1.50	
Boron	ICAP	ug/g					80.0	

Analytical Data Used In Calculations

Stream: Coal Past **Collection Method:** Grab Composit ***Sample Type:*** *Filtered Solid* FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Calcium	ICAP	ug/g					1600	
Chromium	ICAP	ug/g					16.0	
Copper	ICAP	ug/g					7.30	
Magnesium	ICAP	ug/g					1000	
Phosphorus	ICAP	ug/g					110	
Titanium	ICAP	ug/g					710	
Aluminum	NAA	ug/g					16500	
Antimony	NAA	ug/g					0.431	
Arsenic	NAA	ug/g					45.3	
Cobalt	NAA	ug/g					4.42	
Iron	NAA	ug/g					23100	
Manganese	NAA	ug/g					33.1	
Molybdenum	NAA	ug/g					1.47	
Nickel	NAA	ug/g					15.9	
Potassium	NAA	ug/g					1130	
Silver	NAA	ug/g					0.622	
Sodium	NAA	ug/g					329	
Vanadium	NAA	ug/g					25.5	
Fixed Carbon	Proximate	%					51.2	
HHV	Proximate	Btu/lb					12600	
Volatile	Proximate	%					35.5	
Ash	Ultimate	%					13.3	
Carbon	Ultimate	%					70.5	
Hydrogen	Ultimate	%					4.74	
Moisture	Ultimate	%					2.91	
Nitrogen	Ultimate	%					1.37	
Oxygen	Ultimate	%					6.79	
Sulfur	Ultimate	%					3.34	
Actinium-228 @338	gamma	pCi/g					0.154	
Actinium-228 @911	gamma	pCi/g					0.113	
Actinium-228 @968	gamma	pCi/g					0.227	

Analytical Data Used In Calculations

Stream: Coal Past **Collection Method:** Grab Composit **Sample Type:** Filtered Solid FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Bismuth-212 @727	gamma	pCi/g					0.330	
Bismuth-214 @1120.4	gamma	pCi/g					0.0515	
Bismuth-214 @1764.7	gamma	pCi/g					0.247	
Bismuth-214 @609.4	gamma	pCi/g					0.175	
K-40 @1460	gamma	pCi/g					2.68	
Lead-210 @46	gamma	pCi/g					0.257	
Lead-212 @238	gamma	pCi/g					0.288	
Lead-214 @295.2	gamma	pCi/g					0.257	
Lead-214 @352.0	gamma	pCi/g					0.206	
Radium-226 @186.0	gamma	pCi/g					0.402	
Thallium-208 @583	gamma	pCi/g					0.0515	
Thallium-208 @860	gamma	pCi/g					0.196	
Thorium-234 @63.3	gamma	pCi/g					ND (0.22)	
Thorium-234 @92.6	gamma	pCi/g					0.206	
Uranium-235 @143.8	gamma	pCi/g					0.0206	

Stream: Cyclone Ash **Collection Method:** Grab Composite **Sample Type:** Ash + Mg + Ca

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Boron	ICAP	ug/g	99.0		120		100	
Carbon	Ultimate	%	5.16		5.47		5.24	
Sulfur	Ultimate	%	3.82		4.07		3.86	
Actinium-228 @338	gamma	pCi/g	0.650		0.590		0.800	
Actinium-228 @911	gamma	pCi/g	0.550		0.520		0.600	
Actinium-228 @968	gamma	pCi/g	0.500		0.850		0.460	
Bismuth-212 @727	gamma	pCi/g	1.40		0.470		0.250	
Bismuth-214 @1120.4	gamma	pCi/g	1.20		1.00		1.10	
Bismuth-214 @1764.7	gamma	pCi/g	1.00		1.10		0.800	
Bismuth-214 @609.4	gamma	pCi/g	1.00		1.00		0.960	
K-40 @1460	gamma	pCi/g	7.30		6.70		5.80	
Lead-210 @46	gamma	pCi/g	1.00		0.990		2.00	

Analytical Data Used In Calculations

Stream: Cyclone As **Collection Method:** Grab Composit **Sample Type:** Ash + Mg + C

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Lead-212 @238	gamma	pCi/g	0.650		0.590		0.660	
Lead-214 @295.2	gamma	pCi/g	1.00		0.990		1.10	
Lead-214 @352.0	gamma	pCi/g	1.20		1.00		1.10	
Radium-226 @186.0	gamma	pCi/g	2.30		2.30		1.40	
Thallium-208 @583	gamma	pCi/g	0.250		0.200		0.200	
Thallium-208 @860	gamma	pCi/g	0.380		0.320		ND (0.44)	
Thorium-234 @63.3	gamma	pCi/g	1.80		0.470		0.720	
Thorium-234 @92.6	gamma	pCi/g	0.300		0.950		0.180	
Uranium-235 @143.8	gamma	pCi/g	0.140		0.140		0.0900	

Stream: Cyclone Ash **Collection Method:** Grab Composite **Sample Type:** Ash + Mg + Ca FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Boron	ICAP	ug/g					87.5	
Carbon	Ultimate	%					5.30	
Sulfur	Ultimate	%					3.57	
Actinium-228 @338	gamma	pCi/g					0.610	
Actinium-228 @911	gamma	pCi/g					0.750	
Actinium-228 @968	gamma	pCi/g					0.290	
Bismuth-212 @727	gamma	pCi/g					0.520	
Bismuth-214 @1120.4	gamma	pCi/g					0.820	
Bismuth-214 @1764.7	gamma	pCi/g					0.660	
Bismuth-214 @609.4	gamma	pCi/g					1.10	
K-40 @1460	gamma	pCi/g					6.50	
Lead-210 @46	gamma	pCi/g					0.610	
Lead-212 @238	gamma	pCi/g					0.730	
Lead-214 @295.2	gamma	pCi/g					1.10	
Lead-214 @352.0	gamma	pCi/g					1.10	
Radium-226 @186.0	gamma	pCi/g					1.70	
Thallium-208 @583	gamma	pCi/g					0.200	
Thallium-208 @860	gamma	pCi/g					0.430	

Analytical Data Used In Calculations

Stream: Cyclone As **Collection Method:** Grab Composit **Sample Type:** Ash + Mg + C FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Thorium-234 @63.3	gamma	pCi/g					1.40	
Thorium-234 @92.6	gamma	pCi/g					0.730	
Uranium-235 @143.8	gamma	pCi/g					0.100	

Stream: Cyclone Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg	ND (0.012)		ND (0.012)		ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g	ND (0.0064)		ND (0.0064)		ND (0.0064)	
1,2-Dichlorobenzene	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
1,4-Dichlorobenzene	GCMS	ug/g	ND (0.023)		ND (0.024)		ND (0.024)	
2,4,5-Trichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4,6-Trichlorophenol	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g	ND (0.042)		ND (0.042)		ND (0.042)	
2,4-Dinitrophenol	GCMS	ug/g	ND (0.086)		ND (0.086)		ND (0.086)	
2,4-Dinitrotoluene	GCMS	ug/g	ND (0.025)		ND (0.026)		ND (0.026)	
2,6-Dinitrotoluene	GCMS	ug/g	ND (0.035)		ND (0.035)		ND (0.035)	
2-Chloronaphthalene	GCMS	ug/g	ND (0.030)		ND (0.030)		ND (0.030)	
2-Chlorophenol	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
2-Methylphenol	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
2-Nitroaniline	GCMS	ug/g	ND (0.026)		ND (0.027)		ND (0.027)	
2-Nitrophenol	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g	ND (0.036)		ND (0.036)		ND (0.036)	
3-Nitroaniline	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
4,6-Dinitro-2-methylphenol	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-Chloro-3-methylphenol	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	

Analytical Data Used In Calculations

Stream: Cyclone As **Collection Method:** Grab Composit **Sample Type:** Fly As

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
4-Methylphenol/3-Methylphenol	GCMS	ug/g	ND (0.041)		ND (0.041)		ND (0.041)	
4-Nitroaniline	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-Nitrophenol	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
Acenaphthene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Acenaphthylene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Anthracene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benz(a)anthracene	GCMS	ug/g	ND (0.011)		ND (0.012)		ND (0.012)	
Benz(a)pyrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g	ND (0.032)		ND (0.032)		ND (0.032)	
Benzo(g,h,i)perylene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g	ND (0.027)		ND (0.027)		ND (0.027)	
Benzoic acid	GCMS	ug/g	ND (0.099)		ND (0.100)		ND (0.099)	
Benzyl alcohol	GCMS	ug/g	ND (0.048)		ND (0.048)		ND (0.048)	
Butylbenzylphthalate	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
Chrysene	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Di-n-butylphthalate	GCMS	ug/g	ND (0.010)		ND (0.010)		ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g	ND (0.023)		ND (0.023)		ND (0.023)	
Dibenzofuran	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	
Diethylphthalate	GCMS	ug/g	ND (0.012)		ND (0.012)		ND (0.012)	
Dimethylphthalate	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
Fluoranthene	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
Fluorene	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
Hexachlorobenzene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Hexachlorobutadiene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Hexachlorocyclopentadiene	GCMS	ug/g	ND (0.054)		ND (0.055)		ND (0.054)	
Hexachloroethane	GCMS	ug/g	ND (0.033)		ND (0.033)		ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Isophorone	GCMS	ug/g	ND (0.010)		ND (0.010)		ND (0.010)	
N-Nitroso-di-n-propylamine	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
Naphthalene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Nitrobenzene	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	

Analytical Data Used In Calculations

Stream: Cyclone As **Collection Method:** Grab Composit **Sample Type:** Fly As

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Pentachlorophenol	GCMS	ug/g	ND (0.0064)		ND (0.0064)		ND (0.0064)	
Phenanthrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Phenol	GCMS	ug/g	ND (0.034)		ND (0.034)		ND (0.034)	
Pyrene	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g	ND (0.054)		ND (0.055)		ND (0.054)	
p-Chloroaniline	GCMS	ug/g	ND (0.033)		ND (0.033)		ND (0.033)	
Arsenic	GFAA	mg/kg	87.0	B	100	B	93.1	B
Cadmium	GFAA	mg/kg	0.284	B	0.442	B	0.320	B
Lead	GFAA	mg/kg	17.7		21.3		16.7	
Selenium	GFAA	mg/kg	1.65		2.95		7.46	
1,2,3,4,6,7,8-HpCDD	HR GCMS	ppt	ND (0.90)		ND (0.90)		ND (0.80)	
1,2,3,4,6,7,8-HpCDF	HR GCMS	ppt	ND (0.50)		0.510		ND (0.40)	
1,2,3,4,7,8,9-HpCDF	HR GCMS	ppt	ND (0.80)		ND (0.80)		ND (0.70)	
1,2,3,4,7,8-HxCDD	HR GCMS	ppt	ND (0.80)		ND (0.70)		ND (0.70)	
1,2,3,4,7,8-HxCDF	HR GCMS	ppt	ND (0.40)		ND (0.40)		ND (0.40)	
1,2,3,6,7,8-HxCDD	HR GCMS	ppt	ND (0.60)		ND (0.60)		ND (0.60)	
1,2,3,6,7,8-HxCDF	HR GCMS	ppt	ND (0.30)		ND (0.30)		ND (0.30)	
1,2,3,7,8,9-HxCDD	HR GCMS	ppt	ND (0.70)		ND (0.60)		ND (0.60)	
1,2,3,7,8,9-HxCDF	HR GCMS	ppt	ND (0.50)		ND (0.50)		ND (0.40)	
1,2,3,7,8-PeCDD	HR GCMS	ppt	ND (0.70)		ND (0.70)		ND (0.50)	
1,2,3,7,8-PeCDF	HR GCMS	ppt	ND (0.40)		ND (0.40)		ND (0.30)	
2,3,4,6,7,8-HxCDF	HR GCMS	ppt	0.280		ND (0.40)		ND (0.40)	
2,3,4,7,8-PeCDF	HR GCMS	ppt	ND (0.40)		ND (0.40)		ND (0.30)	
2,3,7,8-TCDD	HR GCMS	ppt	ND (0.40)		ND (0.30)		ND (0.20)	
2,3,7,8-TCDF	HR GCMS	ppt	ND (0.30)		ND (0.30)		ND (0.20)	
OCDD	HR GCMS	ppt	ND (1.6)		ND (1.6)		ND (1.5)	
OCDF	HR GCMS	ppt	ND (1.3)		ND (1.4)		ND (1.3)	
Total HpCDD	HR GCMS	ppt	ND (0.90)		ND (0.90)		ND (0.80)	
Total HpCDF	HR GCMS	ppt	ND (0.60)		0.630		ND (0.50)	

Analytical Data Used In Calculations

Stream: Cyclone As **Collection Method:** Grab Composit **Sample Type:** Fly As

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Total HxCDD	HR GCMS	ppt	ND (0.70)		ND (0.70)		ND (0.60)	
Total HxCDF	HR GCMS	ppt	0.280		ND (0.40)		ND (0.40)	
Total PeCDD	HR GCMS	ppt	ND (0.70)		ND (0.70)		ND (0.50)	
Total PeCDF	HR GCMS	ppt	ND (0.40)		ND (0.40)		ND (0.30)	
Total TCDD	HR GCMS	ppt	ND (0.40)		ND (0.30)		ND (0.20)	
Total TCDF	HR GCMS	ppt	ND (0.30)		ND (0.30)		ND (0.20)	
Aluminum	ICAP	mg/kg	32400	B	30600	B	32700	B
Antimony	ICAP	mg/kg	ND (43)		ND (43)		ND (40)	
Barium	ICAP	mg/kg	142		144		154	
Beryllium	ICAP	mg/kg	4.39		3.61		3.48	
Calcium	ICAP	mg/kg	127000	B	125000	B	120000	B
Chromium	ICAP	mg/kg	44.4	B	42.1	B	45.6	B
Cobalt	ICAP	mg/kg	10.8	B	12.7	B	14.6	B
Copper	ICAP	mg/kg	ND (3.7)		ND (3.7)		ND (3.4)	
Iron	ICAP	mg/kg	49700		51100		49800	
Magnesium	ICAP	mg/kg	79900	B	79300	B	78700	B
Manganese	ICAP	mg/kg	115	B	110	B	115	B
Molybdenum	ICAP	mg/kg	ND (2.8)		ND (2.8)		3.18	
Nickel	ICAP	mg/kg	28.2	B	ND (8.4)	B	9.96	B
Phosphorus	ICAP	mg/kg	ND (67)		ND (70)		ND (67)	
Potassium	ICAP	mg/kg	6310		5980		6750	
Silver	ICAP	mg/kg	ND (3.3)		ND (3.3)		ND (3.0)	
Sodium	ICAP	mg/kg	1040	B	868	B	981	B
Titanium	ICAP	mg/kg	1740	B	1600	B	1660	B
Vanadium	ICAP	mg/kg	59.2		49.8		55.4	
Chloride	SIE	mg/kg	313		365		400	
Fluoride	SIE	mg/kg	75.5	B	150	B	104	B

Analytical Data Used In Calculations

Stream: Cyclone Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg					ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g					ND (0.0064)	
1,2-Dichlorobenzene	GCMS	ug/g					ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g					ND (0.024)	
1,4-Dichlorobenzene	GCMS	ug/g					ND (0.024)	
2,4,5-Trichlorophenol	GCMS	ug/g					ND (0.019)	
2,4,6-Trichlorophenol	GCMS	ug/g					ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g					ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g					ND (0.042)	
2,4-Dinitrophenol	GCMS	ug/g					ND (0.086)	
2,4-Dinitrotoluene	GCMS	ug/g					ND (0.026)	
2,6-Dinitrotoluene	GCMS	ug/g					ND (0.035)	
2-Chloronaphthalene	GCMS	ug/g					ND (0.030)	
2-Chlorophenol	GCMS	ug/g					ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g					ND (0.020)	
2-Methylphenol	GCMS	ug/g					ND (0.026)	
2-Nitroaniline	GCMS	ug/g					ND (0.027)	
2-Nitrophenol	GCMS	ug/g					ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g					ND (0.036)	
3-Nitroaniline	GCMS	ug/g					ND (0.011)	
4,6-Dinitro-2-methylphenol	GCMS	ug/g					ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g					ND (0.020)	
4-Chloro-3-methylphenol	GCMS	ug/g					ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g					ND (0.024)	
4-Methylphenol/3-Methylphenol	GCMS	ug/g					ND (0.041)	
4-Nitroaniline	GCMS	ug/g					ND (0.020)	
4-Nitrophenol	GCMS	ug/g					ND (0.021)	
Acenaphthene	GCMS	ug/g					ND (0.016)	
Acenaphthylene	GCMS	ug/g					ND (0.022)	
Anthracene	GCMS	ug/g					ND (0.018)	
Benz(a)anthracene	GCMS	ug/g					ND (0.012)	
Benz(a)pyrene	GCMS	ug/g					ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g					ND (0.032)	

Analytical Data Used In Calculations

Stream: Cyclone Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzo(g,h,i)perylene	GCMS	ug/g					ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g					ND (0.027)	
Benzoic acid	GCMS	ug/g					ND (0.100)	
Benzyl alcohol	GCMS	ug/g					ND (0.048)	
Butylbenzylphthalate	GCMS	ug/g					ND (0.025)	
Chrysene	GCMS	ug/g					ND (0.019)	
Di-n-butylphthalate	GCMS	ug/g					ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g					ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g					ND (0.023)	
Dibenzofuran	GCMS	ug/g					ND (0.013)	
Diethylphthalate	GCMS	ug/g					ND (0.012)	
Dimethylphthalate	GCMS	ug/g					ND (0.016)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g					ND (0.025)	
Fluoranthene	GCMS	ug/g					ND (0.014)	
Fluorene	GCMS	ug/g					ND (0.011)	
Hexachlorobenzene	GCMS	ug/g					ND (0.018)	
Hexachlorobutadiene	GCMS	ug/g					ND (0.022)	
Hexachlorocyclopentadiene	GCMS	ug/g					ND (0.055)	
Hexachloroethane	GCMS	ug/g					ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g					ND (0.016)	
Isophorone	GCMS	ug/g					ND (0.010)	
N-Nitroso-di-n-propylamine	GCMS	ug/g					ND (0.026)	
Naphthalene	GCMS	ug/g					ND (0.022)	
Nitrobenzene	GCMS	ug/g					ND (0.013)	
Pentachlorophenol	GCMS	ug/g					ND (0.0064)	
Phenanthrene	GCMS	ug/g					ND (0.018)	
Phenol	GCMS	ug/g					ND (0.034)	
Pyrene	GCMS	ug/g					ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g					ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g					ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g					ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g					ND (0.055)	
p-Chloroaniline	GCMS	ug/g					ND (0.033)	

Analytical Data Used In Calculations

Stream: Cyclone Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	mg/kg					93.0	B
Cadmium	GFAA	mg/kg					0.419	B
Lead	GFAA	mg/kg					16.0	
Selenium	GFAA	mg/kg					3.93	
1,2,3,4,6,7,8-HpCDD	HR GCMS	ppt					ND (1.3)	
1,2,3,4,6,7,8-HpCDF	HR GCMS	ppt					ND (0.60)	
1,2,3,4,7,8,9-HpCDF	HR GCMS	ppt					ND (1.0)	
1,2,3,4,7,8-HxCDD	HR GCMS	ppt					ND (0.90)	
1,2,3,4,7,8-HxCDF	HR GCMS	ppt					ND (0.50)	
1,2,3,6,7,8-HxCDD	HR GCMS	ppt					ND (0.80)	
1,2,3,6,7,8-HxCDF	HR GCMS	ppt					ND (0.40)	
1,2,3,7,8,9-HxCDD	HR GCMS	ppt					ND (0.90)	
1,2,3,7,8,9-HxCDF	HR GCMS	ppt					ND (0.60)	
1,2,3,7,8-PeCDD	HR GCMS	ppt					ND (0.70)	
1,2,3,7,8-PeCDF	HR GCMS	ppt					ND (0.40)	
2,3,4,6,7,8-HxCDF	HR GCMS	ppt					ND (0.50)	
2,3,4,7,8-PeCDF	HR GCMS	ppt					ND (0.40)	
2,3,7,8-TCDD	HR GCMS	ppt					ND (0.30)	
2,3,7,8-TCDF	HR GCMS	ppt					ND (0.20)	
OCDD	HR GCMS	ppt					ND (2.1)	
OCDF	HR GCMS	ppt					ND (1.8)	
Total HpCDD	HR GCMS	ppt					ND (1.3)	
Total HpCDF	HR GCMS	ppt					ND (0.80)	
Total HxCDD	HR GCMS	ppt					ND (0.90)	
Total HxCDF	HR GCMS	ppt					ND (0.50)	
Total PeCDD	HR GCMS	ppt					ND (0.70)	
Total PeCDF	HR GCMS	ppt					ND (0.40)	
Total TCDD	HR GCMS	ppt					ND (0.30)	
Total TCDF	HR GCMS	ppt					ND (0.20)	
Aluminum	ICAP	mg/kg					33500	B
Antimony	ICAP	mg/kg					ND (45)	
Barium	ICAP	mg/kg					165	

Analytical Data Used In Calculations

Stream: Cyclone Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Beryllium	ICAP	mg/kg					3.76	
Calcium	ICAP	mg/kg					128000	B
Chromium	ICAP	mg/kg					45.9	B
Cobalt	ICAP	mg/kg					14.8	B
Copper	ICAP	mg/kg					ND (3.9)	
Iron	ICAP	mg/kg					51100	
Magnesium	ICAP	mg/kg					79400	B
Manganese	ICAP	mg/kg					115	B
Molybdenum	ICAP	mg/kg					ND (3.0)	
Nickel	ICAP	mg/kg					26.4	B
Phosphorus	ICAP	mg/kg					ND (71)	
Potassium	ICAP	mg/kg					6370	
Silver	ICAP	mg/kg					ND (3.4)	
Sodium	ICAP	mg/kg					1040	B
Titanium	ICAP	mg/kg					1690	B
Vanadium	ICAP	mg/kg					55.2	
Chloride	SIE	mg/kg					382	
Fluoride	SIE	mg/kg					130	B

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg	ND (0.012)		ND (0.012)		ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g	ND (0.0064)		ND (0.0064)		ND (0.0064)	
1,2-Dichlorobenzene	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
1,4-Dichlorobenzene	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
2,4,5-Trichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4,6-Trichlorophenol	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g	ND (0.042)		ND (0.042)		ND (0.042)	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4-Dinitrophenol	GCMS	ug/g	ND (0.086)		ND (0.086)		ND (0.086)	
2,4-Dinitrotoluene	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.025)	
2,6-Dinitrotoluene	GCMS	ug/g	ND (0.035)		ND (0.035)		ND (0.035)	
2-Chloronaphthalene	GCMS	ug/g	ND (0.030)		ND (0.030)		ND (0.030)	
2-Chlorophenol	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
2-Methylphenol	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
2-Nitroaniline	GCMS	ug/g	ND (0.027)		ND (0.027)		ND (0.026)	
2-Nitrophenol	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g	ND (0.036)		ND (0.036)		ND (0.036)	
3-Nitroaniline	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
4,6-Dinitro-2-methylphenol	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-Chloro-3-methylphenol	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g	ND (0.024)		ND (0.024)		ND (0.024)	
4-Methylphenol/3-Methylphenol	GCMS	ug/g	ND (0.041)		ND (0.041)		ND (0.041)	
4-Nitroaniline	GCMS	ug/g	ND (0.020)		ND (0.020)		ND (0.020)	
4-Nitrophenol	GCMS	ug/g	ND (0.021)		ND (0.021)		ND (0.021)	
Acenaphthene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Acenaphthylene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Anthracene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benz(a)anthracene	GCMS	ug/g	ND (0.012)		ND (0.012)		ND (0.012)	
Benz(a)pyrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g	ND (0.032)		ND (0.032)		ND (0.032)	
Benzo(g,h,i)perylene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g	ND (0.027)		ND (0.027)		ND (0.027)	
Benzoic acid	GCMS	ug/g	ND (0.100)		ND (0.100)		ND (0.099)	
Benzyl alcohol	GCMS	ug/g	ND (0.048)		ND (0.048)		ND (0.048)	
Butylbenzylphthalate	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
Chrysene	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Di-n-butylphthalate	GCMS	ug/g	ND (0.010)		ND (0.010)		ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g	ND (0.023)		ND (0.023)		ND (0.023)	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Dibenzofuran	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	
Diethylphthalate	GCMS	ug/g	ND (0.012)		ND (0.012)		ND (0.012)	
Dimethylphthalate	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g	ND (0.025)		ND (0.025)		ND (0.025)	
Fluoranthene	GCMS	ug/g	ND (0.014)		ND (0.014)		ND (0.014)	
Fluorene	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
Hexachlorobenzene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Hexachlorobutadiene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Hexachlorocyclopentadiene	GCMS	ug/g	ND (0.055)		ND (0.055)		ND (0.054)	
Hexachloroethane	GCMS	ug/g	ND (0.033)		ND (0.033)		ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g	ND (0.016)		ND (0.016)		ND (0.016)	
Isophorone	GCMS	ug/g	ND (0.010)		ND (0.010)		ND (0.010)	
N-Nitroso-di-n-propylamine	GCMS	ug/g	ND (0.026)		ND (0.026)		ND (0.026)	
Naphthalene	GCMS	ug/g	ND (0.022)		ND (0.022)		ND (0.022)	
Nitrobenzene	GCMS	ug/g	ND (0.013)		ND (0.013)		ND (0.013)	
Pentachlorophenol	GCMS	ug/g	ND (0.0064)		ND (0.0064)		ND (0.0064)	
Phenanthrene	GCMS	ug/g	ND (0.018)		ND (0.018)		ND (0.018)	
Phenol	GCMS	ug/g	ND (0.034)		ND (0.034)		ND (0.034)	
Pyrene	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g	ND (0.011)		ND (0.011)		ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g	ND (0.015)		ND (0.015)		ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g	ND (0.019)		ND (0.019)		ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g	0.0573		0.204		0.753	
p-Chloroaniline	GCMS	ug/g	ND (0.033)		ND (0.033)		ND (0.033)	
Arsenic	GFAA	mg/kg	354	B	403	B	388	B
Cadmium	GFAA	mg/kg	1.96	B	1.79	B	1.96	B
Lead	GFAA	mg/kg	63.7		85.7		102	
Selenium	GFAA	mg/kg	5.38		4.41		4.92	
1,2,3,4,6,7,8-HpCDD	HR GCMS	ppt	1.30		1.00		1.80	
1,2,3,4,6,7,8-HpCDF	HR GCMS	ppt	ND (0.50)		ND (1.1)		ND (0.50)	
1,2,3,4,7,8,9-HpCDF	HR GCMS	ppt	ND (0.90)		ND (1.8)		ND (0.80)	
1,2,3,4,7,8-HxCDD	HR GCMS	ppt	ND (0.80)		ND (1.5)		ND (0.70)	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,3,4,7,8-HxCDF	HR GCMS	ppt	ND (0.50)		ND (0.90)		ND (0.40)	
1,2,3,6,7,8-HxCDD	HR GCMS	ppt	ND (0.70)		ND (1.3)		0.500	
1,2,3,6,7,8-HxCDF	HR GCMS	ppt	ND (0.40)		ND (0.70)		ND (0.30)	
1,2,3,7,8,9-HxCDD	HR GCMS	ppt	ND (0.70)		ND (1.4)		ND (0.60)	
1,2,3,7,8,9-HxCDF	HR GCMS	ppt	ND (0.50)		ND (0.90)		ND (0.40)	
1,2,3,7,8-PeCDD	HR GCMS	ppt	ND (0.70)		ND (1.2)		ND (0.60)	
1,2,3,7,8-PeCDF	HR GCMS	ppt	ND (0.30)		ND (0.60)		ND (0.30)	
2,3,4,6,7,8-HxCDF	HR GCMS	ppt	ND (0.40)		ND (0.80)		ND (0.40)	
2,3,4,7,8-PeCDF	HR GCMS	ppt	ND (0.30)		ND (0.60)		ND (0.30)	
2,3,7,8-TCDD	HR GCMS	ppt	ND (0.30)		ND (0.50)		ND (0.30)	
2,3,7,8-TCDF	HR GCMS	ppt	ND (0.20)		ND (0.40)		0.210	
OCDD	HR GCMS	ppt	ND (1.8)		ND (3.5)		1.60	
OCDF	HR GCMS	ppt	ND (1.5)		ND (3.0)		ND (1.4)	
Total HpCDD	HR GCMS	ppt	2.50		2.50		1.80	
Total HpCDF	HR GCMS	ppt	ND (0.70)		ND (1.3)		ND (0.60)	
Total HxCDD	HR GCMS	ppt	5.90		5.00		6.40	
Total HxCDF	HR GCMS	ppt	ND (0.40)		ND (0.80)		ND (0.40)	
Total PeCDD	HR GCMS	ppt	4.40		5.30		4.20	
Total PeCDF	HR GCMS	ppt	ND (0.30)		ND (0.60)		ND (0.30)	
Total TCDD	HR GCMS	ppt	2.80		3.30		3.50	
Total TCDF	HR GCMS	ppt	ND (0.20)		ND (0.40)		0.210	
Aluminum	ICAP	mg/kg	62900	B	55700	B	62600	B
Antimony	ICAP	mg/kg	ND (59)		ND (57)		ND (57)	
Barium	ICAP	mg/kg	231		209		226	
Beryllium	ICAP	mg/kg	9.12		7.36		7.62	
Boron	ICAP	ug/g	97.0				83.0	
Calcium	ICAP	mg/kg	94900	B	83100	B	91200	B
Chromium	ICAP	mg/kg	97.5	B	89.7	B	94.0	B
Cobalt	ICAP	mg/kg	24.4	B	20.2	B	20.3	B
Copper	ICAP	mg/kg	8.59		ND (4.8)		8.52	
Iron	ICAP	mg/kg	27800		26200		28100	
Magnesium	ICAP	mg/kg	47700	B	43100	B	46100	B
Manganese	ICAP	mg/kg	114	B	107	B	113	B

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Molybdenum	ICAP	mg/kg	ND (3.8)		ND (3.7)		ND (3.8)	
Nickel	ICAP	mg/kg	60.3	B	32.6	B	57.3	B
Phosphorus	ICAP	mg/kg	ND (70)		ND (71)		ND (68)	
Potassium	ICAP	mg/kg	15800		14800		15600	
Silver	ICAP	mg/kg	ND (4.4)		ND (4.3)		ND (4.3)	
Sodium	ICAP	mg/kg	2600	B	2630	B	2560	B
Titanium	ICAP	mg/kg	3920	B	3650	B	3700	B
Vanadium	ICAP	mg/kg	123		111		111	
Chloride	SIE	mg/kg	ND (78)		ND (78)		ND (78)	
Fluoride	SIE	mg/kg	143	B	109	B	69.5	B
Carbon	Ultimate	%	0.335				0.340	
Sulfur	Ultimate	%	13.6				13.9	
Actinium-228 @338	gamma	pCi/g	1.20		1.10		1.20	
Actinium-228 @911	gamma	pCi/g	1.10		0.890		0.970	
Actinium-228 @968	gamma	pCi/g	1.10		1.30		0.850	
Bismuth-212 @727	gamma	pCi/g	1.50		1.40		0.940	
Bismuth-214 @1120.4	gamma	pCi/g	1.70		1.60		2.00	
Bismuth-214 @1764.7	gamma	pCi/g	1.60		1.70		1.60	
Bismuth-214 @609.4	gamma	pCi/g	1.90		1.80		1.70	
K-40 @1460	gamma	pCi/g	11.0		11.0		10.0	
Lead-210 @46	gamma	pCi/g	6.40		0.690		7.30	
Lead-212 @238	gamma	pCi/g	1.00		0.970		0.940	
Lead-214 @295.2	gamma	pCi/g	1.90		1.80		1.60	
Lead-214 @352.0	gamma	pCi/g	2.00		1.80		1.80	
Radium-226 @186.0	gamma	pCi/g	3.10		2.50		2.20	
Thallium-208 @583	gamma	pCi/g	0.360		0.310		0.420	
Thallium-208 @860	gamma	pCi/g	0.280		0.220		0.330	
Thorium-234 @63.3	gamma	pCi/g	2.20		0.860		1.60	
Thorium-234 @92.6	gamma	pCi/g	0.550		1.10		0.440	
Uranium-235 @143.8	gamma	pCi/g	0.190		0.150		0.140	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg					ND (0.012)	
1,2,4-Trichlorobenzene	GCMS	ug/g					ND (0.0063)	
1,2-Dichlorobenzene	GCMS	ug/g					ND (0.021)	
1,3-Dichlorobenzene	GCMS	ug/g					ND (0.023)	
1,4-Dichlorobenzene	GCMS	ug/g					ND (0.023)	
2,4,5-Trichlorophenol	GCMS	ug/g					ND (0.019)	
2,4,6-Trichlorophenol	GCMS	ug/g					ND (0.016)	
2,4-Dichlorophenol	GCMS	ug/g					ND (0.019)	
2,4-Dimethylphenol	GCMS	ug/g					ND (0.041)	
2,4-Dinitrophenol	GCMS	ug/g					ND (0.084)	
2,4-Dinitrotoluene	GCMS	ug/g					ND (0.025)	
2,6-Dinitrotoluene	GCMS	ug/g					ND (0.034)	
2-Chloronaphthalene	GCMS	ug/g					ND (0.029)	
2-Chlorophenol	GCMS	ug/g					ND (0.011)	
2-Methylnaphthalene	GCMS	ug/g					ND (0.020)	
2-Methylphenol	GCMS	ug/g					ND (0.026)	
2-Nitroaniline	GCMS	ug/g					ND (0.026)	
2-Nitrophenol	GCMS	ug/g					ND (0.014)	
3,3'-Dichlorobenzidine	GCMS	ug/g					ND (0.035)	
3-Nitroaniline	GCMS	ug/g					ND (0.011)	
4,6-Dinitro-2-methylphenol	GCMS	ug/g					ND (0.024)	
4-Bromophenylphenyl ether	GCMS	ug/g					ND (0.020)	
4-Chloro-3-methylphenol	GCMS	ug/g					ND (0.015)	
4-Chlorophenylphenyl ether	GCMS	ug/g					ND (0.024)	
4-Methylphenol/3-Methylphenol	GCMS	ug/g					ND (0.040)	
4-Nitroaniline	GCMS	ug/g					ND (0.019)	
4-Nitrophenol	GCMS	ug/g					ND (0.021)	
Acenaphthene	GCMS	ug/g					ND (0.016)	
Acenaphthylene	GCMS	ug/g					ND (0.021)	
Anthracene	GCMS	ug/g					ND (0.018)	
Benz(a)anthracene	GCMS	ug/g					ND (0.011)	
Benz(a)pyrene	GCMS	ug/g					ND (0.018)	
Benzo(b)fluoranthene	GCMS	ug/g					ND (0.031)	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzo(g,h,i)perylene	GCMS	ug/g					ND (0.018)	
Benzo(k)fluoranthene	GCMS	ug/g					ND (0.027)	
Benzoic acid	GCMS	ug/g					ND (0.097)	
Benzyl alcohol	GCMS	ug/g					ND (0.047)	
Butylbenzylphthalate	GCMS	ug/g					ND (0.025)	
Chrysene	GCMS	ug/g					ND (0.019)	
Di-n-butylphthalate	GCMS	ug/g					ND (0.010)	
Di-n-octylphthalate	GCMS	ug/g					ND (0.019)	
Dibenz(a,h)anthracene	GCMS	ug/g					ND (0.022)	
Dibenzofuran	GCMS	ug/g					ND (0.013)	
Diethylphthalate	GCMS	ug/g					ND (0.012)	
Dimethylphthalate	GCMS	ug/g					ND (0.015)	
Diphenylamine/N-NitrosoDPA	GCMS	ug/g					ND (0.025)	
Fluoranthene	GCMS	ug/g					ND (0.014)	
Fluorene	GCMS	ug/g					ND (0.011)	
Hexachlorobenzene	GCMS	ug/g					ND (0.017)	
Hexachlorobutadiene	GCMS	ug/g					ND (0.021)	
Hexachlorocyclopentadiene	GCMS	ug/g					ND (0.053)	
Hexachloroethane	GCMS	ug/g					ND (0.033)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/g					ND (0.016)	
Isophorone	GCMS	ug/g					ND (0.0098)	
N-Nitroso-di-n-propylamine	GCMS	ug/g					ND (0.026)	
Naphthalene	GCMS	ug/g					ND (0.022)	
Nitrobenzene	GCMS	ug/g					ND (0.013)	
Pentachlorophenol	GCMS	ug/g					ND (0.0063)	
Phenanthrene	GCMS	ug/g					ND (0.018)	
Phenol	GCMS	ug/g					ND (0.033)	
Pyrene	GCMS	ug/g					ND (0.015)	
bis(2-Chloroethoxy)methane	GCMS	ug/g					ND (0.011)	
bis(2-Chloroethyl)ether	GCMS	ug/g					ND (0.015)	
bis(2-Chloroisopropyl)ether	GCMS	ug/g					ND (0.019)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/g					0.632	
p-Chloroaniline	GCMS	ug/g					ND (0.032)	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	mg/kg					388	B
Cadmium	GFAA	mg/kg					1.92	B
Lead	GFAA	mg/kg					94.7	
Selenium	GFAA	mg/kg					4.67	
1,2,3,4,6,7,8-HpCDD	HR GCMS	ppt					1.40	
1,2,3,4,6,7,8-HpCDF	HR GCMS	ppt					ND (0.40)	
1,2,3,4,7,8,9-HpCDF	HR GCMS	ppt					ND (0.70)	
1,2,3,4,7,8-HxCDD	HR GCMS	ppt					ND (0.70)	
1,2,3,4,7,8-HxCDF	HR GCMS	ppt					ND (0.40)	
1,2,3,6,7,8-HxCDD	HR GCMS	ppt					ND (0.60)	
1,2,3,6,7,8-HxCDF	HR GCMS	ppt					ND (0.30)	
1,2,3,7,8,9-HxCDD	HR GCMS	ppt					ND (0.60)	
1,2,3,7,8,9-HxCDF	HR GCMS	ppt					ND (0.40)	
1,2,3,7,8-PeCDD	HR GCMS	ppt					ND (0.50)	
1,2,3,7,8-PeCDF	HR GCMS	ppt					ND (0.30)	
2,3,4,6,7,8-HxCDF	HR GCMS	ppt					0.350	
2,3,4,7,8-PeCDF	HR GCMS	ppt					ND (0.30)	
2,3,7,8-TCDD	HR GCMS	ppt					ND (0.30)	
2,3,7,8-TCDF	HR GCMS	ppt					ND (0.30)	
OCDD	HR GCMS	ppt					2.20	
OCDF	HR GCMS	ppt					ND (1.4)	
Total HpCDD	HR GCMS	ppt					2.90	
Total HpCDF	HR GCMS	ppt					ND (0.60)	
Total HxCDD	HR GCMS	ppt					8.00	
Total HxCDF	HR GCMS	ppt					0.340	
Total PeCDD	HR GCMS	ppt					6.00	
Total PeCDF	HR GCMS	ppt					ND (0.30)	
Total TCDD	HR GCMS	ppt					3.60	
Total TCDF	HR GCMS	ppt					ND (0.30)	
Aluminum	ICAP	mg/kg					61300	B
Antimony	ICAP	mg/kg					ND (52)	
Barium	ICAP	mg/kg					215	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Beryllium	ICAP	mg/kg					7.51	
Boron	ICAP	ug/g			100		90.0	
Calcium	ICAP	mg/kg					89200	B
Chromium	ICAP	mg/kg					93.4	B
Cobalt	ICAP	mg/kg					15.4	B
Copper	ICAP	mg/kg					7.90	
Iron	ICAP	mg/kg					28300	
Magnesium	ICAP	mg/kg					45300	B
Manganese	ICAP	mg/kg					107	B
Molybdenum	ICAP	mg/kg					ND (3.4)	
Nickel	ICAP	mg/kg					28.7	B
Phosphorus	ICAP	mg/kg					ND (67)	
Potassium	ICAP	mg/kg					14400	
Silver	ICAP	mg/kg					ND (3.9)	
Sodium	ICAP	mg/kg					2500	B
Titanium	ICAP	mg/kg					3560	B
Vanadium	ICAP	mg/kg					106	
Chloride	SIE	mg/kg					277	
Fluoride	SIE	mg/kg					94.9	B
Carbon	Ultimate	%			0.320		0.340	
Sulfur	Ultimate	%			12.6		13.7	
Actinium-228 @338	gamma	pCi/g					1.00	
Actinium-228 @911	gamma	pCi/g					0.970	
Actinium-228 @968	gamma	pCi/g					0.760	
Bismuth-212 @727	gamma	pCi/g					1.50	
Bismuth-214 @1120.4	gamma	pCi/g					1.60	
Bismuth-214 @1764.7	gamma	pCi/g					1.50	
Bismuth-214 @609.4	gamma	pCi/g					1.70	
K-40 @1460	gamma	pCi/g					10.0	
Lead-210 @46	gamma	pCi/g					6.30	
Lead-212 @238	gamma	pCi/g					1.00	
Lead-214 @295.2	gamma	pCi/g					1.50	

Analytical Data Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Lead-214 @352.0	gamma	pCi/g					1.80	
Radium-226 @186.0	gamma	pCi/g					2.40	
Thallium-208 @583	gamma	pCi/g					0.330	
Thallium-208 @860	gamma	pCi/g					0.380	
Thorium-234 @63.3	gamma	pCi/g					1.20	
Thorium-234 @92.6	gamma	pCi/g					1.30	
Uranium-235 @143.8	gamma	pCi/g					0.150	

Stream: ESP Inle **Collection Method:** Ammonia/Cyanide **Sample Type:** Ammonia Impinger

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Ammonia - Distilled	distil	ug/Nm3	164	B	94.7	B	119	B

Stream: ESP Inle **Collection Method:** Ammonia/Cyanide **Sample Type:** Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Cyanide	tot CN	ug/Nm3	870		614		392	

Stream: ESP Inlet **Collection Method:** Anions Train **Sample Type:** Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chloride	IC	ug/Nm3	68300		67300		73600	
Sulfate	IC	ug/Nm3	795000		756000		784000	
Fluoride	SIE	ug/Nm3	7000	B	6340	B	6360	B

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** Anions/Ammonia/Cyanide/Aldehydes **Sample Type:** M5 Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chloride	IC	ug/Nm3	1560		1790		861	
Chloride	IC	ug/g	852		1020		481	
Sulfate	IC	ug/Nm3	9440000		9150000		9260000	
Sulfate	IC	ug/g	5160000		5210000		5180000	
Fluoride	SIE	ug/Nm3	4100	C	3170	C	2330	C
Fluoride	SIE	ug/g	2240	C	1800	C	1300	C

Stream: ESP Inlet **Collection Method:** M0011a **Sample Type:** Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Formaldehyde	HPLC	ug/Nm3	8.74		4.48		3.03	

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (2.9)		ND (2.4)		ND (2.7)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (2.8)		ND (2.3)		ND (2.5)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (2.7)		ND (2.2)		ND (2.4)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (2.6)		ND (2.1)		ND (2.3)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (4.4)		ND (3.7)		ND (4.0)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (4.7)		ND (4.0)		ND (4.3)	
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (3.4)		ND (2.9)		ND (3.1)	
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (3.9)		ND (3.2)		ND (3.5)	
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (13)		ND (11)		ND (12)	
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (4.3)		ND (3.6)		ND (3.9)	
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (6.1)		ND (5.2)		ND (5.6)	
2-Chloronaphthalene	GCMS	ug/Nm3	ND (1.8)		ND (1.5)		ND (1.6)	
2-Chlorophenol	GCMS	ug/Nm3	ND (2.9)		ND (2.4)		ND (2.6)	
2-Methylnaphthalene	GCMS	ug/Nm3	ND (1.7)		ND (1.4)		ND (1.5)	
2-Methylphenol	GCMS	ug/Nm3	ND (3.5)		ND (2.9)		ND (3.2)	

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2-Nitroaniline	GCMS	ug/Nm3	ND (6.2)		ND (5.2)		ND (5.6)	
2-Nitrophenol	GCMS	ug/Nm3	ND (5.3)		ND (4.4)		ND (4.8)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (2.9)		ND (2.5)		ND (2.8)	
3-Nitroaniline	GCMS	ug/Nm3	ND (5.4)		ND (4.6)		ND (4.9)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (8.2)		ND (7.0)		ND (7.3)	
4-Aminobiphenyl	GCMS	ug/Nm3	ND (1.8)		ND (1.5)		ND (1.6)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (3.8)		ND (3.2)		ND (3.5)	
4-Nitroaniline	GCMS	ug/Nm3	ND (5.1)		ND (4.3)		ND (4.6)	
4-Nitrophenol	GCMS	ug/Nm3	ND (12)		ND (10)		ND (11)	
Acenaphthene	GCMS	ug/Nm3	ND (2.0)		ND (1.7)		ND (1.8)	
Acenaphthylene	GCMS	ug/Nm3	ND (1.1)		ND (0.94)		ND (1.0)	
Acetophenone	GCMS	ug/Nm3	ND (2.9)		ND (2.3)		ND (2.6)	
Aniline	GCMS	ug/Nm3	ND (2.3)		ND (1.9)		ND (2.1)	
Anthracene	GCMS	ug/Nm3	ND (1.2)		ND (1.0)		ND (1.1)	
Benzidine	GCMS	ug/Nm3	ND (2.0)		ND (1.7)		ND (1.9)	
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (0.79)		ND (0.64)		ND (0.74)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (0.77)		ND (0.62)		ND (0.72)	
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (0.85)		ND (0.69)		ND (0.79)	
Benzoic acid	GCMS	ug/Nm3	ND (11)		ND (9.0)		ND (9.8)	
Benzyl alcohol	GCMS	ug/Nm3	ND (5.4)		ND (4.3)		ND (4.8)	
Butylbenzylphthalate	GCMS	ug/Nm3	ND (1.4)		ND (1.2)		ND (1.3)	
Chrysene	GCMS	ug/Nm3	ND (0.81)		ND (0.70)		ND (0.78)	
Di-n-octylphthalate	GCMS	ug/Nm3	ND (0.69)		ND (0.56)		ND (0.64)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (0.92)		ND (0.75)		ND (0.86)	
Dibenzofuran	GCMS	ug/Nm3	ND (1.3)		ND (1.1)		ND (1.1)	
Diethylphthalate	GCMS	ug/Nm3	ND (1.5)		ND (1.2)		ND (1.3)	
Dimethylphthalate	GCMS	ug/Nm3	ND (1.6)		ND (1.4)		ND (1.5)	
Fluoranthene	GCMS	ug/Nm3	ND (0.94)		ND (0.80)		ND (0.83)	
Fluorene	GCMS	ug/Nm3	ND (1.6)		ND (1.4)		ND (1.5)	
Hexachlorobenzene	GCMS	ug/Nm3	ND (3.8)		ND (3.3)		ND (3.4)	
Hexachlorobutadiene	GCMS	ug/Nm3	ND (4.9)		ND (4.1)		ND (4.4)	
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (6.5)		ND (5.5)		ND (5.9)	
Hexachloroethane	GCMS	ug/Nm3	ND (5.3)		ND (4.3)		ND (4.8)	

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (0.69)		ND (0.56)		ND (0.64)	
Isophorone	GCMS	ug/Nm3	ND (1.7)		ND (1.5)		ND (1.6)	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (5.3)		ND (4.3)		ND (4.8)	
Naphthalene	GCMS	ug/Nm3	5.34	J	ND (0.92)		ND (1.0)	
Nitrobenzene	GCMS	ug/Nm3	ND (3.0)		ND (2.5)		ND (2.7)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (17)		ND (15)		ND (15)	
Pentachlorophenol	GCMS	ug/Nm3	ND (8.7)		ND (7.4)		ND (7.7)	
Phenanthrene	GCMS	ug/Nm3	ND (1.2)		ND (1.0)		ND (1.0)	
Phenol	GCMS	ug/Nm3	ND (2.4)		ND (2.0)		ND (2.2)	
Pyrene	GCMS	ug/Nm3	ND (0.69)		ND (0.60)		ND (0.67)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (2.6)		ND (2.2)		ND (2.4)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (3.2)		ND (2.6)		ND (2.8)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	8.54	B	4.68	BJ	5.46	BJ

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Di-n-butylphthalate	GCMS	ug/Nm3	108	B				

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (0.90)		ND (0.98)		ND (1.0)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.78)		ND (0.86)		ND (0.91)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.73)		ND (0.81)		ND (0.85)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.72)		ND (0.79)		ND (0.83)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (1.1)		ND (1.1)		ND (1.3)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (1.2)		ND (1.2)		ND (1.4)	
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (0.49)		ND (0.53)		ND (0.56)	
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (0.83)		ND (0.90)		ND (0.95)	
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (2.7)		ND (2.8)		ND (3.2)	

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (1.0)		ND (1.1)		ND (1.2)	
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (1.5)		ND (1.6)		ND (1.8)	
2-Chloronaphthalene	GCMS	ug/Nm3	ND (0.45)		ND (0.48)		ND (0.55)	
2-Chlorophenol	GCMS	ug/Nm3	ND (0.79)		ND (0.87)		ND (0.92)	
2-Methylnaphthalene	GCMS	ug/Nm3	ND (0.47)		ND (0.50)		ND (0.54)	
2-Methylphenol	GCMS	ug/Nm3	ND (0.90)		ND (1.0)		ND (1.0)	
2-Nitroaniline	GCMS	ug/Nm3	ND (1.1)		ND (1.2)		ND (1.4)	
2-Nitrophenol	GCMS	ug/Nm3	ND (1.3)		ND (1.4)		ND (1.4)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (1.3)		ND (1.3)		ND (1.5)	
3-Nitroaniline	GCMS	ug/Nm3	ND (1.3)		ND (1.3)		ND (1.5)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (1.8)		ND (1.8)		ND (2.0)	
4-Aminobiphenyl	GCMS	ug/Nm3	ND (0.45)		ND (0.45)		ND (0.48)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (0.87)		ND (0.95)		ND (1.0)	
4-Nitroaniline	GCMS	ug/Nm3	ND (1.1)		ND (1.2)		ND (1.4)	
4-Nitrophenol	GCMS	ug/Nm3	ND (1.7)		0.469	J	ND (2.0)	
Acenaphthene	GCMS	ug/Nm3	ND (0.47)		ND (0.50)		ND (0.57)	
Acenaphthylene	GCMS	ug/Nm3	ND (0.27)		ND (0.28)		ND (0.32)	
Acetophenone	GCMS	ug/Nm3	4.13	J	4.67	J	2.46	J
Aniline	GCMS	ug/Nm3	ND (0.99)		ND (1.1)		ND (1.1)	
Anthracene	GCMS	ug/Nm3	ND (0.27)		ND (0.27)		ND (0.29)	
Benzidine	GCMS	ug/Nm3	ND (0.74)		ND (0.79)		ND (0.86)	
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (0.51)		ND (0.53)		ND (1.2)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (0.56)		ND (0.58)		ND (1.3)	
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (0.54)		ND (0.56)		ND (1.3)	
Benzyl alcohol	GCMS	ug/Nm3	ND (1.4)		ND (1.6)		ND (1.7)	
Butylbenzylphthalate	GCMS	ug/Nm3	0.696	J	ND (0.44)		ND (0.48)	
Chrysene	GCMS	ug/Nm3	ND (0.37)		ND (0.39)		ND (0.42)	
Di-n-butylphthalate	GCMS	ug/Nm3	10.8		1.95	J	28.9	
Di-n-octylphthalate	GCMS	ug/Nm3	ND (0.30)		0.185	J	ND (0.70)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (0.63)		ND (0.65)		ND (1.5)	
Dibenzofuran	GCMS	ug/Nm3	ND (0.30)		ND (0.32)		ND (0.36)	
Diethylphthalate	GCMS	ug/Nm3	0.770	J	0.966	J	ND (0.35)	
Dimethylphthalate	GCMS	ug/Nm3	ND (0.37)		ND (0.39)		ND (0.44)	

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Fluoranthene	GCMS	ug/Nm3	ND (0.26)		ND (0.26)		ND (0.28)	
Fluorene	GCMS	ug/Nm3	ND (0.37)		ND (0.39)		ND (0.44)	
Hexachlorobenzene	GCMS	ug/Nm3	33.8		ND (1.3)		ND (1.4)	
Hexachlorobutadiene	GCMS	ug/Nm3	ND (1.5)		ND (1.6)		ND (1.7)	
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (1.3)		ND (1.4)		ND (1.6)	
Hexachloroethane	GCMS	ug/Nm3	ND (1.5)		ND (1.7)		ND (1.7)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (0.49)		ND (0.50)		ND (1.1)	
Isophorone	GCMS	ug/Nm3	ND (0.39)		6.82	J	11.2	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (1.1)		ND (1.3)		ND (1.3)	
Naphthalene	GCMS	ug/Nm3	0.668	BJ	0.729	BJ	ND (0.34)	
Nitrobenzene	GCMS	ug/Nm3	ND (0.68)		ND (0.73)		ND (0.78)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.9)	
Pentachlorophenol	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.9)	
Phenanthrene	GCMS	ug/Nm3	ND (0.27)		ND (0.27)		ND (0.29)	
Phenol	GCMS	ug/Nm3	2.80	J	3.00	J	1.66	J
Pyrene	GCMS	ug/Nm3	ND (0.23)		ND (0.24)		ND (0.26)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (0.72)		ND (0.78)		ND (0.82)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (0.92)		ND (1.0)		ND (1.1)	

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:10 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzoic acid	GCMS	ug/Nm3	89.3	J				
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	467					

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzoic acid	GCMS	ug/Nm3					122	

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:4 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzoic acid	GCMS	ug/Nm3			216			

Stream: ESP Inlet **Collection Method:** Multimetals Train **Sample Type:** Mercury Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	3.40		2.06		1.75	

Stream: ESP Inle **Collection Method:** Multimetals Trai **Sample Type:** Nitric Acid Impingers + TL

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	11.8		14.3		13.3	
Aluminum	ICAP	ug/Nm3	36.5	BC	43.3	BC	65.6	BC
Barium	ICAP	ug/Nm3	0.459	BC	0.728	BC	0.836	BC
Boron	ICAP	ug/Nm3	197	BC	206	BC	186	BC
Calcium	ICAP	ug/Nm3	182	BC	259	BC	366	BC
Iron	ICAP	ug/Nm3	30.6	BC	30.1	BC	178	BC
Magnesium	ICAP	ug/Nm3	26.3	C	27.5	C	58.0	C
Phosphorus	ICAP	ug/Nm3	ND (19)		ND (19)		ND (17)	
Potassium	ICAP	ug/Nm3	ND (250)	BC	ND (250)	BC	ND (230)	BC
Silver	ICAP	ug/Nm3	ND (1.6)	B	ND (1.6)	B	ND (1.4)	B
Sodium	ICAP	ug/Nm3	207	BC	294	BC	250	BC
Titanium	ICAP	ug/Nm3	1.23		1.56		2.97	
Antimony	ICPMS	ug/Nm3	0.0163	C	0.0162	C	0.0169	C
Arsenic	ICPMS	ug/Nm3	0.389	C	0.255	C	0.361	C
Barium	ICPMS	ug/Nm3	ND (0.0053)	C	ND (0.0053)	C	ND (0.0048)	C
Beryllium	ICPMS	ug/Nm3	ND (0.0048)	C	ND (0.0048)	C	0.0262	C
Cadmium	ICPMS	ug/Nm3	1.08	C	0.226	C	0.154	C
Chromium	ICPMS	ug/Nm3	3.78	C	0.770	C	26.2	C
Cobalt	ICPMS	ug/Nm3	0.0186	C	0.0185	C	1.13	C

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Copper	ICPMS	ug/Nm3	0.630	C	0.232	C	2.38	C
Lead	ICPMS	ug/Nm3	ND (0.0051)	C	ND (0.0050)	C	ND (0.0046)	C
Manganese	ICPMS	ug/Nm3	1.16	C	1.18	C	3.32	C
Molybdenum	ICPMS	ug/Nm3	0.143	C	ND (0.0078)	C	3.32	C
Nickel	ICPMS	ug/Nm3	0.154	C	0.204	C	29.3	C
Selenium	ICPMS	ug/Nm3	20.2		13.9		17.5	
Vanadium	ICPMS	ug/Nm3	1.46	C	0.837	C	0.940	C

Stream: ESP Inlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resin

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1234678-HpCDD	Meth 23X	ug/Nm3	0.00000641	B	0.00000638	B	0.00000345	BF
1234678-HpCDF	Meth 23X	ug/Nm3	0.00000200		0.000000490	F	0.00000179	F
123478-HxCDD	Meth 23X	ug/Nm3	ND (0.0000044)		ND (0.0000041)		ND (0.0000027)	
123478-HxCDF	Meth 23X	ug/Nm3	0.00000200	B	0.00000686	BF	0.00000116	BF
1234789-HpCDF	Meth 23X	ug/Nm3	ND (0.0000041)		ND (0.0000045)		ND (0.0000043)	
123678-HxCDD	Meth 23X	ug/Nm3	ND (0.0000037)		ND (0.0000034)		ND (0.0000020)	
123678-HxCDF	Meth 23X	ug/Nm3	ND (0.0000020)		0.00000220		ND (0.0000017)	
12378-PeCDD	Meth 23X	ug/Nm3	ND (0.0000027)		ND (0.0000026)		ND (0.0000013)	
12378-PeCDF	Meth 23X	ug/Nm3	ND (0.0000017)		0.00000116	F	ND (0.00000099)	
123789-HxCDD	Meth 23X	ug/Nm3	ND (0.0000041)		ND (0.0000037)		ND (0.0000023)	
123789-HxCDF	Meth 23X	ug/Nm3	ND (0.0000031)		ND (0.0000030)		ND (0.0000023)	
234678-HxCDF	Meth 23X	ug/Nm3	0.00000295	B	0.00000440	BF	0.00000394	BF
23478-PeCDF	Meth 23X	ug/Nm3	ND (0.0000017)		ND (0.0000015)		ND (0.00000099)	
2378-TCDD	Meth 23X	ug/Nm3	ND (0.0000015)		ND (0.0000017)		ND (0.0000013)	
2378-TCDF	Meth 23X	ug/Nm3	ND (0.0000015)		ND (0.0000017)		0.000000810	F
OCDD	Meth 23X	ug/Nm3	0.0000425	B	0.0000565	B	0.0000340	B
OCDF	Meth 23X	ug/Nm3	0.00000519		0.00000836		ND (0.0000043)	
TOTAL HpCDD	Meth 23X	ug/Nm3	0.0000105		0.00000638		0.00000365	
TOTAL HpCDF	Meth 23X	ug/Nm3	0.00000258		0.00000291	F	0.00000441	F
TOTAL HxCDD	Meth 23X	ug/Nm3	0.00000237	F	0.00000201	F	0.00000235	
TOTAL HxCDF	Meth 23X	ug/Nm3	0.00000634		0.00000720		0.00000507	F

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resin

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
TOTAL PeCDD	Meth 23X	ug/Nm3	0.00000217		ND (0.0000026)		0.00000199	F
TOTAL PeCDF	Meth 23X	ug/Nm3	0.00000217		0.00000537		0.00000103	F
TOTAL TCDD	Meth 23X	ug/Nm3	0.00000509	F	ND (0.0000017)		0.00000159	
TOTAL TCDF	Meth 23X	ug/Nm3	ND (0.0000015)		ND (0.0000017)		0.000000810	F

Stream: ESP Inlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,1-Dichloroethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,1-Dichloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,2-Dichloroethane	GCMS	ug/Nm3	2.76		ND (0.53)		ND (0.56)	
1,2-Dichloropropane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
2-Butanone	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.8)	
2-Hexanone	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.8)	
4-Methyl-2-Pentanone	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.8)	
Acetone	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.8)	
Benzene	GCMS	ug/Nm3	5.84		13.4		6.70	
Bromodichloromethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Bromoform	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Bromomethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Carbon Disulfide	GCMS	ug/Nm3	0.584		1.23		1.23	
Carbon Tetrachloride	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Chlorobenzene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Chloroethane	GCMS	ug/Nm3	0.903	G	ND (0.53)		ND (0.56)	
Chloroform	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Chloromethane	GCMS	ug/Nm3	2.12		2.46		1.95	

Analytical Data Used In Calculations

Stream: ESP Inlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Dibromochloromethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Ethyl Benzene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Methylene Chloride	GCMS	ug/Nm3	0.531		2.24		2.57	
Styrene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Tetrachloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Toluene	GCMS	ug/Nm3	ND (0.53)		1.60		1.23	
Trichloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Trichlorofluoromethane	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
Vinyl Acetate	GCMS	ug/Nm3	ND (2.7)		ND (2.7)		ND (2.8)	
Vinyl Chloride	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
cis-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
m,p-Xylene	GCMS	ug/Nm3	ND (0.53)		0.748		ND (0.56)	
o-Xylene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
trans-1,2-Dichloroethene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	
trans-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.53)		ND (0.53)		ND (0.56)	

Stream: ESP Inlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal B

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,1-Dichloroethane	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,1-Dichloroethene	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,2-Dichloroethane	GCMS	ug/Nm3	1.19				ND (0.55)	
1,2-Dichloropropane	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (1.1)				ND (0.55)	
2-Butanone	GCMS	ug/Nm3	ND (5.4)				ND (2.8)	
2-Hexanone	GCMS	ug/Nm3	ND (5.4)				ND (2.8)	
4-Methyl-2-Pentanone	GCMS	ug/Nm3	ND (5.4)				ND (2.8)	

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (3.4)		ND (3.4)		ND (6.0)	
Hexachloroethane	GCMS	ug/Nm3	ND (3.1)		ND (3.2)		ND (4.3)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (0.36)		ND (0.39)		ND (0.84)	
Isophorone	GCMS	ug/Nm3	ND (1.0)		ND (1.0)		ND (1.4)	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (2.8)		ND (2.9)		ND (4.0)	
Naphthalene	GCMS	ug/Nm3	ND (0.65)		ND (0.67)		ND (0.94)	
Nitrobenzene	GCMS	ug/Nm3	ND (1.7)		ND (1.8)		ND (2.4)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (8.1)		ND (8.6)		ND (13)	
Pentachlorophenol	GCMS	ug/Nm3	ND (5.3)		ND (5.7)		ND (7.9)	
Phenanthrene	GCMS	ug/Nm3	ND (0.63)		ND (0.67)		ND (0.96)	
Phenol	GCMS	ug/Nm3	ND (1.3)		ND (1.4)		ND (2.0)	
Pyrene	GCMS	ug/Nm3	ND (0.41)		ND (0.44)		ND (0.66)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (1.5)		ND (1.6)		ND (2.2)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (1.8)		ND (1.8)		ND (2.6)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	1.45	BJ	ND (0.61)		0.638	BJ

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (0.89)		ND (0.92)		ND (1.1)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.77)		ND (0.81)		ND (0.87)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.72)		ND (0.76)		ND (0.81)	
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.71)		ND (0.75)		ND (0.80)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (1.4)		ND (1.1)		ND (5.4)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (1.6)		ND (1.2)		ND (5.8)	
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (0.49)		ND (0.50)		ND (0.61)	
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (0.82)		ND (0.84)		ND (1.0)	
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (3.6)		ND (2.7)		ND (13)	
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (1.4)		ND (1.0)		ND (5.0)	
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (2.0)		ND (1.5)		ND (7.3)	
2-Chloronaphthalene	GCMS	ug/Nm3	ND (0.60)		ND (0.46)		ND (2.2)	
2-Chlorophenol	GCMS	ug/Nm3	ND (0.78)		ND (0.82)		ND (0.88)	

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2-Methylnaphthalene	GCMS	ug/Nm3	ND (0.46)		ND (0.48)		ND (0.58)	
2-Methylphenol	GCMS	ug/Nm3	ND (0.89)		ND (0.94)		ND (1.0)	
2-Nitroaniline	GCMS	ug/Nm3	ND (1.5)		ND (1.2)		ND (5.6)	
2-Nitrophenol	GCMS	ug/Nm3	ND (1.2)		ND (1.3)		ND (1.6)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (1.9)		ND (1.3)		ND (8.8)	
3-Nitroaniline	GCMS	ug/Nm3	ND (1.7)		ND (1.3)		ND (6.2)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (1.8)		ND (1.8)		ND (4.0)	
4-Aminobiphenyl	GCMS	ug/Nm3	ND (0.43)		ND (0.44)		ND (0.99)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (0.86)		ND (0.89)		ND (1.1)	
4-Nitroaniline	GCMS	ug/Nm3	ND (1.5)		ND (1.1)		ND (5.6)	
4-Nitrophenol	GCMS	ug/Nm3	ND (2.2)		ND (1.7)		ND (8.2)	
Acenaphthene	GCMS	ug/Nm3	ND (0.63)		ND (0.48)		ND (2.3)	
Acenaphthylene	GCMS	ug/Nm3	ND (0.36)		ND (0.27)		ND (1.3)	
Acetophenone	GCMS	ug/Nm3	2.97	J	2.71	J	3.77	J
Aniline	GCMS	ug/Nm3	ND (0.98)		ND (1.0)		ND (1.1)	
Anthracene	GCMS	ug/Nm3	ND (0.26)		ND (0.26)		ND (0.59)	
Benzidine	GCMS	ug/Nm3	ND (1.1)		ND (0.74)		ND (5.2)	
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (6.6)		ND (0.55)		ND (0.37)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (7.2)		ND (0.60)		ND (0.40)	
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (7.0)		ND (0.58)		ND (0.39)	
Benzyl alcohol	GCMS	ug/Nm3	ND (1.4)		ND (1.5)		ND (1.6)	
Butylbenzylphthalate	GCMS	ug/Nm3	ND (0.63)		ND (0.42)		ND (2.9)	
Chrysene	GCMS	ug/Nm3	ND (0.56)		ND (0.37)		ND (2.6)	
Di-n-butylphthalate	GCMS	ug/Nm3	19.1		6.29		13.7	
Di-n-octylphthalate	GCMS	ug/Nm3	ND (3.9)		ND (0.32)		ND (0.22)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (8.2)		ND (0.68)		ND (0.45)	
Dibenzofuran	GCMS	ug/Nm3	0.0789	J	ND (0.30)		ND (1.5)	
Diethylphthalate	GCMS	ug/Nm3	3.26	J	ND (0.30)		ND (1.4)	
Dimethylphthalate	GCMS	ug/Nm3	ND (0.49)		ND (0.37)		ND (1.8)	
Fluoranthene	GCMS	ug/Nm3	ND (0.25)		ND (0.26)		ND (0.58)	
Fluorene	GCMS	ug/Nm3	ND (0.49)		ND (0.37)		ND (1.8)	
Hexachlorobenzene	GCMS	ug/Nm3	ND (1.2)		ND (1.2)		ND (2.8)	
Hexachlorobutadiene	GCMS	ug/Nm3	ND (1.5)		ND (1.5)		ND (1.9)	

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (1.7)		ND (1.3)		ND (6.4)	
Hexachloroethane	GCMS	ug/Nm3	ND (1.5)		ND (1.6)		ND (1.7)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (6.3)		ND (0.52)		ND (0.35)	
Isophorone	GCMS	ug/Nm3	20.2		ND (0.39)		31.4	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (1.1)		ND (1.2)		ND (1.3)	
Naphthalene	GCMS	ug/Nm3	0.777	BJ	0.441	BJ	0.916	BJ
Nitrobenzene	GCMS	ug/Nm3	ND (0.67)		ND (0.69)		ND (0.84)	
Pentachloronitrobenzene	GCMS	ug/Nm3	ND (2.6)		ND (2.6)		ND (5.9)	
Pentachlorophenol	GCMS	ug/Nm3	ND (2.6)		ND (2.6)		ND (5.9)	
Phenanthrene	GCMS	ug/Nm3	ND (0.26)		ND (0.26)		ND (0.60)	
Phenol	GCMS	ug/Nm3	1.22	J	1.25	J	ND (0.74)	
Pyrene	GCMS	ug/Nm3	ND (0.34)		ND (0.23)		ND (1.6)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (0.71)		ND (0.73)		ND (0.89)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (0.91)		ND (0.96)		ND (1.0)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	22.2		1.63	J	14.2	

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzoic acid	GCMS	ug/Nm3	111		146			

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:4 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzoic acid	GCMS	ug/Nm3					135	

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** Multimetals Train **Sample Type:** Acetone PNR/Nitric PNR/M5 Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	0.00416	C	0.00446	C	ND (0.0082)	C
Mercury	CVAA	ug/g	0.0675	C	0.540	C	ND (0.15)	C
Arsenic	GFAA	ug/Nm3	0.776	C	1.05	C	0.629	C
Arsenic	GFAA	ug/g	12.6	C	128	C	11.6	C
Cadmium	GFAA	ug/Nm3	0.669	C	0.274	C	0.381	C
Cadmium	GFAA	ug/g	10.9	C	33.2	C	6.99	C
Lead	GFAA	ug/Nm3	1.40	C	ND (0.027)	C	ND (0.13)	
Lead	GFAA	ug/g	22.8	C	ND (3.3)	C	ND (2.4)	
Selenium	GFAA	ug/Nm3	18.6	C	19.2	C	18.8	C
Selenium	GFAA	ug/g	302	C	2330	C	344	C
Aluminum	ICAP	ug/Nm3	138	C	55.8	C	29.4	C
Aluminum	ICAP	ug/g	2250	C	6760	C	539	C
Antimony	ICAP	ug/Nm3	ND (2.0)		ND (2.1)		ND (2.0)	
Antimony	ICAP	ug/g	ND (33)		ND (250)		ND (37)	
Barium	ICAP	ug/Nm3	1.92	C	0.193	C	0.110	C
Barium	ICAP	ug/g	31.2	C	23.4	C	2.01	C
Beryllium	ICAP	ug/Nm3	ND (0.011)		ND (0.012)		ND (0.011)	
Beryllium	ICAP	ug/g	ND (0.18)		ND (1.4)		ND (0.21)	
Calcium	ICAP	ug/Nm3	274	C	227	C	152	C
Calcium	ICAP	ug/g	4460	C	27500	C	2800	C
Chromium	ICAP	ug/Nm3	1.70	C	1.79	C	0.756	C
Chromium	ICAP	ug/g	27.6	C	217	C	13.9	C
Cobalt	ICAP	ug/Nm3	ND (0.19)	C	ND (0.19)	C	ND (0.18)	C
Cobalt	ICAP	ug/g	ND (3.0)	C	ND (23)	C	ND (3.4)	C
Copper	ICAP	ug/Nm3	1.64		2.29		0.709	
Copper	ICAP	ug/g	26.7		277		13.0	
Iron	ICAP	ug/Nm3	221	C	705	C	91.8	C
Iron	ICAP	ug/g	3590	C	85400	C	1680	C
Magnesium	ICAP	ug/Nm3	110	C	93.7	C	61.2	C
Magnesium	ICAP	ug/g	1790	C	11300	C	1120	C
Manganese	ICAP	ug/Nm3	2.37	C	7.44	C	1.02	C
Manganese	ICAP	ug/g	38.5	C	901	C	18.8	C

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** Multimetals Train **Sample Type:** Acetone PNR/Nitric PNR/M5 Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Molybdenum	ICAP	ug/Nm3	0.317	C	ND (0.13)	C	0.371	C
Molybdenum	ICAP	ug/g	5.16	C	ND (16)	C	6.80	C
Nickel	ICAP	ug/Nm3	0.980	C	8.85	C	1.35	C
Nickel	ICAP	ug/g	15.9	C	1070	C	24.8	C
Phosphorus	ICAP	ug/Nm3	3.35	C	3.77	C	3.13	C
Phosphorus	ICAP	ug/g	54.4	C	457	C	57.4	C
Potassium	ICAP	ug/Nm3	38.7	C	24.0	C	18.4	C
Potassium	ICAP	ug/g	629	C	2900	C	338	C
Silver	ICAP	ug/Nm3	ND (0.15)	C	1.05	C	ND (0.15)	C
Silver	ICAP	ug/g	ND (2.5)	C	127	C	ND (2.8)	C
Sodium	ICAP	ug/Nm3	77.3	C	47.9	C	35.7	C
Sodium	ICAP	ug/g	1250	C	5800	C	656	C
Titanium	ICAP	ug/Nm3	16.3	C	5.86	C	3.98	C
Titanium	ICAP	ug/g	264	C	710	C	73.0	C
Vanadium	ICAP	ug/Nm3	0.238	C	0.184	C	0.141	C
Vanadium	ICAP	ug/g	3.87	C	22.2	C	2.60	C

Stream: ESP Outlet **Collection Method:** Multimetals Train **Sample Type:** Mercury Impingers

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	1.79				1.86	

Stream: ESP Outlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	ug/Nm3	13.1		13.9		12.4	
Aluminum	ICAP	ug/Nm3	38.1	BC	42.2	BC	52.6	BC
Barium	ICAP	ug/Nm3	0.504	BC	0.533	BC	0.848	BC
Boron	ICAP	ug/Nm3	173	BC	163	BC	159	BC
Calcium	ICAP	ug/Nm3	213	BC	256	BC	342	BC

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Iron	ICAP	ug/Nm3	41.7	BC	47.7	BC	61.0	BC
Magnesium	ICAP	ug/Nm3	24.6	C	15.9	C	29.9	C
Phosphorus	ICAP	ug/Nm3	ND (16)		ND (19)		ND (15)	
Potassium	ICAP	ug/Nm3	ND (210)	BC	ND (250)	BC	ND (210)	BC
Silver	ICAP	ug/Nm3	ND (1.3)	B	ND (1.6)	B	ND (1.3)	B
Sodium	ICAP	ug/Nm3	287	BC	308	BC	338	BC
Titanium	ICAP	ug/Nm3	1.23		1.60		1.84	
Antimony	ICPMS	ug/Nm3	0.0131	C	0.0165	C	0.0233	C
Arsenic	ICPMS	ug/Nm3	0.162	C	0.240	C	0.264	C
Barium	ICPMS	ug/Nm3	ND (0.0044)	C	ND (0.0053)	C	ND (0.0044)	C
Beryllium	ICPMS	ug/Nm3	ND (0.0040)	C	ND (0.0048)	C	0.0485	C
Cadmium	ICPMS	ug/Nm3	ND (0.0053)	C	0.551	C	3.51	C
Chromium	ICPMS	ug/Nm3	1.35	C	0.887	C	4.67	C
Cobalt	ICPMS	ug/Nm3	0.0210	C	0.0477	C	0.0654	C
Copper	ICPMS	ug/Nm3	0.456	C	2.18	C	4.90	C
Lead	ICPMS	ug/Nm3	ND (0.0042)	C	0.427	C	0.527	C
Manganese	ICPMS	ug/Nm3	ND (0.0059)	C	1.03	C	8.69	C
Molybdenum	ICPMS	ug/Nm3	ND (0.0065)	C	ND (0.0078)	C	0.0711	C
Nickel	ICPMS	ug/Nm3	0.709	C	1.31	C	4.85	C
Selenium	ICPMS	ug/Nm3	13.1		18.6		29.6	
Vanadium	ICPMS	ug/Nm3	0.671	C	0.849	C	1.03	C

Stream: ESP Outlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resin

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1234678-HpCDD	Meth 23X	ug/Nm3	0.00000193	BF	0.00000531	B	0.0000106	B
1234678-HpCDF	Meth 23X	ug/Nm3	0.00000598	F	ND (0.0000016)		0.00000595	F
123478-HxCDD	Meth 23X	ug/Nm3	ND (0.0000036)		ND (0.0000031)		ND (0.0000039)	
123478-HxCDF	Meth 23X	ug/Nm3	0.0000102	B	0.00000193	BF	0.00000145	BF
1234789-HpCDF	Meth 23X	ug/Nm3	ND (0.0000040)		ND (0.0000028)		ND (0.0000039)	
123678-HxCDD	Meth 23X	ug/Nm3	ND (0.0000029)		ND (0.0000025)		ND (0.0000032)	

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** PCDD/PCDF for Dioxins and Furans (M23) **Sample Type:** Filtered Solids/Solvent Rinses/XAD Resin

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
123678-HxCDF	Meth 23X	ug/Nm3	0.00000237		ND (0.0000012)		ND (0.0000018)	
12378-PeCDD	Meth 23X	ug/Nm3	ND (0.0000018)		ND (0.0000019)		ND (0.0000028)	
12378-PeCDF	Meth 23X	ug/Nm3	0.00000204	F	ND (0.0000012)		ND (0.0000018)	
123789-HxCDD	Meth 23X	ug/Nm3	ND (0.0000033)		ND (0.0000028)		ND (0.0000035)	
123789-HxCDF	Meth 23X	ug/Nm3	ND (0.0000026)		ND (0.0000022)		ND (0.0000028)	
234678-HxCDF	Meth 23X	ug/Nm3	0.00000401	B	0.00000264	BF	0.00000389	B
23478-PeCDF	Meth 23X	ug/Nm3	0.00000135	F	ND (0.0000012)		ND (0.0000018)	
2378-TCDD	Meth 23X	ug/Nm3	ND (0.0000015)		ND (0.0000012)		ND (0.0000016)	
2378-TCDF	Meth 23X	ug/Nm3	0.00000248	F	ND (0.0000012)		ND (0.0000016)	
OCDD	Meth 23X	ug/Nm3	0.0000278	BF	0.0000475	B	0.000109	B
OCDF	Meth 23X	ug/Nm3	ND (0.0000062)		0.00000612		0.0000205	
TOTAL HpCDD	Meth 23X	ug/Nm3	0.00000394		0.0000106		0.0000197	
TOTAL HpCDF	Meth 23X	ug/Nm3	0.00000237		ND (0.0000019)		0.00000750	
TOTAL HxCDD	Meth 23X	ug/Nm3	ND (0.0000033)		ND (0.0000028)		0.00000273	F
TOTAL HxCDF	Meth 23X	ug/Nm3	0.0000216		0.00000593	F	0.00000644	
TOTAL PeCDD	Meth 23X	ug/Nm3	ND (0.0000018)		0.00000134	F	ND (0.0000028)	
TOTAL PeCDF	Meth 23X	ug/Nm3	0.00000667		ND (0.0000012)		0.00000319	
TOTAL TCDD	Meth 23X	ug/Nm3	ND (0.0000015)		ND (0.0000012)		0.000000800	
TOTAL TCDF	Meth 23X	ug/Nm3	0.00000248	F	0.00000106	F	ND (0.0000016)	

Stream: ESP Outlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	0.671		0.966		36.8	
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
1,1-Dichloroethane	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
1,1-Dichloroethene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
1,2-Dichloroethane	GCMS	ug/Nm3	15.0		4.12		2.53	
1,2-Dichloropropane	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal A

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
2-Butanone	GCMS	ug/Nm3	ND (2.6)		ND (2.5)		ND (2.6)	
2-Hexanone	GCMS	ug/Nm3	ND (2.6)		ND (2.5)		ND (2.6)	
4-Methyl-2-Pentanone	GCMS	ug/Nm3	ND (2.6)		ND (2.5)		ND (2.6)	
Acetone	GCMS	ug/Nm3	ND (2.6)		ND (2.5)		ND (2.6)	
Benzene	GCMS	ug/Nm3	2.63		6.61		6.84	
Bromodichloromethane	GCMS	ug/Nm3	0.619		ND (0.51)		ND (0.53)	
Bromoform	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Bromomethane	GCMS	ug/Nm3	0.774		0.661		ND (0.53)	
Carbon Disulfide	GCMS	ug/Nm3	1.19		0.762		0.737	
Carbon Tetrachloride	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Chlorobenzene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Chloroethane	GCMS	ug/Nm3	1.96	G	ND (0.51)		ND (0.53)	
Chloroform	GCMS	ug/Nm3	ND (0.52)		0.813		ND (0.53)	
Chloromethane	GCMS	ug/Nm3	9.80		ND (0.51)		3.68	
Dibromochloromethane	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Ethyl Benzene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Methylene Chloride	GCMS	ug/Nm3	1.24		0.762		5.79	
Styrene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Tetrachloroethene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Toluene	GCMS	ug/Nm3	1.03		2.54		0.894	
Trichloroethene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Trichlorofluoromethane	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
Vinyl Acetate	GCMS	ug/Nm3	ND (2.6)		ND (2.5)		ND (2.6)	
Vinyl Chloride	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
cis-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
m,p-Xylene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		0.631	
o-Xylene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
trans-1,2-Dichloroethene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	
trans-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.52)		ND (0.51)		ND (0.53)	

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** VOST **Sample Type:** Tenax-Tenax + Charcoal B

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,1,1-Trichloroethane	GCMS	ug/Nm3	0.701		ND (0.49)			
1,1,2,2-Tetrachloroethane	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
1,1,2-Trichloroethane	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
1,1-Dichloroethane	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
1,1-Dichloroethene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
1,2-Dichloroethane	GCMS	ug/Nm3	17.3		0.829			
1,2-Dichloropropane	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
2-Butanone	GCMS	ug/Nm3	ND (2.7)		ND (2.4)			
2-Hexanone	GCMS	ug/Nm3	ND (2.7)		ND (2.4)			
4-Methyl-2-Pentanone	GCMS	ug/Nm3	ND (2.7)		ND (2.4)			
Acetone	GCMS	ug/Nm3	ND (2.7)		ND (2.4)			
Benzene	GCMS	ug/Nm3	5.02		4.29			
Bromodichloromethane	GCMS	ug/Nm3	0.593		ND (0.49)			
Bromoform	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Bromomethane	GCMS	ug/Nm3	0.593		ND (0.49)			
Carbon Disulfide	GCMS	ug/Nm3	0.863		0.683			
Carbon Tetrachloride	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Chlorobenzene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Chloroethane	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Chloroform	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Chloromethane	GCMS	ug/Nm3	3.56		ND (0.49)			
Dibromochloromethane	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Ethyl Benzene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Methylene Chloride	GCMS	ug/Nm3	2.97		0.878			
Styrene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Tetrachloroethene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Toluene	GCMS	ug/Nm3	0.863		0.780			
Trichloroethene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Trichlorofluoromethane	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
Vinyl Acetate	GCMS	ug/Nm3	ND (2.7)		ND (2.4)			

Analytical Data Used In Calculations

Stream: ESP Outlet **Collection Method:** VOST ***Sample Type:*** *Tenax-Tenax + Charcoal* B

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Vinyl Chloride	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
cis-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
m,p-Xylene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
o-Xylene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
trans-1,2-Dichloroethene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			
trans-1,3-Dichloropropene	GCMS	ug/Nm3	ND (0.54)		ND (0.49)			

Stream: Service Water **Collection Method:** Grab **Sample Type:** Not Specified

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/L	ND (0.000033)		ND (0.000033)		ND (0.000033)	
Arsenic	GFAA	mg/L	ND (0.00065)		0.00113		0.00171	
Cadmium	GFAA	mg/L	ND (0.00027)		ND (0.00027)		ND (0.00027)	
Lead	GFAA	mg/L	0.00626	B	0.0124	B	0.0125	B
Selenium	GFAA	mg/L	ND (0.0018)		ND (0.0018)		ND (0.0018)	
Chloride	IC	mg/L	11.5		11.6		12.4	
Sulfate	IC	mg/L	59.2		58.3		47.1	
Aluminum	ICAP	mg/L	1.25	B	2.20	B	1.89	B
Antimony	ICAP	mg/L	ND (0.076)		ND (0.076)	B	ND (0.076)	B
Barium	ICAP	mg/L	0.0494	B	0.0691	B	0.0659	B
Beryllium	ICAP	mg/L	0.00156		0.000540		0.00458	
Boron	ICAP	mg/L	0.0427	B	0.0410	B	0.0417	B
Calcium	ICAP	mg/L	23.9	B	25.8	B	21.8	B
Chromium	ICAP	mg/L	ND (0.0052)		ND (0.0052)		0.00788	
Cobalt	ICAP	mg/L	0.00713	B	0.00460	B	ND (0.0041)	B
Copper	ICAP	mg/L	0.0128	B	0.0173	B	0.0212	B
Iron	ICAP	mg/L	3.00		4.70		4.52	
Magnesium	ICAP	mg/L	6.27	B	6.71	B	5.75	B
Manganese	ICAP	mg/L	0.286		0.438		0.432	
Molybdenum	ICAP	mg/L	ND (0.0074)	B	ND (0.0074)	B	0.0115	B

Analytical Data Used In Calculations

Stream: Service Water **Collection Method:** Grab **Sample Type:** Not Specified

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Nickel	ICAP	mg/L	ND (0.014)		ND (0.014)		0.0145	
Phosphorus	ICAP	mg/L	ND (0.061)		ND (0.061)		ND (0.061)	
Potassium	ICAP	mg/L	1.62		1.76		1.84	
Silver	ICAP	mg/L	ND (0.0052)		ND (0.0052)		ND (0.0052)	
Sodium	ICAP	mg/L	10.4	B	10.9	B	10.1	B
Titanium	ICAP	mg/L	0.0139	B	0.0229	B	0.0251	B
Vanadium	ICAP	mg/L	0.00532	B	ND (0.0045)	B	0.00757	B
Fluoride	SIE	mg/L	0.114	B	0.120	B	0.116	B
Total phosphate	tot P	mg/L	ND (0.020)		ND (0.020)		0.0331	

Stream: Service Water **Collection Method:** Grab **Sample Type:** Not Specified FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/L					ND (0.000033)	
Arsenic	GFAA	mg/L					0.00218	
Cadmium	GFAA	mg/L					ND (0.00027)	
Lead	GFAA	mg/L					0.0119	B
Selenium	GFAA	mg/L					ND (0.0018)	
Chloride	IC	mg/L					12.1	
Sulfate	IC	mg/L					46.9	
Aluminum	ICAP	mg/L					2.35	B
Antimony	ICAP	mg/L					ND (0.076)	B
Barium	ICAP	mg/L					0.0669	B
Beryllium	ICAP	mg/L					ND (0.00051)	
Boron	ICAP	mg/L					0.0364	B
Calcium	ICAP	mg/L					23.0	B
Chromium	ICAP	mg/L					ND (0.0052)	
Cobalt	ICAP	mg/L					0.00480	B
Copper	ICAP	mg/L					0.0163	B

Analytical Data Used In Calculations

Stream: Service Water **Collection Method:** Grab **Sample Type:** Not Specified FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Iron	ICAP	mg/L					5.89	
Magnesium	ICAP	mg/L					6.02	B
Manganese	ICAP	mg/L					0.460	
Molybdenum	ICAP	mg/L					ND (0.0074)	B
Nickel	ICAP	mg/L					0.0160	
Phosphorus	ICAP	mg/L					ND (0.061)	
Potassium	ICAP	mg/L					1.87	
Silver	ICAP	mg/L					ND (0.0052)	
Sodium	ICAP	mg/L					10.3	B
Titanium	ICAP	mg/L					0.0281	B
Vanadium	ICAP	mg/L					0.00619	B
Fluoride	SIE	mg/L					0.117	B
Total phosphate	tot P	mg/L					0.0242	

Stream: Sorbent **Collection Method:** Grab Composite **Sample Type:** Dolomite

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg	ND (0.012)		ND (0.012)		ND (0.012)	
Arsenic	GFAA	mg/kg	2.19		2.12		1.24	
Cadmium	GFAA	mg/kg	0.140		0.173		0.0929	
Lead	GFAA	mg/kg	7.30	B	6.15	B	7.22	B
Selenium	GFAA	mg/kg	0.903		0.475		0.982	
Sulfate	IC	mg/kg	6420		6370		6460	
Aluminum	ICAP	mg/kg	659		662		632	
Antimony	ICAP	mg/kg	ND (4.9)		ND (5.5)		ND (5.5)	
Barium	ICAP	mg/kg	3.45	B	3.50	B	3.43	B
Beryllium	ICAP	mg/kg	0.0492		ND (0.031)		ND (0.031)	
Boron	ICAP	mg/kg	32.9	B	31.0	B	33.7	B
Calcium	ICAP	mg/kg	193000	B	192000	B	193000	B

Analytical Data Used In Calculations

Stream: Sorbent **Collection Method:** Grab Composit **Sample Type:** Dolomite

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chromium	ICAP	mg/kg	2.79	B	2.88	B	2.86	B
Cobalt	ICAP	mg/kg	0.461	B	ND (0.50)	B	ND (0.50)	B
Copper	ICAP	mg/kg	ND (0.42)		ND (0.47)		ND (0.47)	
Iron	ICAP	mg/kg	2130	B	2430	B	2160	B
Magnesium	ICAP	mg/kg	106000		106000		106000	
Manganese	ICAP	mg/kg	72.0		72.9		71.9	
Molybdenum	ICAP	mg/kg	1.42	B	1.34	B	1.62	B
Nickel	ICAP	mg/kg	19.6	B	16.8	B	0.524	B
Phosphorus	ICAP	mg/kg	ND (6.1)		ND (6.8)		ND (6.8)	
Potassium	ICAP	mg/kg	240	B	218	B	255	B
Silver	ICAP	mg/kg	ND (0.37)		ND (0.41)		ND (0.41)	
Sodium	ICAP	mg/kg	194	B	198	B	202	B
Titanium	ICAP	mg/kg	7.49	B	10.9	B	9.65	B
Vanadium	ICAP	mg/kg	4.75		4.88		5.17	
Chloride	SIE	mg/kg	369		336		246	
Fluoride	SIE	mg/kg	297	B	208	B	136	B

Stream: Sorbent **Collection Method:** Grab Composite **Sample Type:** Dolomite FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Mercury	CVAA	mg/kg					ND (0.012)	
Arsenic	GFAA	mg/kg					2.09	
Cadmium	GFAA	mg/kg					0.164	
Lead	GFAA	mg/kg					6.69	B
Selenium	GFAA	mg/kg					1.10	
Sulfate	IC	mg/kg					6420	
Aluminum	ICAP	mg/kg					647	
Antimony	ICAP	mg/kg					ND (5.8)	
Barium	ICAP	mg/kg					4.14	B
Beryllium	ICAP	mg/kg					ND (0.033)	

Analytical Data Used In Calculations

Stream: Sorbent **Collection Method:** Grab Composit **Sample Type:** Dolomite FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Boron	ICAP	mg/kg					33.3	B
Calcium	ICAP	mg/kg					194000	B
Chromium	ICAP	mg/kg					2.84	B
Cobalt	ICAP	mg/kg					ND (0.53)	B
Copper	ICAP	mg/kg					ND (0.50)	
Iron	ICAP	mg/kg					2160	B
Magnesium	ICAP	mg/kg					107000	
Manganese	ICAP	mg/kg					72.7	
Molybdenum	ICAP	mg/kg					1.54	B
Nickel	ICAP	mg/kg					1.71	B
Phosphorus	ICAP	mg/kg					ND (7.2)	
Potassium	ICAP	mg/kg					247	B
Silver	ICAP	mg/kg					ND (0.44)	
Sodium	ICAP	mg/kg					200	B
Titanium	ICAP	mg/kg					11.1	B
Vanadium	ICAP	mg/kg					5.35	
Chloride	SIE	mg/kg					321	
Fluoride	SIE	mg/kg					385	B

DATA NOT USED IN CALCULATIONS

Analytical Data Not Used In Calculations

Stream: APF As **Collection Method:** Grab Composit **Sample Type:** Fly As

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg	272		291		309	
Cadmium	ICAP	mg/kg	ND (2.9)		4.41		ND (3.2)	
Lead	ICAP	mg/kg	32.2	B	65.5		69.2	B
Selenium	ICAP	mg/kg	ND (45)		ND (49)		ND (50)	

Stream: APF Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg					307	
Cadmium	ICAP	mg/kg					ND (2.6)	
Lead	ICAP	mg/kg					98.4	B
Selenium	ICAP	mg/kg					ND (41)	

Stream: APF Inlet **Collection Method:** M29 **Sample Type:** Filtered Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	ug/Nm3	959		1390		1310	
Cadmium	ICAP	ug/Nm3	ND (12)	C	ND (17)	C	ND (14)	C
Lead	ICAP	ug/Nm3	267	C	308	C	315	C
Selenium	ICAP	ug/Nm3	ND (190)	C	ND (270)	C	ND (220)	C

Stream: APF Inlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	ug/Nm3	0.986		9.47		1.97	
Cadmium	GFAA	ug/Nm3	0.336	C	0.191	C	0.144	C
Lead	GFAA	ug/Nm3	1.50	BC	3.37	BC	1.26	BC
Selenium	GFAA	ug/Nm3	12.9	C	20.3	C	13.6	C
Antimony	ICAP	ug/Nm3	ND (21)	B	ND (23)	B	ND (20)	B

Analytical Data Not Used In Calculations

Stream: APF Inle **Collection Method:** Multimetals Trai **Sample Type:** Nitric Acid Impingers + TL

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	ug/Nm3	ND (13)		ND (14)		ND (13)	
Beryllium	ICAP	ug/Nm3	ND (0.14)		ND (0.16)		ND (0.14)	
Cadmium	ICAP	ug/Nm3	ND (1.1)	C	ND (1.2)	C	ND (1.0)	C
Chromium	ICAP	ug/Nm3	39.0	C	2.52	C	13.7	C
Cobalt	ICAP	ug/Nm3	ND (1.1)	BC	ND (1.3)	BC	ND (1.1)	BC
Copper	ICAP	ug/Nm3	166	BC	9.21	BC	52.8	BC
Lead	ICAP	ug/Nm3	7.14	BC	8.55	BC	8.46	BC
Manganese	ICAP	ug/Nm3	33.4	BC	11.3	BC	4.31	BC
Molybdenum	ICAP	ug/Nm3	4.97		ND (2.3)		ND (2.0)	
Nickel	ICAP	ug/Nm3	57.1	C	20.8	C	30.0	C
Selenium	ICAP	ug/Nm3	ND (24)	B	ND (27)	B	ND (24)	B
Vanadium	ICAP	ug/Nm3	ND (1.2)	C	2.57	C	ND (1.2)	C
Mercury	ICPMS	ug/Nm3	30.9	C	29.2	C	32.7	C

Stream: APF Outlet **Collection Method:** M29 **Sample Type:** 47 mm Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	ug/Nm3	0.200		ND (0.21)		ND (0.16)	
Cadmium	ICAP	ug/Nm3	ND (0.021)		ND (0.023)		ND (0.017)	
Lead	ICAP	ug/Nm3	ND (0.12)		0.165		ND (0.095)	
Selenium	ICAP	ug/Nm3	ND (0.32)		ND (0.36)	C	ND (0.26)	

Stream: APF Outlet **Collection Method:** MM5 **Sample Type:** 47 mm Filter *1:4 dil*

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3					ND (1.3)	
1,2-Dichlorobenzene	GCMS	ug/Nm3					ND (1.1)	
1,3-Dichlorobenzene	GCMS	ug/Nm3					ND (1.0)	
1,4-Dichlorobenzene	GCMS	ug/Nm3					ND (0.98)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3					ND (1.7)	

Analytical Data Not Used In Calculations

Stream: APF Outle **Collection Method:** MM5 **Sample Type:** 47 mm Filte 1:4 di

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4,6-Trichlorophenol	GCMS	ug/Nm3					ND (1.8)	
2,4-Dichlorophenol	GCMS	ug/Nm3					ND (0.71)	
2,4-Dimethylphenol	GCMS	ug/Nm3					ND (1.2)	
2,4-Dinitrophenol	GCMS	ug/Nm3					ND (4.3)	
2,4-Dinitrotoluene	GCMS	ug/Nm3					ND (1.6)	
2,6-Dinitrotoluene	GCMS	ug/Nm3					ND (2.4)	
2-Chloronaphthalene	GCMS	ug/Nm3					ND (0.71)	
2-Chlorophenol	GCMS	ug/Nm3					ND (1.2)	
2-Methylnaphthalene	GCMS	ug/Nm3					ND (0.67)	
2-Methylphenol	GCMS	ug/Nm3					ND (1.4)	
2-Nitroaniline	GCMS	ug/Nm3					ND (1.7)	
2-Nitrophenol	GCMS	ug/Nm3					ND (1.9)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3					ND (2.3)	
3-Nitroaniline	GCMS	ug/Nm3					ND (2.1)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3					ND (2.7)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3					ND (1.3)	
4-Nitroaniline	GCMS	ug/Nm3					ND (1.7)	
4-Nitrophenol	GCMS	ug/Nm3					ND (1.8)	
Acenaphthene	GCMS	ug/Nm3					ND (0.77)	
Acenaphthylene	GCMS	ug/Nm3					ND (0.43)	
Anthracene	GCMS	ug/Nm3					ND (0.39)	
Benzo(b)fluoranthene	GCMS	ug/Nm3					ND (0.60)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3					ND (0.65)	
Benzo(k)fluoranthene	GCMS	ug/Nm3					ND (0.62)	
Benzoic acid	GCMS	ug/Nm3					22.6	
Benzyl alcohol	GCMS	ug/Nm3					ND (2.4)	
Butylbenzylphthalate	GCMS	ug/Nm3					ND (0.58)	
Chrysene	GCMS	ug/Nm3					ND (0.48)	
Di-n-butylphthalate	GCMS	ug/Nm3					15.4	
Di-n-octylphthalate	GCMS	ug/Nm3					ND (0.36)	
Dibenz(a,h)anthracene	GCMS	ug/Nm3					ND (0.73)	
Dibenzofuran	GCMS	ug/Nm3					ND (0.46)	
Diethylphthalate	GCMS	ug/Nm3					ND (0.44)	

Analytical Data Not Used In Calculations

Stream: APF Outle **Collection Method:** MM5 **Sample Type:** 47 mm Filte 1:4 di

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Dimethylphthalate	GCMS	ug/Nm3					ND (0.57)	
Fluoranthene	GCMS	ug/Nm3					ND (0.34)	
Fluorene	GCMS	ug/Nm3					ND (0.56)	
Hexachlorobenzene	GCMS	ug/Nm3					ND (1.8)	
Hexachlorobutadiene	GCMS	ug/Nm3					ND (1.8)	
Hexachlorocyclopentadiene	GCMS	ug/Nm3					ND (1.7)	
Hexachloroethane	GCMS	ug/Nm3					ND (1.9)	
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3					ND (0.55)	
Isophorone	GCMS	ug/Nm3					ND (0.54)	
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3					ND (1.6)	
Naphthalene	GCMS	ug/Nm3					ND (0.44)	
Nitrobenzene	GCMS	ug/Nm3					ND (0.91)	
Pentachlorophenol	GCMS	ug/Nm3					ND (3.4)	
Phenanthrene	GCMS	ug/Nm3					ND (0.39)	
Phenol	GCMS	ug/Nm3					ND (1.0)	
Pyrene	GCMS	ug/Nm3					ND (0.31)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3					ND (1.1)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3					ND (1.4)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3					1.58	J

Stream: APF Outlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	ug/Nm3	2.82		3.99		4.89	
Cadmium	GFAA	ug/Nm3	0.108	C	ND (0.066)	C	ND (0.054)	C
Lead	GFAA	ug/Nm3	ND (0.62)	BC	ND (0.71)	BC	0.650	BC
Selenium	GFAA	ug/Nm3	22.0	C	53.5	C	48.1	C
Antimony	ICAP	ug/Nm3	ND (23)	B	ND (26)	B	ND (22)	B
Arsenic	ICAP	ug/Nm3	ND (14)		ND (16)		ND (13)	
Beryllium	ICAP	ug/Nm3	ND (0.15)		ND (0.18)		ND (0.15)	
Cadmium	ICAP	ug/Nm3	ND (1.2)	C	ND (1.3)	C	ND (1.1)	C

Analytical Data Not Used In Calculations

Stream: APF Outle **Collection Method:** Multimetals Trai **Sample Type:** Nitric Acid Impingers + TL

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Chromium	ICAP	ug/Nm3	2.79	C	ND (1.8)	C	167	C
Cobalt	ICAP	ug/Nm3	ND (1.2)	BC	ND (1.4)	BC	ND (1.2)	BC
Copper	ICAP	ug/Nm3	ND (2.8)	BC	ND (3.2)	BC	ND (2.6)	BC
Lead	ICAP	ug/Nm3	ND (6.5)	BC	ND (7.4)	BC	ND (6.1)	BC
Manganese	ICAP	ug/Nm3	1.68	BC	1.95	BC	25.6	BC
Molybdenum	ICAP	ug/Nm3	6.10		ND (2.5)		2.54	
Nickel	ICAP	ug/Nm3	61.0	C	7.97	C	99.8	C
Selenium	ICAP	ug/Nm3	61.3	B	53.0	B	48.6	B
Vanadium	ICAP	ug/Nm3	ND (1.4)	C	ND (1.6)	C	ND (1.3)	C
Mercury	ICPMS	ug/Nm3	19.1	C	24.4	C	18.6	C

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg	60.8		75.9		ND (30)	
Cadmium	ICAP	mg/kg	ND (2.9)		ND (3.4)		ND (3.2)	
Lead	ICAP	mg/kg	ND (17)	B	32.1	B	ND (18)	B
Selenium	ICAP	mg/kg	ND (46)		ND (54)		ND (50)	

Stream: Bed Ash **Collection Method:** Grab Composite **Sample Type:** Bottom Ash FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg					59.6	
Cadmium	ICAP	mg/kg					ND (2.9)	
Lead	ICAP	mg/kg					ND (17)	B
Selenium	ICAP	mg/kg					ND (46)	

Analytical Data Not Used In Calculations

Stream: Coal Past **Collection Method:** Grab Composit **Sample Type:** Filtered Solid

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	ug/g	21.0		29.0		31.0	
Selenium	GFAA	ug/g	ND (0.50)		0.600		1.00	
Molybdenum	ICAP	ug/g	ND (3.0)		ND (3.0)		83.0	
Barium	NAA	ug/g	88.4		114		82.5	
Bromine	NAA	ug/g	15.5		16.1		15.1	
Cadmium	NAA	ug/g	ND (2.6)		ND (2.7)		ND (2.2)	
Calcium	NAA	ug/g	1200		1500		1300	
Cerium	NAA	ug/g	13.9		14.2		15.3	
Cesium	NAA	ug/g	1.45		1.57		1.57	
Chlorine	NAA	ug/g	848		873		838	
Chromium	NAA	ug/g	17.8		19.7		18.2	
Copper	NAA	ug/g	14.3		14.3		12.9	
Europium	NAA	ug/g	0.289		0.314		0.325	
Hafnium	NAA	ug/g	0.785		0.804		0.913	
Iodine	NAA	ug/g	1.90		1.88		2.38	
Lanthanum	NAA	ug/g	6.65		8.09		7.66	
Lutetium	NAA	ug/g	0.135		0.137		0.168	
Magnesium	NAA	ug/g	627		745		777	
Mercury	NAA	ug/g	0.0474		0.110		0.0292	
Neodymium	NAA	ug/g	9.34		7.34		6.59	
Rubidium	NAA	ug/g	26.1		19.7		19.0	
Samarium	NAA	ug/g	1.41		1.46		1.52	
Scandium	NAA	ug/g	3.21		3.31		3.41	
Selenium	NAA	ug/g	1.59		1.77		1.91	
Strontium	NAA	ug/g	18.9		51.6		49.7	
Tantalum	NAA	ug/g	0.236		0.200		0.243	
Terbium	NAA	ug/g	0.161		0.166		0.174	
Thorium	NAA	ug/g	2.28		2.35		2.44	
Tin	NAA	ug/g	ND (7.7)		ND (7.8)		ND (7.7)	
Titanium	NAA	ug/g	809		829		969	
Tungsten	NAA	ug/g	56.0		65.2		77.6	
Uranium	NAA	ug/g	0.836		0.719		0.698	

Analytical Data Not Used In Calculations

Stream: Coal Past **Collection Method:** Grab Composit **Sample Type:** Filtered Solid

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Ytterbium	NAA	ug/g	0.547		0.460		0.420	
Zinc	NAA	ug/g	7.72		11.2		11.1	
Zirconium	NAA	ug/g	28.0		20.2		36.3	

Stream: Coal Paste **Collection Method:** Grab Composite **Sample Type:** Filtered Solids FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	ug/g					27.0	
Selenium	GFAA	ug/g					ND (0.50)	
Molybdenum	ICAP	ug/g					ND (3.0)	
Barium	NAA	ug/g					101	
Bromine	NAA	ug/g					15.9	
Cadmium	NAA	ug/g					ND (2.6)	
Calcium	NAA	ug/g					1010	
Cerium	NAA	ug/g					16.5	
Cesium	NAA	ug/g					1.73	
Chlorine	NAA	ug/g					775	
Chromium	NAA	ug/g					20.1	
Copper	NAA	ug/g					13.3	
Europium	NAA	ug/g					0.353	
Hafnium	NAA	ug/g					0.986	
Iodine	NAA	ug/g					2.02	
Lanthanum	NAA	ug/g					7.74	
Lutetium	NAA	ug/g					0.127	
Magnesium	NAA	ug/g					820	
Mercury	NAA	ug/g					0.0811	
Neodymium	NAA	ug/g					7.07	
Rubidium	NAA	ug/g					20.6	
Samarium	NAA	ug/g					1.57	
Scandium	NAA	ug/g					3.68	
Selenium	NAA	ug/g					2.03	

Com 2	Run 3	Com 3
	37.4 2110	

Analytical Data Not Used In Calculations

Stream: ESP Ash **Collection Method:** Grab Composite **Sample Type:** Fly Ash

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg	406		350		411	
Cadmium	ICAP	mg/kg	ND (3.7)		ND (3.6)		ND (3.6)	
Lead	ICAP	mg/kg	80.6	B	94.2	B	122	B
Selenium	ICAP	mg/kg	ND (58)		ND (56)		ND (57)	

Stream: ESP As **Collection Method:** Grab Composit **Sample Type:** Fly As FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg					350	
Cadmium	ICAP	mg/kg					ND (3.3)	
Lead	ICAP	mg/kg					136	B
Selenium	ICAP	mg/kg					ND (52)	

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Di-n-butylphthalate	GCMS	ug/Nm3	118	BE				

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (4.8)					
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (4.2)					
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (4.0)					
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (3.8)					
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (7.1)					
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (7.4)					
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (5.4)					
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (5.3)					

Analytical Data Not Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (20)					
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (6.6)					
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (9.6)					
2-Chloronaphthalene	GCMS	ug/Nm3	ND (2.7)					
2-Chlorophenol	GCMS	ug/Nm3	ND (4.2)					
2-Methylnaphthalene	GCMS	ug/Nm3	ND (2.7)					
2-Methylphenol	GCMS	ug/Nm3	ND (5.1)					
2-Nitroaniline	GCMS	ug/Nm3	ND (8.4)					
2-Nitrophenol	GCMS	ug/Nm3	ND (8.0)					
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (3.6)					
3-Nitroaniline	GCMS	ug/Nm3	ND (8.2)					
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (12)					
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (5.9)					
4-Nitroaniline	GCMS	ug/Nm3	ND (7.3)					
4-Nitrophenol	GCMS	ug/Nm3	ND (18)					
Acenaphthene	GCMS	ug/Nm3	ND (3.0)					
Acenaphthylene	GCMS	ug/Nm3	ND (1.7)					
Anthracene	GCMS	ug/Nm3	ND (1.7)					
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (1.0)					
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (1.1)					
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (1.1)					
Benzoic acid	GCMS	ug/Nm3	ND (16)					
Benzyl alcohol	GCMS	ug/Nm3	ND (7.8)					
Butylbenzylphthalate	GCMS	ug/Nm3	ND (1.9)					
Chrysene	GCMS	ug/Nm3	ND (1.2)					
Di-n-octylphthalate	GCMS	ug/Nm3	ND (0.79)					
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (1.3)					
Dibenzofuran	GCMS	ug/Nm3	ND (1.9)					
Diethylphthalate	GCMS	ug/Nm3	ND (2.3)					
Dimethylphthalate	GCMS	ug/Nm3	ND (2.5)					
Fluoranthene	GCMS	ug/Nm3	ND (1.2)					
Fluorene	GCMS	ug/Nm3	ND (2.6)					
Hexachlorobenzene	GCMS	ug/Nm3	ND (5.7)					

Analytical Data Not Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** MeCl2 PNR/MM5 Filter 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Hexachlorobutadiene	GCMS	ug/Nm3	ND (7.8)					
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (9.2)					
Hexachloroethane	GCMS	ug/Nm3	ND (8.2)					
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (0.95)					
Isophorone	GCMS	ug/Nm3	ND (2.6)					
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (7.4)					
Naphthalene	GCMS	ug/Nm3	4.88	J				
Nitrobenzene	GCMS	ug/Nm3	ND (4.5)					
Pentachlorophenol	GCMS	ug/Nm3	ND (15)					
Phenanthrene	GCMS	ug/Nm3	ND (1.7)					
Phenol	GCMS	ug/Nm3	ND (3.5)					
Pyrene	GCMS	ug/Nm3	ND (1.1)					
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (4.0)					
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (4.7)					
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	7.28	BJ				

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzoic acid	GCMS	ug/Nm3	119	E	228	E	124	E
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	469	E				

Stream: ESP Inle **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl 1:10 di

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (22)					
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (19)					
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (18)					
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (17)					
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (30)					
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (31)					

Analytical Data Not Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:10 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (12)					
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (20)					
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (74)					
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (27)					
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (42)					
2-Chloronaphthalene	GCMS	ug/Nm3	ND (12)					
2-Chlorophenol	GCMS	ug/Nm3	ND (20)					
2-Methylnaphthalene	GCMS	ug/Nm3	ND (11)					
2-Methylphenol	GCMS	ug/Nm3	ND (24)					
2-Nitroaniline	GCMS	ug/Nm3	ND (29)					
2-Nitrophenol	GCMS	ug/Nm3	ND (32)					
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (34)					
3-Nitroaniline	GCMS	ug/Nm3	ND (36)					
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (45)					
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (22)					
4-Nitroaniline	GCMS	ug/Nm3	ND (29)					
4-Nitrophenol	GCMS	ug/Nm3	ND (31)					
Acenaphthene	GCMS	ug/Nm3	ND (13)					
Acenaphthylene	GCMS	ug/Nm3	ND (7.5)					
Anthracene	GCMS	ug/Nm3	ND (6.5)					
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (9.9)					
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (11)					
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (10)					
Benzyl alcohol	GCMS	ug/Nm3	ND (42)					
Butylbenzylphthalate	GCMS	ug/Nm3	ND (8.6)					
Chrysene	GCMS	ug/Nm3	ND (7.1)					
Di-n-butylphthalate	GCMS	ug/Nm3	10.9	J				
Di-n-octylphthalate	GCMS	ug/Nm3	ND (6.0)					
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (12)					
Dibenzofuran	GCMS	ug/Nm3	ND (8.0)					
Diethylphthalate	GCMS	ug/Nm3	ND (7.6)					
Dimethylphthalate	GCMS	ug/Nm3	ND (9.8)					
Fluoranthene	GCMS	ug/Nm3	ND (5.6)					

Analytical Data Not Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:10 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Fluorene	GCMS	ug/Nm3	ND (9.7)					
Hexachlorobenzene	GCMS	ug/Nm3	27.7	J				
Hexachlorobutadiene	GCMS	ug/Nm3	ND (31)					
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (30)					
Hexachloroethane	GCMS	ug/Nm3	ND (34)					
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (9.1)					
Isophorone	GCMS	ug/Nm3	ND (9.3)					
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (27)					
Naphthalene	GCMS	ug/Nm3	ND (7.5)					
Nitrobenzene	GCMS	ug/Nm3	ND (16)					
Pentachlorophenol	GCMS	ug/Nm3	ND (57)					
Phenanthrene	GCMS	ug/Nm3	ND (6.6)					
Phenol	GCMS	ug/Nm3	ND (18)					
Pyrene	GCMS	ug/Nm3	ND (4.6)					
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (19)					
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (25)					

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3					ND (5.0)	
1,2-Dichlorobenzene	GCMS	ug/Nm3					ND (4.3)	
1,3-Dichlorobenzene	GCMS	ug/Nm3					ND (4.1)	
1,4-Dichlorobenzene	GCMS	ug/Nm3					ND (3.9)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3					ND (6.3)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3					ND (6.6)	
2,4-Dichlorophenol	GCMS	ug/Nm3					ND (2.8)	
2,4-Dimethylphenol	GCMS	ug/Nm3					ND (4.6)	
2,4-Dinitrophenol	GCMS	ug/Nm3					ND (16)	
2,4-Dinitrotoluene	GCMS	ug/Nm3					ND (5.8)	
2,6-Dinitrotoluene	GCMS	ug/Nm3					ND (8.9)	
2-Chloronaphthalene	GCMS	ug/Nm3					ND (2.6)	

Analytical Data Not Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Isophorone	GCMS	ug/Nm3					11.3	J
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3					ND (6.2)	
Naphthalene	GCMS	ug/Nm3					ND (1.7)	
Nitrobenzene	GCMS	ug/Nm3					ND (3.6)	
Pentachlorophenol	GCMS	ug/Nm3					ND (11)	
Phenanthrene	GCMS	ug/Nm3					ND (1.3)	
Phenol	GCMS	ug/Nm3					1.68	J
Pyrene	GCMS	ug/Nm3					ND (1.1)	
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3					ND (4.4)	
bis(2-Chloroethyl)ether	GCMS	ug/Nm3					ND (5.6)	
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3					ND (1.7)	

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:4 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3			ND (9.7)			
1,2-Dichlorobenzene	GCMS	ug/Nm3			ND (8.0)			
1,3-Dichlorobenzene	GCMS	ug/Nm3			ND (7.6)			
1,4-Dichlorobenzene	GCMS	ug/Nm3			ND (7.2)			
2,4,5-Trichlorophenol	GCMS	ug/Nm3			ND (13)			
2,4,6-Trichlorophenol	GCMS	ug/Nm3			ND (14)			
2,4-Dichlorophenol	GCMS	ug/Nm3			ND (5.4)			
2,4-Dimethylphenol	GCMS	ug/Nm3			ND (8.9)			
2,4-Dinitrophenol	GCMS	ug/Nm3			ND (33)			
2,4-Dinitrotoluene	GCMS	ug/Nm3			ND (12)			
2,6-Dinitrotoluene	GCMS	ug/Nm3			ND (19)			
2-Chloronaphthalene	GCMS	ug/Nm3			ND (5.4)			
2-Chlorophenol	GCMS	ug/Nm3			ND (8.5)			
2-Methylnaphthalene	GCMS	ug/Nm3			ND (5.1)			
2-Methylphenol	GCMS	ug/Nm3			ND (10)			
2-Nitroaniline	GCMS	ug/Nm3			ND (13)			
2-Nitrophenol	GCMS	ug/Nm3			ND (14)			

Analytical Data Not Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:4 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
3,3'-Dichlorobenzidine	GCMS	ug/Nm3			ND (16)			
3-Nitroaniline	GCMS	ug/Nm3			ND (16)			
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3			ND (19)			
4-Chloro-3-methylphenol	GCMS	ug/Nm3			ND (9.9)			
4-Nitroaniline	GCMS	ug/Nm3			ND (13)			
4-Nitrophenol	GCMS	ug/Nm3			ND (14)			
Acenaphthene	GCMS	ug/Nm3			ND (6.0)			
Acenaphthylene	GCMS	ug/Nm3			ND (3.3)			
Anthracene	GCMS	ug/Nm3			ND (2.8)			
Benzo(b)fluoranthene	GCMS	ug/Nm3			ND (4.2)			
Benzo(g,h,i)perylene	GCMS	ug/Nm3			ND (4.6)			
Benzo(k)fluoranthene	GCMS	ug/Nm3			ND (4.4)			
Benzyl alcohol	GCMS	ug/Nm3			ND (18)			
Butylbenzylphthalate	GCMS	ug/Nm3			ND (4.0)			
Chrysene	GCMS	ug/Nm3			ND (3.3)			
Di-n-butylphthalate	GCMS	ug/Nm3			3.79	J		
Di-n-octylphthalate	GCMS	ug/Nm3			ND (2.6)			
Dibenz(a,h)anthracene	GCMS	ug/Nm3			ND (5.2)			
Dibenzofuran	GCMS	ug/Nm3			ND (3.6)			
Diethylphthalate	GCMS	ug/Nm3			ND (3.4)			
Dimethylphthalate	GCMS	ug/Nm3			ND (4.4)			
Fluoranthene	GCMS	ug/Nm3			ND (2.4)			
Fluorene	GCMS	ug/Nm3			ND (4.3)			
Hexachlorobenzene	GCMS	ug/Nm3			ND (13)			
Hexachlorobutadiene	GCMS	ug/Nm3			ND (14)			
Hexachlorocyclopentadiene	GCMS	ug/Nm3			ND (13)			
Hexachloroethane	GCMS	ug/Nm3			ND (14)			
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3			ND (3.9)			
Isophorone	GCMS	ug/Nm3			ND (4.1)			
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3			ND (11)			
Naphthalene	GCMS	ug/Nm3			ND (3.3)			
Nitrobenzene	GCMS	ug/Nm3			ND (6.9)			
Pentachlorophenol	GCMS	ug/Nm3			ND (24)			

Analytical Data Not Used In Calculations

Stream: ESP Inlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:4 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Phenanthrene	GCMS	ug/Nm3			ND (2.8)			
Phenol	GCMS	ug/Nm3			2.84	J		
Pyrene	GCMS	ug/Nm3			ND (2.1)			
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3			ND (8.5)			
bis(2-Chloroethyl)ether	GCMS	ug/Nm3			ND (10)			
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3			11.2	J		

Stream: ESP Inlet **Collection Method:** Multimetals Train **Sample Type:** Nitric Acid Impingers + TLR

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	ug/Nm3	ND (0.20)		ND (0.20)		ND (0.18)	
Cadmium	GFAA	ug/Nm3	0.621	C	0.165	C	0.267	C
Lead	GFAA	ug/Nm3	ND (0.63)	BC	ND (0.63)	BC	ND (0.57)	BC
Selenium	GFAA	ug/Nm3	12.0	C	10.9	C	15.6	C
Antimony	ICAP	ug/Nm3	ND (23)	B	ND (23)	B	ND (21)	B
Arsenic	ICAP	ug/Nm3	ND (14)		ND (14)		ND (13)	
Beryllium	ICAP	ug/Nm3	ND (0.16)		ND (0.16)		ND (0.14)	
Cadmium	ICAP	ug/Nm3	ND (1.2)	C	ND (1.2)	C	ND (1.1)	C
Chromium	ICAP	ug/Nm3	ND (1.6)	C	ND (1.6)	C	27.7	C
Cobalt	ICAP	ug/Nm3	ND (1.3)	BC	ND (1.2)	BC	ND (1.1)	BC
Copper	ICAP	ug/Nm3	2.95	BC	ND (2.8)	BC	2.62	BC
Lead	ICAP	ug/Nm3	ND (6.6)	BC	ND (6.6)	BC	ND (6.0)	BC
Manganese	ICAP	ug/Nm3	1.84	BC	3.21	BC	4.40	BC
Molybdenum	ICAP	ug/Nm3	ND (2.3)		ND (2.3)		2.97	
Nickel	ICAP	ug/Nm3	ND (4.3)	C	ND (4.3)	C	29.7	C
Selenium	ICAP	ug/Nm3	ND (27)	B	ND (27)	B	ND (25)	B
Vanadium	ICAP	ug/Nm3	ND (1.4)	C	ND (1.4)	C	ND (1.3)	C
Mercury	ICPMS	ug/Nm3	24.6	C	26.9	C	24.9	C

Analytical Data Not Used In Calculations

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzoic acid	GCMS	ug/Nm3	115	E	121	E	215	E

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3	ND (4.3)		ND (4.4)			
1,2-Dichlorobenzene	GCMS	ug/Nm3	ND (3.9)		ND (3.6)			
1,3-Dichlorobenzene	GCMS	ug/Nm3	ND (3.7)		ND (3.4)			
1,4-Dichlorobenzene	GCMS	ug/Nm3	ND (3.5)		ND (3.3)			
2,4,5-Trichlorophenol	GCMS	ug/Nm3	ND (5.1)		ND (5.5)			
2,4,6-Trichlorophenol	GCMS	ug/Nm3	ND (5.4)		ND (5.8)			
2,4-Dichlorophenol	GCMS	ug/Nm3	ND (2.4)		ND (2.4)			
2,4-Dimethylphenol	GCMS	ug/Nm3	ND (4.0)		ND (4.0)			
2,4-Dinitrophenol	GCMS	ug/Nm3	ND (13)		ND (14)			
2,4-Dinitrotoluene	GCMS	ug/Nm3	ND (4.7)		ND (5.0)			
2,6-Dinitrotoluene	GCMS	ug/Nm3	ND (7.2)		ND (7.7)			
2-Chloronaphthalene	GCMS	ug/Nm3	ND (2.1)		ND (2.3)			
2-Chlorophenol	GCMS	ug/Nm3	ND (4.1)		ND (3.8)			
2-Methylnaphthalene	GCMS	ug/Nm3	ND (2.3)		ND (2.3)			
2-Methylphenol	GCMS	ug/Nm3	ND (4.9)		ND (4.6)			
2-Nitroaniline	GCMS	ug/Nm3	ND (5.0)		ND (5.4)			
2-Nitrophenol	GCMS	ug/Nm3	ND (6.4)		ND (6.5)			
3,3'-Dichlorobenzidine	GCMS	ug/Nm3	ND (6.5)		ND (6.9)			
3-Nitroaniline	GCMS	ug/Nm3	ND (6.2)		ND (6.7)			
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3	ND (7.0)		ND (8.2)			
4-Chloro-3-methylphenol	GCMS	ug/Nm3	ND (4.4)		ND (4.5)			
4-Nitroaniline	GCMS	ug/Nm3	ND (5.0)		ND (5.3)			
4-Nitrophenol	GCMS	ug/Nm3	ND (5.4)		ND (5.8)			
Acenaphthene	GCMS	ug/Nm3	ND (2.3)		ND (2.5)			
Acenaphthylene	GCMS	ug/Nm3	ND (1.3)		ND (1.4)			
Anthracene	GCMS	ug/Nm3	ND (1.0)		ND (1.2)			
Benzo(b)fluoranthene	GCMS	ug/Nm3	ND (2.2)		ND (1.9)			

Analytical Data Not Used In Calculations

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:2 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Benzo(g,h,i)perylene	GCMS	ug/Nm3	ND (2.4)		ND (2.0)			
Benzo(k)fluoranthene	GCMS	ug/Nm3	ND (2.3)		ND (1.9)			
Benzyl alcohol	GCMS	ug/Nm3	ND (8.7)		ND (8.1)			
Butylbenzylphthalate	GCMS	ug/Nm3	ND (1.6)		ND (1.7)			
Chrysene	GCMS	ug/Nm3	ND (1.3)		ND (1.4)			
Di-n-butylphthalate	GCMS	ug/Nm3	17.6		5.86	J		
Di-n-octylphthalate	GCMS	ug/Nm3	ND (1.3)		ND (1.1)			
Dibenz(a,h)anthracene	GCMS	ug/Nm3	ND (2.7)		ND (2.3)			
Dibenzofuran	GCMS	ug/Nm3	ND (1.4)		ND (1.5)			
Diethylphthalate	GCMS	ug/Nm3	2.88	J	ND (1.4)			
Dimethylphthalate	GCMS	ug/Nm3	ND (1.7)		ND (1.8)			
Fluoranthene	GCMS	ug/Nm3	ND (0.88)		ND (1.0)			
Fluorene	GCMS	ug/Nm3	ND (1.7)		ND (1.8)			
Hexachlorobenzene	GCMS	ug/Nm3	ND (4.7)		ND (5.4)			
Hexachlorobutadiene	GCMS	ug/Nm3	ND (6.2)		ND (6.3)			
Hexachlorocyclopentadiene	GCMS	ug/Nm3	ND (5.2)		ND (5.6)			
Hexachloroethane	GCMS	ug/Nm3	ND (6.9)		ND (6.4)			
Indeno(1,2,3-cd)pyrene	GCMS	ug/Nm3	ND (2.0)		ND (1.7)			
Isophorone	GCMS	ug/Nm3	21.7		ND (1.9)			
N-Nitroso-di-n-propylamine	GCMS	ug/Nm3	ND (5.5)		ND (5.2)			
Naphthalene	GCMS	ug/Nm3	ND (1.5)		ND (1.5)			
Nitrobenzene	GCMS	ug/Nm3	ND (3.1)		ND (3.1)			
Pentachlorophenol	GCMS	ug/Nm3	ND (9.0)		ND (10)			
Phenanthrene	GCMS	ug/Nm3	ND (1.0)		ND (1.2)			
Phenol	GCMS	ug/Nm3	1.82	J	1.28	J		
Pyrene	GCMS	ug/Nm3	ND (0.87)		ND (0.92)			
bis(2-Chloroethoxy)methane	GCMS	ug/Nm3	ND (3.8)		ND (3.9)			
bis(2-Chloroethyl)ether	GCMS	ug/Nm3	ND (5.0)		ND (4.7)			
bis(2-Ethylhexyl)phthalate	GCMS	ug/Nm3	15.4		ND (1.5)			

Analytical Data Not Used In Calculations

Stream: ESP Outlet **Collection Method:** MM5 **Sample Type:** XAD Resin/Impingers + MeCl2 1:4 dil

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
1,2,4-Trichlorobenzene	GCMS	ug/Nm3					ND (9.5)	
1,2-Dichlorobenzene	GCMS	ug/Nm3					ND (8.4)	
1,3-Dichlorobenzene	GCMS	ug/Nm3					ND (8.0)	
1,4-Dichlorobenzene	GCMS	ug/Nm3					ND (7.6)	
2,4,5-Trichlorophenol	GCMS	ug/Nm3					ND (12)	
2,4,6-Trichlorophenol	GCMS	ug/Nm3					ND (13)	
2,4-Dichlorophenol	GCMS	ug/Nm3					ND (5.3)	
2,4-Dimethylphenol	GCMS	ug/Nm3					ND (8.7)	
2,4-Dinitrophenol	GCMS	ug/Nm3					ND (31)	
2,4-Dinitrotoluene	GCMS	ug/Nm3					ND (11)	
2,6-Dinitrotoluene	GCMS	ug/Nm3					ND (17)	
2-Chloronaphthalene	GCMS	ug/Nm3					ND (5.1)	
2-Chlorophenol	GCMS	ug/Nm3					ND (9.0)	
2-Methylnaphthalene	GCMS	ug/Nm3					ND (5.0)	
2-Methylphenol	GCMS	ug/Nm3					ND (11)	
2-Nitroaniline	GCMS	ug/Nm3					ND (12)	
2-Nitrophenol	GCMS	ug/Nm3					ND (14)	
3,3'-Dichlorobenzidine	GCMS	ug/Nm3					ND (15)	
3-Nitroaniline	GCMS	ug/Nm3					ND (15)	
4,6-Dinitro-2-methylphenol	GCMS	ug/Nm3					ND (17)	
4-Chloro-3-methylphenol	GCMS	ug/Nm3					ND (9.8)	
4-Nitroaniline	GCMS	ug/Nm3					ND (12)	
4-Nitrophenol	GCMS	ug/Nm3					ND (13)	
Acenaphthene	GCMS	ug/Nm3					ND (5.6)	
Acenaphthylene	GCMS	ug/Nm3					ND (3.1)	
Anthracene	GCMS	ug/Nm3					ND (2.5)	
Benzo(b)fluoranthene	GCMS	ug/Nm3					ND (10)	
Benzo(g,h,i)perylene	GCMS	ug/Nm3					ND (11)	
Benzo(k)fluoranthene	GCMS	ug/Nm3					ND (10)	
Benzyl alcohol	GCMS	ug/Nm3					ND (19)	
Butylbenzylphthalate	GCMS	ug/Nm3					ND (3.7)	
Chrysene	GCMS	ug/Nm3					ND (3.1)	
Di-n-butylphthalate	GCMS	ug/Nm3					9.08	J

Analytical Data Not Used In Calculations

Stream: ESP Outlet **Collection Method:** Multimetals Train **Sample Type:** Acetone PNR/Nitric PNR/M5 Filter + Solids

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Lead	ICAP	ug/g	ND (12)	C	ND (90)	C	ND (13)	
Selenium	ICAP	ug/Nm3	21.7	C	20.2	C	19.9	
Selenium	ICAP	ug/g	353	C	2440	C	365	

Stream: ESP Outle **Collection Method:** Multimetals Trai **Sample Type:** Nitric Acid Impingers + TL

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	GFAA	ug/Nm3	ND (0.17)		ND (0.20)		ND (0.16)	
Cadmium	GFAA	ug/Nm3	0.172	C	0.787	C	0.558	C
Lead	GFAA	ug/Nm3	ND (0.53)	BC	0.654	BC	ND (0.52)	BC
Selenium	GFAA	ug/Nm3	13.5	C	24.5	C	22.0	C
Antimony	ICAP	ug/Nm3	ND (20)	B	ND (23)	B	ND (19)	B
Arsenic	ICAP	ug/Nm3	ND (12)		ND (14)		ND (12)	
Beryllium	ICAP	ug/Nm3	ND (0.13)		ND (0.16)		ND (0.13)	
Cadmium	ICAP	ug/Nm3	ND (0.99)	C	ND (1.2)	C	ND (0.98)	C
Chromium	ICAP	ug/Nm3	ND (1.3)	C	ND (1.6)	C	2.73	C
Cobalt	ICAP	ug/Nm3	ND (1.0)	BC	ND (1.2)	BC	ND (1.0)	BC
Copper	ICAP	ug/Nm3	ND (2.4)	BC	ND (2.8)	BC	3.89	BC
Lead	ICAP	ug/Nm3	ND (5.6)	BC	ND (6.6)	BC	ND (5.5)	BC
Manganese	ICAP	ug/Nm3	0.970	BC	3.11	BC	7.75	BC
Molybdenum	ICAP	ug/Nm3	ND (1.9)		ND (2.3)		ND (1.9)	
Nickel	ICAP	ug/Nm3	ND (3.6)	C	ND (4.3)	C	4.69	C
Selenium	ICAP	ug/Nm3	ND (23)	B	ND (27)	B	ND (23)	B
Vanadium	ICAP	ug/Nm3	ND (1.2)	C	ND (1.4)	C	ND (1.2)	C
Mercury	ICPMS	ug/Nm3	21.3	C	26.8	C	31.1	C

Analytical Data Not Used In Calculations

Stream: Service Water **Collection Method:** Grab **Sample Type:** Not Specified

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/L	ND (0.047)		ND (0.047)		ND (0.047)	
Cadmium	ICAP	mg/L	0.00482	B	ND (0.0039)	B	0.00500	B
Lead	ICAP	mg/L	0.0377	B	ND (0.022)		0.0312	B
Selenium	ICAP	mg/L	ND (0.089)	B	ND (0.089)	B	ND (0.089)	

Stream: Service Water **Collection Method:** Grab **Sample Type:** Not Specified FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/L					ND (0.047)	
Cadmium	ICAP	mg/L					0.00446	B
Lead	ICAP	mg/L					ND (0.022)	B
Selenium	ICAP	mg/L					ND (0.089)	

Stream: Sorbent **Collection Method:** Grab Composite **Sample Type:** Dolomite

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg	ND (2.9)	B	ND (3.2)	B	ND (3.2)	B
Cadmium	ICAP	mg/kg	0.589	B	0.552	B	0.922	B
Lead	ICAP	mg/kg	ND (1.8)		ND (11)		ND (2.0)	
Selenium	ICAP	mg/kg	ND (4.9)		ND (5.5)		ND (5.5)	

Stream: Sorbent **Collection Method:** Grab Composite **Sample Type:** Dolomite FD

Analyte	Analytical Technique	Units	Run 1	Com 1	Run 2	Com 2	Run 3	Com 3
Arsenic	ICAP	mg/kg					ND (3.4)	B
Cadmium	ICAP	mg/kg					0.763	B
Lead	ICAP	mg/kg					ND (2.1)	
Selenium	ICAP	mg/kg					ND (5.8)	

APPENDIX C: SOURCE SAMPLING DATA SUMMARY AND PSD PLOTS

Plant Name AEP Tidd Demonstration Plant
Location ESP Inlet
Train Aldehyde

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1946	1500	1452	-
Time Finish	2114	1624	1620	-
Operator	TJB	TJB	TJB	-
Initial Leak Rate	0.007	0.010	0.005	-
Final Leak Rate	0.005	0.010	0.004	-
Duct Dimensions (ft)	*10 x 10*	*10 x 10*	*10 x 10*	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	1.009	1.009	1.009	1.009
Nozzle Diameter (inches)	0.2460	0.2850	0.2850	-
Barometric Pressure ("Hg)	29.29	29.29	29.2	29.26
Static Pressure ("H2O)	2.8	2.8	2.8	2.8
Meter Volume (acf)	64.002	63.769	67.129	64.967
Average square root of delta p	0.7740	0.6860	0.7070	0.7223
Average delta H (" H2O)	1.40	1.95	2.00	1.78
Average Stack Temperature (F)	393	392	393	393
Average DGM Temp (F)	91.8	81.6	90.3	87.9
Test Duration (minutes)	89.0	84.0	88.0	87.0
Condensed Water (g)	140.4	151.9	121.3	137.9
% CO2	12.0	10.0	11.0	11.0
% O2	6.0	8.0	8.0	7.3
% N2	82.0	82.0	81.0	81.7
Meter Volume (dscf)	60.705	61.704	63.740	62.050
Flue Gas Moisture (%)	9.8	10.4	8.2	9.5
Gas Molecular Weight (Wet) (g/g-mole)	28.96	28.68	29.08	28.91
Absolute Stack Pressure (" Hg)	29.50	29.50	29.41	29.47
Absolute Stack Temperature (R)	853	852	853	853
Average Gas Velocity (f/sec)	55.54	49.43	50.71	51.90
Avg Flow Rate (acfm)	333,240	296,603	304,277	311,373
Avg Flow Rate (dscfm)	183,262	162,314	169,724	171,767
Isokinetic Sampling Rate (%)	112.78	102.17	96.35	103.77

Plant Name AEP Tidd Demonstration Plant
Location ESP Inlet
Train Ammonia/Hydrogen Cyanide

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1815	1317	1304	-
Time Finish	1921	1446	1430	-
Operator	TJB	TJB	TJB	-
Initial Leak Rate		0.010	0.007	-
Final Leak Rate		0.010	0.010	-
Duct Dimensions (ft)	10 x 10	10 x 10	10 x 10	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	1.009	1.009	1.009	1.009
Nozzle Diameter (inches)	0.2460	0.2850	0.2850	-
Barometric Pressure ("Hg)	29.29	29.26	29.2	29.25
Static Pressure ("H2O)	2.8	2.8	3.5	3.0
Meter Volume (acf)	42.280	66.953	65.822	58.352
Average square root of delta p	0.7750	0.6860	0.7090	0.7233
Average delta H (" H2O)	1.40	1.90	2.00	1.77
Average Stack Temperature (F)	397	391	392	393
Average DGM Temp (F)	87.2	81.1	86.3	84.9
Test Duration (minutes)	66.0	89.0	86.0	80.3
Condensed Water (g)	115.1	149.2	170.1	144.8
% CO2	12.0	10.0	11.0	11.0
% O2	6.0	8.0	8.0	7.3
% N2	82.0	82.0	81.0	81.7
Meter Volume (dscf)	40.439	64.770	62.957	56.055
Flue Gas Moisture (%)	11.8	9.8	11.3	11.0
Gas Molecular Weight (Wet) (g/g-mole)	28.72	28.75	28.71	28.73
Absolute Stack Pressure (" Hg)	29.50	29.47	29.46	29.47
Absolute Stack Temperature (R)	857	851	852	853
Average Gas Velocity (f/sec)	55.97	49.38	51.10	52.15
Avg Flow Rate (acfm)	335,827	296,260	306,599	312,895
Avg Flow Rate (dscfm)	179,784	163,187	165,843	169,605
Isokinetic Sampling Rate (%)	103.27	100.68	99.66	101.21

Plant Name AEP Tidd Demonstration Plant
Location ESP Inlet
Train Anions

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1313	1157	1126	-
Time Finish	1500	1304	1238	-
Operator	TJB	TJB	TJB	-
Initial Leak Rate	0.005	0.007	0.010	-
Final Leak Rate	0.010	0.010	0.010	-
Duct Dimensions (ft)	10 x 10	10 x 10	10 x 10	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	1.009	1.009	1.009	1.009
Nozzle Diameter (inches)	0.2460	0.2850	0.2850	-
Barometric Pressure ("Hg)	29.44	29.26	29.20	29.30
Static Pressure ("H2O)	2.5	2.8	3.5	2.9
Meter Volume (acf)	66.891	51.500	55.230	57.874
Average square root of delta p	0.7750	0.7230	0.7120	0.7367
Average delta H (" H2O)	1.36	2.09	2.10	1.85
Average Stack Temperature (F)	386	393	396	392
Average DGM Temp (F)	81.7	83.0	74.1	79.6
Test Duration (minutes)	107.0	67.0	72.0	82.0
Condensed Water (g)	38.8	183.2	120.6	114.2
Filter Weight Gain (g)	6.9959	7.0968	5.8575	6.6501
PNR Weight Gain (g)	1.0230	1.4225	2.6727	1.7061
% CO2	12.0	10.0	11.0	11.0
% O2	6.0	8.0	8.0	7.3
% N2	82.0	82.0	81.0	81.7
Meter Volume (dscf)	64.951	49.672	54.046	56.223
Particulate Meter Volume (dscf)	166.094	176.146	180.744	
Flue Gas Moisture (%)	2.7	14.8	9.5	9.0
Gas Molecular Weight (Wet) (g/g-mole)	29.83	28.15	28.93	28.97
Absolute Stack Pressure (" Hg)	29.62	29.47	29.46	29.52
Absolute Stack Temperature (R)	846	853	856	852
Average Gas Velocity (f/sec)	54.46	52.65	51.24	52.78
Avg Flow Rate (acfm)	326,746	315,893	307,432	316,690
Avg Flow Rate (dscfm)	196,293	163,950	168,881	176,374
Isokinetic Sampling Rate (%)	93.71	102.09	100.35	98.72
Particulate Concentration (gr/dscf)	7.45E-01	7.47E-01	7.28E-01	7.40E-01
Particulate Concentration (lbs/dscf)	1.06E-04	1.07E-04	1.04E-04	1.06E-04
Particulate Emission (grams/sec)	157.97	132.18	132.86	141.00
Particulate Emission (lbs/hour)	1253.79	1049.06	1054.47	1119.11

Plant Name AEP Tidd Demonstration Plant
Location ESP Inlet
Train Metals

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	0903	0904	0938	-
Time Finish	1315	1333	1349	-
Operator	TJB	TJB	TJB	-
Initial Leak Rate	0.010	0.002	0.010	-
Final Leak Rate	0.005	0.010	0.005	-
Duct Dimensions (ft)	10 x 10	10 x 10	10 x 10	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	1.009	1.009	1.009	1.009
Nozzle Diameter (inches)	0.2360	0.2460	0.2500	-
Barometric Pressure ("Hg)	29.44	29.26	29.20	29.30
Static Pressure ("H2O)	2.5	2.8	3.5	2.9
Meter Volume (acf)	101.297	104.446	100.749	102.164
Average square root of delta p	0.7690	0.7590	0.6710	0.7330
Average delta H (" H2O)	1.14	1.27	1.06	1.16
Average Stack Temperature (F)	388	388	390	389
Average DGM Temp (F)	58.8	67.0	63.8	63.2
Test Duration (minutes)	175.0	175.0	175.0	175.0
Condensed Water (g)	247.9	238.6	223.8	236.8
Filter Weight Gain (g)	2.7063	3.1061	3.1091	2.9738
PNR Weight Gain (g)	1.2417	1.0874	0.8819	1.0703
% CO2	12.0	10.0	11.0	11.0
% O2	6.0	8.0	8.0	7.3
% N2	82.0	82.0	81.0	81.7
Meter Volume (dscf)	102.643	103.586	100.269	102.166
Flue Gas Moisture (%)	10.2	9.8	9.5	9.9
Gas Molecular Weight (Wet) (g/g-mole)	28.92	28.75	28.93	28.87
Absolute Stack Pressure (" Hg)	29.62	29.47	29.46	29.52
Absolute Stack Temperature (R)	848	848	850	849
Average Gas Velocity (f/sec)	54.95	54.54	48.14	52.54
Avg Flow Rate (acfm)	329,692	327,266	288,814	315,258
Avg Flow Rate (dscfm)	182,355	180,841	159,657	174,284
Isokinetic Sampling Rate (%)	105.90	99.19	105.30	103.46
Particulate Concentration (gr/dscf)	5.94E-01	6.25E-01	6.14E-01	6.11E-01
Particulate Concentration (lbs/dscf)	8.48E-05	8.93E-05	8.78E-05	8.73E-05
Particulate Emission (grams/sec)	116.92	122.04	105.93	114.96
Particulate Emission (lbs/hour)	927.95	968.57	840.75	912.42

Plant Name AEP Tidd Demonstration Plant
Location ESP Inlet
Train M23

Run No.	2	3	1	Average
Date	04-13-94	04-14-94	04-15-94	-
Time Start	1835	1750	0949	-
Time Finish	2203	2235	1325	-
Operator	TJB	TJB	TJB	-
Initial Leak Rate	0.005	0.010	0.010	-
Final Leak Rate	0.010	0.010	0.010	-
Duct Dimensions (ft)	10 x 10	10 x 10	10 x 10	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	1.009	1.009	1.009	1.009
Nozzle Diameter (inches)	0.2500	0.2850	0.2770	-
Barometric Pressure ("Hg)	29.26	29.2	29.26	29.24
Static Pressure ("H2O)	2.8	2.8	3.1	2.9
Meter Volume (acf)	103.858	118.665	115.014	112.512
Average square root of delta p	0.7050	0.6460	0.6580	0.6697
Average delta H (" H2O)	1.24	2.59	1.46	1.76
Average Stack Temperature (F)	393	392	392	392
Average DGM Temp (F)	74.3	83.0	78.0	78.4
Test Duration (minutes)	175.0	175.0	175.0	175.0
Condensed Water (g)	221.0	289.7	248.6	253.1
% CO2	12.0	10.0	10.0	10.7
% O2	6.0	8.0	8.0	7.3
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	101.597	114.365	111.788	109.250
Flue Gas Moisture (%)	9.3	10.7	9.5	9.8
Gas Molecular Weight (Wet) (g/g-mole)	29.03	28.65	28.79	28.82
Absolute Stack Pressure (" Hg)	29.47	29.41	29.49	29.45
Absolute Stack Temperature (R)	853	852	852	852
Average Gas Velocity (f/sec)	50.55	46.65	47.34	48.18
Avg Flow Rate (acfm)	303,314	279,925	284,031	289,090
Avg Flow Rate (dscfm)	167,655	152,225	156,935	158,938
Isokinetic Sampling Rate (%)	101.60	96.92	97.28	98.60

Plant Name AEP Tidd Demonstration Plant
Location ESP Inlet
Train MM5

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1850	1530	1458	-
Time Finish	2255	1917	1918	-
Operator	TJB	TJB	TJB	-
Initial Leak Rate	0.010	0.010	0.010	-
Final Leak Rate	0.010	0.010	0.010	-
Duct Dimensions (ft)	10 x 10	10 x 10	10 x 10	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	1.009	1.009	1.009	1.009
Nozzle Diameter (inches)	0.2460	0.2450	0.2770	-
Barometric Pressure ("Hg)	29.29	29.26	29.2	29.25
Static Pressure ("H2O)	2.8	2.8	2.8	2.8
Meter Volume (acf)	110.566	96.973	114.507	107.349
Average square root of delta p	0.7720	0.6880	0.6410	0.7003
Average delta H (" H2O)	1.42	1.10	1.54	1.35
Average Stack Temperature (F)	389	387	392	389
Average DGM Temp (F)	76.6	67.0	82.7	75.4
Test Duration (minutes)	175.0	175.0	175.0	175.0
Condensed Water (g)	184.3	201.0	236.7	207.3
% CO2	12.0	10.0	10.0	10.7
% O2	6.0	8.0	8.0	7.3
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	107.848	96.136	110.132	104.705
Flue Gas Moisture (%)	7.5	9.0	9.2	8.6
Gas Molecular Weight (Wet) (g/g-mole)	29.25	28.85	28.82	28.97
Absolute Stack Pressure (" Hg)	29.50	29.47	29.41	29.46
Absolute Stack Temperature (R)	849	847	852	849
Average Gas Velocity (f/sec)	55.00	49.31	46.15	50.16
Avg Flow Rate (acfm)	329,995	295,885	276,920	300,933
Avg Flow Rate (dscfm)	187,097	165,286	153,061	168,481
Isokinetic Sampling Rate (%)	99.81	101.54	98.27	99.87

Plant Name AEP Tidd Demonstration Plant
Location ESP Inlet
Train VOST

Run No.	1A	1B	2A	2B	3A	3B	Average
Date	04-13-94	04-13-94	04-13-94	04-13-94	04-14-94	04-14-94	-
Time Start	0032	0120	2235	2320	2010	2120	-
Time Finish	0112	0140	2315	0000	2050	2200	-
Operator	TJB	TJB	TJB	TJB	TJB	TJB	-
Initial Leak Rate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Final Leak Rate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Tenax Tube ID	30437A	30441A	30415A	30401A	30411A	30408A	-
Tenax/Charcoal Tube ID	30437B	30441B	30415B	30401B	30411B	30408B	-
Dry Gas Meter Calibration (Yd)	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Barometric Pressure ("Hg)	29.29	29.29	29.26	29.26	29.2	29.2	29.25
Meter Volume (liters)	20.500	10.100	20.215	20.010	20.110	20.100	18.506
Average delta H (" H2O)	1.13	1.25	1.00	1.50	1.20	1.20	1.21
Average DGM Temp (F)	66.0	66.5	61.0	65.0	80.5	75.5	69.1
1st Condenser Temp (F)	63.5	60.5	46.5	60.0	47.0	50.5	54.7
2nd Condenser Temp (F)	63.0	61.5	59.5	47.5	47.5	52.0	55.2
Test Duration (minutes)	40.0	20.0	40.0	40.0	40.0	40.0	36.7
% CO2	12.0	12.0	11.0	11.0	11.0	11.0	11.3
% O2	6.0	6.0	8.0	8.0	8.0	8.0	7.3
% N2	82.0	82.0	81.0	81.0	81.0	81.0	81.3
Meter Volume (dsL)	20.202	9.947	20.085	19.755	19.230	19.400	18.103

Plant Name AEP Tidd Demonstration Plant
Location ESP Outlet
Train Aldehyde

Run No.	1	2	3	Average
Date	04-12-94	04-13-93	04-14-94	-
Time Start	1950	1500	1520	-
Time Finish	2130	1640	1655	-
Operator	JEH	JEH	JEH	-
Initial Leak Rate	0.005	< 0.001	0.006	-
Final Leak Rate	0.009	0.007		-
Stack Diameter (ft)	10.0	10.0	10.0	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	0.997	0.997	0.997	0.997
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.41	29.14	29.35	29.3
Static Pressure ("H2O)	1.6	1.5	1.6	1.566667
Meter Volume (acf)	64.455	69.285	66.305	66.682
Average square root of delta p	0.7810	0.8370	0.8310	0.8163
Average delta H (" H2O)	1.37	1.58	1.59	1.51
Average Stack Temperature (F)	389	387	388	388
Average DGM Temp (F)	87.2	83.3	99.7	90.1
Test Duration (minutes)	95.0	100.0	95.0	96.7
Condensed Water (g)	140.5	155.2	226.6	174.1
% CO2	12.0	12.0	11.0	11.7
% O2	6.0	7.0	8.0	7.0
% N2	82.0	81.0	81.0	81.3
Meter Volume (dscf)	61.158	65.648	61.417	62.741
Flue Gas Moisture (%)	9.8	10.0	14.8	11.6
Gas Molecular Weight (Wet) (g/g-mole)	28.97	28.98	28.29	28.74
Absolute Stack Pressure (" Hg)	29.53	29.25	29.47	29.42
Absolute Stack Temperature (R)	849	847	848	848
Average Gas Velocity (f/sec)	55.86	60.10	60.19	58.72
Avg Flow Rate (acfm)	263,252	283,205	283,634	276,697
Avg Flow Rate (dscfm)	145,759	155,149	148,076	149,661
Isokinetic Sampling Rate (%)	101.78	97.51	100.61	99.97

Plant Name AEP Tidd Demonstration Plant
Location ESP Outlet
Train Ammonia/Hydrogen Cyanide

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1803	1325	1338	-
Time Finish	1923	1436	1508	-
Operator	JEH	JEH	JEH	-
Initial Leak Rate	0.009	0.010	0.007	-
Final Leak Rate		0.007	0.014	-
Stack Diameter (ft)	10.0	10.0	10.0	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	0.997	0.997	0.997	0.997
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.16	29.32	29.31
Static Pressure ("H2O)	1.5	1.4	2.0	1.6
Meter Volume (acf)	56.125	50.460	60.918	55.834
Average square root of delta p	0.8660	0.8440	0.8370	0.8490
Average delta H (" H2O)	1.68	1.59	1.55	1.61
Average Stack Temperature (F)	389	389	389	389
Average DGM Temp (F)	82.8	82.4	94.8	86.6
Test Duration (minutes)	80.0	76.0	90.0	82.0
Condensed Water (g)	145.8	117.8	133.4	132.3
% CO2	12.0	12.0	11.0	11.7
% O2	6.0	7.0	8.0	7.0
% N2	82.0	81.0	81.0	81.3
Meter Volume (dscf)	53.787	47.922	56.868	52.859
Flue Gas Moisture (%)	11.3	10.4	10.0	10.6
Gas Molecular Weight (Wet) (g/g-mole)	28.78	28.93	28.88	28.86
Absolute Stack Pressure (" Hg)	29.55	29.26	29.47	29.43
Absolute Stack Temperature (R)	849	849	849	849
Average Gas Velocity (f/sec)	62.13	60.69	60.03	60.95
Avg Flow Rate (acfm)	292,769	286,013	282,897	287,226
Avg Flow Rate (dscfm)	159,402	155,819	155,974	157,065
Isokinetic Sampling Rate (%)	97.20	93.25	93.35	94.60

Plant Name AEP Tidd Demonstration Plant
Location ESP Outlet
Train Anions

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1312	1148	1150	-
Time Finish	1427	1303	1313	-
Operator	JEH	JEH	JEH	-
Initial Leak Rate	0.011	0.007	< 0.001	-
Final Leak Rate	0.012	0.010	< 0.001	-
Stack Diameter (ft)	10.0	10.0	10.0	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	0.997	0.997	0.997	0.997
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.5	29.18	29.35	29.34
Static Pressure ("H2O)	1.5	2.3	3.8	2.5
Meter Volume (acf)	53.946	50.345	56.165	53.485
Average square root of delta p	0.8540	0.7940	0.8370	0.8283
Average delta H (" H2O)	1.77	1.40	1.54	1.57
Average Stack Temperature (F)	388	390	389	389
Average DGM Temp (F)	77.0	80.1	84.0	80.4
Test Duration (minutes)	75.0	75.0	73.0	74.3
Condensed Water (g)	126.5	100.2	109.2	112.0
Filter Weight Gain (g)	0.1631	0.1426	0.1348	0.1468
PNR Weight Gain (g)	0.3358	0.0454	0.1711	0.1841
% CO2	12.0	12.0	11.0	11.7
% O2	6.0	7.0	8.0	7.0
% N2	82.0	81.0	81.0	81.3
Meter Volume (dscf)	52.370	48.022	53.520	51.304
Particulate Meter Volume, (dscf)	167.315	161.593	171.804	
Flue Gas Moisture (%)	10.2	9.0	8.8	9.3
Gas Molecular Weight (Wet) (g/g-mole)	28.92	29.11	29.02	29.01
Absolute Stack Pressure (" Hg)	29.61	29.35	29.63	29.53
Absolute Stack Temperature (R)	848	850	849	849
Average Gas Velocity (f/sec)	61.03	56.88	59.71	59.21
Avg Flow Rate (acfm)	287,610	268,025	281,375	279,004
Avg Flow Rate (dscfm)	159,023	148,613	158,097	155,244
Isokinetic Sampling Rate (%)	101.19	99.29	106.86	102.45
Particulate Concentration (gr/dscf)	4.60E-02	1.80E-02	2.75E-02	3.05E-02
Particulate Concentration (lbs/dscf)	6.57E-06	2.57E-06	3.93E-06	4.36E-06
Particulate Emission (grams/sec)	7.90	2.88	4.69	5.16
Particulate Emission (lbs/hour)	62.73	22.87	37.24	40.95

Plant Name AEP Tidd Demonstration Plant
Location ESP Outlet
Train Chrome IV

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1620	0840	0820	-
Time Finish	1740	1010	0945	-
Operator	JEH	JEH	JEH	-
Initial Leak Rate	0.011	< 0.001	0.005	-
Final Leak Rate	0.015	0.006		-
Stack Diameter (ft)	10.0	10.0	10.0	-
Pitot Tube Correction Factor (Cp)	0.84	0.84	0.84	0.84
Dry Gas Meter Calibration (Yd)	0.987	0.987	0.987	0.987
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.5	29.26	29.38	29.38
Static Pressure ("H2O)	1.5	1.7	1.8	1.7
Meter Volume (acf)	49.100	57.450	52.460	53.003
Average square root of delta p	0.6630	0.7940	0.7680	0.7417
Average delta H (" H2O)	1.00	1.44	1.28	1.24
Average Stack Temperature (F)	388	390	389	389
Average DGM Temp (F)	79.3	73.4	66.2	72.9
Test Duration (minutes)	80.0	90.0	85.0	85.0
% CO2	12.0	12.0	11.0	11.7
% O2	6.0	7.0	8.0	7.0
% N2	82.0	81.0	81.0	81.3
Meter Volume (dscf)	46.901	55.090	51.184	51.058
Flue Gas Moisture (%)	10.0	10.0	10.0	10.0
Gas Molecular Weight (Wet) (g/g-mole)	28.94	28.98	28.87	28.93
Absolute Stack Pressure (" Hg)	29.61	29.39	29.51	29.50
Absolute Stack Temperature (R)	848	850	849	849
Average Gas Velocity (f/sec)	47.36	56.95	55.05	53.12
Avg Flow Rate (acfm)	223,176	268,365	259,424	250,322
Avg Flow Rate (dscfm)	123,718	147,377	143,169	138,088
Isokinetic Sampling Rate (%)	109.20	95.71	96.92	100.61

Plant Name AEP Tidd Demonstration Plant
Location APF Inlet
Train Aldehyde

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	2025	1348	1600	-
Time Finish	0045	1538	2247	-
Operator	RVW	RVW	RVW	-
Initial Leak Rate	0.005	0.012	0.008	-
Final Leak Rate			0.006	-
Dry Gas Meter Calibration (Yd)	0.993	0.993	0.993	0.993
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.31
Meter Volume (acf)	63.205	74.832	64.475	67.504
Average delta H (" H2O)	1.50	1.50	0.93	1.31
Average DGM Temp (F)	100.9	97.0	91.3	96.4
Test Duration (minutes)	95.0	110.0	119.0	108.0
Condensed Water (g)	180.4	165.2	142.5	162.7
% CO2	12.5	12.5	11.0	12.0
% O2	5.5	5.5	8.0	6.3
% N2	82.0	82.0	81.0	81.7
Meter Volume (dscf)	58.351	68.863	60.292	62.502
Flue Gas Moisture (%)	12.7	10.2	10.0	11.0
Gas Molecular Weight (Wet) (g/g-mole)	28.66	28.98	28.87	28.84

Plant Name AEP Tidd Demonstration Plant
Location APF Inlet
Train Ammonia/Hydrogen Cyanide

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1810	1345	1423	-
Time Finish	1925	1455	1533	-
Operator	RVW	RVW	RVW	-
Initial Leak Rate	0.006	0.010	0.004	-
Final Leak Rate	0.008	0.006	0.010	-
Dry Gas Meter Calibration (Yd)	0.993	1.018	1.018	1.010
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.31
Meter Volume (acf)	48.540	47.521	44.682	46.914
Average delta H (" H2O)	1.50	1.51	1.50	1.50
Average DGM Temp (F)	105.3	89.5	92.9	95.9
Test Duration (minutes)	75.0	70.0	70.0	71.7
Condensed Water (g)	128.1	106.4	109.9	114.8
% CO2	12.5	12.5	11.0	12.0
% O2	5.5	5.5	8.0	6.3
% N2	82.0	82.0	81.0	81.7
Meter Volume (dscf)	44.464	45.444	42.772	44.227
Flue Gas Moisture (%)	12.0	10.0	10.8	10.9
Gas Molecular Weight (Wet) (g/g-mole)	28.76	29.00	28.77	28.84

Plant Name AEP Tidd Demonstration Plant
Location APF Inlet
Train Anions

Run No.	1	2	3	1	Average
Date	04-12-94	04-13-94	04-14-94	04-15-94	-
Time Start	1315	0908	1420	1627	-
Time Finish	1415	1018	1530	1735	-
Operator	RVW	RVW	RVW	RVW	-
Initial Leak Rate	0.006	0.005	0.008	0.007	-
Final Leak Rate		0.006	0.006	0.010	-
Dry Gas Meter Calibration (Yd)	1.018	1.018	0.993	0.993	1.006
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.41	29.34
Meter Volume (acf)	29.981	46.758	42.764	44.870	41.093
Average delta H (" H2O)	1.00	1.50	1.50	1.50	1.38
Average DGM Temp (F)	95.2	73.8	87.4	87.5	86.0
Test Duration (minutes)	55.0	70.0	70.0	68.0	65.8
Condensed Water (g)		108.4	100.7	105.9	105.0
% CO2	12.5	12.5	11.0	11.0	11.8
% O2	5.5	5.5	8.0	8.0	6.8
% N2	82.0	82.0	81.0	81.0	81.5
Meter Volume (dscf)	28.630	46.029	40.330	42.395	39.346
Flue Gas Moisture (%)	0.0	10.0	10.5	10.5	7.8
Gas Molecular Weight (Wet) (g/g-mole)	30.22	29.00	28.81	28.81	29.21

Plant Name **AEP Tidd Demonstration Plant**
Location **APF Inlet**
Train **Metals**

Run No.	1	2	3	4	Average
Date	04-12-94	04-13-94	04-14-94	04-15-94	-
Time Start	1322	0905	0955	2132	-
Time Finish	1417	1125	1215	2352	-
Operator	RVW	RVW	RVW	RVW	-
Initial Leak Rate	0.012	0.012	0.010	0.010	-
Final Leak Rate		0.014		0.012	-
Dry Gas Meter Calibration (Yd)	0.993	0.993	0.993	1.018	0.999
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.41	29.335
Meter Volume (acf)	41.375	106.315	104.156	103.282	88.782
Average delta H (" H2O)	1.90	1.76	1.90	1.90	1.86
Average DGM Temp (F)	107.5	98.1	94.3	87.5	96.9
Test Duration (minutes)	55.0	140.0	140.0	140.0	118.8
Condensed Water (g)		158.3	118.5	266.1	181.0
% CO2	12.5	12.5	11.0	11.0	11.8
% O2	5.5	5.5	8.0	8.0	6.8
% N2	82.0	82.0	81.0	81.0	81.5
Meter Volume (dscf)	37.791	97.697	97.103	100.141	83.183
Flue Gas Moisture (%)	0.0	7.1	5.4	11.1	5.9
Gas Molecular Weight (Wet) (g/g-mole)	30.22	29.35	29.42	28.73	29.43

Plant Name **AEP Tidd Demonstration Plant**
Location **APF Inlet**
Train **M23**

Run No.	2	3	1	Average
Date	04-13-94	04-15-94	04-15-94	-
Time Start	1803	1043	2125	-
Time Finish	2233	1550	2350	-
Operator	RVW	RVW	RVW	-
Initial Leak Rate	0.009	0.003	0.009	-
Final Leak Rate	0.007	0.004	0.010	-
Dry Gas Meter Calibration (Yd)	0.993	0.993	1.016	1.001
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.14	29.41	29.41	29.32
Meter Volume (acf)	107.555	111.103	108.501	109.053
Average delta H (" H2O)	0.93	1.22	1.90	1.35
Average DGM Temp (F)	93.9	89.8	95.7	93.1
Test Duration (minutes)	200.0	200.0	165.0	188.3
Condensed Water (g)	327.1	267.0	7.7	200.6
% CO2	12.5	11.0	11.0	11.5
% O2	8.5	8.0	8.0	8.2
% N2	79.0	81.0	81.0	80.3
Meter Volume (dscf)	99.387	104.471	103.449	102.435
Flue Gas Moisture (%)	13.4	10.8	0.4	8.2
Gas Molecular Weight (Wet) (g/g-mole)	28.68	28.78	30.04	29.17

Plant Name AEP Tidd Demonstration Plant
Location APF Inlet
Train MM5

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-15-94	-
Time Start	1928	1805	1045	-
Time Finish	0103	2230	1553	-
Operator	RVW	RVW	RVW	-
Initial Leak Rate	0.002	0.008	0.006	-
Final Leak Rate	0.010	0.005	0.006	-
Dry Gas Meter Calibration (Yd)	1.018	1.018	1.018	1.018
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.41	29.33
Meter Volume (acf)	111.710	104.953	111.810	109.491
Average delta H (" H2O)	1.50	0.93	1.19	1.21
Average DGM Temp (F)	94.9	84.1	88.7	89.2
Test Duration (minutes)	150.0	200.0	200.0	183.3
Condensed Water (g)	256.6	231.0	248.5	245.4
% CO2	12.5	12.5	11.0	12.0
% O2	5.5	5.5	8.0	6.3
% N2	82.0	82.0	81.0	81.7
Meter Volume (dscf)	106.875	101.215	107.986	105.358
Flue Gas Moisture (%)	10.2	9.7	9.8	9.9
Gas Molecular Weight (Wet) (g/g-mole)	28.98	29.03	28.90	28.97

Plant Name AEP Tidd Demonstration Plant
Location APF Inlet
Train VOST

Run No.	2A	2B	3A	3B	1A	1B	Average
Date	04-13-94	04-13-94	04-14-94	04-14-94	04-15-94	04-15-94	-
Time Start	2252	2340	1642	2012	1624	1710	-
Time Finish	2332	0020	1722	2247	1704	1750	-
Operator	RVW	RVW	RVW	RVW	RVW	RVW	-
Initial Leak Rate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Final Leak Rate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Tenax Tube ID	30442A	30444A	30428A	30404A	30424A	30403a	-
Tenax/Charcoal Tube ID	30442B	30444B	30428B	30404B	30424B	30403B	-
Dry Gas Meter Calibration (Yd)	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Barometric Pressure ("Hg)	29.14	29.14	29.41	29.41	29.41	29.41	29.32
Meter Volume (liters)	20.070	20.075	20.410	20.085	20.110	20.150	20.150
Average delta H (" H2O)	1.20	1.20	1.40	1.20	1.20	1.20	1.23
Average DGM Temp (F)	82.7	86.0	98.0	100.0	97.0	47.3	85.2
1st Condenser Temp (F)	46.7	47.3	50.7	47.7	57.7	47.3	49.6
2nd Condenser Temp (F)	50.3	48.3	57.3	55.7	60.3	51.0	53.8
Test Duration (minutes)	40.0	40.0	40.0	40.0	40.0	40.0	40.0
% CO2	12.5	12.5	11.0	11.0	11.0	11.0	11.5
% O2	5.5	5.5	8.0	8.0	8.0	8.0	7.2
% N2	82.0	82.0	81.0	81.0	81.0	81.0	81.3
Meter Volume (dsL)	18.733	18.623	18.707	18.334	18.456	20.303	18.859

Plant Name AEP Tidd Demonstration Plant
Location APF Outlet
Train Aldehyde

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1945	1345	1359	-
Time Finish	2141	1537	2041	-
Operator	DJV	DJV	DJV	-
Initial Leak Rate	< 0.001	< 0.001	< 0.001	-
Final Leak Rate	< 0.001	< 0.001	< 0.001	-
Dry Gas Meter Calibration (Yd)	1.016	1.003	1.003	1.007
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.31
Meter Volume (acf)	62.303	62.505	61.873	62.227
Average delta H (" H2O)	0.93	0.93	0.93	0.93
Average DGM Temp (F)	106.1	101.6	108.1	105.2
Test Duration (minutes)	116.0	112.0	118.0	115.3
Condensed Water (g)	133.4	127.5	132.7	131.2
% CO2	12.0	12.0	12.0	12.0
% O2	6.0	6.0	6.0	6.0
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	58.227	57.544	56.713	57.495
Flue Gas Moisture (%)	9.8	9.5	9.9	9.7
Gas Molecular Weight (Wet) (g/g-mole)	28.97	29.01	28.95	28.98

Plant Name AEP Tidd Demonstration Plant
Location APF Outlet
Train Ammonia/Hydrogen Cyanide

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1802	1346	1424	-
Time Finish	1917	1515	1542	-
Operator	DJV	DJV	DJV	-
Initial Leak Rate	< 0.001	0.005	< 0.001	-
Final Leak Rate	< 0.001	0.004	< 0.001	-
Dry Gas Meter Calibration (Yd)	1.003	1.016	1.003	1.007
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.31
Meter Volume (acf)	40.628	42.319	42.829	41.925
Average delta H (" H2O)	0.95	0.93	0.93	0.94
Average DGM Temp (F)	101.6	90.1	101.1	97.6
Test Duration (minutes)	85.0	79.0	78.0	80.7
Condensed Water (g)	100.1	87.4	105.1	97.5
% CO2	12.0	12.0	12.0	12.0
% O2	6.0	6.0	6.0	6.0
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	37.784	40.287	39.744	39.272
Flue Gas Moisture (%)	11.1	9.3	11.1	10.5
Gas Molecular Weight (Wet) (g/g-mole)	28.81	29.03	28.81	28.88

Plant Name AEP Tidd Demonstration Plant
Location APF Outlet
Train Anions

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	1315	0906	0953	-
Time Finish	1430	1025	1110	-
Operator	DJV	DJV	DJV	-
Initial Leak Rate	< 0.001	< 0.001	0.002	-
Final Leak Rate	< 0.001	< 0.001	0.002	-
Dry Gas Meter Calibration (Yd)	1.016	1.016	1.003	1.012
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.31
Meter Volume (acf)	40.761	42.134	42.338	41.744
Average delta H (" H2O)	0.97	0.93	0.93	0.94
Average DGM Temp (F)	99.2	89.0	100.3	96.1
Test Duration (minutes)	85.0	79.0	77.0	80.3
Condensed Water (g)	97.5	93.6	91.2	94.1
% CO2	12.0	12.0	12.0	12.0
% O2	6.0	6.0	6.0	6.0
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	38.569	40.191	39.350	39.370
Flue Gas Moisture (%)	10.7	9.9	9.9	10.1
Gas Molecular Weight (Wet) (g/g-mole)	28.86	28.96	28.96	28.93

Plant Name AEP Tidd Demonstration Plant
Location APF Outlet
Train Metals

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-14-94	-
Time Start	0909	0904	0952	-
Time Finish	1245	1140	1229	-
Operator	DJV	DJV	DJV	-
Initial Leak Rate	0.002	0.005	0.006	-
Final Leak Rate	0.002	0.003	0.004	-
Dry Gas Meter Calibration (Yd)	1.003	1.003	1.016	1.007
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.35	29.31
Meter Volume (acf)	100.626	103.896	103.459	102.660
Average delta H (" H2O)	1.46	1.40	1.40	1.42
Average DGM Temp (F)	110.4	98.1	93.8	100.8
Test Duration (minutes)	138.0	156.0	157.0	150.3
Condensed Water (g)	122.3	236.2	198.7	185.7
% CO2	12.0	12.0	12.0	12.0
% O2	6.0	6.0	6.0	6.0
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	92.265	96.351	98.657	95.758
Flue Gas Moisture (%)	5.9	10.4	8.7	8.3
Gas Molecular Weight (Wet) (g/g-mole)	29.44	28.90	29.10	29.15

Plant Name AEP Tidd Demonstration Plant
Location APF Outlet
Train M23

Run No.	2	3	1	Average
Date	04-13-94	04-15-94	04-15-94	-
Time Start	1800	1041	2058	-
Time Finish	2129	1541	2317	-
Operator	DJV	DJV	DJV	-
Initial Leak Rate	< 0.001	< 0.001	< 0.001	-
Final Leak Rate	< 0.001	< 0.001	< 0.001	-
Dry Gas Meter Calibration (Yd)	1.016	1.003	1.003	1.007
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.14	29.41	29.41	29.32
Meter Volume (acf)	111.877	108.139	107.633	109.216
Average delta H (" H2O)	0.93	0.96	1.90	1.26
Average DGM Temp (F)	91.0	100.6	94.3	95.3
Test Duration (minutes)	229.0	193.0	139.0	187.0
Condensed Water (g)	239.2	244.1	241.9	241.7
% CO2	12.0	12.0	12.0	12.0
% O2	6.0	6.0	6.0	6.0
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	106.339	100.658	101.556	102.851
Flue Gas Moisture (%)	9.6	10.3	10.1	10.0
Gas Molecular Weight (Wet) (g/g-mole)	28.99	28.91	28.93	28.95

Plant Name AEP Tidd Demonstration Plant
Location APF Outlet
Train MM5

Run No.	1	2	3	Average
Date	04-12-94	04-13-94	04-15-94	-
Time Start	1850	1801	1040	-
Time Finish	2155	2121	1542	-
Operator	DJV	DJV	DJV	-
Initial Leak Rate	0.005	< 0.001	< 0.001	-
Final Leak Rate	0.001	< 0.001	< 0.011	-
Dry Gas Meter Calibration (Yd)	1.003	1.003	1.016	1.007
Nozzle Diameter (inches)	0.2500	0.2500	0.2500	-
Barometric Pressure ("Hg)	29.44	29.14	29.41	29.33
Meter Volume (acf)	107.349	110.284	106.209	107.947
Average delta H (" H2O)	0.93	0.93	0.96	0.94
Average DGM Temp (F)	111.8	100.1	94.5	102.1
Test Duration (minutes)	185.0	200.0	195.0	193.3
Condensed Water (g)	234.7	228.8	226.9	230.1
% CO2	12.0	12.0	12.0	12.0
% O2	6.0	6.0	6.0	6.0
% N2	82.0	82.0	82.0	82.0
Meter Volume (dscf)	98.052	101.797	101.249	100.366
Flue Gas Moisture (%)	10.2	9.6	9.6	9.8
Gas Molecular Weight (Wet) (g/g-mole)	28.93	28.99	29.00	28.97

Plant Name **AEP Tidd Demonstration Plant**
Location **APF Outlet**
Train **VOST**

Run No.	1A	1B	2A	2B	3A	3B	Average
Date	04-12-94	04-13-94	04-13-94	04-13-94	04-14-94	04-14-94	-
Time Start	2325	0013	2241	2324	1645	2000	-
Time Finish	0005	0053	2315	0000	1725	2040	-
Operator	DJV	DJV	DJV	DJV	DJV	DJV	-
Initial Leak Rate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Final Leak Rate	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Tenax Tube ID	30418A	30435A	30414A	30416A	30420A	30430A	-
Tenax/Charcoal Tube ID	30418B	30435B	30414B	30416B	30420B	30430B	-
Dry Gas Meter Calibration (Yd)	1.005	1.005	1.005	1.005	1.005	1.005	1.005
Barometric Pressure ("Hg)	29.44	29.44	29.14	29.14	29.41	29.41	29.33
Meter Volume (liters)	24.112	32.604	23.833	20.976	20.354	22.821	24.117
Average delta H (" H2O)	1.20	1.30	1.60	1.40	1.20	1.30	1.33
Average DGM Temp (F)	88.0	88.3	77.0	78.5	87.3	88.5	84.6
1st Condenser Temp (F)	44.8	45.0	50.0	50.0	46.0	44.3	46.7
2nd Condenser Temp (F)	55.0	52.0	54.5	53.0	53.7	52.5	53.4
Test Duration (minutes)	40.0	40.0	34.0	36.0	40.0	40.0	38.3
% CO2	12.0	12.0	12.0	12.0	12.0	12.0	12.0
% O2	6.0	6.0	6.0	6.0	6.0	6.0	6.0
% N2	82.0	82.0	82.0	82.0	82.0	82.0	82.0
Meter Volume (dsL)	23.042	31.151	23.029	20.202	19.456	21.772	23.109

APF Sampling Locations Data Summary

Location	Run No.	Date	Time	Sample Time (min)	Filter ID	Delta P ("H20)	Orifice Temp (F)	Zone 1 Temp (F)	Zone 2 Temp (F)	Zone 3 Temp (F)	Bar. Press. ("Hg)
APF Inlet	1	04-12-94	1255-1430	95	Q-1938	2.8	656	588	601	611	29.44
	1-3	04-12-94	1800-2052	172	Q-1940, Q-1944	2.8	664	597	622	616	29.44
	1-4	04-12-94	2306-0106	120	Q-1950, Q-1946	2.6	583	515	535	510	29.44
	2-1	04-13-94	0850-1120	150	Q-1936, Q-1942	2.6	567	532	505	489	29.14
	2-2	04-13-94	1345-1540	115	Q-1946, Q-1950	2.6	570	534	509	498	29.14
	2-3	04-13-94	1800-2025	145	Q-1936, Q-1942	2.6	576	567	522	504	29.14
	2-4	04-13-94	2130-2422	172	Q-1946, Q-1950	2.6	588	550	545	502	29.14
	3-1	04-14-94	0955-1225	150	Q-1942, Q-1936	2.4	508	508	511	495	29.41
	3-2	04-14-94	1418-1728	138	Q-1940, Q-1944	2.4	467	514	424	505	29.41
	4-1	04-15-94	1040-1316	156	Q-1940, Q-1944	2.4	497	503	542	546	29.41
	4-2	04-15-94	1500-1750	141	Q-19__, Q-1934	2.3	468	468	494	491	29.41
	4-3	04-15-94	2125-2355	150	Q-1940, Q-1944	2.4	498	508	531	518	29.41
APF Outlet	1 - Metals	04-12-94	0900-1603	423	Q-1966	2.5	561	524	598	310	29.44
	1 - Organics	04-12-94	1800-0059	419	Q-1956	2.4	518	502	569	159	29.44
	2 - Metals	04-13-94	0835-1538	423	Q-1958	2.4	540	509	569	158	29.14
	2 - Organics	04-13-94	1640-0005	445	Q-1982	2.4	497	534	572	143	29.14
	3 - Metals	04-14-94	0835-1729	534	Q-1980	2.4	517	523	567	136	29.41
	3 - Organics	04-14-94	1857-2346	289	Q-1954	2.4	479	495	549	98	29.41
	4 - Organics	04-15-94	0935-1554	379	Q-1976	2.4	525	520	566	184	29.41
	5 - Organics	04-15-94	1845-2329	284	Q-1970	2.4	497	529	555	93	29.41

% Isokinetic based on process design flow rates and determined to be 3 scfm.

APF Sampling Locations Data Summary

Location	Run No.	Date	Time	Gas Sampling Rate (dscfm)	Gas Sample Volume (dscf)	Gas Sample Volume (Nm3)	% Isokinetic	Particulate Mass (gm)	Particulate Loading (gr/dscf)
APF Inlet	1	04-12-94	1255-1430	3.016	286.52	7.56	101	N/A	
	1-3	04-12-94	1800-2052	3.004	516.69	13.63	100	50.2	1.50
	1-4	04-12-94	2306-0106	3.006	360.72	9.52	100	33.5	1.43
	2-1	04-13-94	0850-1120	3.030	454.43	11.99	101	57.3	1.94
	2-2	04-13-94	1345-1540	3.025	347.88	9.18	101	36.8	1.63
	2-3	04-13-94	1800-2025	3.016	437.25	11.54	101	34.4	1.21
	2-4	04-13-94	2130-2422	3.021	519.61	13.71	101	59.4	1.76
	3-1	04-14-94	0955-1225	3.004	450.60	11.89	100	45.5	1.56
	3-2	04-14-94	1418-1728	3.064	422.76	11.16	102	38.5	1.40
	4-1	04-15-94	1040-1316	3.009	469.33	12.38	100	45.5	1.49
	4-2	04-15-94	1500-1750	3.016	425.19	11.22	101	40.9	1.48
	4-3	04-15-94	2125-2355	3.000	449.93	11.87	100	53.7	1.84
APF Outlet	1 - Metals	04-12-94	0900-1603	2.979	1259.91	33.24	99	0.00246	3.01E-05
	1 - Organics	04-12-94	1800-0059	2.982	1249.25	32.96	99	-0.00568	-7.00E-05
	2 - Metals	04-13-94	0835-1538	2.949	1247.22	32.91	98	0.01031	1.27E-04
	2 - Organics	04-13-94	1640-0005	3.015	1341.68	35.40	101	0.00834	9.57E-05
	3 - Metals	04-14-94	0835-1729	2.984	1593.19	42.04	99	0.00759	7.34E-05
	3 - Organics	04-14-94	1857-2346	3.043	879.43	23.20	101	0.02204	3.86E-04
	4 - Organics	04-15-94	0935-1554	2.972	1126.20	29.72	99	0.01652	2.26E-04
	5 - Organics	04-15-94	1845-2329	3.015	856.12	22.59	100	0.01817	3.27E-04

% Isokinetic based on process design flow rates and determined to be 3 scfm.

Run ID	:	Inlet 1
Plant & Unit	:	AEP PFBC
Sampling Location	:	ESP Inlet
Type of Sizing Device	:	UWVD
Run Date	:	4/11/94
Start time	:	21:30

REMARKS:

Average Flue Gas Temperature	374.0	F	190.0	C
Flue Gas Pressure (Absolute)	30.14	"Hg	76.56	cm Hg
Flue Gas Static Pressure	3.00	"H2O	7.620	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.165E-04	lb-sec/ft2	.246E-03	Poise
Flue Gas Mean Free Path	.446E-05	inch	.113E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	64.6894	fps	19.7173	m/s
Average Flue Gas Flowrate	304842.	acfm	8633.	m3/min
	174904.	dscfm	4953.	m3/min
Volume Sampled (Dry, STP)	26.8489	dscf	.7604	m3
Test Duration	65.	min	65.	min
Total Catch	.135E-02	lb	.612E+03	mg
Sampling Rate in Device	.720	acfm	.020	m3/min
Collection Temperature	374.0	F	190.0	C
Percent Isokinetic	80.9	%	80.9	%
Nominal Mass Concentration	.352E+00	gr/dscf	.805E+00	g/m3
	.503E-04	lb/dscf		

Run ID : Inlet 1
Plant & Unit : AEP PFBC
Sampling Location : ESP Inlet
Type of Sizing Device : UWVD
Run Date : 4/11/94
Start time : 21:30

Nominal Mass Concentration .352E+00 gr/dscf .805E+00 g/m3
.503E-04 lb/dscf

Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.033		33.92	.123E-01	.281E-01
	11.51		.967			
3		.384		7.53	.367E+00	.839E+00
	4.93		.583			
4		.268		3.46	.307E+00	.702E+00
	2.42		.315			
5		.150		1.80	.203E+00	.465E+00
	1.33		.165			
6		.086		1.09	.174E+00	.399E+00
	.89		.079			
7		.044		.79	.140E+00	.321E+00
	.69		.035			
8		.023		.61	.704E-01	.161E+00
	.53		.013			
9		.008		.47	.251E-01	.575E-01
	.41		.004			
10		.003		.38	.123E-01	.281E-01
	.34		.002			
FILTER		.002		.19	.112E-02	.255E-02
	.10		.000			

Run ID	: Inlet 2
Plant & Unit	: AEP PFBC
Sampling Location	: ESP Inlet
Type of Sizing Device	: UWVD
Run Date	: 4/13/94
Start time	: 4: 0

REMARKS:

Average Flue Gas Temperature	385.0	F	196.1	C
Flue Gas Pressure (Absolute)	30.14	"Hg	76.56	cm Hg
Flue Gas Static Pressure	3.00	"H2O	7.620	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.166E-04	lb-sec/ft2	.248E-03	Poise
Flue Gas Mean Free Path	.453E-05	inch	.115E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	51.4778	fps	15.6904	m/s
Average Flue Gas Flowrate	308867.	acfm	8747.	m3/min
	174905.	dscfm	4953.	m3/min
Volume Sampled (Dry, STP)	20.3670	dscf	.5768	m3
Test Duration	49.	min	49.	min
Total Catch	.788E-03	lb	.357E+03	mg
Sampling Rate in Device	.734	acfm	.021	m3/min
Collection Temperature	385.0	F	196.1	C
Percent Isokinetic	103.7	%	103.7	%
Nominal Mass Concentration	.271E+00	gr/dscf	.619E+00	g/m3
	.387E-04	lb/dscf		

Run ID : Inlet 2
Plant & Unit : AEP PFBC
Sampling Location : ESP Inlet
Type of Sizing Device : UWVD
Run Date : 4/13/94
Start time : 4: 0

Nominal Mass Concentration .271E+00 gr/dscf .619E+00 g/m3
.387E-04 lb/dscf

Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.022		33.83	.642E-02	.147E-01
	11.44		.978			
3		.280		7.49	.206E+00	.470E+00
	4.90		.698			
4		.321		3.44	.282E+00	.645E+00
	2.41		.377			
5		.185		1.79	.192E+00	.439E+00
	1.32		.193			
6		.101		1.08	.157E+00	.359E+00
	.89		.092			
7		.053		.78	.128E+00	.294E+00
	.69		.039			
8		.023		.60	.550E-01	.126E+00
	.53		.016			
9		.010		.47	.245E-01	.560E-01
	.41		.006			
10		.006		.37	.195E-01	.445E-01
	.34		.000			
FILTER		.000		.18	.228E-03	.522E-03
	.10		.000			

Run ID	: Inlet 3
Plant & Unit	: AEP PFBC
Sampling Location	: ESP Inlet
Type of Sizing Device	: UWVD
Run Date	: 4/14/94
Start time	: 0:30

REMARKS:

Average Flue Gas Temperature	385.0	F	196.1	C
Flue Gas Pressure (Absolute)	30.14	"Hg	76.56	cm Hg
Flue Gas Static Pressure	3.00	"H2O	7.620	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.166E-04	lb-sec/ft2	.248E-03	Poise
Flue Gas Mean Free Path	.453E-05	inch	.115E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	51.4778	fps	15.6904	m/s
Average Flue Gas Flowrate	308867.	acfm	8747.	m3/min
	174905.	dscfm	4953.	m3/min
Volume Sampled (Dry, STP)	21.2597	dscf	.6021	m3
Test Duration	50.	min	50.	min
Total Catch	.924E-03	lb	.419E+03	mg
Sampling Rate in Device	.751	acfm	.021	m3/min
Collection Temperature	385.0	F	196.1	C
Percent Isokinetic	106.0	%	106.0	%
Nominal Mass Concentration	.304E+00	gr/dscf	.696E+00	g/m3
	.435E-04	lb/dscf		

Run ID : Inlet 3
Plant & Unit : AEP PFBC
Sampling Location : ESP Inlet
Type of Sizing Device : UWVD
Run Date : 4/14/94
Start time : 0:30

Nominal Mass Concentration .304E+00 gr/dscf .696E+00 g/m3
.435E-04 lb/dscf

Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.020		33.63	.642E-02	.147E-01
	11.31		.980			
3		.393		7.40	.324E+00	.741E+00
	4.84		.587			
4		.287		3.40	.284E+00	.649E+00
	2.38		.300			
5		.146		1.76	.171E+00	.391E+00
	1.31		.154			
6		.081		1.07	.143E+00	.327E+00
	.88		.072			
7		.042		.77	.115E+00	.263E+00
	.68		.030			
8		.018		.60	.491E-01	.112E+00
	.52		.012			
9		.007		.46	.175E-01	.401E-01
	.40		.006			
10		.003		.37	.124E-01	.284E-01
	.34		.002			
FILTER		.002		.18	.135E-02	.310E-02
	.10		.000			

Run ID	: Inlet 4
Plant & Unit	: AEP PFBC
Sampling Location	: ESP Inlet
Type of Sizing Device	: UWVD
Run Date	: 4/15/94
Start time	: 1:10

REMARKS:

Average Flue Gas Temperature	385.0	F	196.1	C
Flue Gas Pressure (Absolute)	30.14	"Hg	76.56	cm Hg
Flue Gas Static Pressure	3.00	"H2O	7.620	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.166E-04	lb-sec/ft2	.248E-03	Poise
Flue Gas Mean Free Path	.453E-05	inch	.115E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	52.4972	fps	16.0012	m/s
Average Flue Gas Flowrate	314983.	acfm	8920.	m3/min
	178369.	dscfm	5051.	m3/min
Volume Sampled (Dry, STP)	15.4589	dscf	.4378	m3
Test Duration	39.	min	39.	min
Total Catch	.761E-03	lb	.345E+03	mg
Sampling Rate in Device	.700	acfm	.020	m3/min
Collection Temperature	385.0	F	196.1	C
Percent Isokinetic	96.9	%	96.9	%
Nominal Mass Concentration	.344E+00	gr/dscf	.788E+00	g/m3
	.492E-04	lb/dscf		

Run ID : Inlet 4
Plant & Unit : AEP PFBC
Sampling Location : ESP Inlet
Type of Sizing Device : UWVD
Run Date : 4/15/94
Start time : 1:10

Nominal Mass Concentration .344E+00 gr/dscf .788E+00 g/m3
.492E-04 lb/dscf

Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.026		34.24	.959E-02	.219E-01
	11.72		.974			
3		.346		7.67	.324E+00	.741E+00
	5.02		.628			
4		.329		3.52	.368E+00	.841E+00
	2.47		.299			
5		.161		1.83	.213E+00	.487E+00
	1.36		.139			
6		.078		1.11	.156E+00	.356E+00
	.91		.060			
7		.036		.80	.112E+00	.256E+00
	.71		.024			
8		.014		.62	.434E-01	.993E-01
	.55		.010			
9		.006		.48	.174E-01	.398E-01
	.42		.005			
10		.003		.38	.129E-01	.296E-01
	.35		.002			
FILTER		.002		.19	.103E-02	.235E-02
	.10		.000			

Run ID : Outlet 1
Plant & Unit : AEP PFBC
Sampling Location : ESP Outlet
Type of Sizing Device : UWVD
Run Date : 4/11/94
Start time : 20:55

REMARKS:

Average Flue Gas Temperature	382.0	F	194.4	C
Flue Gas Pressure (Absolute)	29.92	"Hg	76.00	cm Hg
Flue Gas Static Pressure	3.00	"H2O	7.620	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.166E-04	lb-sec/ft2	.247E-03	Poise
Flue Gas Mean Free Path	.455E-05	inch	.115E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	61.0242	fps	18.6002	m/s
Average Flue Gas Flowrate	287569.	acfm	8144.	m3/min
	162233.	dscfm	4594.	m3/min
Volume Sampled (Dry, STP)	366.9825	dscf	10.3929	m3
Test Duration	1006.	min	1006.	min
Total Catch	.123E-03	lb	.557E+02	mg
Sampling Rate in Device	.647	acfm	.018	m3/min
Collection Temperature	382.0	F	194.4	C
Percent Isokinetic	94.6	%	94.6	%
Nominal Mass Concentration	.234E-02	gr/dscf	.536E-02	g/m3
	.335E-06	lb/dscf		

Run ID : Outlet 1
Plant & Unit : AEP PFBC
Sampling Location : ESP Outlet
Type of Sizing Device : UWVD
Run Date : 4/11/94
Start time : 20:55

Nominal Mass Concentration .234E-02 gr/dscf .536E-02 g/m3
.335E-06 lb/dscf

Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.362		34.91	.929E-03	.213E-02
	12.19		.638			
3		.256		7.98	.163E-02	.373E-02
	5.22		.382			
4		.157		3.66	.120E-02	.274E-02
	2.57		.225			
5		.058		1.91	.525E-03	.120E-02
	1.42		.166			
6		.052		1.16	.707E-03	.162E-02
	.95		.114			
7		.024		.84	.507E-03	.116E-02
	.74		.091			
8		.018		.65	.382E-03	.875E-03
	.57		.072			
9		.021		.50	.443E-03	.101E-02
	.44		.051			
10		.024		.40	.715E-03	.164E-02
	.37		.027			
FILTER		.027		.19	.112E-03	.257E-03
	.10		.000			

Run ID	: Outlet 2
Plant & Unit	: AEP PFBC
Sampling Location	: ESP Outlet
Type of Sizing Device	: UWVD
Run Date	: 4/13/94
Start time	: 2:20

REMARKS:

Average Flue Gas Temperature	374.0	F	190.0	C
Flue Gas Pressure (Absolute)	30.14	"Hg	76.56	cm Hg
Flue Gas Static Pressure	3.00	"H2O	7.620	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.165E-04	lb-sec/ft2	.246E-03	Poise
Flue Gas Mean Free Path	.446E-05	inch	.113E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	59.6407	fps	18.1785	m/s
Average Flue Gas Flowrate	281050.	acfm	7959.	m3/min
	161253.	dscfm	4567.	m3/min
Volume Sampled (Dry, STP)	127.3540	dscf	3.6067	m3
Test Duration	347.	min	347.	min
Total Catch	.422E-04	lb	.191E+02	mg
Sampling Rate in Device	.640	acfm	.018	m3/min
Collection Temperature	374.0	F	190.0	C
Percent Isokinetic	95.7	%	95.7	%
Nominal Mass Concentration	.232E-02	gr/dscf	.531E-02	g/m3
	.332E-06	lb/dscf		

Run ID : Outlet 2
Plant & Unit : AEP PFBC
Sampling Location : ESP Outlet
Type of Sizing Device : UWVD
Run Date : 4/13/94
Start time : 2:20

Nominal Mass Concentration .232E-02 gr/dscf .531E-02 g/m3
.332E-06 lb/dscf

Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.191		34.95	.486E-03	.111E-02
	12.22		.809			
3		.186		8.00	.118E-02	.269E-02
	5.23		.622			
4		.137		3.67	.104E-02	.237E-02
	2.58		.485			
5		.100		1.91	.893E-03	.204E-02
	1.42		.385			
6		.083		1.17	.111E-02	.254E-02
	.96		.303			
7		.058		.84	.122E-02	.280E-02
	.74		.245			
8		.054		.65	.111E-02	.255E-02
	.57		.191			
9		.056		.50	.117E-02	.268E-02
	.44		.135			
10		.080		.40	.237E-02	.543E-02
	.37		.054			
FILTER		.054		.19	.222E-03	.508E-03
	.10		.000			

Run ID : Outlet 3
Plant & Unit : AEP PFBC
Sampling Location : ESP Outlet
Type of Sizing Device : UWVD
Run Date : 4/13/94
Start time : 23:55

REMARKS:

Average Flue Gas Temperature	374.0	F	190.0	C
Flue Gas Pressure (Absolute)	30.14	"Hg	76.56	cm Hg
Flue Gas Static Pressure	3.00	"H2O	7.620	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.165E-04	lb-sec/ft2	.246E-03	Poise
Flue Gas Mean Free Path	.446E-05	inch	.113E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	51.1415	fps	15.5879	m/s
Average Flue Gas Flowrate	240998.	acfm	6825.	m3/min
	138273.	dscfm	3916.	m3/min
Volume Sampled (Dry, STP)	194.4603	dscf	5.5071	m3
Test Duration	485.	min	485.	min
Total Catch	.407E-04	lb	.185E+02	mg
Sampling Rate in Device	.699	acfm	.020	m3/min
Collection Temperature	374.0	F	190.0	C
Percent Isokinetic	122.0	%	122.0	%
Nominal Mass Concentration	.147E-02	gr/dscf	.335E-02	g/m3
	.209E-06	lb/dscf		

Run ID : Outlet 3
Plant & Unit : AEP PFBC
Sampling Location : ESP Outlet
Type of Sizing Device : UWVD
Run Date : 4/13/94
Start time : 23:55

Nominal Mass Concentration .147E-02 gr/dscf .335E-02 g/m3
.209E-06 lb/dscf

Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.171		34.18	.269E-03	.615E-03
	11.68		.829			
3		.086		7.64	.340E-03	.779E-03
	5.00		.743			
4		.123		3.51	.588E-03	.135E-02
	2.46		.620			
5		.111		1.83	.626E-03	.143E-02
	1.35		.509			
6		.100		1.11	.845E-03	.193E-02
	.91		.409			
7		.088		.80	.117E-02	.268E-02
	.71		.321			
8		.089		.62	.116E-02	.266E-02
	.54		.232			
9		.090		.48	.117E-02	.268E-02
	.42		.142			
10		.083		.38	.154E-02	.352E-02
	.35		.058			
FILTER		.058		.19	.158E-03	.360E-03
	.10		.000			

Run ID : Outlet 4
Plant & Unit : AEP PFBC
Sampling Location : ESP Outlet
Type of Sizing Device : UWVD
Run Date : 4/14/94
Start time : 22:28

REMARKS:

Average Flue Gas Temperature	374.0	F	190.0	C
Flue Gas Pressure (Absolute)	29.54	"Hg	75.04	cm Hg
Flue Gas Static Pressure	1.80	"H2O	4.572	cm H2O
Flue Gas Molecular Weight (Wet)	27.26	lb/lb-mole	27.2624	g/g-mole
Flue Gas Viscosity	.165E-04	lb-sec/ft2	.246E-03	Poise
Flue Gas Mean Free Path	.455E-05	inch	.116E-04	cm
Flue Gas Percent Moisture	10.00	%	10.00	%
Average Flue Gas Velocity	61.1210	fps	18.6297	m/s
Average Flue Gas Flowrate	288026.	acfm	8157.	m3/min
	161976.	dscfm	4587.	m3/min
Volume Sampled (Dry, STP)	297.2570	dscf	8.4183	m3
Test Duration	747.	min	747.	min
Total Catch	.766E-04	lb	.347E+02	mg
Sampling Rate in Device	.707	acfm	.020	m3/min
Collection Temperature	374.0	F	190.0	C
Percent Isokinetic	105.6	%	105.6	%
Nominal Mass Concentration	.180E-02	gr/dscf	.413E-02	g/m3
	.258E-06	lb/dscf		

```
Run ID                   : Outlet 4
Plant & Unit             : AEP PFBC
Sampling Location        : ESP Outlet
Type of Sizing Device    : UWVD
Run Date                 :  4/14/94
Start time               : 22:28
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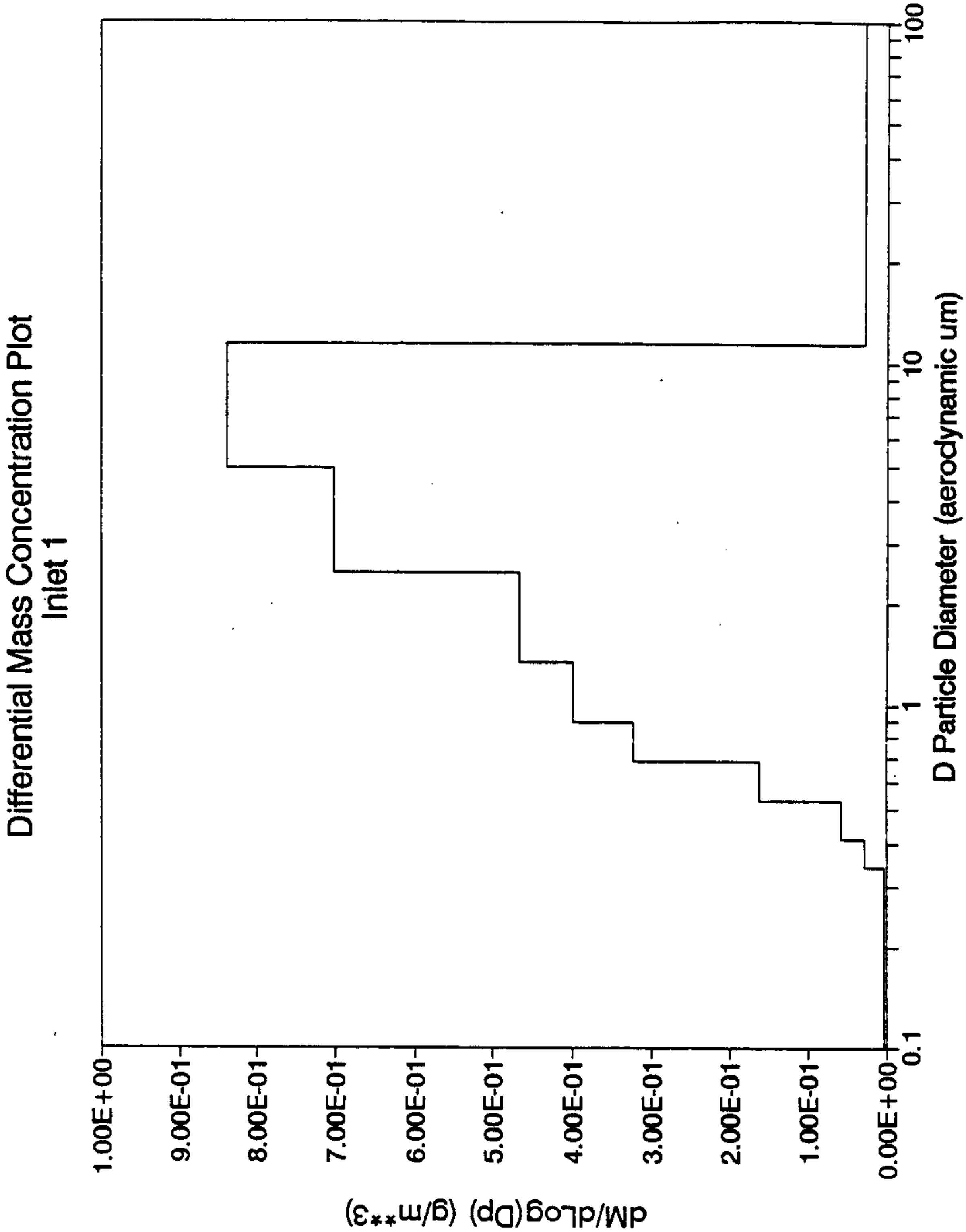
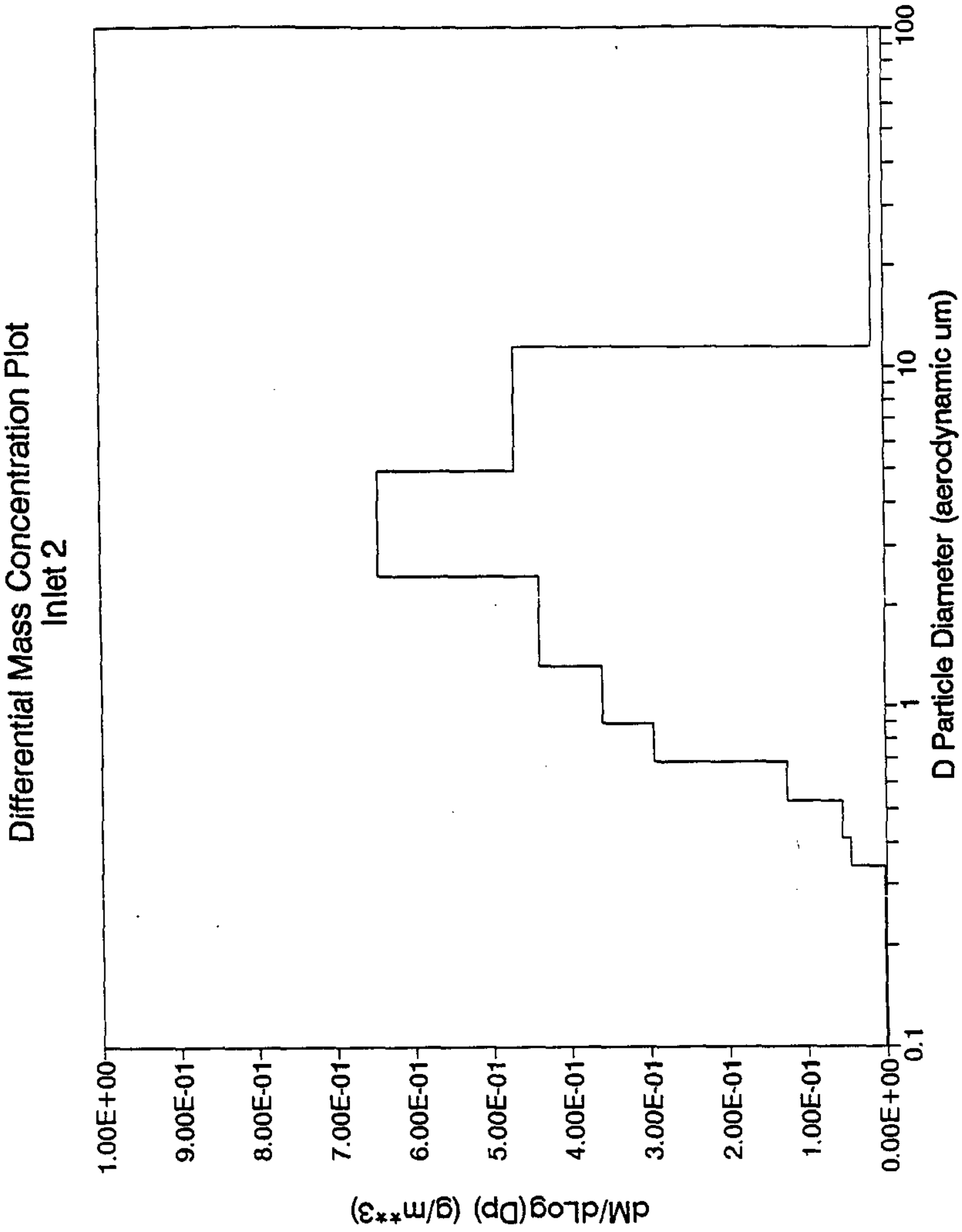
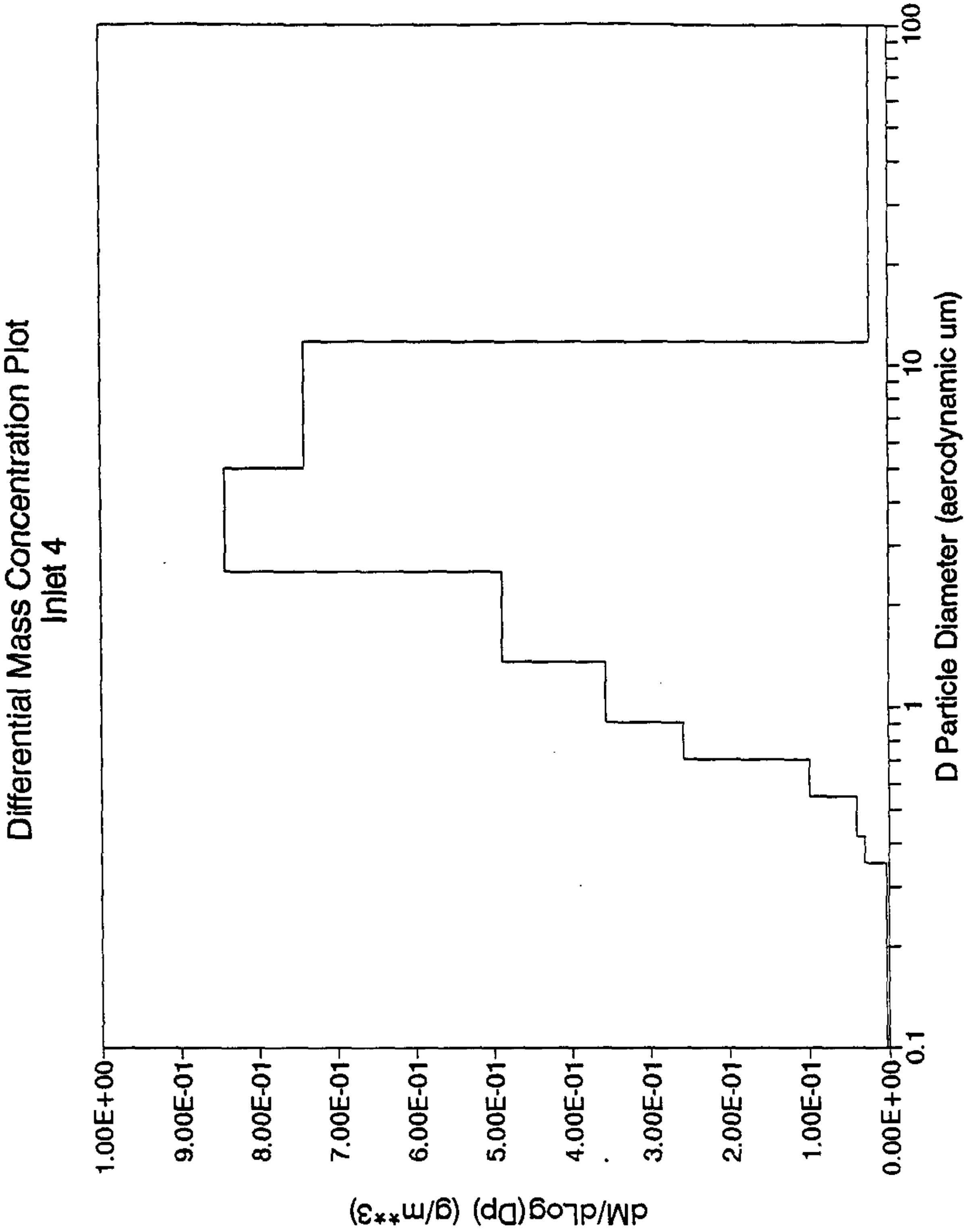
Nominal Mass Concentration .180E-02 gr/dscf .413E-02 g/m3
.258E-06 lb/dscf

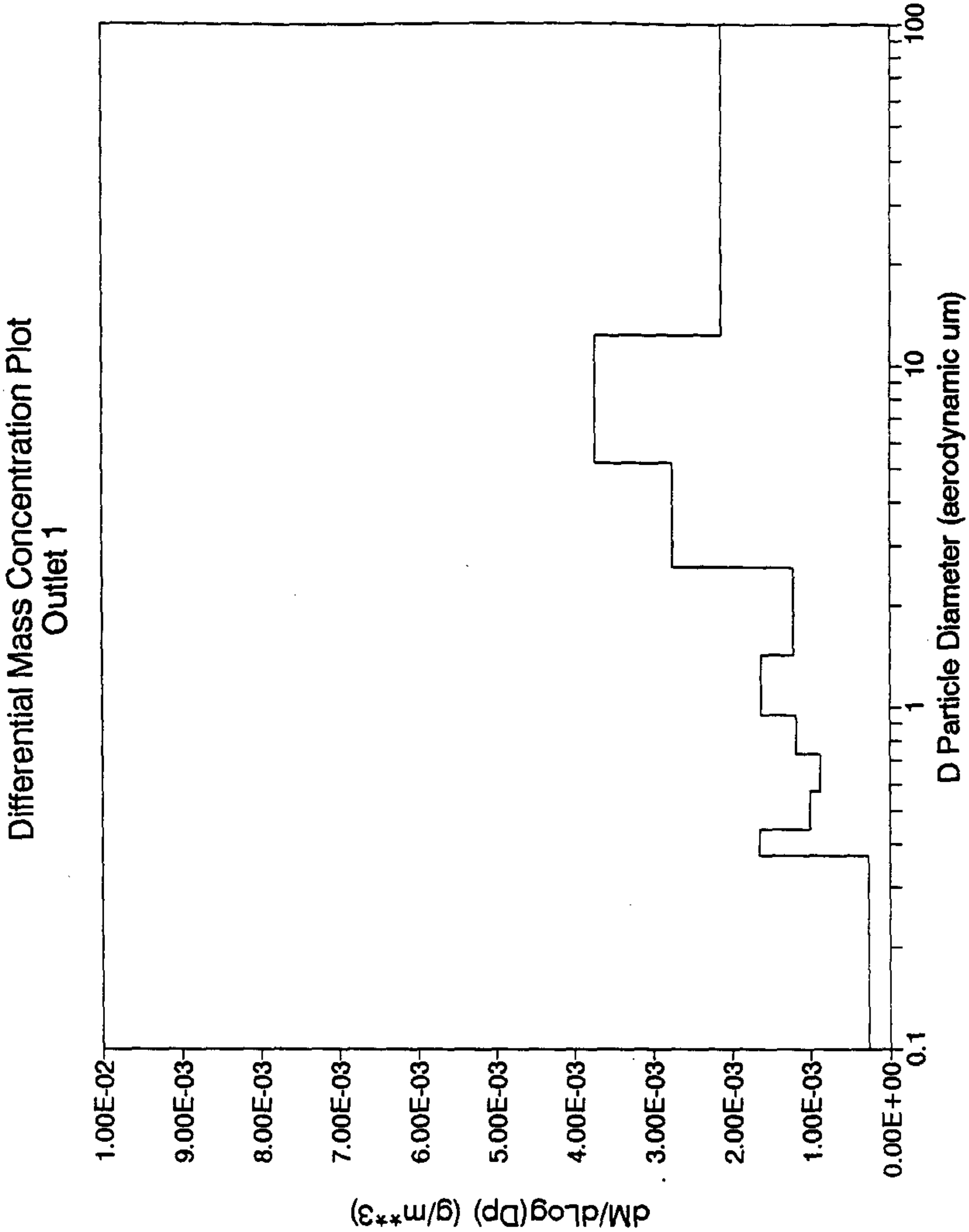
Stage Number	Interval Endpoint (um)	Mass Fraction	Mass Fraction Less Than	Interval Geometric Midpoint (um)	dM/d(logD) Dry,STP (gr/dscf)	dM/d(logD) Dry,STP (g/m3)
	100.00		1.000			
Rt Angle+1+2		.218		34.07	.420E-03	.961E-03
	11.60		.782			
3		.284		7.59	.139E-02	.318E-02
	4.97		.498			
4		.160		3.48	.936E-03	.214E-02
	2.44		.338			
5		.097		1.81	.675E-03	.154E-02
	1.34		.241			
6		.061		1.10	.639E-03	.146E-02
	.90		.180			
7		.038		.79	.623E-03	.143E-02
	.70		.141			
8		.036		.61	.570E-03	.130E-02
	.54		.106			
9		.035		.47	.566E-03	.130E-02
	.42		.070			
10		.031		.38	.704E-03	.161E-02
	.35		.039			
FILTER		.039		.19	.131E-03	.300E-03
	.10		.000			

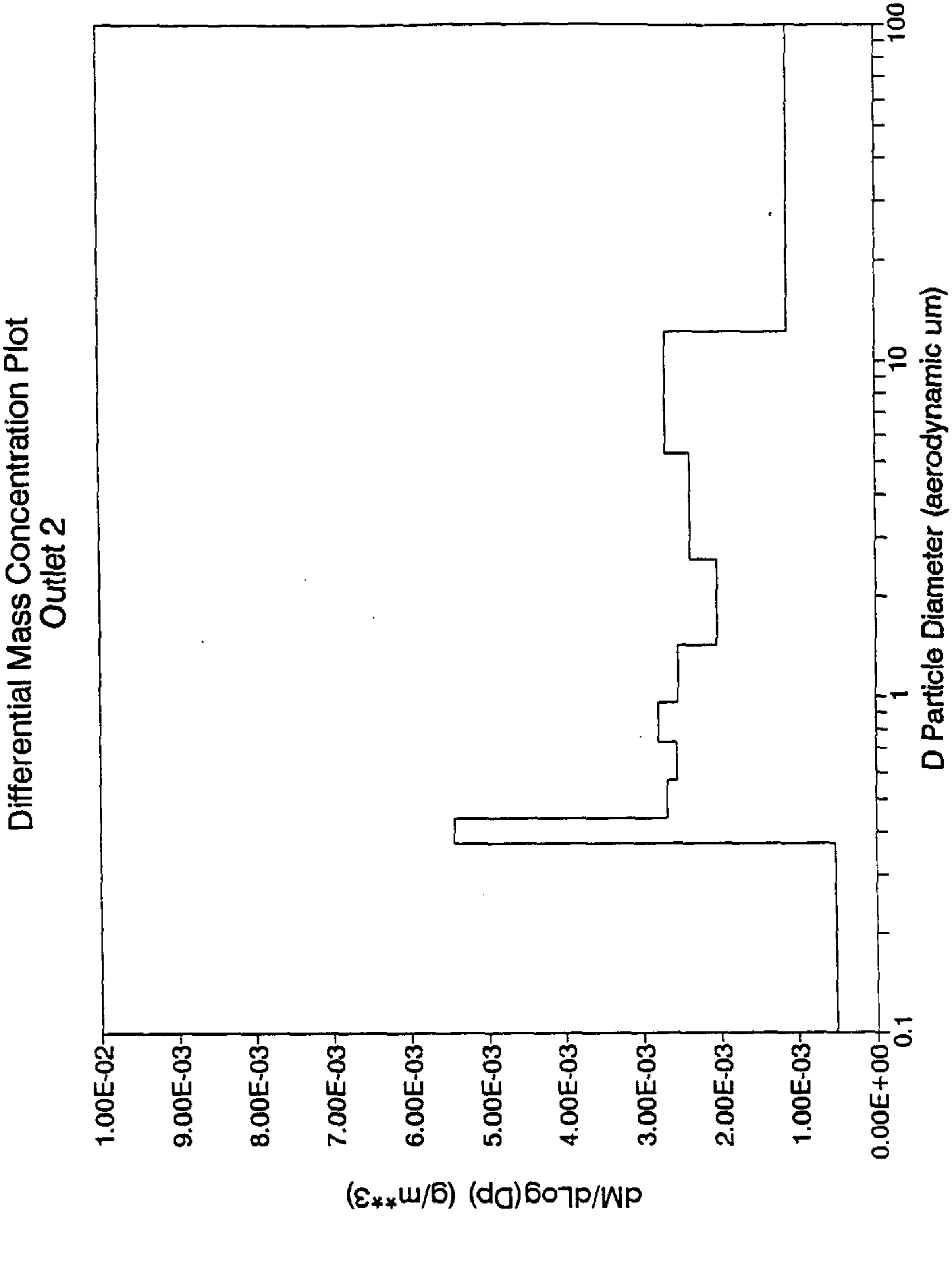


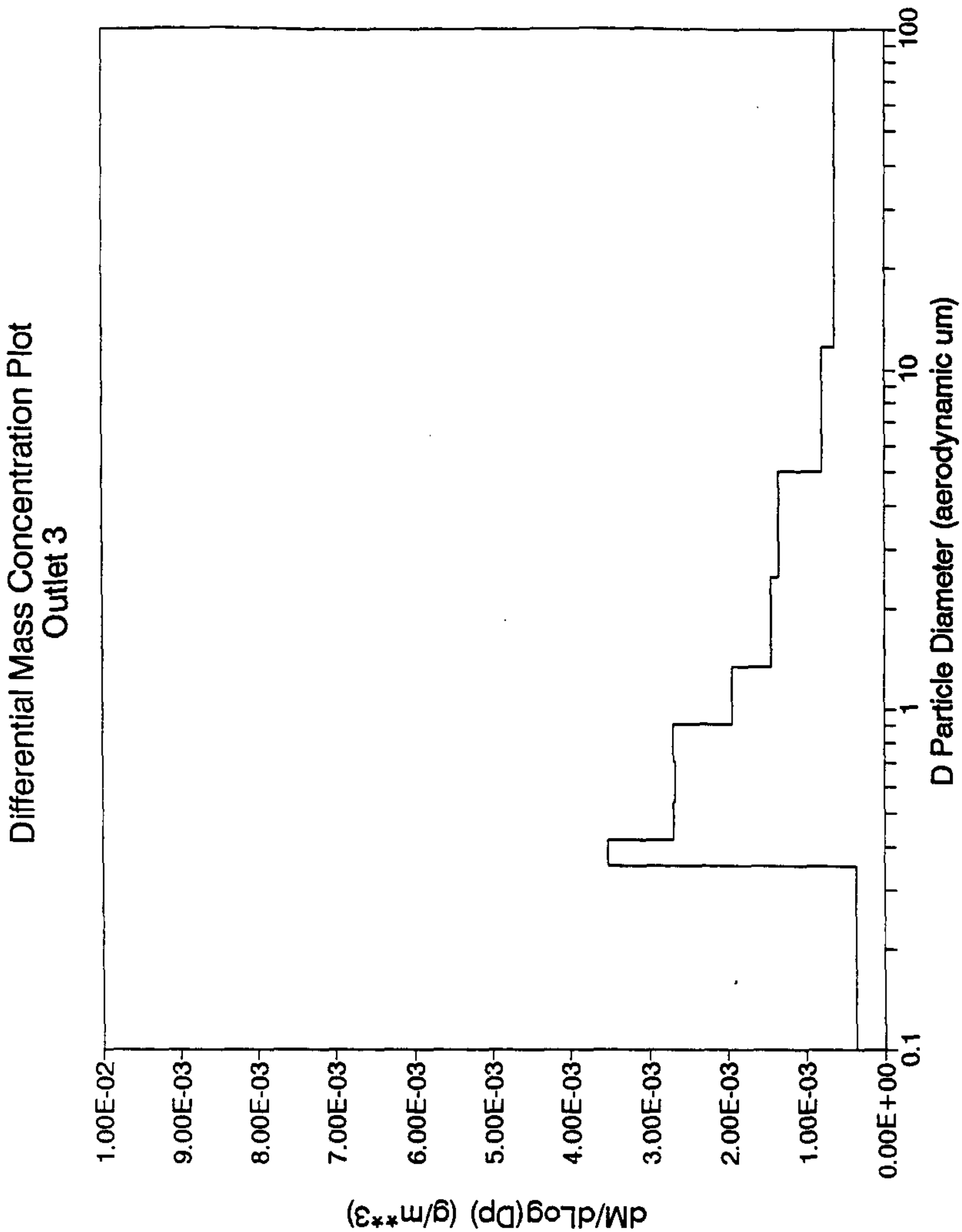
Differential Mass Concentration Plot
Inlet 1
dM/dLog(Dp) (g/m**3)
1.00E+00
9.00E-01
8.00E-01
7.00E-01
6.00E-01
5.00E-01
4.00E-01
3.00E-01
2.00E-01
1.00E-01
0.00E+00
0.1
1
10
100
D Particle Diameter (aerodynamic um)


Differential Mass Concentration Plot
Inlet 2
dM/dLog(Dp) (g/m**3)
1.00E+00
9.00E-01
8.00E-01
7.00E-01
6.00E-01
5.00E-01
4.00E-01
3.00E-01
2.00E-01
1.00E-01
0.00E+00
0.1
1
10
100
D Particle Diameter (aerodynamic um)

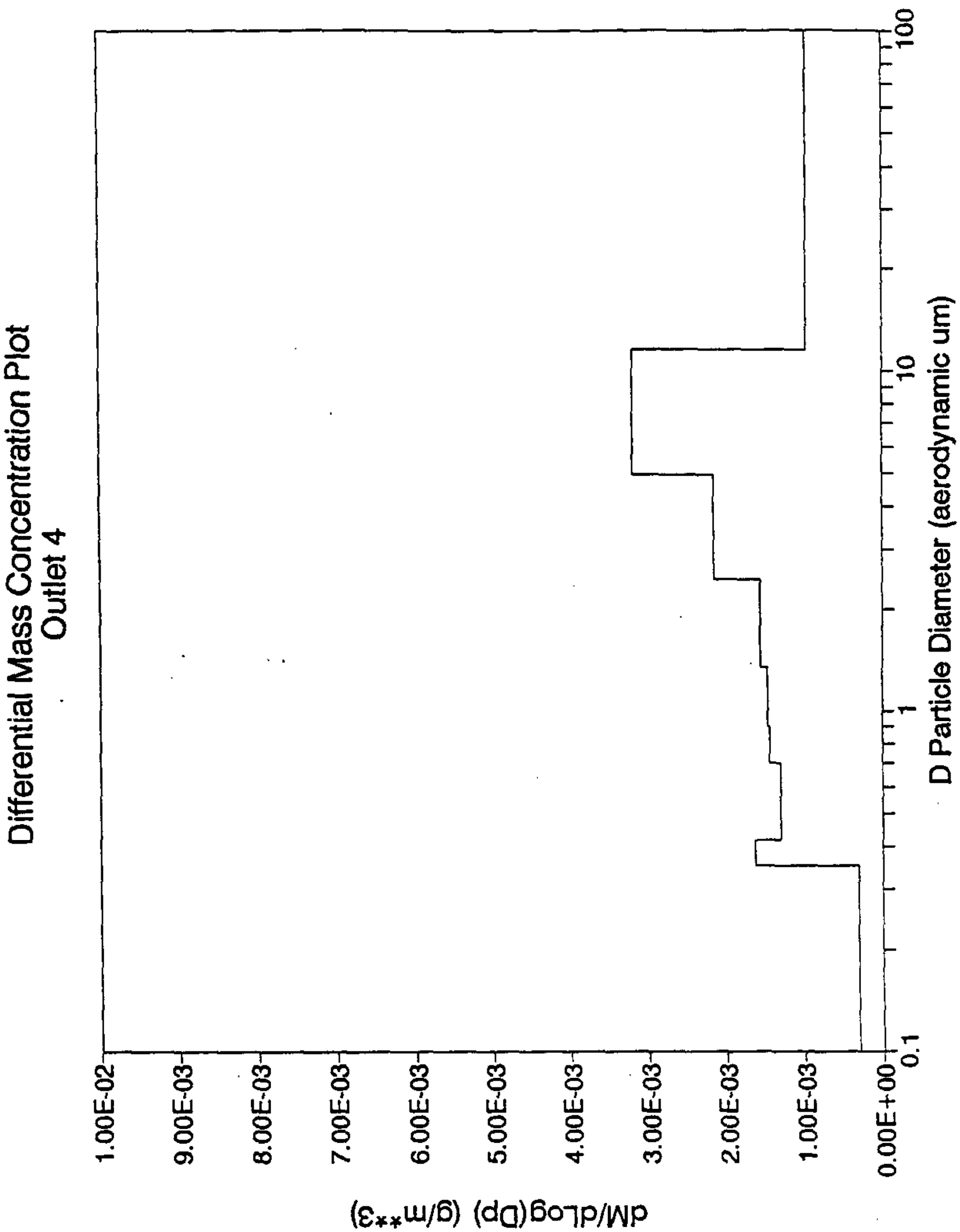

Differential Mass Concentration Plot
Inlet 4
dM/dLog(Dp) (g/m**3)
1.00E+00
9.00E-01
8.00E-01
7.00E-01
6.00E-01
5.00E-01
4.00E-01
3.00E-01
2.00E-01
1.00E-01
0.00E+00
0.1
1
10
100
D Particle Diameter (aerodynamic um)

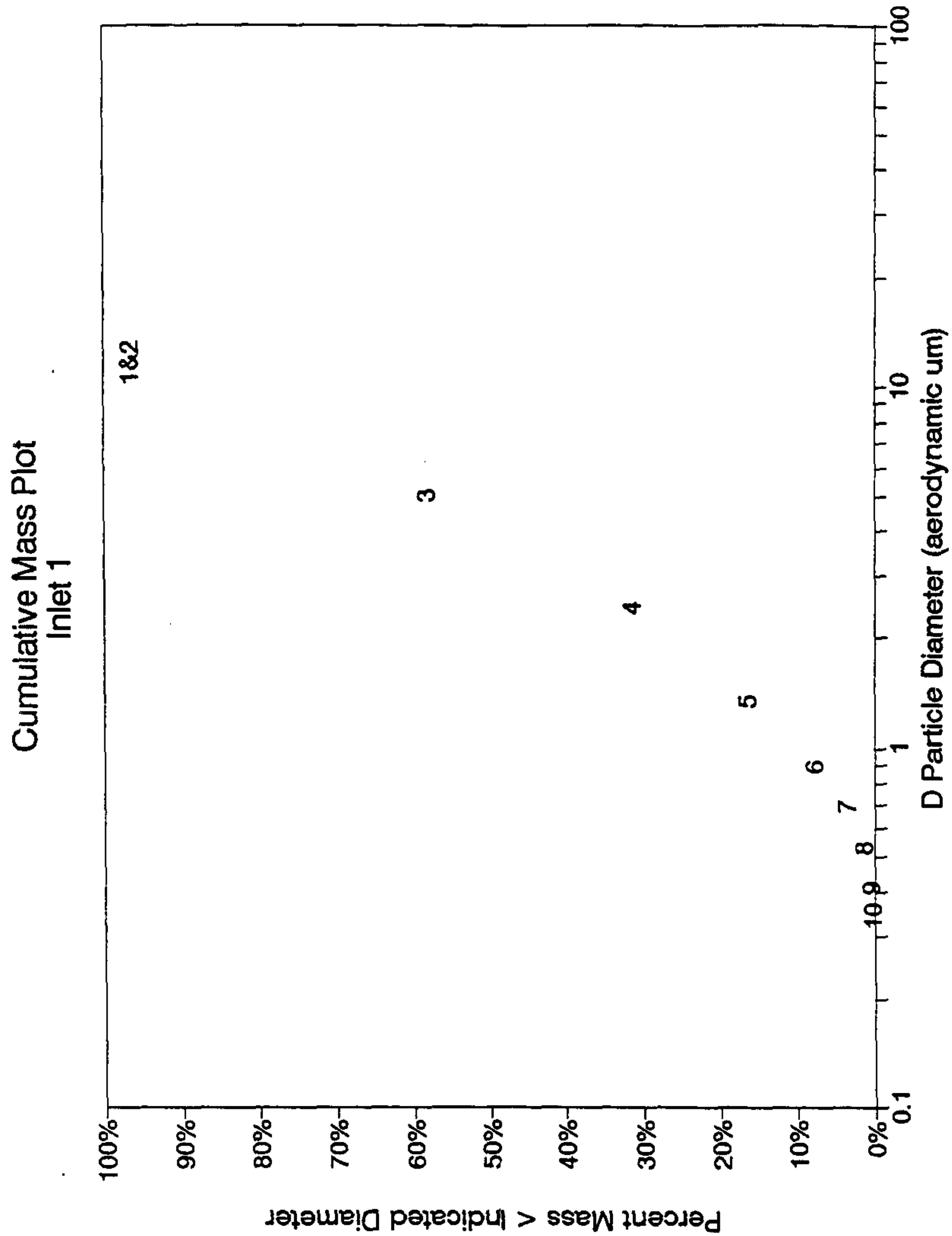

Differential Mass Concentration Plot
Outlet 1
dM/dLog(Dp) (g/m**3)
1.00E-02
9.00E-03
8.00E-03
7.00E-03
6.00E-03
5.00E-03
4.00E-03
3.00E-03
2.00E-03
1.00E-03
0.00E+00
0.1
1
10
100
D Particle Diameter (aerodynamic um)


Differential Mass Concentration Plot
Outlet 2
dM/dLog(Dp) (g/m**3)
1.00E-02
9.00E-03
8.00E-03
7.00E-03
6.00E-03
5.00E-03
4.00E-03
3.00E-03
2.00E-03
1.00E-03
0.00E+00
0.1
1
10
100
D Particle Diameter (aerodynamic um)

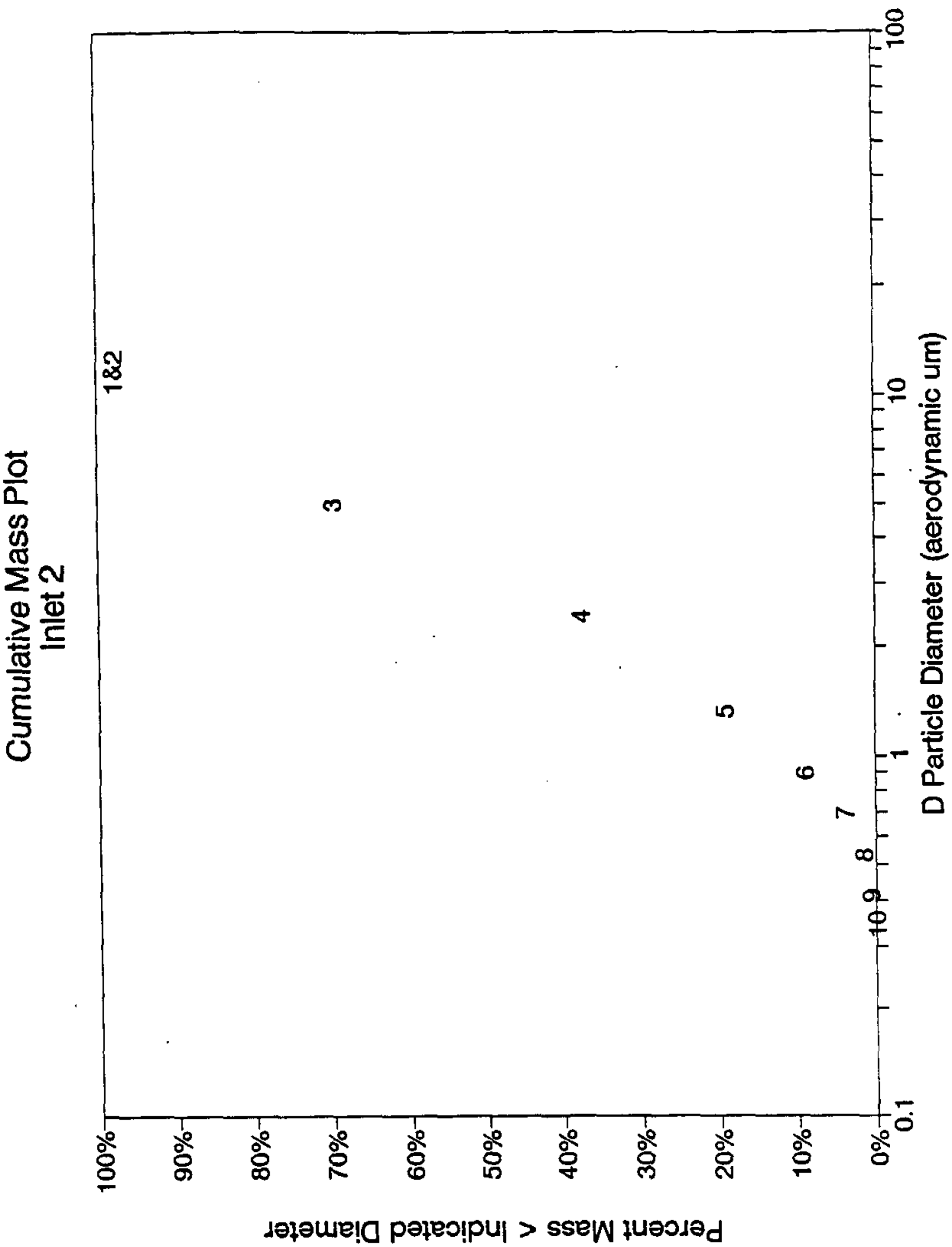


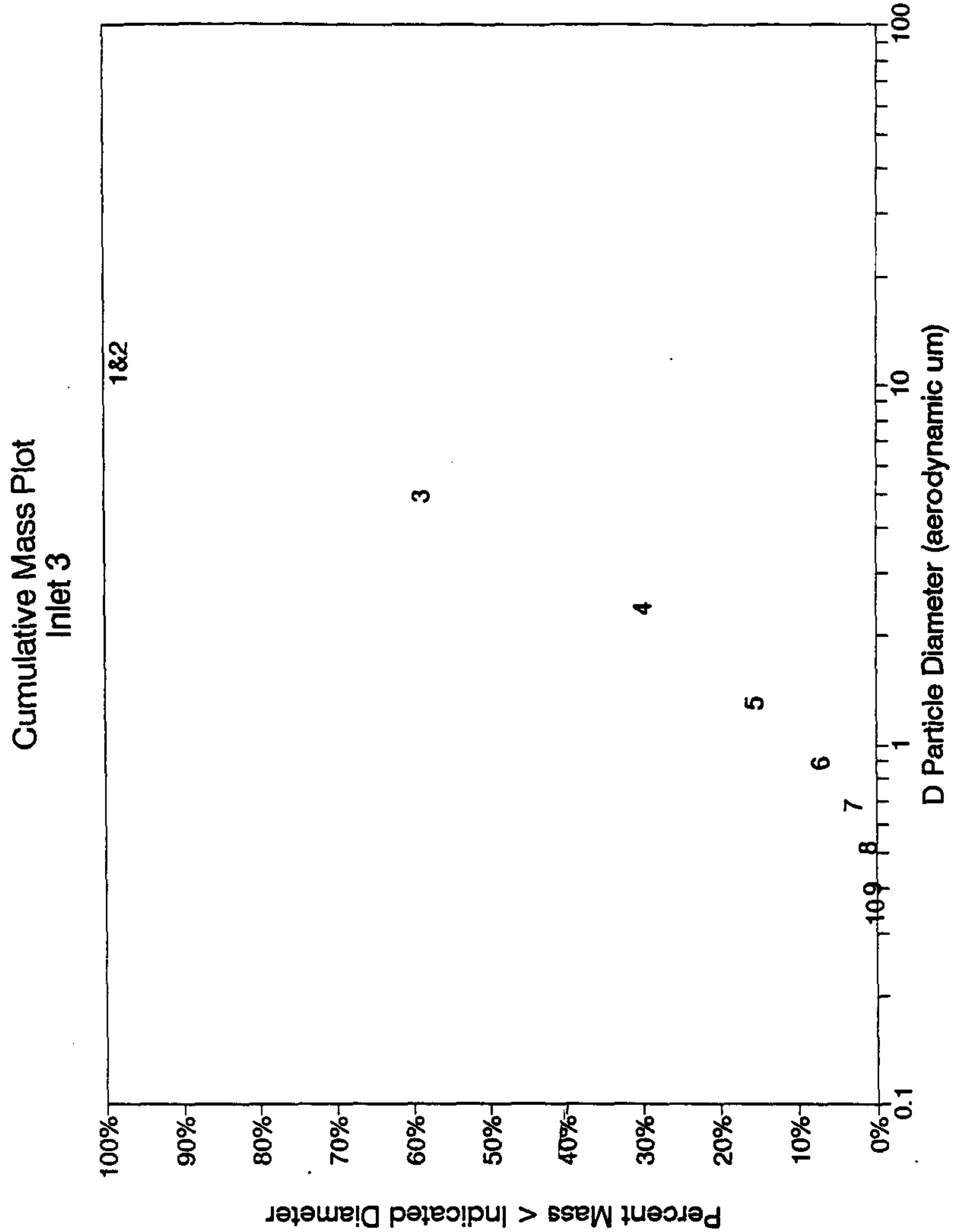
Differential Mass Concentration Plot
Outlet 3
dM/dLog(Dp) (g/m**3)
1.00E-02
9.00E-03
8.00E-03
7.00E-03
6.00E-03
5.00E-03
4.00E-03
3.00E-03
2.00E-03
1.00E-03
0.00E+00
0.1
1
10
100
D Particle Diameter (aerodynamic um)

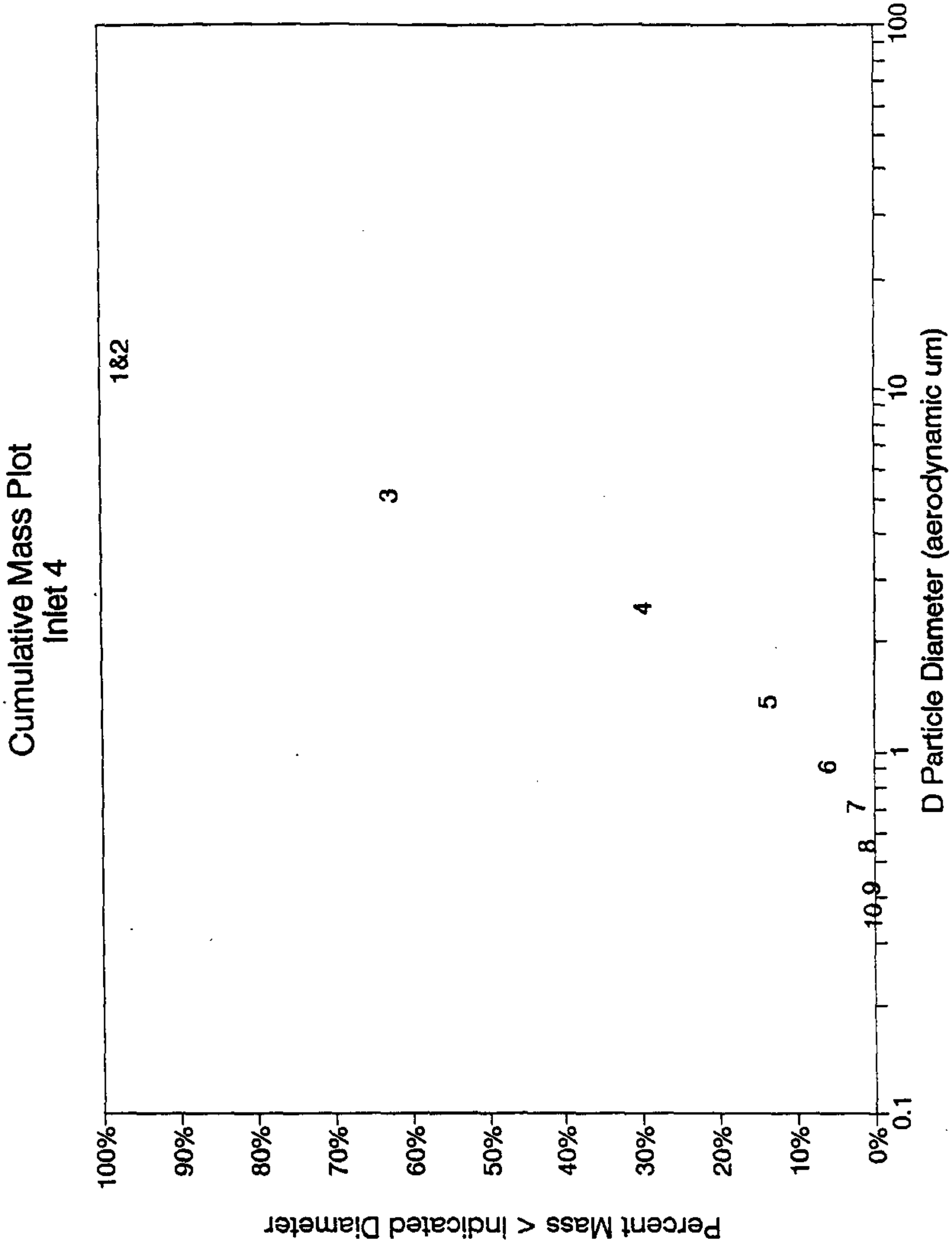

Differential Mass Concentration Plot
Outlet 4
1.00E-02
9.00E-03
8.00E-03
7.00E-03
6.00E-03
5.00E-03
4.00E-03
3.00E-03
2.00E-03
1.00E-03
0.00E+00
dM/dLog(Dp) (g/m**3)
0.1
1
10
100
D Particle Diameter (aerodynamic um)

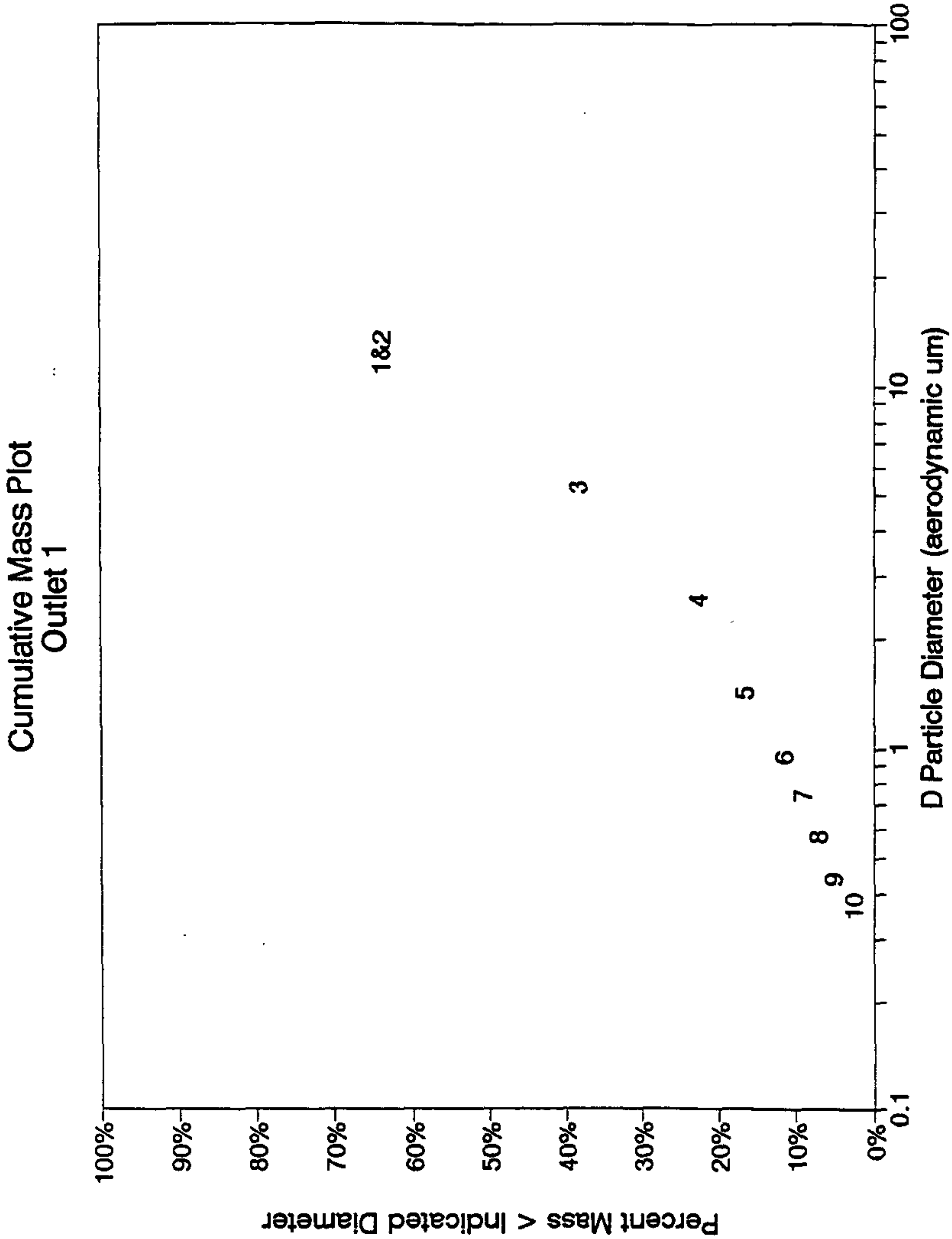


Cumulative Mass Plot
Inlet 1
Percent Mass < Indicated Diameter
D Particle Diameter (aerodynamic um)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.1
1
10
100
1&2
3
4
5
6
7
8
10 9

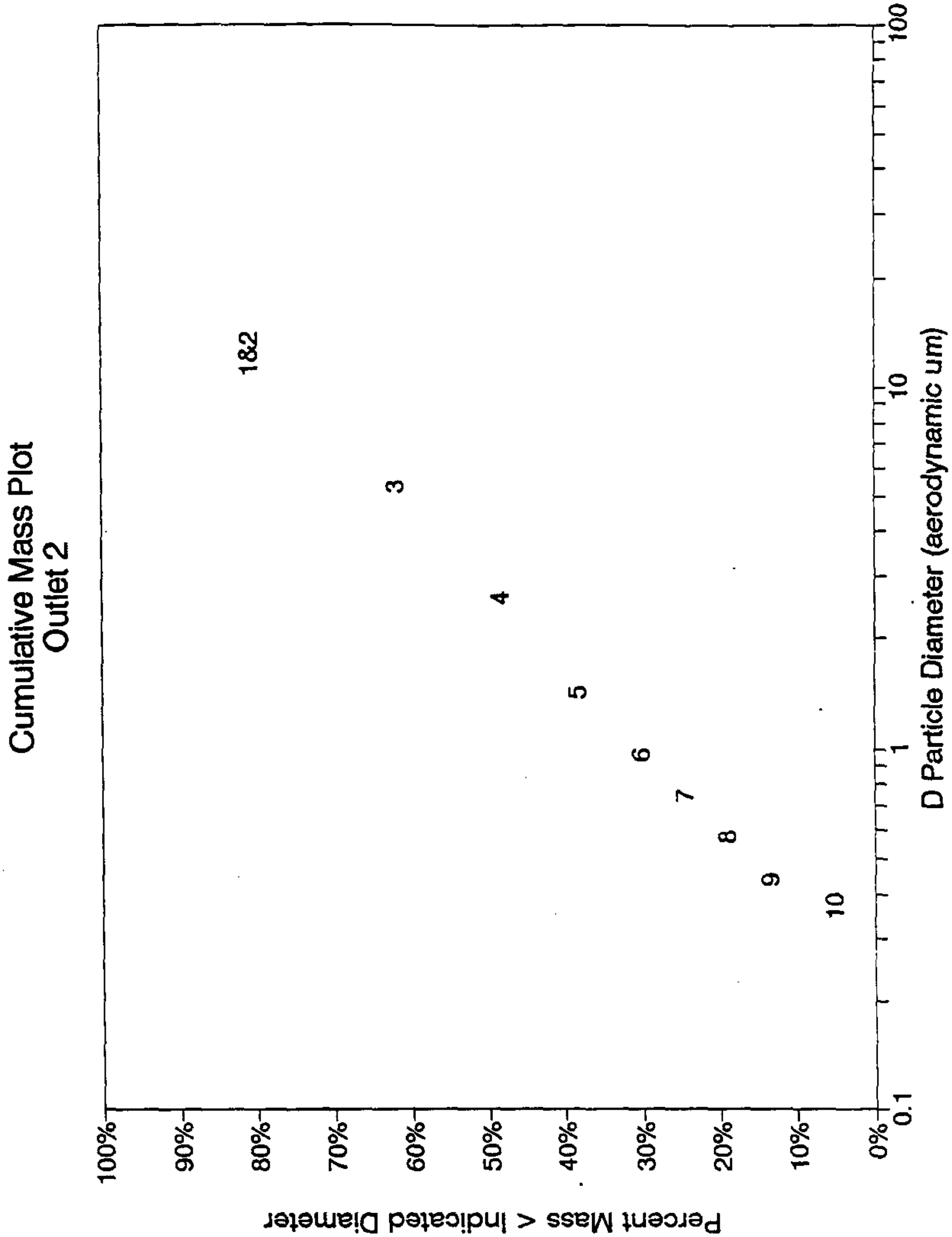

Cumulative Mass Plot
Inlet 2
Percent Mass < Indicated Diameter
D Particle Diameter (aerodynamic um)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
0.1
1
10
100
1&2
3
4
5
6
7
8
10 9

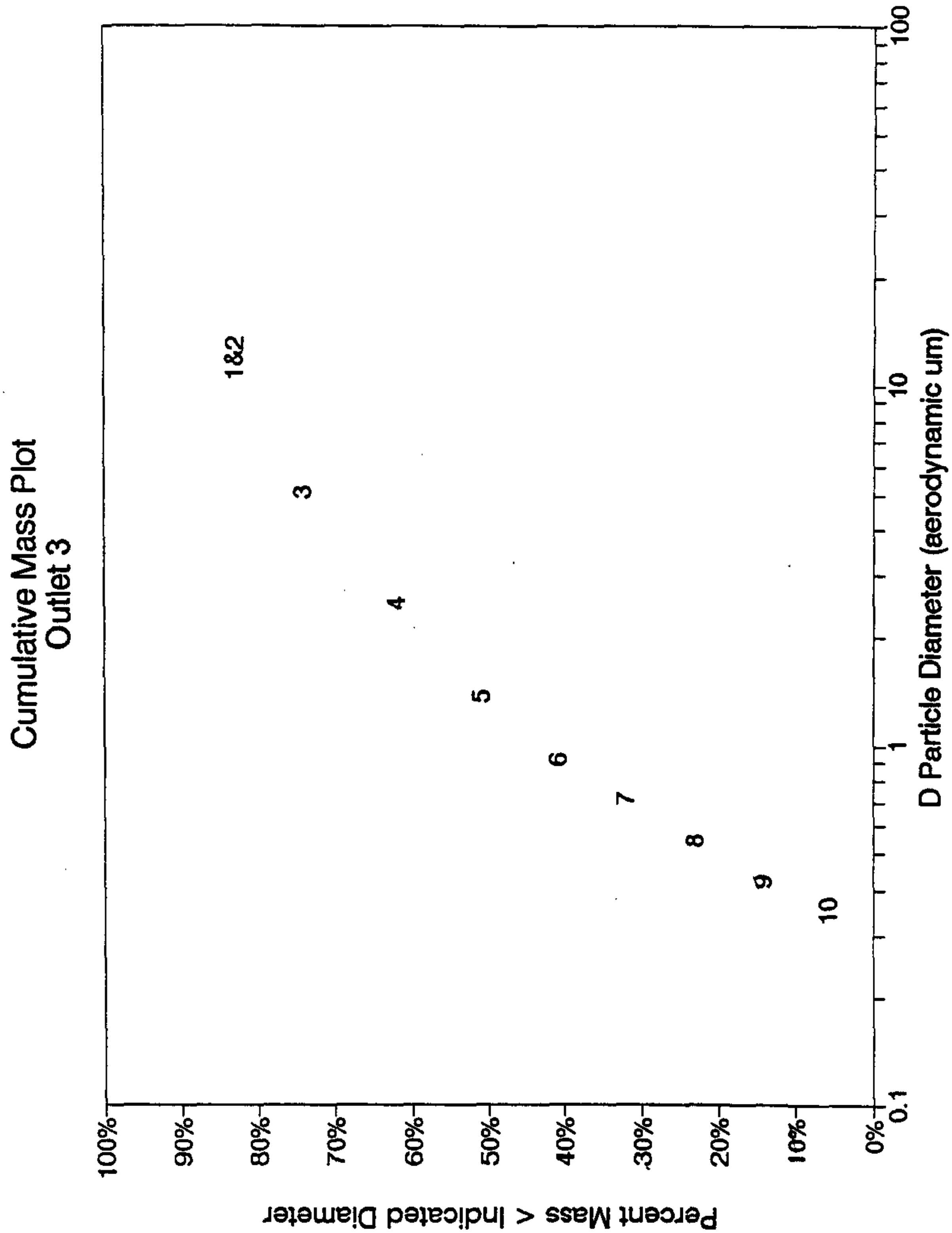

Cumulative Mass Plot
Inlet 3
Percent Mass < Indicated Diameter
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.1
1
10
100
D Particle Diameter (aerodynamic um)
1&2
3
4
5
6
7
8
10 9

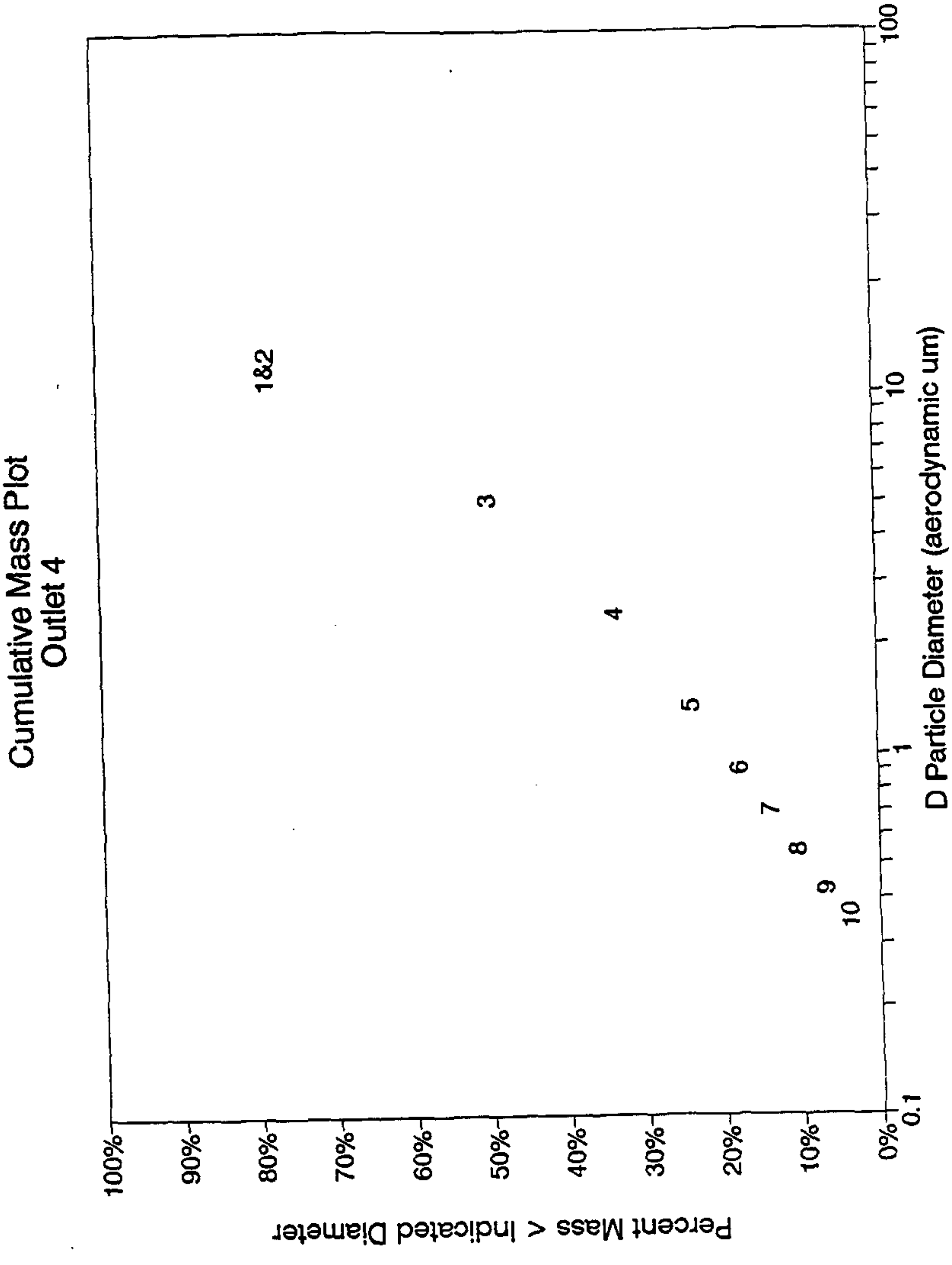

Cumulative Mass Plot
Inlet 4
Percent Mass < Indicated Diameter
D Particle Diameter (aerodynamic um)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.1
1
10
100
1&2
3
4
5
6
7
8
10,9



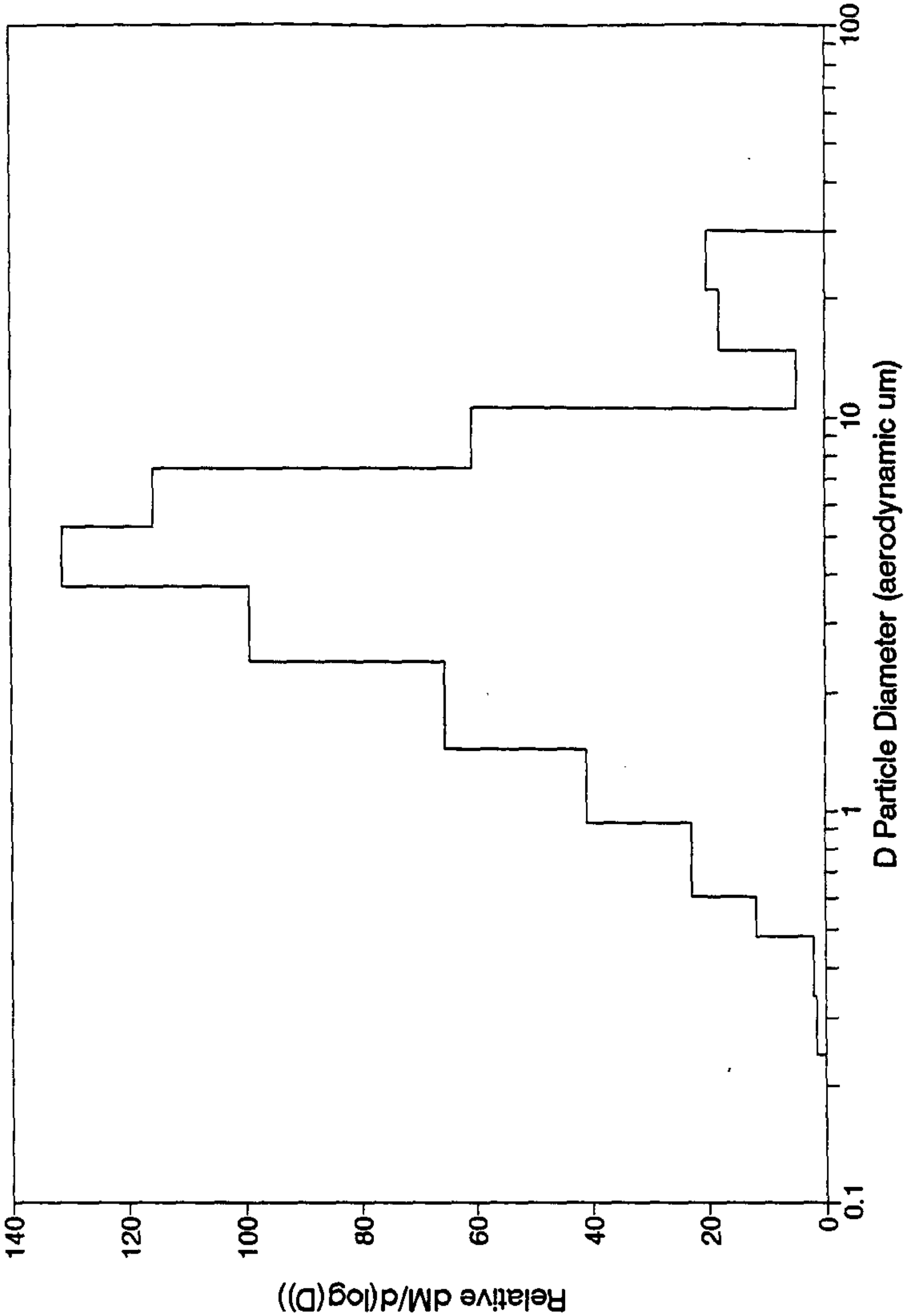
Cumulative Mass Plot
Outlet 1
Percent Mass < Indicated Diameter
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.1
1
10
100
D Particle Diameter (aerodynamic um)
1&2
3
4
5
6
7
8
9
10


Cumulative Mass Plot
Outlet 2
Percent Mass < Indicated Diameter
D Particle Diameter (aerodynamic um)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
0.1
1
10
100
1&2
3
4
5
6
7
8
9
10

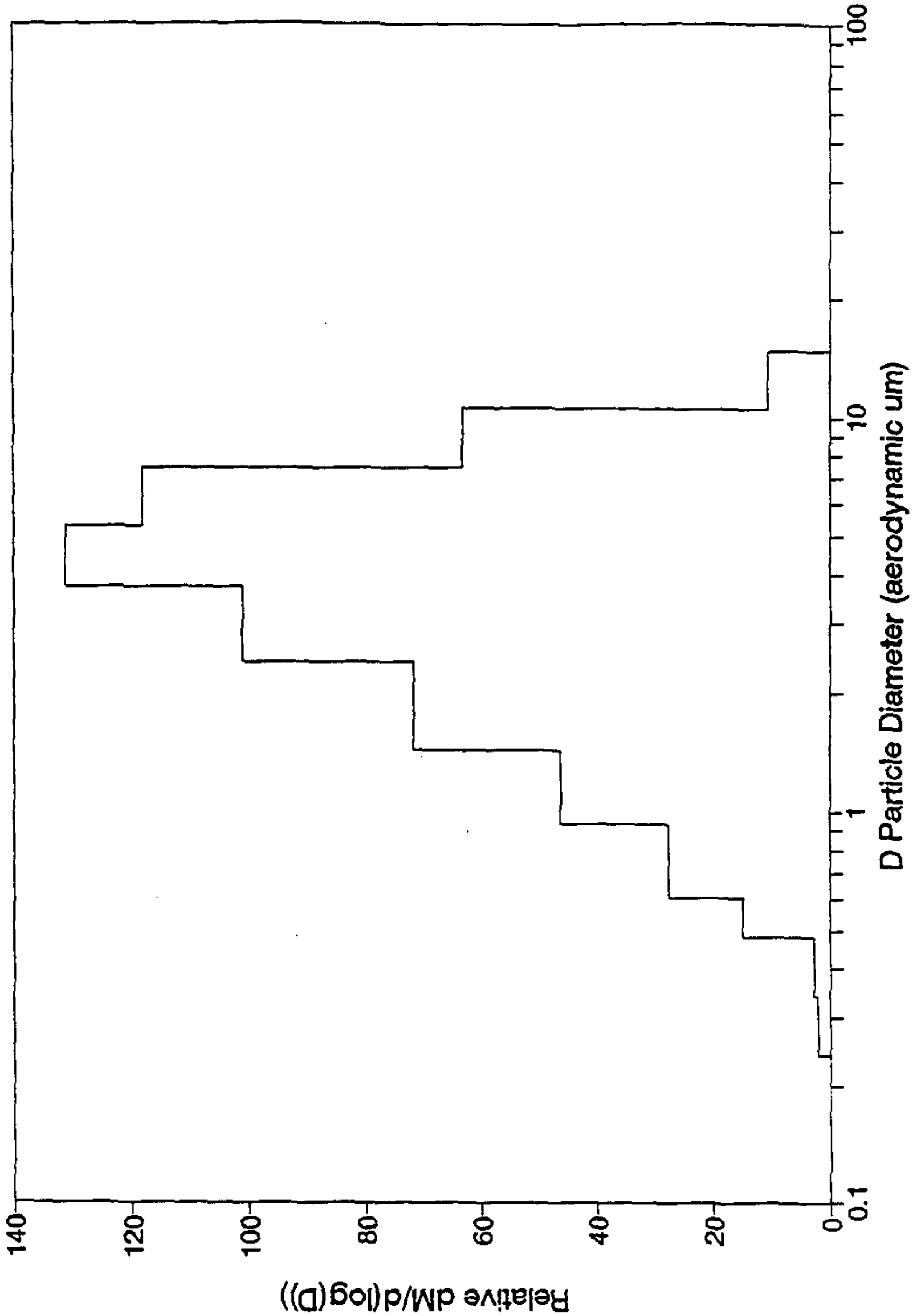

Cumulative Mass Plot
Outlet 3
Percent Mass < Indicated Diameter
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
0.1
1
10
100
D Particle Diameter (aerodynamic um)
1&2
3
4
5
6
7
8
9
10

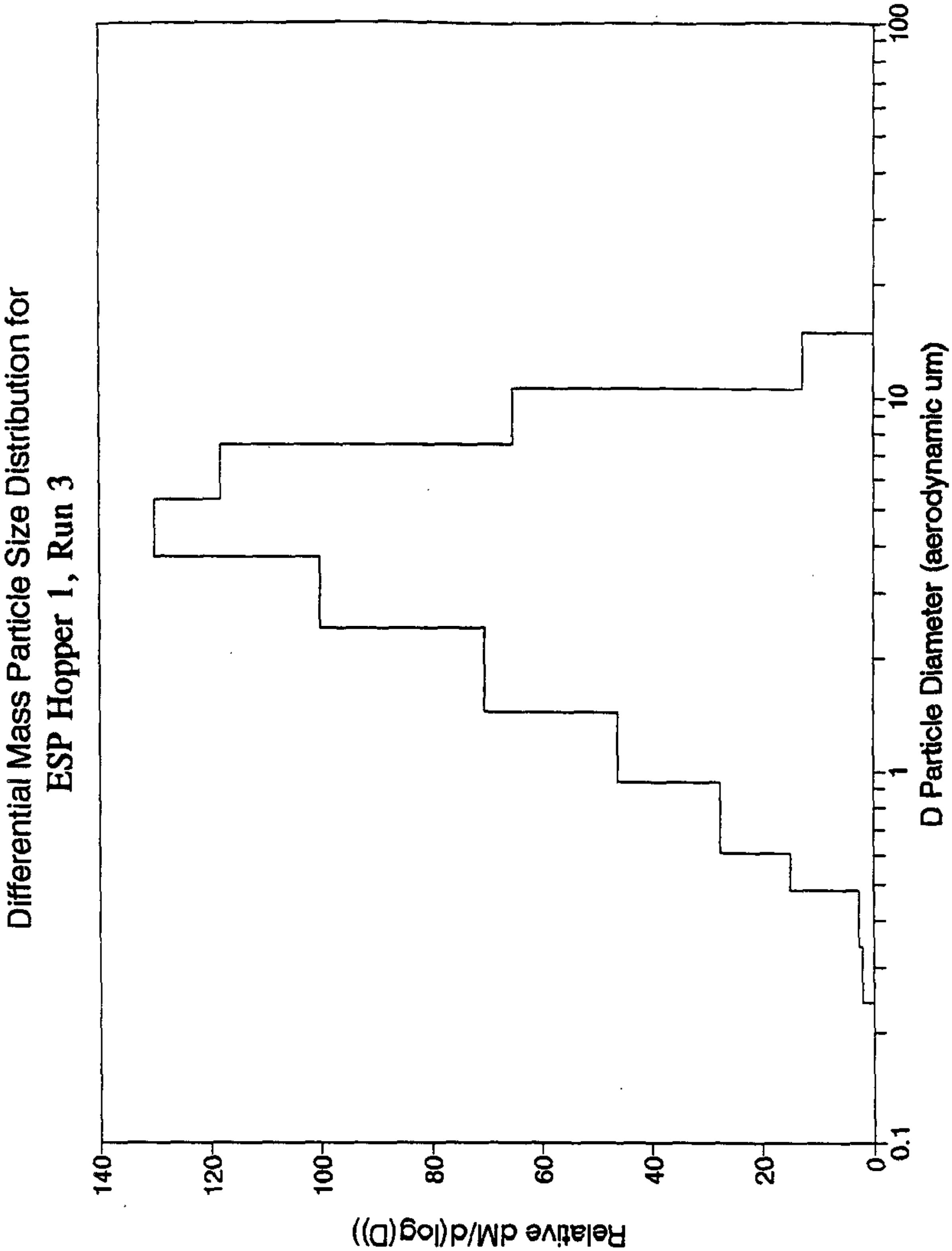

Cumulative Mass Plot
Outlet 4
Percent Mass < Indicated Diameter
D Particle Diameter (aerodynamic um)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
0.1
1
10
100
1&2
3
4
5
6
7
8
9
10

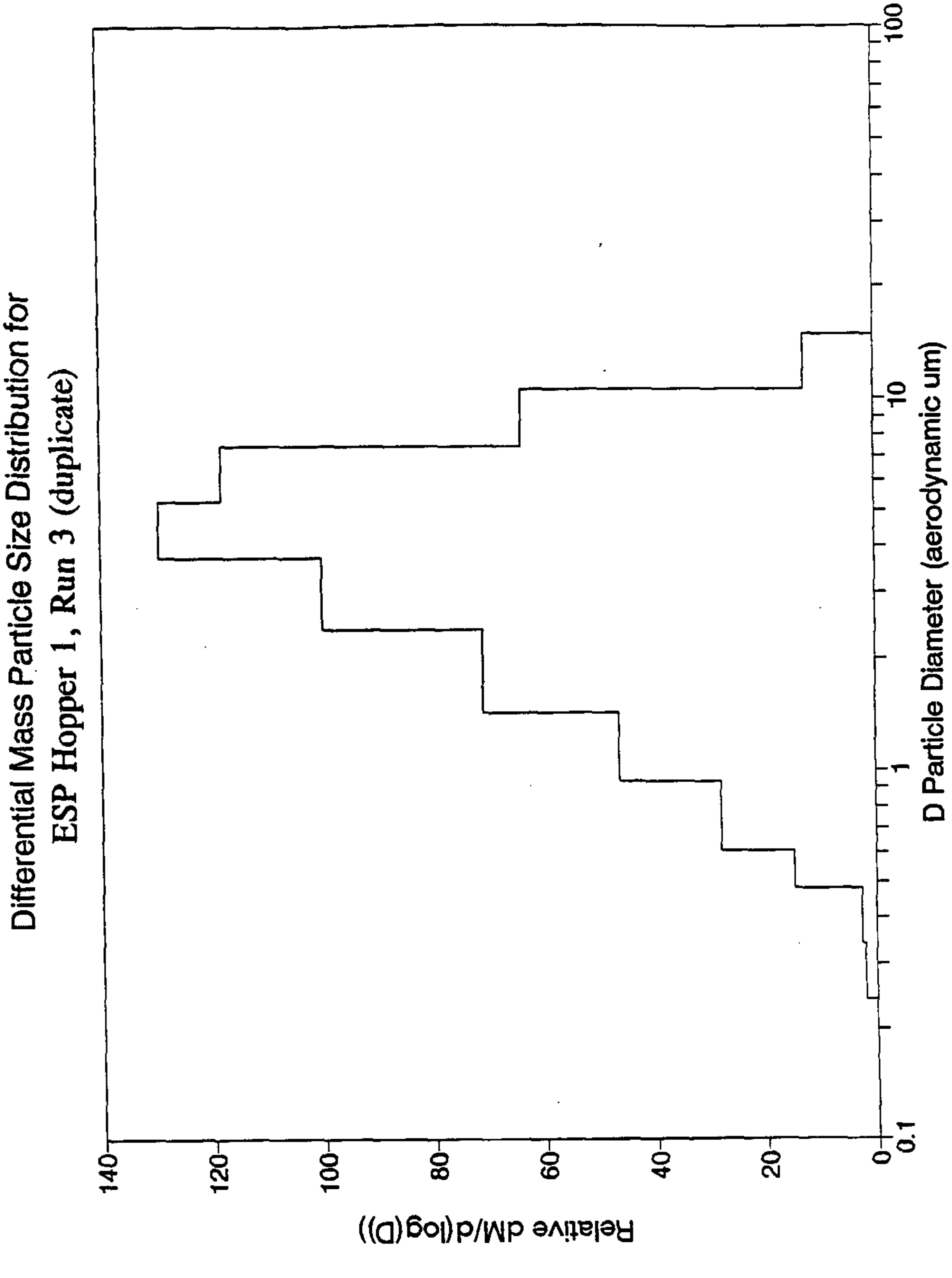
Differential Mass Particle Size Distribution for
ESP Hopper 1, Run 1

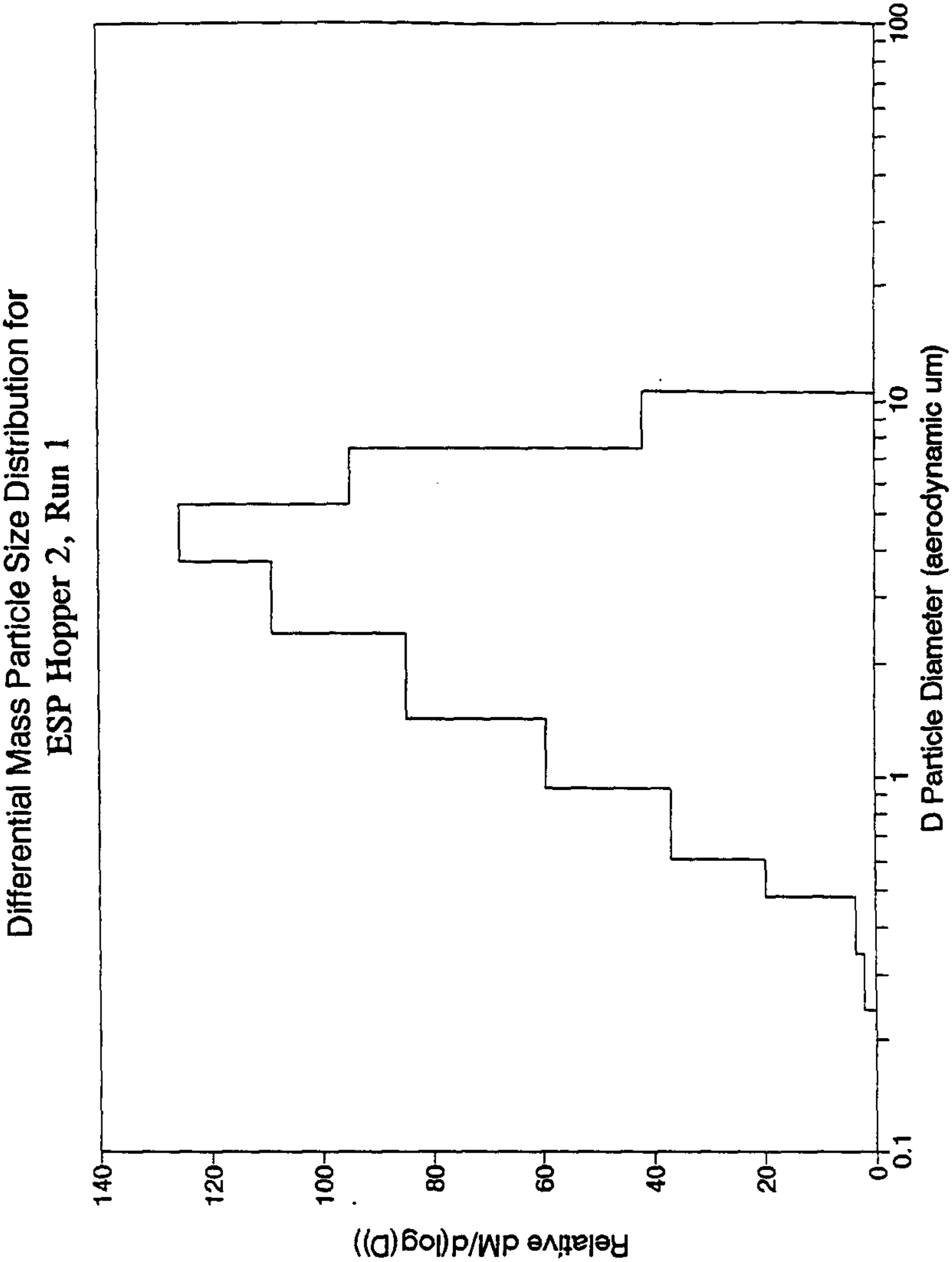


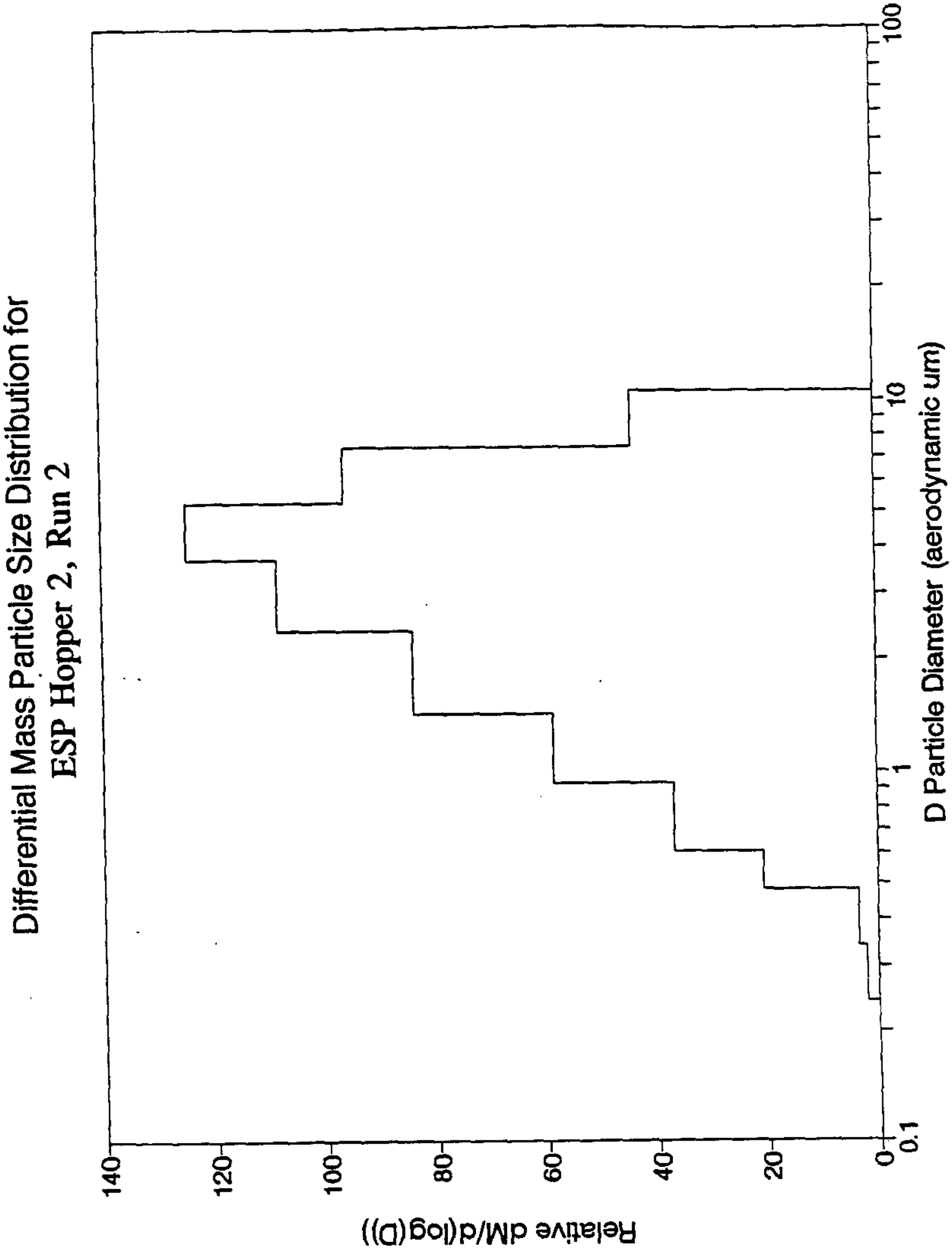
Differential Mass Particle Size Distribution for
ESP Hopper 1, Run 2



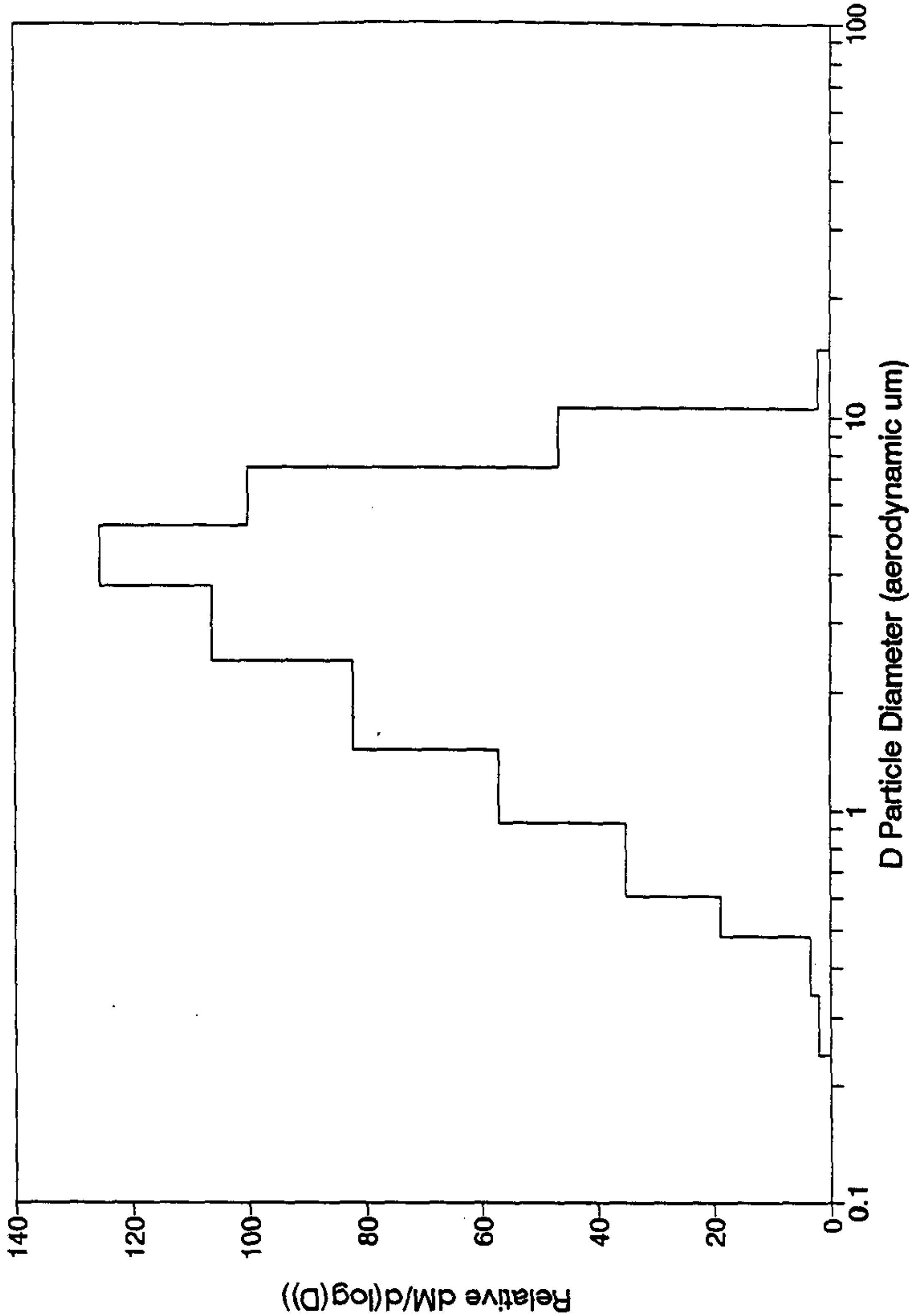

Differential Mass Particle Size Distribution for
ESP Hopper 1, Run 3
Relative dM/d(log(D))
0
20
40
60
80
100
120
140
0.1
1
10
100
D Particle Diameter (aerodynamic um)


Differential Mass Particle Size Distribution for
ESP Hopper 1, Run 3 (duplicate)
Relative dM/d(log(D))
0
20
40
60
80
100
120
140
0.1
1
10
100
D Particle Diameter (aerodynamic um)

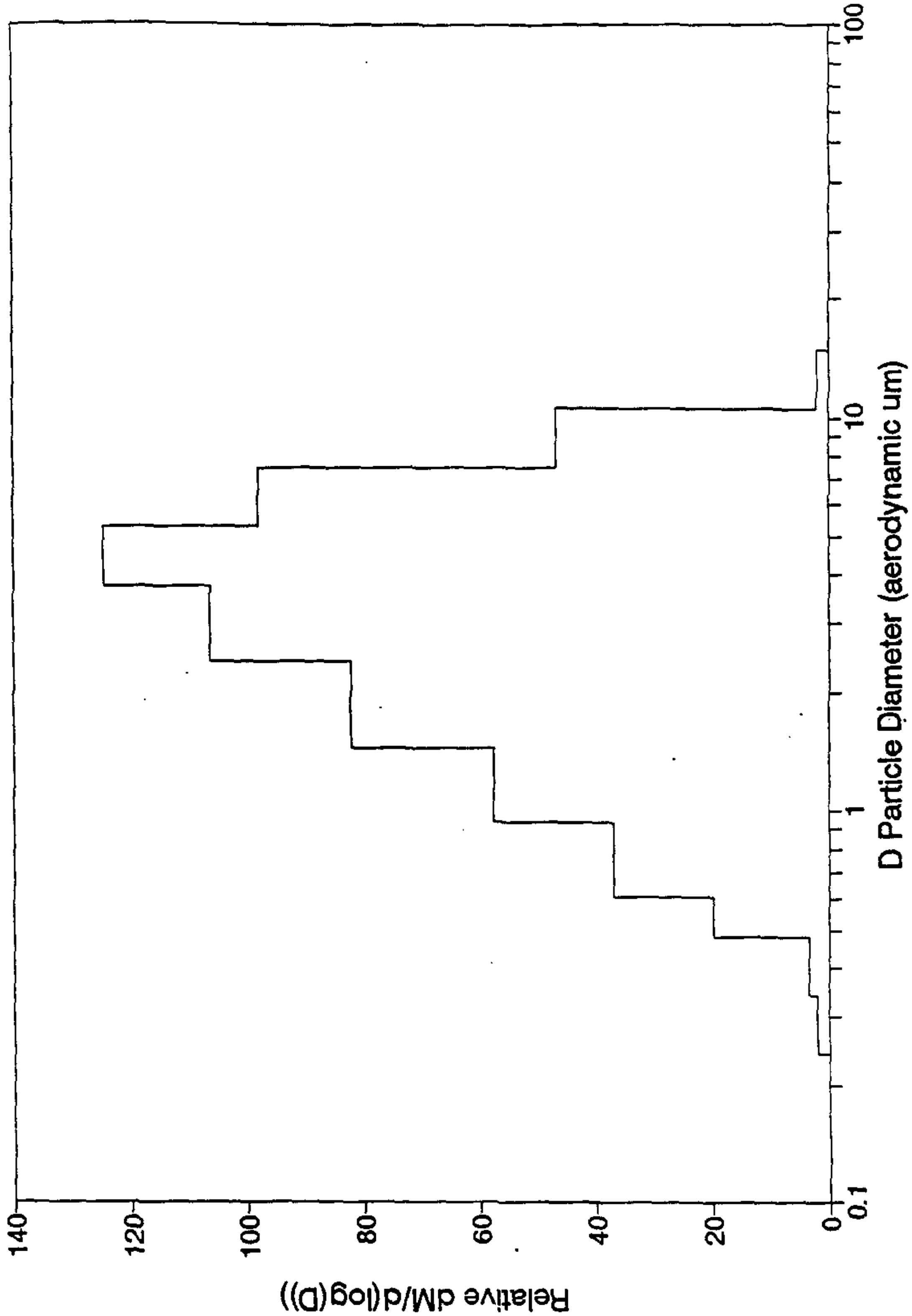

Differential Mass Particle Size Distribution for
ESP Hopper 2, Run 1
Relative dM/d(log(D))
0
20
40
60
80
100
120
140
0.1
1
10
100
D Particle Diameter (aerodynamic um)

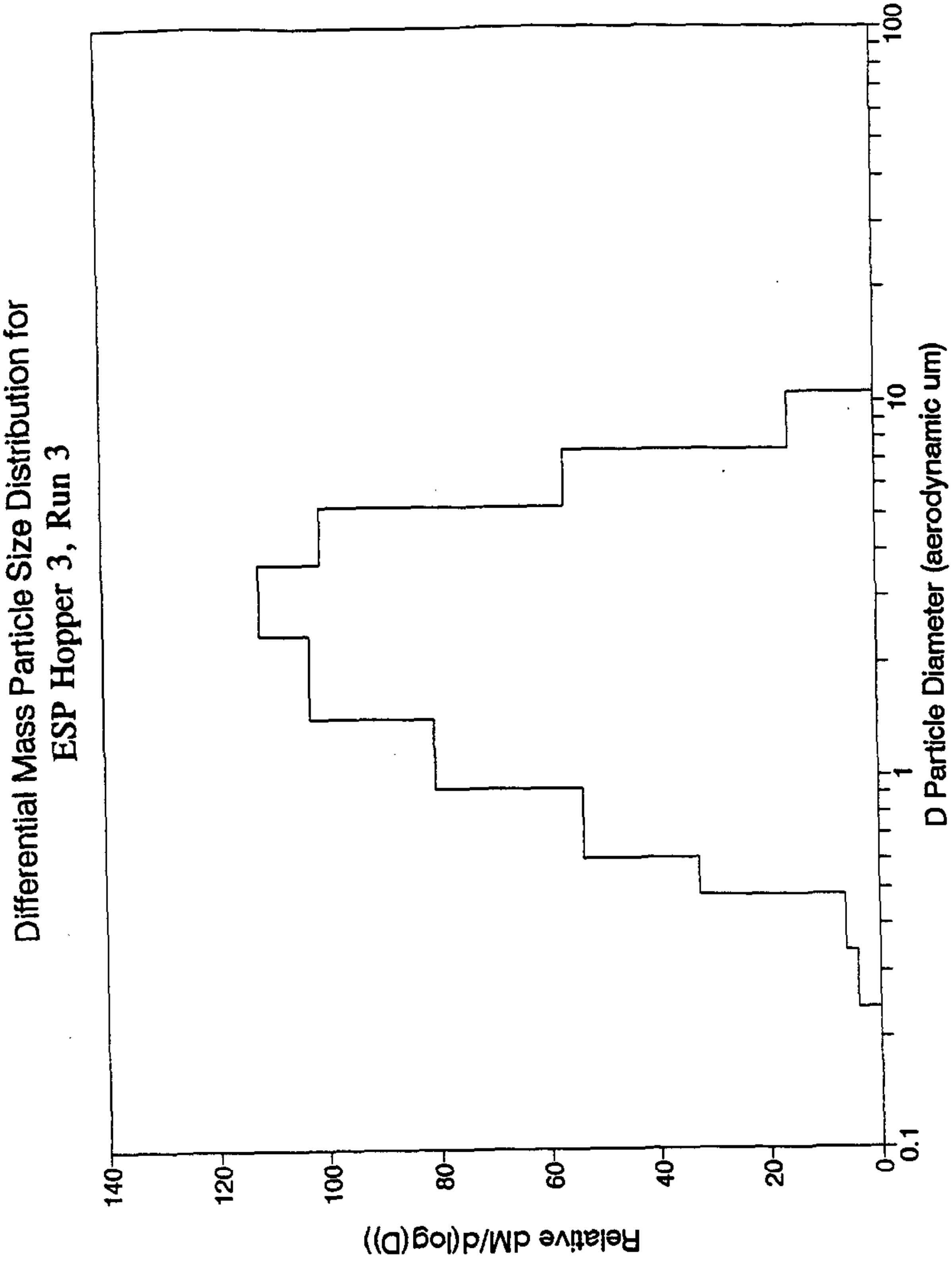

Differential Mass Particle Size Distribution for
ESP Hopper 2, Run 2
Relative dM/d(log(D))
140
120
100
80
60
40
20
0
0.1
1
10
100
D Particle Diameter (aerodynamic um)

Differential Mass Particle Size Distribution for
ESP Hopper 2, Run 3

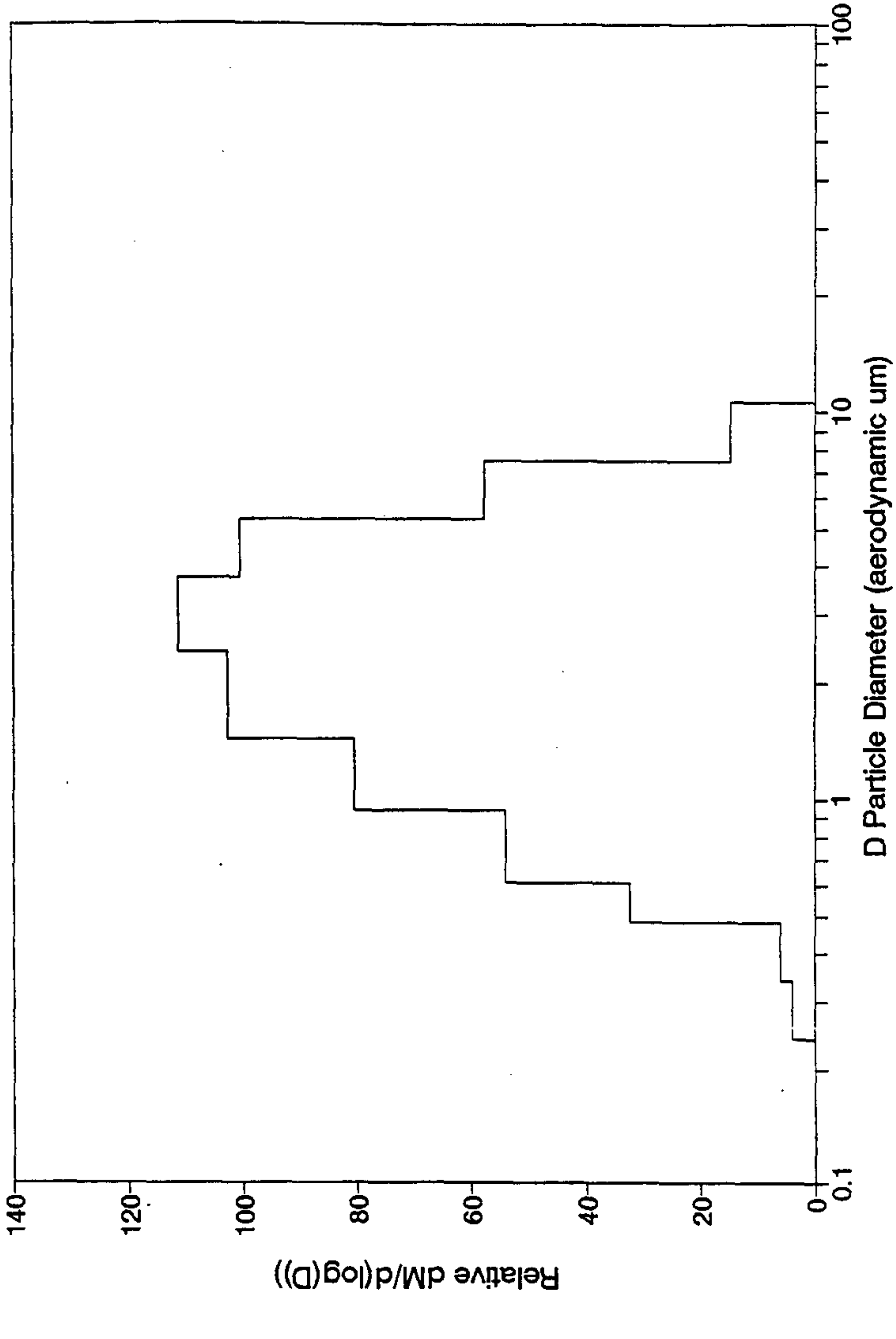


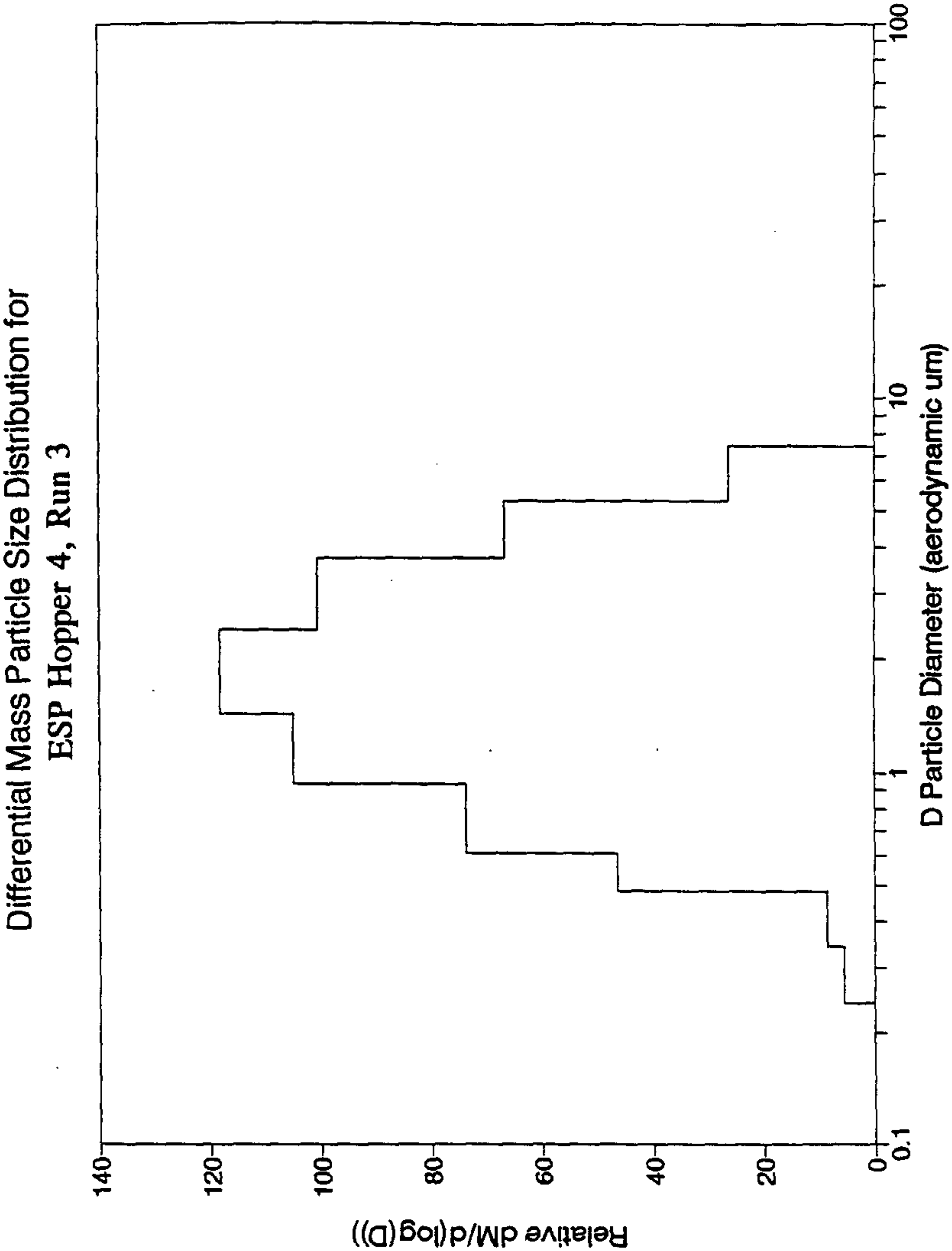
Differential Mass Particle Size Distribution for
ESP Hopper 2, Run 3 (duplicate)

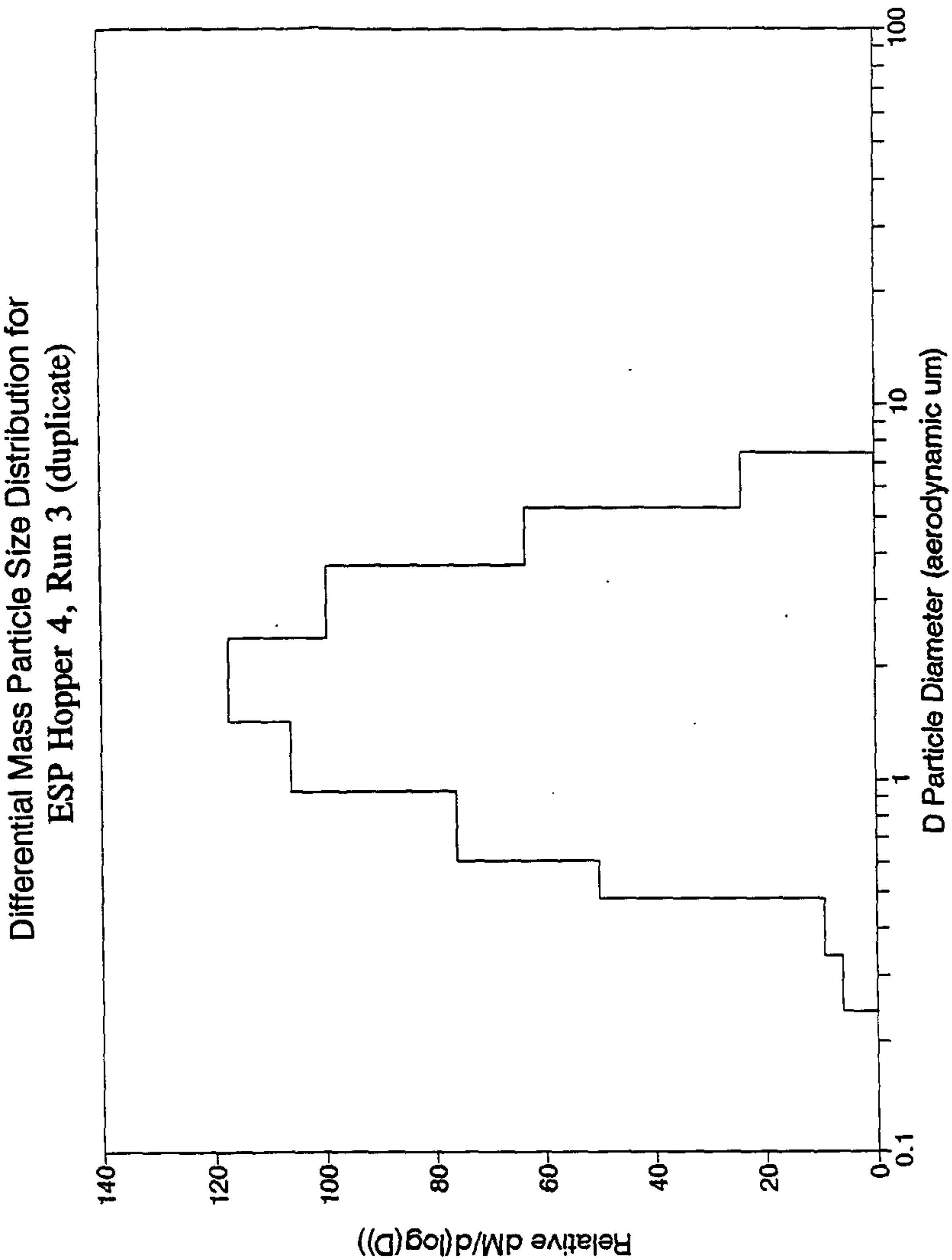



Differential Mass Particle Size Distribution for
ESP Hopper 3, Run 3
Relative dM/d(log(D))
0
20
40
60
80
100
120
140
0.1
1
10
100
D Particle Diameter (aerodynamic um)

Differential Mass Particle Size Distribution for
ESP Hopper 3, Run 3 (duplicate)




Differential Mass Particle Size Distribution for
ESP Hopper 4, Run 3
Relative dM/d(log(D))
0
20
40
60
80
100
120
140
0.1
1
10
100
D Particle Diameter (aerodynamic um)


Differential Mass Particle Size Distribution for
ESP Hopper 4, Run 3 (duplicate)
Relative dM/d(log(D))
D Particle Diameter (aerodynamic um)
0
20
40
60
80
100
120
140
0.1
1
10
100

APPENDIX D: QUALITY ASSURANCE/QUALITY CONTROL RESULTS

Table D-1
Summary of Blank Sample Results

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Laboratory Method Blanks - Filtered Solids, Acetone PNR				
ICP-AES Metals				
Aluminum	2	2	5.97-7.93 μg/g	27.6 μg/g
Antimony	2	0	ND	58.6 μg/g
Barium	2	1	ND-0.460 μg/g	0.697 μg/g
Beryllium	2	0	ND	0.329 μg/g
Calcium	2	2	18.4-26.6 μg/g	13.7 μg/g
Chromium	2	2	7.45-8.15 μg/g	1.97 μg/g
Cobalt	2	2	7.68-8.32 μg/g	5.38 μg/g
Copper	2	0	ND	5.02 μg/g
Iron	2	0	ND	–
Magnesium	2	2	29.6-53.0 μg/g	96.3 μg/g
Manganese	2	2	0.490-1.99 μg/g	4.92 μg/g
Molybdenum	2	0	ND	3.84 μg/g
Nickel	2	1	ND-1.04 μg/g	11.4 μg/g
Phosphorus	2	2	7.67-15.4 μg/g	7.29 μg/g
Potassium	2	1	ND-122 μg/g	441 μg/g
Silver	2	1	ND-1.34 μg/g	4.43 μg/g
Sodium	2	1	ND-127 μg/g	30.5 μg/g
Titanium	2	2	0.970-2.43 μg/g	7.16 μg/g
Vanadium	2	1	ND-3.71 μg/g	2.92 μg/g
Laboratory Method Blanks - Nitric PNR				
ICP-AES Metals				
Aluminum	1	1	0.383 mg/L	0.0523 mg/L
Antimony	1	0	ND	0.076 mg/L
Barium	1	1	0.00023 mg/L	0.00086 mg/L
Beryllium	1	0	0.0 mg/L	0.00051 mg/L
Calcium	1	1	0.0306 mg/L	0.0175 mg/L
Chromium	1	0	ND	0.00524 mg/L
Cobalt	1	0	ND	0.00407 mg/L
Copper	1	1	0.0100 mg/L	0.00916 mg/L
Iron	1	1	0.0506 mg/L	0.00452 mg/L
Magnesium	1	0	ND	0.0479 mg/L
Manganese	1	1	0.00308 mg/L	0.00155 mg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Molybdenum	1	0	ND	0.00739 mg/L
Nickel	1	1	0.00052 mg/L	0.0141 mg/L
Phosphorus	1	1	0.810 mg/L	0.061 mg/L
Potassium	1	0	ND	0.822 mg/L
Silver	1	1	0.00497 mg/L	0.00519 mg/L
Sodium	1	1	0.00765 mg/L	0.0401 mg/L
Titanium	1	1	0.00129 mg/L	0.00159 mg/L
Vanadium	1	0	ND	0.00454 mg/L
Laboratory Method Blanks - Half Filter, Filters & PNRs				
ICP-AES Metals				
Aluminum	2	0	ND	2.76 μg
Antimony	2	0	ND	5.86 μg
Barium	2	0	ND	0.0697 μg
Beryllium	2	0	ND	0.0329 μg
Calcium	2	0	ND	1.37 μg
Chromium	2	2	0.360-0.440 μg	0.197 μg
Cobalt	2	2	0.140-0.230 μg	0.538 μg
Copper	2	0	ND	0.502 μg
Iron	2	1	ND-0.190 μg	--
Magnesium	2	1	ND-0.090 μg	9.63 μg
Manganese	2	0	ND	0.492 μg
Molybdenum	2	0	ND	0.384 μg
Nickel	2	2	1.01-1.08 μg	1.14 μg
Phosphorus	2	2	14.7-26.6 μg	7.29 μg
Potassium	2	0	ND	44.1 μg
Silver	2	0	ND	0.443 μg
Sodium	2	0	ND	3.05 μg
Titanium	2	2	0.150-0.370 μg	0.716 μg
Vanadium	2	0	ND	0.292 μg
Laboratory Method Blanks - H_2O_2/HNO_3 Impingers				
ICP-AES Metals				
Aluminum	2	2	0.00304-1.44 mg/L	0.0523 mg/L
Antimony	2	1	ND-0.00379 mg/L	0.076 mg/L
Barium	2	2	0.00014-0.00016 mg/L	0.00086 mg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Beryllium	2	0	ND	0.000510 mg/L
Calcium	2	2	0.0266-0.253 mg/L	0.0175 mg/L
Chromium	2	0	ND	0.00524 mg/L
Cobalt	2	1	0-0.00206 mg/L	0.00407 mg/L
Copper	2	2	0.00358-0.0102 mg/L	0.00916 mg/L
Iron	2	1	ND-0.00393 mg/L	0.00452 mg/L
Magnesium	2	1	ND-0.00205 mg/L	0.0479 mg/L
Manganese	2	2	0.00115-0.0092 mg/L	0.00155 mg/L
Molybdenum	2	1	ND-0.00027 mg/L	0.00739 mg/L
Nickel	2	1	ND-0.00161 mg/L	0.0141 mg/L
Phosphorus	1	0	ND	0.0610 mg/L
Potassium	2	2	0.022-0.0523 mg/L	0.822 mg/L
Silver	2	1	0-0.00057 mg/L	0.00519 mg/L
Sodium	2	2	0.00424-0.0654 mg/L	0.0401 mg/L
Titanium	2	1	ND-0.00033 mg/L	0.00159 mg/L
Vanadium	2	0	ND	0.00454 mg/L
Field Blank - Half Filter - APF				
ICP-AES Metals				
Aluminum	1	1	90.8 µg	2.76 µg
Antimony	1	0	ND	5.86 µg
Barium	1	1	2.35 µg	0.0697 µg
Beryllium	1	0	ND	0.0329 µg
Calcium	1	1	172 µg	1.37 µg
Chromium	1	1	1.89 µg	0.197 µg
Cobalt	1	0	ND	0.538 µg
Copper	1	0	ND	0.502 µg
Iron	1	1	12.7 µg	–
Magnesium	1	1	63.0 µg	9.63 µg
Manganese	1	0	ND	0.492 µg
Molybdenum	1	1	2.22 µg	0.384 µg
Nickel	1	1	2.06	1.14 µg
Phosphorus	1	1	33.3 µg	7.29 µg
Potassium	1	1	25.4	44.1 µg
Silver	1	1	0.003 µg	0.443 µg
Sodium	1	1	459 µg	3.05 µg
Titanium	1	1	0.847 µg	0.716 µg
Vanadium	1	1	0.191 µg	0.292 µg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Field Blank - Filter & PNR - ESP				
ICP-AES Metals				
Aluminum	1	1	437 μg	2.76 μg
Antimony	1	0	ND	5.86 μg
Barium	1	1	7.53 μg	0.0697 μg
Beryllium	1	1	0.016 μg	0.0329 μg
Calcium	1	1	661 μg	1.37 μg
Chromium	1	1	5.66 μg	0.197 μg
Cobalt	1	1	0.613 μg	0.538 μg
Copper	1	1	1.65 μg	0.502 μg
Iron	1	1	242 μg	–
Magnesium	1	1	181 μg	9.63 μg
Manganese	1	1	1.96 μg	0.492 μg
Molybdenum	1	1	17.6 μg	0.384 μg
Nickel	1	1	2.98 μg	1.14 μg
Phosphorus	1	1	22.4 μg	7.29 μg
Potassium	1	1	86.4 μg	44.1 μg
Silver	1	1	0.174 μg	0.443 μg
Sodium	1	1	320 μg	3.05 μg
Titanium	1	1	26.5 μg	0.716 μg
Vanadium	1	1	1.15 μg	0.292 μg
Field Blank - H_2O_2/HNO_3 Impingers - APF				
ICP-AES Metals				
Aluminum	1	1	0.0136 mg/L	0.0523 mg/L
Antimony	1	0	ND	0.076 mg/L
Barium	1	1	0.0004 mg/L	0.00086 mg/L
Beryllium	1	0	ND	0.00051 mg/L
Calcium	1	1	0.328 mg/L	0.0175 mg/L
Chromium	1	0	ND	0.00524 mg/L
Cobalt	1	0	ND	0.00407 mg/L
Copper	1	1	0.00183 mg/L	0.00916 mg/L
Iron	1	1	0.0212 mg/L	0.00452 mg/L
Magnesium	1	1	0.142 mg/L	0.0479 mg/L
Manganese	1	1	0.00281 mg/L	0.00155 mg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Molybdenum	1	0	ND	0.00739 mg/L
Nickel	1	1	0.00229 mg/L	0.0141 mg/L
Phosphorus	1	0	ND	0.061 mg/L
Potassium	1	0	ND	0.822 mg/L
Silver	1	0	ND	0.00519 mg/L
Sodium	1	1	0.672 mg/L	0.0401 mg/L
Titanium	1	1	0.00068 mg/L	0.00159 mg/L
Vanadium	1	0	ND	0.00454 mg/L
Field Blank - H_2O_2/HNO_3 Impingers - ESP				
ICP-AES Metals				
Aluminum	1	1	0.0228 mg/L	0.0523 mg/L
Antimony	1	0	ND	0.076 mg/L
Barium	1	1	0.00048 mg/L	0.00086 mg/L
Beryllium	1	0	ND	0.00051 mg/L
Calcium	1	1	0.248 mg/L	0.0175 mg/L
Chromium	1	1	0.00065 mg/L	0.00524 mg/L
Cobalt	1	1	0.00078 mg/L	0.00407 mg/L
Copper	1	1	0.00344 mg/L	0.00916 mg/L
Iron	1	1	0.0413 mg/L	0.00452 mg/L
Magnesium	1	1	0.127 mg/L	0.0479 mg/L
Manganese	1	1	0.00704 mg/L	0.00155 mg/L
Molybdenum	1	1	0.00048 mg/L	0.00739 mg/L
Nickel	1	1	0.00246 mg/L	0.0141 mg/L
Phosphorus	1	0	ND	0.061 mg/L
Potassium	1	1	0.484 mg/L	0.822 mg/L
Silver	1	0	ND	0.00519 mg/L
Sodium	1	1	0.629 mg/L	0.0401 mg/L
Titanium	1	1	0.00046 mg/L	0.00159 mg/L
Vanadium	1	1	0.00083 mg/L	0.00454 mg/L
Reagent Blank - Filter & PNR				
ICP-AES Metals				
Aluminum	1	1	192 μg	2.76 μg
Antimony	1	0	ND	5.86 μg
Barium	1	1	6.21 μg	0.0697 μg
Beryllium	1	0	ND	0.0329 μg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Calcium	1	1	133 μg	1.37 μg
Chromium	1	1	3.43 μg	0.197 μg
Cobalt	1	1	0.658 μg	0.538 μg
Copper	1	0	ND	0.502 μg
Iron	1	1	77.5 μg	--
Magnesium	1	1	23.1 μg	9.63 μg
Manganese	1	1	0.657 μg	0.492 μg
Molybdenum	1	1	18.2 μg	0.384 μg
Nickel	1	1	1.57 μg	1.14 μg
Phosphorus	1	1	25.8 μg	7.29 μg
Potassium	1	1	34.7 μg	44.1 μg
Silver	1	1	0.134 μg	0.443 μg
Sodium	1	1	260 μg	3.05 μg
Titanium	1	1	8.13 μg	0.716 μg
Vanadium	1	1	0.782 μg	0.292 μg
Reagent Blank - Half Filter				
ICP-AES Metals				
Aluminum	1	1	90.6 μg	2.76 μg
Antimony	1	0	ND	5.86 μg
Barium	1	1	0.615 μg	0.0697 μg
Beryllium	1	0	ND	0.0329 μg
Calcium	1	1	173 μg	1.37 μg
Chromium	1	1	1.38 μg	0.197 μg
Cobalt	1	1	0.366 μg	0.538 μg
Copper	1	0	ND	0.502 μg
Iron	1	1	6.10 μg	--
Magnesium	1	1	62.2 μg	9.63 μg
Manganese	1	0	ND	0.492 μg
Molybdenum	1	1	1.97 μg	0.384 μg
Nickel	1	1	1.21 μg	1.14 μg
Phosphorus	1	1	36.7 μg	7.29 μg
Potassium	1	1	29.3 μg	44.1 μg
Silver	1	0	ND	0.443 μg
Sodium	1	1	460 μg	3.05 μg
Titanium	1	1	0.909 μg	0.716 μg
Vanadium	1	1	0.161 μg	0.292 μg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Reagent Blank - HNO_3/H_2O_2 Impingers				
ICP-AES Metals				
Aluminum	1	1	0.00891 mg/L	0.0523 mg/L
Antimony	1	0	ND	0.076 mg/L
Barium	1	1	0.00024 mg/L	0.00086 mg/L
Beryllium	1	0	0 mg/L	0.00051 mg/L
Calcium	1	1	0.299 mg/L	0.0175 mg/L
Chromium	1	1	0.00399 mg/L	0.00524 mg/L
Cobalt	1	1	0.00348 mg/L	0.00407 mg/L
Copper	1	1	0.00127 mg/L	0.00916 mg/L
Iron	1	1	0.0179 mg/L	0.00452 mg/L
Magnesium	1	1	0.0133 mg/L	0.0479 mg/L
Manganese	1	1	0.00141 mg/L	0.00155 mg/L
Molybdenum	1	0	ND	0.00739 mg/L
Nickel	1	1	0.00008 mg/L	0.0141 mg/L
Phosphorus	1	0	ND	0.061 mg/L
Potassium	1	1	0.264 mg/L	0.822 mg/L
Silver	1	0	ND	0.00519 mg/L
Sodium	1	1	0.513 mg/L	0.0401 mg/L
Titanium	1	0	ND	0.00159 mg/L
Vanadium	1	1	0.0002 mg/L	0.00454 mg/L
Laboratory Method Blank - Ash				
ICP-AES Metals				
Aluminum	2	2	5.97-7.93 μg/g	27.6 μg/g
Antimony	2	0	ND	58.6 μg/g
Barium	2	1	ND-0.460 μg/g	0.697 μg/g
Beryllium	2	0	ND	0.329 μg/g
Calcium	2	2	18.4-26.6 μg/g	13.7 μg/g
Chromium	2	2	7.45-8.15 μg/g	1.97 μg/g
Cobalt	2	2	7.68-8.32 μg/g	5.38 μg/g
Copper	2	0	ND	5.02 μg/g
Iron	2	0	ND	–
Magnesium	2	2	29.6-53.0 μg/g	96.3 μg/g
Manganese	2	2	0.490-1.99 μg/g	4.92 μg/g
Molybdenum	2	0	ND	3.84 μg/g
Nickel	2	1	ND-1.04 μg/g	11.4 μg/g

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Phosphorus	1	0	ND	7.29 μg/g
Potassium	2	1	ND-122 μg/g	441 μg/g
Silver	2	1	ND-1.34 μg/g	4.43 μg/g
Sodium	2	1	ND-127 μg/g	30.5 μg/g
Titanium	2	2	0.970-2.43 μg/g	7.16 μg/g
Vanadium	2	1	ND-3.71 μg/g	2.92 μg/g
Laboratory Method Blank - Sorbent				
ICP-AES Metals				
Aluminum	1	0	ND	--
Antimony	1	0	ND	5.86 μg/g
Barium	1	1	0.014 μg/g	0.0697 μg/g
Beryllium	1	0	ND	0.0329 μg/g
Calcium	1	1	2.29 μg/g	39.8 μg/g
Chromium	1	1	0.341 μg/g	0.197 μg/g
Cobalt	1	1	0.069 μg/g	0.538 μg/g
Copper	1	0	ND	0.502 μg/g
Iron	1	1	0.165 μg/g	--
Magnesium	1	0	ND	9.63 μg/g
Manganese	1	0	ND	0.492 μg/g
Molybdenum	1	1	0.099 μg/g	0.384 μg/g
Nickel	1	1	0.75 μg/g	--
Phosphorus	1	0	ND	7.29 μg/g
Potassium	1	1	6.51 μg/g	44.1 μg/g
Silver	1	0	ND	0.443 μg/g
Sodium	1	1	0.076 μg/g	3.05 μg/g
Titanium	1	1	0.09 μg/g	0.716 μg/g
Vanadium	1	0	0 μg/g	0.292 μg/g
Laboratory Method Blank - Service Water				
ICP-AES Metals				
Aluminum	1	1	0.148 mg/L	0.0523 mg/L
Antimony	1	1	0.0566 mg/L	0.076 mg/L
Barium	1	1	0.00151 mg/L	0.00086 mg/L
Beryllium	1	0	ND	0.00051 mg/L
Calcium	1	1	0.238 mg/L	0.0175 mg/L
Chromium	1	0	ND	0.00524 mg/L
Cobalt	1	1	0.00177 mg/L	0.00407 mg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Copper	1	1	0.00324 mg/L	0.00916 mg/L
Iron	1	0	ND	0.00452 mg/L
Magnesium	1	1	0.019 mg/L	0.0479 mg/L
Manganese	1	0	ND	0.00155 mg/L
Molybdenum	1	1	0.00853 mg/L	0.00739 mg/L
Nickel	1	0	ND	0.0141 mg/L
Phosphorus	1	0	ND	0.061 mg/L
Potassium	1	0	ND	0.822 mg/L
Silver	1	0	0 mg/L	0.00519 mg/L
Sodium	1	1	0.0198 mg/L	0.0401 mg/L
Titanium	1	1	0.00082 mg/L	0.00159 mg/L
Vanadium	1	1	0.00187 mg/L	0.00454 mg/L
Field Blank - HNO_3/H_2O_2 Impingers - APF				
ICP-MS Metals				
Antimony	1	1	0.13 μg/L	0.003 μg/L
Arsenic	1	1	0.09 μg/L	0.008 μg/L
Barium	1	1	3.57 μg/L	0.017 μg/L
Beryllium	1	1	0.01 μg/L	0.015 μg/L
Cadmium	1	1	0.49 μg/L	0.020 μg/L
Chromium	1	1	3.7 μg/L	0.020 μg/L
Cobalt	1	1	0.10 μg/L	0.003 μg/L
Copper	1	1	1.70 μg/L	0.106 μg/L
Lead	1	1	2.27 μg/L	0.016 μg/L
Manganese	1	1	2.02 μg/L	0.022 μg/L
Mercury	1	1	0.01 μg/L	0.021 μg/L
Molybdenum	1	1	0.46 μg/L	0.024 μg/L
Nickel	1	1	5.39 μg/L	0.024 μg/L
Selenium	1	0	<0.134 μg/L	0.134 μg/L
Vanadium	1	1	0.09 μg/L	0.006 μg/L
Field Blank - HNO_3/H_2O_2 Impingers - ESP				
ICP-MS Metals				
Antimony	1	1	0.04 μg/L	0.003 μg/L
Arsenic	1	1	0.10 μg/L	0.008 μg/L
Barium	1	1	3.87 μg/L	0.017 μg/L
Beryllium	1	1	0.02 μg/L	0.015 μg/L
Cadmium	1	1	0.46 μg/L	0.020 μg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Chromium	1	1	2.9 µg/L	0.020 µg/L
Cobalt	1	1	0.09 µg/L	0.003 µg/L
Copper	1	1	2.04 µg/L	0.106 µg/L
Lead	1	1	1.28 µg/L	0.016 µg/L
Manganese	1	1	5.63 µg/L	0.022 µg/L
Mercury	1	1	0.05 µg/L	0.021 µg/L
Molybdenum	1	1	0.68 µg/L	0.024 µg/L
Nickel	1	1	1.38 µg/L	0.024 µg/L
Selenium	1	0	<0.134 µg/L	0.134 µg/L
Vanadium	1	1	0.10 µg/L	0.006 µg/L
Reagent Blank - HNO_3/H_2O_2 Impingers				
ICP-MS Metals				
Antimony	1	1	0.04 µg/L	0.003 µg/L
Arsenic	1	1	0.22 µg/L	0.008 µg/L
Barium	1	1	7.58 µg/L	0.017 µg/L
Beryllium	1	1	0.09 µg/L	0.015 µg/L
Cadmium	1	1	0.95 µg/L	0.020 µg/L
Chromium	1	1	3.79 µg/L	0.020 µg/L
Cobalt	1	1	0.05 µg/L	0.003 µg/L
Copper	1	1	1.56 µg/L	0.106 µg/L
Lead	1	1	2.11 µg/L	0.016 µg/L
Manganese	1	1	1.80 µg/L	0.022 µg/L
Mercury	1	1	2.13 µg/L	0.021 µg/L
Molybdenum	1	1	0.47 µg/L	0.024 µg/l
Nickel	1	1	0.57 µg/L	0.024 µg/L
Selenium	1	0	<0.134 µg/L	0.134 µg/L
Vanadium	1	1	0.30 µg/L	0.006 µg/L
Laboratory Method Blank - Filtered Solids				
GFAAS and CVAAS Metals				
Arsenic	2	2	0.89-2.7 µg/g	1.82 µg/g
Cadmium	1	0	ND	0.238 µg/g
Lead	1	0	ND	0.0776 µg/g
Mercury	1	0	ND	0.012 µg/g
Selenium	1	1	0.121 µg/g	0.101 µg/g

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Laboratory Method Blank - Acetone PNR				
GFAAS and CVAAS Metals				
Arsenic	1	1	0.296 μg/g	0.182 μg/g
Cadmium	1	0	ND	0.783 μg/g
Lead	1	0	ND	0.776 μg/g
Mercury	1	1	0.015 μg/g	0.024 μg/g
Selenium	1	0	ND	0.0802 μg/g
Laboratory Method Blank - Nitric PNR				
GFAAS and CVAAS Metals				
Arsenic	1	0	ND	0.00214 mg/L
Cadmium	1	0	ND	0.00027 mg/L
Lead	1	0	ND	0.000996 mg/L
Mercury	1	0	ND	0.000033 mg/L
Selenium	1	0	ND	0.000592 mg/L
Laboratory Method Blank - Half Filter				
GFAAS and CVAAS Metals				
Arsenic	1	1	0.144 μg	0.182 μg
Cadmium	1	0	ND	0.0783 μg
Lead	1	0	ND	0.0776 μg
Mercury	1	1	0.002 μg	0.0048 μg
Selenium	1	1	0.066 μg	0.0802 μg
Laboratory Method Blank - Filter & PNRs				
GFAAS and CVAAS Metals				
Arsenic	1	1	0.376 μg	0.182 μg
Cadmium	2	0	ND	0.0783 μg
Lead	1	0	ND	0.0776 μg
Mercury	1	1	0.008 μg	0.0048 μg
Selenium	1	0	ND	0.0802 μg
Laboratory Method Blank - HNO_3/H_2O_2 Impingers				
GFAAS and CVAAS Metals				
Arsenic	1	0	ND	0.000647 mg/L
Cadmium	1	0	ND	0.000191 mg/L
Lead	1	1	0.00047 mg/L	0.00205 mg/L
Mercury	1	0	ND	0.000048 mg/L
Selenium	2	0	ND	0.00177 mg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Field Blank - Half Filter - APF				
GFAAS and CVAAS Metals				
Arsenic	1	1	0.110 μg	0.182 μg
Cadmium	1	0	ND	0.0783 μg
Lead	1	0	ND	0.0776 μg
Mercury	1	1	0.016 μg	0.0048 μg
Selenium	1	1	0.113 μg	0.0802 μg
Field Blank - Filter & PNR - ESP				
GFAAS and CVAAS Metals				
Arsenic	1	1	2.36 μg	0.182 μg
Cadmium	1	1	2.02 μg	0.157 μg
Lead	1	1	0.884 μg	0.0776 μg
Mercury	1	1	0.033 μg	0.0048 μg
Selenium	1	1	0.373 μg	0.0802 μg
Field Blank - H_2O_2/HNO_3 Impingers - APF				
GFAAS and CVAAS Metals				
Arsenic	1	0	ND	0.000647 mg/L
Cadmium	1	1	0.00054 mg/L	0.000191 mg/L
Lead	1	1	0.00168 m/L	0.00205 mg/L
Mercury	1	0	ND	0.00024 mg/L
Selenium	1	1	0.00183 mg/L	0.00177 mg/L
Field Blank - H_2O_2/HNO_3 Impingers - ESP				
GFAAS and CVAAS Metals				
Arsenic	1	0	ND	0.000647 mg/L
Cadmium	1	1	0.00047 mg/L	0.000191 mg/L
Lead	1	1	0.00058 mg/L	0.00205 mg/L
Mercury	1	0	ND	0.00024 mg/L
Selenium	1	1	0.0019 mg/L	0.00177 mg/L
Reagent Blank - Half Filter				
GFAAS and CVAAS Metals				
Arsenic	1	1	0.453 μg	0.182 μg
Cadmium	1	0	ND	0.0783 μg
Lead	1	0	ND	0.0776 μg
Mercury	1	1	0.019 μg	0.0048 μg
Selenium	1	1	0.132 μg	0.0802 μg
Mercury				

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Reagent Blank - Filter & PNR				
GFAAS and CVAAS Metals				
Arsenic	1	1	0.270 μg	0.182 μg
Cadmium	1	1	0.018 μg	0.0783 μg
Lead	1	1	1.17 μg	0.0776 μg
Mercury	1	1	0.022 μg	0.0048 μg
Selenium	1	1	0.127 μg	0.0802 μg
Reagent Blank - H_2O_2/HNO_3 Impingers				
GFAAS and CVAAS Metals				
Arsenic	1	0	ND	0.000647 mg/L
Cadmium	1	1	0.00002 mg/L	0.000191 mg/L
Lead	1	1	0.00069 mg/L	0.00205 mg/L
Mercury	1	0	ND	0.00024 mg/L
Selenium	1	1	0.0014 mg/L	0.00177 mg/L
Laboratory Method Blank - $KMNO_4$ Impingers				
CVAAS Metals				
Mercury	1	0	ND	0.000033 mg/L
Field Blank - $KMNO_4$ Impingers - APF				
CVAAS Metals				
Mercury	1	1	0.00018 mg/L	0.000033 mg/L
Field Blank - $KMNO_4$ Impingers - ESP				
CVAAS Metals				
Mercury	1	1	0.00001 mg/L	0.000033 mg/L
Reagent Blank - $KMNO_4$ Impingers				
CVAAS Metals				
Mercury	1	0	ND	0.000033 mg/L
Laboratory Method Blank - Ash				
GFAAS and CVAAS Metals				
Arsenic	1	1	0.082 μg/g	0.118 μg/g
Cadmium	1	1	0.060 μg/g	0.238 μg/g
Lead	3	0	ND	0.999 μg/g
Mercury	1	0	ND	0.012 μg/g
Selenium	2	1	ND -0.31 μg/g	1.01 μg/g

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Laboratory Method Blank - Sorbent				
GFAAS and CVAAS Metals				
Arsenic	1	0	ND	0.118 µg/g
Cadmium	1	0	ND	0.0238 µg/g
Lead	1	1	0.016 µg/g	0.0999 µg/g
Mercury	1	0	ND	0.012 µg/g
Selenium	1	0	ND	0.101 µg/g
Laboratory Method Blank - Service Water				
GFAAS and CVAAS Metals				
Arsenic	1	0	ND	0.000647 mg/L
Cadmium	1	0	ND	0.00027 mg/L
Lead	1	1	0.00065 mg/L	0.0022 mg/L
Mercury	1	0	ND	0.000033 mg/L
Selenium	1	0	ND	0.00177 mg/L
Laboratory Method Blank - Ash and Sorbent				
Anions				
Chloride (Potentiometric)	2	0	0 µg/g	78.1 µg/g
Fluoride (EPA 340.2)	3	3	8.40-9.21 µg/g	11.8 µg/g
Sulfur (EPA 300)	2	1	0-4.03 mg/L	0.0471 mg/L
Laboratory Method Blank - Service Water				
Anions				
Chloride (EPA 300)	1	0	0 mg/L	0.0281 mg/L
Fluoride (EPA 340.2)	1	1	0.0126 mg/L	0.00551 mg/L
Sulfate (EPA 300)	1	0	0 mg/L	0.0471 mg/L
Phosphate (EPA 365.2)	1	0	ND	0.0200 mg/L
Laboratory Method Blank - Half Filter, Filtered Solids, Filter & PNRs				
Anions				
Chloride (BIF)	2	0	0 mg/L	0.0225 mg/L
Fluoride (EPA 340.2)	1	1	0.0144 mg/L	0.00551 mg/L
Sulfate (EPA 300)	2	0	0 mg/L	0.0471 mg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Laboratory Method Blank - CO_3/H_2O_2 Impingers				
Anions				
Chloride (EPA 300)	1	0	0 mg/L	0.0281 mg/L
Fluoride (EPA 340.2)	2	2	0.0126-0.0143 mg/L	0.00551 mg/L
Sulfate (EPA 300)	2	0	0 mg/L	0.0471 mg/L
Field Blanks - Half Filter, Filter & PNR				
Anions				
Chloride (BIF)	2	2	0.062-0.401 mg/L	0.0225 mg/L
Fluoride (EPA 340.2)	2	2	0.0291-0.38 mg/L	0.00551 mg/L
Sulfate (EPA 300)	2	1	0-4.08 mg/L	0.0471 mg/L
Field Blanks - CO_3/H_2O_2 Impingers				
Anions				
Chloride (EPA 300)	2	2	0.389-0.443 mg/L	0.0281 mg/L
Fluoride (EPA 340.2)	2	2	0.237-0.254 mg/L	0.00551 mg/L
Sulfate (EPA 300)	2	0	0 mg/L	0.0471 mg/L
Reagent Blank - Filter & PNR				
Anions				
Chloride (BIF)	1	1	0.278 mg/L	0.0225 mg/L
Fluoride (EPA 340.2)	1	1	0.647 mg/L	0.00551 mg/L
Sulfate (EPA 300)	1	1	1.38 mg/L	0.0471 mg/L
Reagent Blank - CO_3/H_2O_2 Impingers				
Anions				
Chloride (EPA 300)	1	1	0.637 mg/L	0.0281 mg/L
Fluoride (EPA 340.2)	1	1	0.184 mg/L	0.00551 mg/L
Sulfate (EPA 300)	1	1	2.25 mg/L	0.0471 mg/L
Laboratory Method Blank - Ammonia in Stack Gas (EPA 350.2)				
Ammonia	1	1	0.0686 mg/L	0.0156 mg/l
Field Blanks - Ammonia in Stack Gas (EPA 350.2)				
Ammonia	2	2	0.167-0.169 mg/L	0.0468 mg/L
Reagent Blank - Ammonia in Stack Gas (EPA 350.2)				
Ammonia	1	1	0.167 mg/L	0.0468 mg/L

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Laboratory Method Blank - Cyanide in Stack Gas (SW 9012)				
Cyanide	1	0	ND	0.00942 mg/L
Field Blanks - Cyanide in Stack Gas (SW 9012)				
Cyanide	2	2	0.0014-0.0021 mg/L	0.00942 mg/L
Reagent Blank - Cyanide in Stack Gas (SW 9012)				
Cyanide	1	1	0.0020 mg/L	0.00942 mg/L
Field Blanks - Chromium VI in Stack Gas (Ion Chromatography				
Chromium VI (KOH Impingers)	1	1	0.00757 mg/L	0.0001 mg/L
Reagent Blanks - Chromium VI in Stack Gas (Ion Chromatography)				
Chromium VI (KOH Impingers)	4	4	0.00743-0.00955 mg/L	0.0001 mg/L
Laboratory Method Blank - Total Chromium in Stack Gas (SW 6010)				
Chromium (SW 6010)	1	1	0.00233 μg/g	0.00273 μg/g
Field Blanks - Total Chromium in Stack Gas (SW 6010)				
Chromium (Nitric Rinse)	1	1	0.00618 mg/L	0.00524 mg/L
Chromium (KOH Impinger)	1	1	0.0221 mg/L	0.00524 mg/L
Reagent Blank - Total Chromium in Stack Gas (SW 6010)				
Chromium (KOH Impinger)	1	1	0.00684 mg/L	0.00524 mg/L
Laboratory Method Blank - Formaldehyde in Stack Gas (BIF 0011)				
Formaldehyde	2	0	ND	0.50 μg
Field Blanks - Formaldehyde in Stack Gas (BIF 0011)				
Formaldehyde	2	2	5.7-6.0 μg	0.50 μg
Reagent Blanks - Formaldehyde in Stack Gas (BIF 0011)				
Formaldehyde	4	0	ND	0.50 μg
Laboratory Method Blank - Volatile Organic Compounds in Stack Gas				
Chloromethane	6	0	ND	10 ng
Vinyl Chloride	6	0	ND	10 ng
Bromomethane	6	0	ND	10 ng
Chloroethane	6	0	ND	10 ng

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Trichlorofluoromethane	6	0	ND	10 ng
1,1-Dichloroethene	6	0	ND	10 ng
Carbon Disulfide	6	0	ND	10 ng
Acetone	6	0	ND	50 ng
Methylene Chloride	6	0	ND	10 ng
trans-1,2-Dichloroethene	6	0	ND	10 ng
1,1-Dichloroethane	6	0	ND	10 ng
Vinyl Acetate	6	0	ND	50 ng
2-Butanone	6	0	ND	50 ng
Chloroform	6	0	ND	10 ng
1,1,1-Trichloroethane	6	0	ND	10 ng
Carbon Tetrachloride	6	0	ND	10 ng
Benzene	6	0	ND	10 ng
1,2-Dichloroethane	6	0	ND	10 ng
Trichloroethene	6	0	ND	10 ng
1,2-Dichloropropane	6	0	ND	10 ng
Bromodichloromethane	6	0	ND	10 ng
trans-1,3-Dichloropropene	6	0	ND	10 ng
4-methyl-2-Pentanone	6	0	ND	50 ng
Toluene	6	0	ND	10 ng
cis-1,3-Dichloropropene	6	0	ND	10 ng
1,1,2-Trichloroethane	6	0	ND	10 ng
Tetrachloroethene	6	0	ND	10 ng
2-Hexanone	6	0	ND	50 ng
Dibromochloromethane	6	0	ND	10 ng
Chlorobenzene	6	0	ND	10 ng
Ethyl Benzene	6	0	ND	10 ng
m,p-Xylene	6	0	ND	10 ng
o-Xylene	6	0	ND	10 ng
Styrene	6	0	ND	10 ng
Bromoform	6	0	ND	10 ng
1,1,2,2-Tetrachloroethane	6	0	ND	10 ng
1,3-Dichlorobenzene	6	0	ND	10 ng
1,4-Dichlorobenzene	6	0	ND	10 ng
1,2-Dichlorobenzene	6	0	ND	10 ng

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Field Blanks - Volatile Organic Compounds in Stack Gas				
Chloromethane	12	3	10-14 ng	10 ng
Vinyl Chloride	12	0	ND	10 ng
Bromomethane	12	0	ND	10 ng
Chloroethane	12	0	ND	10 ng
Trichlorofluoromethane	12	0	ND	10 ng
1,1-Dichloroethene	12	0	ND	10 ng
Carbon Disulfide	12	0	ND	10 ng
Acetone	12	0	ND	50 ng
Methylene Chloride	12	3	48-230 ng	10 ng
trans-1,2-Dichloroethene	12	0	ND	10 ng
1,1-Dichloroethane	12	0	ND	10 ng
Vinyl Acetate	12	0	ND	50 ng
2-Butanone	12	0	ND	50 ng
Chloroform	12	0	ND	10 ng
1,1,1-Trichloroethane	12	0	ND	10 ng
Carbon Tetrachloride	12	0	ND	10 ng
Benzene	12	0	ND	10 ng
1,2-Dichloroethane	12	0	ND	10 ng
Trichloroethene	12	0	ND	10 ng
1,2-Dichloropropane	12	0	ND	10 ng
Bromodichloromethane	12	0	ND	10 ng
trans-1,3-Dichloropropene	12	0	ND	10 ng
4-methyl-2-Pentanone	12	0	ND	50 ng
Toluene	12	1	37 ng	10 ng
cis-1,3-Dichloropropene	12	0	ND	10 ng
1,1,2-Trichloroethane	12	0	ND	10 ng
Tetrachloroethene	12	0	ND	10 ng
2-Hexanone	12	0	ND	50 ng
Dibromochloromethane	12	0	ND	10 ng
Chlorobenzene	12	0	ND	10 ng
Ethyl Benzene	12	0	ND	10 ng
m,p-Xylene	12	0	ND	10 ng
o-Xylene	12	0	ND	10 ng
Styrene	12	0	ND	10 ng
Bromoform	12	0	ND	10 ng
1,1,2,2-Tetrachloroethane	12	0	ND	10 ng

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
1,3-Dichlorobenzene	12	0	ND	10 ng
1,4-Dichlorobenzene	12	0	ND	10 ng
1,2-Dichlorobenzene	12	0	ND	10 ng
Trip Blank - Volatile Organic Compounds in Stack Gas				
Chloromethane	1	0	ND	10 ng
Vinyl Chloride	1	0	ND	10 ng
Bromomethane	1	0	ND	10 ng
Chloroethane	1	0	ND	10 ng
Trichlorofluoromethane	1	0	ND	10 ng
1,1-Dichloroethene	1	0	ND	10 ng
Carbon Disulfide	1	0	ND	10 ng
Acetone	1	0	ND	50 ng
Methylene Chloride	1	0	ND	10 ng
trans-1,2-Dichloroethene	1	0	ND	10 ng
1,1-Dichloroethane	1	0	ND	10 ng
Vinyl Acetate	1	0	ND	50 ng
2-Butanone	1	0	ND	50 ng
Chloroform	1	0	ND	10 ng
1,1,1-Trichloroethane	1	0	ND	10 ng
Carbon Tetrachloride	1	0	ND	10 ng
Benzene	1	0	ND	10 ng
1,2-Dichloroethane	1	0	ND	10 ng
Trichloroethene	1	0	ND	10 ng
1,2-Dichloropropane	1	0	ND	10 ng
Bromodichloromethane	1	0	ND	10 ng
trans-1,3-Dichloropropene	1	0	ND	10 ng
4-methyl-2-Pentanone	1	0	ND	50 ng
Toluene	1	0	ND	10 ng
cis-1,3-Dichloropropene	1	0	ND	10 ng
1,1,2-Trichloroethane	1	0	ND	10 ng
Tetrachloroethene	1	0	ND	10 ng
2-Hexanone	1	0	ND	50 ng
Dibromochloromethane	1	0	ND	10 ng
Chlorobenzene	1	0	ND	10 ng
Ethyl Benzene	1	0	ND	10 ng
m,p-Xylene	1	0	ND	10 ng
o-Xylene	1	0	ND	10 ng

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Styrene	1	0	ND	10 ng
Bromoform	1	0	ND	10 ng
1,1,2,2-Tetrachloroethane	1	0	ND	10 ng
1,3-Dichlorobenzene	1	0	ND	10 ng
1,4-Dichlorobenzene	1	0	ND	10 ng
1,2-Dichlorobenzene	1	0	ND	10 ng
Laboratory Method Blank - Semivolatile Compounds in Stack Gas				
Acenaphthene	2	0	ND	1.49-6.07 μg
Acenaphthylene	2	0	ND	0.86-3.44 μg
Anthracene	2	0	ND	0.96-3.54 μg
Benz(a)anthracene	2	0	ND	1.16-3.12 μg
Benzo(b)fluoranthene	2	0	ND	1.29-2.99 μg
Benzo(e)pyrene	2	0	ND	1.38-3.33 μg
Benzo(g,h,i)perylene	2	0	ND	1.19-3.13 μg
Benzo(k)fluoranthene	2	0	ND	1.40-3.19 μg
Benzoic Acid	2	0	ND	5.18-43.22 μg
Benzyl alcohol	2	0	ND	3.52-16.84 μg
4-Bromophenylphenylether	2	0	ND	5.06-19.08 μg
Butylbenzylphthalate	2	0	ND	1.87-4.65 μg
4-Chloro-3-methylphenol	2	0	ND	2.76-11.21 μg
p-Chloroaniline	2	0	ND	2.17-8.42 μg
bis(2-Chloroethoxy)methane	2	0	ND	1.79-6.86 μg
bis(2-Chloroethyl)ether	2	0	ND	2.18-8.62 μg
bis(2-Chloroisopropyl)ether	2	0	ND	1.55-5.62 μg
2-Chloronaphthalene	2	0	ND	1.38-5.43 μg
2-Chlorophenol	2	0	ND	2.17-9.70 μg
4-Chlorophenylphenylether	2	0	ND	2.64-11.00 μg
Chrysene	2	0	ND	1.23-3.36 μg
Di-n-butylphthalate	2	1	1.47 μg	2.14 μg
Di-n-octylphthalate	2	0	ND	1.07-2.02 μg
Dibenz(a,h)anthracene	2	0	ND	1.34-3.73 μg
Dibenzofuran	2	0	ND	1.00-3.94 μg
1,2-Dichlorobenzene	2	0	ND	2.18-9.25 μg
1,3-Dichlorobenzene	2	0	ND	2.08-8.85 μg
1,4-Dichlorobenzene	2	0	ND	2.03-8.61 μg
3,3-Dichlorobenzidine	2	0	ND	3.79-10.54 μg
2,4-Dichlorophenol	2	0	ND	2.75-11.73 μg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Diethylphthalate	2	0	ND	1.15-4.65 µg
2,4-Dimethylphenol	2	0	ND	2.51-10.77 µg
Dimethylphthalate	2	0	ND	1.26-5.01 µg
4,6-Dinitro-2-methylphenol	2	0	ND	7.84-29.52 µg
2,4-Dinitrophenol	2	0	ND	11.06-50.58 µg
2,4-Dinitrotoluene	2	0	ND	3.59-14.20 µg
2,6-Dinitrotoluene	2	0	ND	4.96-19.61 µg
Diphenylamine/N-Nitroso DPA	2	0	ND	2.18-8.13 µg
bis(2-Ethylhexyl)phthalate	2	1	0.90 µg	3.43 µg
Fluoranthene	2	0	ND	0.76-2.72 µg
Fluorene	2	0	ND	1.29-5.11 µg
Hexachlorobenzene	2	0	ND	3.58-13.40 µg
Hexachlorobutadiene	2	0	ND	4.45-18.56 µg
Hexachlorocyclopentadiene	2	0	ND	6.52-23.24 µg
Hexachloroethane	2	0	ND	4.21-16.31 µg
Indeno(1,2,3)pyrene	2	0	ND	1.02-2.80 µg
Isophorone	2	0	ND	1.12-4.32 µg
2-Methylnaphthalene	2	0	ND	1.39-5.63 µg
4-Methylphenol/3-Methylphenol	2	0	ND	2.29-10.07 µg
2-Methylphenol	2	0	ND	2.39-10.44 µg
N-Nitrosodipropylamine	2	0	ND	3.14-12.39 µg
Naphthalene	2	1	4.77 µg	0.87 µg
2-Nitroaniline	2	0	ND	3.61-13.26 µg
3-Nitroaniline	2	0	ND	4.45-17.05 µg
4-Nitroaniline	2	0	ND	3.81-14.86 µg
Nitrobenzene	2	0	ND	1.98-7.27 µg
2-Nitrophenol	2	0	ND	4.17-16.67 µg
4-Nitrophenol	2	0	ND	7.74-31.19 µg
Pentachlorophenol	2	0	ND	7.40-47.23 µg
Phenanthrene	2	0	ND	0.97-3.52 µg
Phenol	2	0	ND	1.62-6.97 µg
Pyrene	2	0	ND	1.08-2.90 µg
1,2,4-Trichlorobenzene	2	0	ND	2.50-10.01 µg
2,4,5-Trichlorophenol	2	0	ND	3.56-14.79 µg
2,4,6-Trichlorophenol	2	0	ND	3.79-16.54 µg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Field Blanks - Semivolatile Compounds in Stack Gas				
Acenaphthene	4	0	ND	6.20-7.31 μg
Acenaphthylene	4	0	ND	3.51-4.14 μg
Anthracene	4	0	ND	3.71-4.34 μg
Benz(a)anthracene	4	0	ND	2.91-3.36 μg
Benzo(b)fluoranthene	4	0	ND	2.75-3.12 μg
Benzo(e)pyrene	4	0	ND	3.06-3.47 μg
Benzo(g,h,i)perylene	4	0	ND	2.87-3.26 μg
Benzo(k)fluoranthene	4	0	ND	2.93-3.32 μg
Benzoic Acid	4	0	ND	43.48-50.08 μg
Benzyl alcohol	4	0	ND	17.21-19.54 μg
4-Bromophenylphenylether	4	0	ND	20.00-23.42 μg
Butylbenzylphthalate	4	0	ND	4.34-5.00 μg
4-Chloro-3-methylphenol	4	0	ND	11.28-12.99 μg
p-Chloroaniline	4	0	ND	8.47-9.76 μg
bis(2-Chloroethoxy)methane	4	0	ND	6.90-7.95 μg
bis(2-Chloroethyl)ether	4	0	ND	8.80-10.0 μg
bis(2-Chloroisopropyl)ether	4	0	ND	5.74-6.52 μg
2-Chloronaphthalene	4	0	ND	5.54-6.53 μg
2-Chlorophenol	4	0	ND	9.91-11.26 μg
4-Chlorophenylphenylether	4	0	ND	11.23-13.24 μg
Chrysene	4	0	ND	3.13-3.62 μg
Di-n-butylphthalate	4	4	5.08-10.97 μg	--
Di-n-octylphthalate	4	0	ND	1.85-2.10 μg
Dibenz(a,h)anthracene	4	0	ND	3.42-3.88 μg
Dibenzofuran	4	0	ND	4.02-4.74 μg
1,2-Dichlorobenzene	4	0	ND	9.45-10.74 μg
1,3-Dichlorobenzene	4	0	ND	9.04-10.27 μg
1,4-Dichlorobenzene	4	0	ND	8.79-9.99 μg
3,3-Dichlorobenzidine	4	0	ND	9.84-11.35 μg
2,4-Dichlorophenol	4	0	ND	11.80-13.59 μg
Diethylphthalate	4	0	ND	4.75-5.60 μg
2,4-Dimethylphenol	4	0	ND	10.84-12.48 μg
Dimethylphthalate	4	0	ND	5.11-6.02 μg
4,6-Dinitro-2-methylphenol	4	0	ND	30.94-36.22
2,4-Dinitrophenol	4	0	ND	51.62-60.84 μg
2,4-Dinitrotoluene	4	0	ND	14.49-17.08 μg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
2,6-Dinitrotoluene	4	0	ND	20.01-23.58 μg
Diphenylamine/N-Nitroso DPA	4	0	ND	8.52-9.97 μg
bis(2-Ethylhexyl)phthalate	4	2	2.54-3.51	3.40-3.69 μg
Fluoranthene	4	0	ND	2.85-3.34 μg
Fluorene	4	0	ND	5.22-6.15 μg
Hexachlorobenzene	4	0	ND	14.04-16.44 μg
Hexachlorobutadiene	4	0	ND	18.67-21.50 μg
Hexachlorocyclopentadiene	4	0	ND	23.72-27.96 μg
Hexachloroethane	4	0	ND	16.66-18.92 μg
Indeno(1,2,3)pyrene	4	0	ND	2.57-2.91 μg
Isophorone	4	0	ND	4.34-5.00 μg
2-Methylnaphthalene	4	0	ND	5.67-6.53 μg
4-Methylphenol/3-Methylphenol	4	0	ND	10.29-11.69 μg
2-Methylphenol	4	0	ND	10.66-12.11 μg
N-Nitrosodipropylamine	4	0	ND	12.66-14.38 μg
Naphthalene	4	1	31.39 μg	3.52-4.05 μg
2-Nitroaniline	4	0	ND	13.53-15.95 μg
3-Nitroaniline	4	0	ND	17.40-20.51 μg
4-Nitroaniline	4	0	ND	15.17-17.88 μg
Nitrobenzene	4	0	ND	7.31-8.42 μg
2-Nitrophenol	4	0	ND	16.78-19.32 μg
4-Nitrophenol	4	0	ND	31.83-37.52 μg
Pentachlorophenol	4	0	ND	49.50-57.96 μg
Phenanthrene	4	0	ND	3.69-4.33 μg
Phenol	4	0	ND	7.12-8.09 μg
Pyrene	4	0	ND	2.71-3.12 μg
1,2,4-Trichlorobenzene	4	0	ND	10.08-11.60 μg
2,4,5-Trichlorophenol	4	0	ND	15.09-17.79 μg
2,4,6-Trichlorophenol	4	0	ND	16.87-19.89 μg
Trip Blank - Semivolatile Compounds in Stack Gas				
Acenaphthene	1	0	ND	3.96 μg
Acenaphthylene	1	0	ND	2.25 μg
Anthracene	1	0	ND	2.18 μg
Benz(a)anthracene	1	0	ND	1.53 μg
Benzo(b)fluoranthene	1	0	ND	1.52 μg
Benzo(e)pyrene	1	0	ND	1.66 μg
Benzo(g,h,i)perylene	1	0	ND	1.59 μg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Benzo(k)fluoranthene	1	0	ND	1.56 μg
Benzoic Acid	1	0	ND	21.82 μg
Benzyl alcohol	1	0	ND	10.57 μg
4-Bromophenylphenylether	1	0	ND	10.36 μg
Butylbenzylphthalate	1	0	ND	2.73 μg
4-Chloro-3-methylphenol	1	0	ND	7.99 μg
p-Chloroaniline	1	0	ND	5.48 μg
bis(2-Chloroethoxy)methane	1	0	ND	5.40 μg
bis(2-Chloroethyl)ether	1	0	ND	6.32 μg
bis(2-Chloroisopropyl)ether	1	0	ND	4.82 μg
2-Chloronaphthalene	1	0	ND	3.54 μg
2-Chlorophenol	1	0	ND	5.70 μg
4-Chlorophenylphenylether	1	0	ND	6.62 μg
Chrysene	1	0	ND	1.64 μg
Di-n-butylphthalate	1	1	7.32 μg	–
Di-n-octylphthalate	1	0	ND	1.17 μg
Dibenz(a,h)anthracene	1	0	ND	1.88 μg
Dibenzofuran	1	0	ND	2.56 μg
1,2-Dichlorobenzene	1	0	ND	5.65 μg
1,3-Dichlorobenzene	1	0	ND	5.35 μg
1,4-Dichlorobenzene	1	0	ND	5.20 μg
3,3-Dichlorobenzidine	1	0	ND	5.10 μg
2,4-Dichlorophenol	1	0	ND	7.25 μg
Diethylphthalate	1	0	ND	3.05 μg
2,4-Dimethylphenol	1	0	ND	7.07 μg
Dimethylphthalate	1	0	ND	3.32 μg
4,6-Dinitro-2-methylphenol	1	0	ND	14.95 μg
2,4-Dinitrophenol	1	0	ND	26.89 μg
2,4-Dinitrotoluene	1	0	ND	8.79 μg
2,6-Dinitrotoluene	1	0	ND	12.73 μg
Diphenylamine/N-Nitroso DPA	1	0	ND	5.33 μg
bis(2-Ethylhexyl)phthalate	1	0	11.13 μg	–
Fluoranthene	1	0	ND	1.54 μg
Fluorene	1	0	ND	3.40 μg
Hexachlorobenzene	1	0	ND	7.42 μg
Hexachlorobutadiene	1	0	ND	10.46 μg
Hexachlorocyclopentadiene	1	0	ND	12.17 μg
Hexachloroethane	1	0	ND	11.17 μg

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Indeno(1,2,3)pyrene	1	0	ND	1.39 μg
Isophorone	1	0	ND	3.54 μg
2-Methylnaphthalene	1	0	ND	3.62 μg
4-Methylphenol/3-Methylphenol	1	0	ND	6.41 μg
2-Methylphenol	1	0	ND	6.89 μg
N-Nitrosodipropylamine	1	0	ND	9.96 μg
Naphthalene	1	0	ND	2.28 μg
2-Nitroaniline	1	0	ND	11.19 μg
3-Nitroaniline	1	0	ND	10.92 μg
4-Nitroaniline	1	0	ND	9.64 μg
Nitrobenzene	1	0	ND	6.07 μg
2-Nitrophenol	1	0	ND	10.79 μg
4-Nitrophenol	1	0	ND	23.71 μg
Pentachlorophenol	1	0	ND	18.79 μg
Phenanthrene	1	0	ND	2.23 μg
Phenol	1	0	ND	4.73 μg
Pyrene	1	0	ND	1.57 μg
1,2,4-Trichlorobenzene	1	0	ND	6.46 μg
2,4,5-Trichlorophenol	1	0	ND	9.43 μg
2,4,6-Trichlorophenol	1	0	ND	9.82 μg
Laboratory Method Blank - Semivolatile Compounds in Ash				
Acenaphthene	1	0	ND	0.0161 μg/g
Acenaphthylene	1	0	ND	0.0219 μg/g
Anthracene	1	0	ND	0.0180 μg/g
Benz(a)anthracene	1	0	ND	0.0116 μg/g
Benz(a)pyrene	1	0	ND	0.0180 μg/g
Benzo(b)fluoranthene	1	0	ND	0.0320 μg/g
Benzo(g,h,i)perylene	1	0	ND	0.0185 μg/g
Benzo(k)fluoranthene	1	0	ND	0.0273 μg/g
Benzoic Acid	1	0	ND	0.0997 μg/g
Benzyl alcohol	1	0	ND	0.0480 μg/g
4-Bromophenylphenylether	1	0	ND	0.0203 μg/g
Butylbenzylphthalate	1	0	ND	0.0250 μg/g
4-Chloro-3-methylphenol	1	0	ND	0.0153 μg/g
p-Chloroaniline	1	0	ND	0.0327 μg/g
bis(2-Chloroethoxy)methane	1	0	ND	0.0111 μg/g
bis(2-Chloroethyl)ether	1	0	ND	0.0155 μg/g

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
bis(2-Chloroisopropyl)ether	1	0	ND	0.0190 μg/g
2-Chloronaphthalene	1	0	ND	0.0300 μg/g
2-Chlorophenol	1	0	ND	0.0109 μg/g
4-Chlorophenylphenylether	1	0	ND	0.0244 μg/g
Chrysene	1	0	ND	0.0195 μg/g
Di-n-butylphthalate	1	0	ND	0.0103 μg/g
Di-n-octylphthalate	1	0	ND	0.0194 μg/g
Dibenz(a,h)anthracene	1	0	ND	0.0228 μg/g
Dibenzofuran	1	0	ND	0.0130 μg/g
1,2-Dichlorobenzene	1	0	ND	0.0214 μg/g
1,3-Dichlorobenzene	1	0	ND	0.0237 μg/g
1,4-Dichlorobenzene	1	0	ND	0.0236 μg/g
3,3-Dichlorobenzidine	1	0	ND	0.0363 μg/g
2,4-Dichlorophenol	1	0	ND	0.0194 μg/g
Diethylphthalate	1	0	ND	0.0123 μg/g
2,4-Dimethylphenol	1	0	ND	0.0423 μg/g
Dimethylphthalate	1	0	ND	0.0157 μg/g
4,6-Dinitro-2-methylphenol	1	0	ND	0.0244 μg/g
2,4-Dinitrophenol	1	0	ND	0.0863 μg/g
2,4-Dinitrotoluene	1	0	ND	0.0256 μg/g
2,6-Dinitrotoluene	1	0	ND	0.0350 μg/g
Diphenylamine/N-Nitroso DPA	1	0	ND	0.0255 μg/g
bis(2-Ethylhexyl)phthalate	1	0	ND	0.0547 μg/g
Fluoranthene	1	0	ND	0.0142 μg/g
Fluorene	1	0	ND	0.0115 μg/g
Hexachlorobenzene	1	0	ND	0.0176 μg/g
Hexachlorobutadiene	1	0	ND	0.0219 μg/g
Hexachlorocyclopentadiene	1	0	ND	0.0547 μg/g
Hexachloroethane	1	0	ND	0.0333 μg/g
Indeno(1,2,3)pyrene	1	0	ND	0.0160 μg/g
Isophorone	1	0	ND	0.0101 μg/g
2-methylnaphthalene	1	0	ND	0.0202 μg/g
4-Methylphenol/3-Methylphenol	1	0	ND	0.0413 μg/g
2-Methylphenol	1	0	ND	0.0263 μg/g
N-Nitrosodipropylamine	1	0	ND	0.0262 μg/g
Naphthalene	1	0	ND	0.0223 μg/g
2-Nitroaniline	1	0	ND	0.0266 μg/g
3-Nitroaniline	1	0	ND	0.0107 μg/g

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
4-Nitroaniline	1	0	ND	0.0200 μg/g
Nitrobenzene	1	0	ND	0.0130 μg/g
2-Nitrophenol	1	0	ND	0.0142 μg/g
4-Nitrophenol	1	0	ND	0.0210 μg/g
Pentachlorophenol	1	0	ND	0.00640 μg/g
Phenanthrene	1	0	ND	0.0185 μg/g
Phenol	1	0	ND	0.0337 μg/g
Pyrene	1	0	ND	0.0154 μg/g
1,2,4-Trichlorobenzene	1	0	ND	0.00640 μg/g
2,4,5-Trichlorophenol	1	0	ND	0.0195 μg/g
2,4,6-Trichlorophenol	1	0	ND	0.0162 μg/g
Laboratory Method Blank - PAHs in Stack Gas				
Naphthalene	2	2	43.1-115 ng	--
2-Methylnaphthalene	2	2	12.6-210 ng	--
Acenaphthene	2	2	2.1-309 ng	--
2-Chloronaphthalene	2	0	ND	0.07-0.09 ng
Acenaphthylene	2	2	0.69-2.6 ng	--
Fluorene	2	2	8.3-86.8 ng	--
Phenanthrene	2	2	33.4-59.6 ng	--
Anthracene	2	2	1.5-1.6 ng	--
Fluoranthene	2	2	5.5-11.4 ng	--
Pyrene	2	2	4.7-13.3 ng	--
Benzo(a)anthracene	2	2	0.56-0.67 ng	--
Chrysene	2	2	1.1-1.4 ng	--
Perylene	2	2	0.13-0.40 ng	--
Benzo(b)fluoranthene	2	2	1.4-1.8 ng	--
Benzo(k)fluoranthene	2	2	0.41-0.83 ng	--
Benzo(a)pyrene	2	2	0.56-0.77 ng	--
Benzo(e)pyrene	2	2	1.3-2.6 ng	--
Benzo(g,h,i)perylene	2	2	2.7-3.2 ng	--
Indeno(1,2,3-cd)pyrene	2	2	1.0-1.4 ng	--
Dibenz(a,h)anthracene	2	2	0.34-0.94 ng	--
Field Blanks - PAHs in Stack Gas				
Naphthalene	4	4	33.0-1050 ng	--
2-Methylnaphthalene	4	4	11.4-110 ng	--
Acenaphthene	4	4	2.1-29.5 ng	--
2-Chloronaphthalene	4	3	0.06-0.38 ng	0.08 ng

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Acenaphthalene	4	4	0.60-4.4 ng	--
Fluorene	4	4	7.9-17.9 ng	--
Phenanthrene	4	4	35.8-54.9 ng	--
Anthracene	4	4	1.2-2.6 ng	--
Fluoranthene	4	4	5.5-20.0 ng	--
Pyrene	4	4	4.1-13.7 ng	--
Benzo(a)anthracene	4	4	0.47-3.7 ng	--
Chrysene	4	4	0.75-10.0 ng	--
Perylene	4	3	0.16-1.5	0.5 ng
Benzo(b)fluoranthene	4	4	1.2-12.3 ng	--
Benzo(k)fluoranthene	4	4	0.24-3.6 ng	--
Benzo(a)pyrene	4	4	0.47-4.7 ng	--
Benzo(e)pyrene	4	4	1.8-9.3 ng	--
Benzo(g,h,i)perylene	4	4	2.0-11.4 ng	--
Indeno(1,2,3-cd)pyrene	4	4	0.77-6.2 ng	--
Dibenz(a,h)anthracene	4	1	1.5	0.09-0.9 ng
Trip Blank - PAHs in Stack Gas				
Naphthalene	2	2	29.1-49.6 ng	--
2-Methylnaphthalene	2	2	8.9-34.0 ng	--
Acenaphthene	2	2	1.7-8.9 ng	--
2-Chloronaphthalene	2	0	ND	0.3-0.9 ng
Acenaphthalene	2	1	2.2 ng	0.8 ng
Fluorene	2	2	0.66-23.5 ng	--
Phenanthrene	2	2	2.8-129 ng	--
Anthracene	2	1	4.3 ng	0.8 ng
Fluoranthene	2	2	1.3-15.3 ng	--
Pyrene	2	2	2.6-7.6 ng	--
Benzo(a)anthracene	2	2	0.25-0.64 ng	--
Chrysene	2	2	0.34-1.5 ng	--
Perylene	2	1	0.21 ng	1.3 ng
Benzo(b)fluoranthene	2	2	0.53-2.0 ng	--
Benzo(k)fluoranthene	2	2	0.19-0.59 ng	--
Benzo(a)pyrene	2	1	0.77 ng	1.1 ng
Benzo(e)pyrene	2	2	0.81-3.3 ng	--
Benzo(g,h,i)perylene	2	2	2.9 ng	--
Indeno(1,2,3-cd)pyrene	2	2	0.85-1.5 ng	--

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
Dibenz(a,h)anthracene	2	1	0.28 ng	2.1 ng
Laboratory Method Blank - Dioxins/Furans in Stack Gas				
2,3,7,8-TCDF	2	0	ND	0.005-0.006 ng
2,3,7,8-TCDD	2	1	0.009 ng	0.006 ng
1,2,3,7,8-PeCDF	2	0	ND	0.006
2,3,4,7,8-PeCDF	2	0	ND	0.006
1,2,3,7,8-PeCDD	2	0	ND	0.01 ng
1,2,3,4,7,8-HxCDF	2	2	0.007-0.01 ng	–
1,2,3,6,7,8-HxCDF	2	0	ND	0.006-0.008 ng
2,3,4,6,7,8-HxCDF	2	1	0.01 ng	0.008 ng
1,2,3,7,8,9-HxCDF	2	0	ND	0.008-0.01 ng
1,2,3,4,7,8-HxCDD	2	0	ND	0.01-0.02 ng
1,2,3,6,7,8-HxCDD	2	0	ND	0.01-0.02 ng
1,2,3,7,8,9-HxCDD	2	0	ND	0.01-0.02 ng
1,2,3,4,6,7,8-HpCDF	2	1	0.008 ng	0.009 ng
1,2,3,4,7,8,9-HpCDF	2	0	ND	0.01-0.02 ng
1,2,3,4,6,7,8-HpCDD	2	1	0.008 ng	0.02 ng
OCDF	2	0	ND	0.02 ng
OCDD	2	2	0.03-0.04 ng	–
Field Blanks - Dioxins/Furans in Stack Gas				
2,3,7,8-TCDF	3	1	0.004 ng	0.002-0.006 ng
2,3,7,8-TCDD	3	0	ND	0.002-0.007 ng
1,2,3,7,8-PeCDF	3	1	0.01 ng	0.002-0.005 ng
2,3,4,7,8-PeCDF	3	0	ND	0.002-0.006 ng
1,2,3,7,8-PeCDD	3	0	ND	0.004-0.01 ng
1,2,3,4,7,8-HxCDF	3	1	0.03 ng	0.002-0.009 ng
1,2,3,6,7,8-HxCDF	3	1	0.008 ng	0.002-0.007 ng
2,3,4,6,7,8-HxCDF	3	3	0.006-0.01 ng	–
1,2,3,7,8,9-HxCDF	3	0	ND	0.002-0.01 ng
1,2,3,4,7,8-HxCDD	3	0	ND	0.004-0.02 ng
1,2,3,6,7,8-HxCDD	3	1	0.01 ng	0.003-0.01 ng
1,2,3,7,8,9-HxCDD	3	1	0.007 ng	0.003-0.02 ng
1,2,3,4,6,7,8-HpCDF	3	3	0.005-0.03 ng	–

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
1,2,3,4,7,8,9-HpCDF	3	0	ND	0.004-0.02 ng
1,2,3,4,6,7,8-HpCDD	3	2	0.01-0.04 ng	0.004 ng
OCDF	3	1	0.09 ng	0.005-0.04 ng
OCDD	3	3	0.01-0.17 ng	--
Trip Blank - Dioxins/Furans in Stack Gas				
2,3,7,8-TCDF	1	0	ND	0.003 ng
2,3,7,8-TCDD	1	0	ND	0.004 ng
1,2,3,7,8-PeCDF	1	0	ND	0.003 ng
2,3,4,7,8-PeCDF	1	0	ND	0.003 ng
1,2,3,7,8-PeCDD	1	0	ND	0.004 ng
1,2,3,4,7,8-HxCDF	1	1	0.004 ng	--
1,2,3,6,7,8-HxCDF	1	0	ND	0.003 ng
2,3,4,6,7,8-HxCDF	1	1	0.006 ng	--
1,2,3,7,8,9-HxCDF	1	0	ND	0.005 ng
1,2,3,4,7,8-HxCDD	1	0	ND	0.007 ng
1,2,3,6,7,8-HxCDD	1	0	ND	0.006 ng
1,2,3,7,8,9-HxCDD	1	0	ND	0.006 ng
1,2,3,4,6,7,8-HpCDF	1	0	ND	0.004 ng
1,2,3,4,7,8,9-HpCDF	1	0	ND	0.007 ng
1,2,3,4,6,7,8-HpCDD	1	0	ND	0.008 ng
OCDF	1	0	ND	0.01 ng
OCDD	1	1	0.01 ng	--
Laboratory Method Blank - Dioxins/Furans in Ash				
2,3,7,8-TCDF	1	1	0.09 pg/g	--
2,3,7,8-TCDD	1	0	ND	0.1 pg/g
1,2,3,7,8-PeCDF	1	0	ND	0.1 pg/g
2,3,4,7,8-PeCDF	1	0	ND	0.1 pg/g
1,2,3,7,8-PeCDD	1	0	ND	0.2 pg/g
1,2,3,4,7,8-HxCDF	1	0	ND	0.1 pg/g
1,2,3,6,7,8-HxCDF	1	0	ND	0.09 pg/g
2,3,4,6,7,8-HxCDF	1	1	0.29 pg/g	--
1,2,3,7,8,9-HxCDF	1	0	ND	0.1 pg/g
1,2,3,4,7,8-HxCDD	1	0	ND	0.2 pg/g
1,2,3,6,7,8-HxCDD	1	0	ND	0.2 pg/g

Table D-1 (Continued)

Analyte	Number of Blanks Analyzed	Number of Detects	Range of Compounds Detected[a]	Detection Limit
1,2,3,7,8,9-HxCDD	1	0	ND	0.2 pg/g
1,2,3,4,6,7,8-HpCDF	1	1	0.16 pg/g	--
1,2,3,4,7,8,9-HpCDF	1	0	ND	0.2 pg/g
1,2,3,4,6,7,8-HpCDD	1	0	ND	0.2 pg/g
OCDF	1	1	0.41 pg/g	--
OCDD	1	1	0.40 pg/g	--

[a] All analytes reporting a detectable analytical signal have been reported. Analytes detected at levels below the stated detection limit are presented for information only and are not considered valid for the assessment of blank or background contamination.

ND = Not detected.

Table D-2
Precision and Accuracy Estimates

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Metals in Gas Solid Phase - ICP-AES										
Filtered Solids: APF, ESP Inlets	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	58 Q	63 Q	8.3		58 Q	63 Q	8.3
Antimony		20	75-125	95	90	5.4		95	91	4.3
Barium		20	75-125	91	91	0		91	91	0
Beryllium		20	75-125	82	83	1.2		83	83	0
Calcium		20	75-125	66 Q	69 Q	4.4		66 Q	69 Q	4.4
Chromium		20	75-125	82	84	2.4		83	84	1.2
Cobalt		20	75-125	85	85	0		85	85	0
Copper		20	75-125	93	95	2.1		93	95	2.1
Iron		20	75-125	83	84	1.2		83	84	1.2
Magnesium		20	75-125	58 Q	60 Q	3.4		58 Q	60 Q	3.4
Manganese		20	75-125	84	84	0		84	84	0
Molybdenum		20	75-125	87	87	0		87	86	1.2
Nickel		20	75-125	87	86	1.2		85	86	1.2
Phosphorus		20	75-125	88	88	0				
Potassium		20	75-125	91	91	0		91	91	0
Silver		20	75-125	15 Q	18 Q	18		15 Q	18 Q	18
Sodium		20	75-125	86	85	1.2		86	85	1.2
Titanium		20	75-125	93	89	4.4		93	88	5.5
Vanadium		20	75-125	91	91	0		92	91	1.1

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Acetone PNR: ESP Inlet	Precision - *Matrix-spiked* Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	67 Q	32 Q	71 Q		64 Q	32 Q	67 Q
Antimony		20	75-125	92	95	3.2		92	87	5.6
Barium		20	75-125	89	87	2.3		88	88	0
Beryllium		20	75-125	81	80	1.2		81	81	0
Calcium		20	75-125	75	53 Q	34 Q		72 Q	52 Q	32 Q
Chromium		20	75-125	82	83	1.2		81	84	3.6
Cobalt		20	75-125	82	83	1.2		82	84	2.4
Copper		20	75-125	92	93	1.1		92	94	2.2
Iron		20	75-125	83	78	6.2		81	78	3.8
Magnesium		20	75-125	67 Q	35 Q	63 Q		65 Q	35 Q	60 Q
Manganese		20	75-125	82	83	1.2		82	84	2.4
Molybdenum		20	75-125	85	86	1.2		84	87	3.5
Nickel		20	75-125	84	84	0		86	87	1.2
Phosphorus		20	75-125	87	89	2.3				
Potassium		20	75-125	88	88	0		88	88	0
Silver		20	75-125	65 Q	68 Q	4.5		63 Q	66 Q	4.6
Sodium		20	75-125	86	79	8.5		84	79	6.1
Titanium		20	75-125	78	72 Q	8		79	78	1.3
Vanadium		20	75-125	90	91	1.1		89	91	2.2

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Nitric PNR: ESP Inlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	112	109	2.7				
Antimony		20	75-125	108	104	3.8				
Barium		20	75-125	104	105	0.96				
Beryllium		20	75-125	106	107	0.94				
Boron		20	74-125	110	109	0.91				
Calcium		20	75-125	108	111	2.7				
Chromium		20	75-125	104	105	0.96				
Cobalt		20	75-125	103	104	0.97				
Copper		20	75-125	108	110	1.8				
Iron		20	75-125	109	107	1.8				
Magnesium		20	75-125	106	107	0.94				
Manganese		20	75-125	104	105	0.96				
Molybdenum		20	75-125	105	105	0				
Nickel		20	75-125	105	104	0.96				
Phosphorus		20	75-125	99	99	0				
Potassium		20	75-125	110	110	0				
Silver		20	75-125	99	100	1				
Sodium		20	75-125	107	107	0				
Titanium		20	75-125	113	111	1.8				
Vanadium		20	75-125	106	107	0.94				

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Filter (Half): APF Outlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	93	94	1.1		93	92	1.1
Antimony		20	75-125	97	97	0		98	103	5
Barium		20	75-125	96	96	0		95	95	0
Beryllium		20	75-125	90	90	0		89	89	0
Calcium		20	75-125	96	96	0		96	95	1
Chromium		20	75-125	83	82	1.2		83	80	3.7
Cobalt		20	75-125	89	89	0		88	88	0
Copper		20	75-125	101	102	0.98		100	100	0
Iron		20	75-125	92	92	0		91	91	0
Magnesium		20	75-125	91	91	0		90	90	0
Manganese		20	75-125	90	91	1.1		90	90	0
Molybdenum		20	75-125	89	88	1.1		88	87	1.1
Nickel		20	75-125	89	90	1.1		88	88	0
Phosphorus		20	75-125	153 Q	99	43 Q				
Potassium		20	75-125	95	95	0		93	92	1.1
Silver		20	75-125	80	81	1.2		84	80	4.9
Sodium		20	75-125	97	98	1		98	97	1
Titanium		20	75-125	95	95	0		94	93	1.1
Vanadium		20	75-125	95	95	0		94	93	1.1

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Filter & PNRs: ESP Outlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	90	87	3.4		88	89	1.1
Antimony		20	75-125	78	88	12		82	91	10
Barium		20	75-125	93	91	2.2		93	94	1.1
Beryllium		20	75-125	88	86	2.3		87	89	2.3
Calcium		20	75-125	94	91	3.2		91	93	2.2
Chromium		20	75-125	89	86	3.4		86	89	3.4
Cobalt		20	75-125	85	83	2.4		84	85	1.2
Copper		20	75-125	103	99	4		101	103	2
Iron		20	75-125	89	87	2.3		87	88	1.1
Magnesium		20	75-125	83	80	3.7		80	82	2.5
Manganese		20	75-125	89	86	3.4		87	89	2.3
Molybdenum		20	75-125	89	87	2.3		86	89	3.4
Nickel		20	75-125	85	84	1.2		82	87	5.9
Phosphorus		20	75-125	92	92	0				
Potassium		20	75-125	89	86	3.4		87	88	1.1
Silver		20	75-125	80	78	2.5		78	80	2.5
Sodium		20	75-125	93	92	1.1		91	92	1.1
Titanium		20	75-125	93	91	2.2		91	93	2.2
Vanadium		20	75-125	94	91	3.2		92	94	2.2

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Metals in Gas Vapor Phase - ICP-AES										
HNO_3/H_2O_2 Impingers	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	89	90	1.1		89	89	0
Antimony		20	75-125	91	81	12		94	79	17
Barium		20	75-125	94	94	0		94	94	0
Beryllium		20	75-125	91	91	0		91	91	0
Boron		20	75-125	91	93	2.2		92	93	1.1
Calcium		20	75-125	90	93	3.3		91	93	2.2
Chromium		20	75-125	88	89	1.1		89	89	0
Cobalt		20	75-125	88	89	1.1		89	89	0
Copper		20	75-125	92	92	0		93	91	2.2
Iron		20	75-125	89	91	2.2		90	90	0
Magnesium		20	75-125	86	87	1.2		87	87	0
Manganese		20	75-125	88	89	1.1		89	89	0
Molybdenum		20	75-125	90	90	0		91	90	1.1
Nickel		20	75-125	90	89	1.1		91	89	2.2
Phosphorus		20	75-125	101	99	2				
Potassium		20	75-125	90	92	2.2		90	90	0
Silver		20	75-125	85	85	0		86	85	1.2
Sodium		20	75-125	92	93	1.1		92	92	0
Titanium		20	75-125	91	92	1.1		92	91	1.1
Vanadium		20	75-125	95	95	0		95	95	0

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Metals in Coal - ICP-AES	Precision - Analytical Duplicate Accuracy - NA									
Barium		20	75-125	NA	NA	NA				
Beryllium		20	75-125	1.5	1.6	6.5				
Boron		20	75-125	NA	NA	NA				
Calcium		20	75-125	NA	NA	NA				
Chromium		20	75-125	17	17	0				
Copper		20	75-125	NA	NA	NA				
Magnesium		20	75-125	NA	NA	NA				
Molybdenum		20	75-125	NA	NA	NA				
Phosphorus		20	75-125	100	99	1				
Titanium		20	75-125	NA	NA	NA				
Metals in Coal - ICP-AES	Precision - NA Accuracy - Standard Reference Material									
Beryllium (1633-c)		20	75-125				101			
Chromium (1932-a)		20	75-125				95			
Metals in Ash - ICP-AES	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	71 Q	70 Q	1.4		71	69 Q	2.9
Antimony		20	75-125	86	85	1.2		91	93	2.2
Barium		20	75-125	90	91	1.1		90	90	0
Beryllium		20	75-125	81	81	0		81	81	0
Calcium		20	75-125	73 Q	74 Q	1.4		73 Q	74 Q	1.4

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Chromium		20	75-125	83	84	1.2		83	84	1.2
Cobalt		20	75-125	84	84	0		82	83	1.2
Copper		20	75-125	93	92	1.1		93	92	1.1
Iron		20	75-125	84	85	1.2		83	84	1.2
Magnesium		20	75-125	65 Q	64 Q	1.6		65 Q	63 Q	3.1
Manganese		20	75-125	83	84	1.2		83	84	1.2
Molybdenum		20	75-125	85	86	1.2		84	87	3.5
Nickel		20	75-125	86	85	1.2		82	82	0
Phosphorus		20	75-125	83	90	8.1				
Potassium		20	75-125	89	90	1.1		89	89	0
Silver		20	75-125	27 Q	13 Q	70 Q		27 Q	13 Q	70 Q
Sodium		20	75-125	82	82	0		83	83	0
Titanium		20	75-125	85	83	2.4		82	82	0
Vanadium		20	75-125	91	91	0		90	91	1.1
Metals in Sorbent - ICP-AES	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	87	84	3.5				
Antimony		20	75-125	81	89	9.4				
Barium		20	75-125	86	85	1.2				
Beryllium		20	75-125	78	78	0				
Boron		20	75-125	85	84	1.2				
Calcium		20	75-125	286 Q	286 Q	0		174 Q	274 Q	45 Q
Chromium		20	75-125	77	77	0				
Cobalt		20	75-125	74 Q	74 Q	0				

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Copper		20	75-125	87	86	1.2				
Iron		20	75-125	75	74 Q	1.3				
Magnesium		20	75-125	113	97	15				
Manganese		20	75-125	80	79	1.3				
Molybdenum		20	75-125	81	80	1.2				
Nickel		20	75-125	76	76	0				
Phosphorus		20	75-125	89	90	1.1				
Potassium		20	75-125	87	86	1.2				
Silver		20	75-125	85	83	2.4				
Sodium		20	75-125	89	88	1.1				
Titanium		20	75-125	85	84	1.2				
Vanadium		20	75-125	85	84	1.2				
Metals in Service Water - ICP-AES	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Aluminum		20	75-125	102	103	0.98				
Antimony		20	75-125	108	98	9.7				
Barium		20	75-125	103	104	0.97				
Beryllium		20	75-125	99	101	2				
Boron		20	75-125	98	99	1				
Calcium		20	75-125	94	95	1.1				
Chromium		20	75-125	98	100	2				
Cobalt		20	75-125	94	96	2.1				
Copper		20	75-125	102	102	0				
Iron		20	75-125	98	99	1				
Magnesium		20	75-125	93	93	0				

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Manganese		20	75-125	97	99	2				
Molybdenum		20	75-125	93	93	0				
Nickel		20	75-125	95	97	2.1				
Phosphorus		20	75-125	98	98	0				
Potassium		20	75-125	101	101	0				
Silver		20	75-125	101	102	0.98				
Sodium		20	75-125	106	104	1.9				
Titanium		20	75-125	94	95	1.1				
Vanadium		20	75-125	97	98	1				
Metals in Gas Vapor Phase - ICP/MS	*Precision* - NA Accuracy - Matrix-spiked Sample									
HNO_3/H_2O_2 Impingers										
Antimony		20	75-125	84						
Arsenic		20	75-125	78						
Barium		20	75-125	80						
Beryllium		20	75-125	95						
Cadmium		20	75-125	95						
Chromium		20	75-125	83						
Cobalt		20	75-125	76						
Copper		20	75-125	77						
Lead		20	75-125	121						
Manganese		20	75-125	82						
Mercury		20	75-125	116						
Molybdenum		20	75-125	105						
Nickel		20	75-125	84						
Selenium		20	75-125	71 Q						
Vanadium		20	75-125	79						

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Metals in Coal - INAA	Precision - NA Accuracy - Standard Reference Material (NIST 1632-A)									
Aluminum		20	75-125				101			
Antimony		20	75-125				99			
Arsenic		20	75-125				99			
Barium		20	75-125				101			
Calcium		20	75-125				103			
Cadmium		20	75-125				NC			
Chromium		20	75-125				99			
Cobalt		20	75-125				98			
Copper		20	75-125				100			
Iron		20	75-125				100			
Magnesium		20	75-125				101			
Manganese		20	75-125				97			
Mercury		20	75-125				NC			
Molybdenum		20	75-125				103			
Nickel		20	75-125				90			
Potassium		20	75-125				101			
Selenium		20	75-125				104			
Silver		20	75-125				111			
Sodium		20	75-125				101			
Titanium		20	75-125				101			
Vanadium		20	75-125				111			

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Metals in Gas Solid Phase - GFAAS & CVAAS										
Filtered Solids: APF & ESP Inlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	93	102	9.2				
Cadmium		20	75-125	105	102	2.9				
Lead		20	75-125	72 Q	76	5.4		71 Q	76	6.8
Mercury		20	75-125	104	105	0.96				
Selenium		20	75-125	81	80	1.2				
Acetone PNR: ESP Inlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	116	114	1.7				
Lead		20	75-125	82	79	3.7				
Mercury		20	75-125	106	106	0				
Selenium		20	75-125	69 Q	67 Q	2.9		73 Q	67 Q	8.6
Nitric PNR: ESP Inlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Mercury		20	75-125	100	98	2				
Filter (Half): APF Outlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	104	104	0				
Cadmium		20	75-125	93	94	1.1				
Lead		20	75-125	105	108	2.8				
Mercury		20	75-125	101	102	0.98				
Selenium		20	75-125	101	101	0				

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Filter & PNRs: ESP Outlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	105	111	5.6				
Cadmium		20	75-125	104	92	12				
Lead		20	75-125	110	100	9.5				
Mercury		20	75-125	111	111	0				
Selenium		20	75-125	82	89	8.2				
Cadmium (different Batch)		20	75-125	86	82	4.8		84	86	2.4
Mercury (different Batch)		20	75-125	112	113	0.89				
Metals in Gas Vapor Phase - GFAAS & CVAAS										
HNO_3/H_2O_2 Impingers	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	103	102	0.98				
Cadmium		20	75-125	108	110	1.8				
Lead		20	75-125	99	100	1				
Mercury		20	75-125	96	96	0				
Selenium		20	75-125	38 Q	41 Q	7.6		56 Q	61 Q	8.6
Selenium (Different Batch)		20	75-125	4.6 Q	14 Q	101 Q				
$KMnO_4$ Impingers	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Mercury		20	75-125	76	72 Q	5.4		76		

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Metals in Coal - GFAAS & CVAAS	Precision - Analytical Duplicate Accuracy - NA									
Arsenic		20	75-125	27	31	14				
Cadmium		20	75-125	0.1	0.08	22				
Lead		20	75-125	7	7	0				
Mercury		20	75-125	0.15	0.16	6.5				
Selenium		20	75-125	0.8	0.8	0				
Selenium		20	75-125	0.6	0.6	0				
Metals in Coal - GFAAS & CVAAS	Precision - NA Accuracy - Standard Reference Material									
Arsenic (1632-b)		20	75-125				76 Q			
Cadmium (1632-b)		20	75-125				877 Q			
Lead (1633-a)		20	75-125				107			
Mercury (SARM 20)		20	75-125				104			
Selenium (1632-b)		20	75-125				108			
Metals in Ash - GFAAS & CVAAS	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	100	91	9.4				
Cadmium		20	75-125	102	107	4.8				
Lead		20	75-125	97	99	2				
Mercury		20	75-125	90	95	5.4				
Selenium		20	75-125	84	87	3.5				
Lead (Different Batch)		20	75-125	92	90	2.2				
Selenium (Different Batch)		20	75-125	93	93	0				

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Metals in Sorbent - GFAAS & CVAAS	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	111	111	0				
Cadmium		20	75-125	113	114	0.88				
Lead		20	75-125	108	108	0				
Mercury		20	75-125	104	108	3.8				
Selenium		20	75-125	97	104	7				
Metals in Service Water - GFAAS & CVAAS	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Arsenic		20	75-125	108	111	2.7				
Cadmium		20	75-125	105	103	1.9				
Lead		20	75-125	92	92	0				
Mercury		20	75-125	114	98	15				
Selenium		20	75-125	89	89	O				
Anions in Gas Particulate Phase										
Filter (Half): APF Outlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Chloride		20	80-120	101	105	3.9				
Sulfate		20	80-120	82	80	2.5				
Chloride (Different Batch)		20	80-120	85	82	3.6				
Filter & PNRs: ESP Outlet	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Fluoride		20	80-120	100	102	2				
Anions in Gas Vapor Phase										

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
CO_3/H_2O_2 Impingers	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Chloride		20	80-120	99	95	4.1				
Fluoride		20	80-120	106	110	3.7				
Fluoride (Different Batch)		20	80-120	94	95	1.1				
Sulfate		20	80-120	98	96	2.1				
Anions in Coal	Precision - Analytical Duplicate Accuracy - None									
Chloride		20	80-120	990	990	0				
Fluoride		20	80-120	120	120	0				
Anions in Coal	Precision - NA Accuracy - Standard Reference Material									
Chloride (NBS 1632-b)		20	80-120				101			
Chloride (RR 985)		20	80-120				87			
Fluoride (BCR 40)		20	80-120				110			
Anions in Ash	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Chloride		20	80-120	94	94	0				
Fluoride		20	80-120	32 Q	25 Q	25 Q				
Fluoride (Different Batch)		20	80-120	30 Q	23 Q	33 Q				
Anions in Ash	Precision - Analytical Duplicate Accuracy - NA									
Sulfur		20	80-120	14.7	14.8	0.68				
Anions in Ash	Precision - NA Accuracy - Standard Reference Material									
Sulfur - DOMTAR CYP-C		20	80-120				103			
Sulfur - USGS GXR-4		20	80-120				102			

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Anions in Sorbent	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Chloride		20	80-120	99	99	0				
Fluoride		20	80-120	62 Q	80	25 Q				
Sulfate		20	80-120	83	82	1.2				
Anions in Service Water	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Chloride		20	80-120	108	105	2.8				
Fluoride		20	80-120	106	107	0.94				
Sulfate		20	80-120	91	91	0				
Phosphate		20	75-125	102	105	2.9				
Carbon & Boron in Ash	Precision - NA Accuracy - Standard Reference Material									
Carbon (DOMTAR CYP-C)		20	75-125				101			
Carbon (MRG-1)		20	75-125				77			
Boron (SARM 20)		20	75-125				101			
Carbon & Boron in Ash	Precision - Analytical Duplicate Accuracy - NA									
Carbon		20	75-125	0.06	0.06	0				
Carbon		20	75-125	5.18	5.14	0.78				
Carbon		20	75-125	0.35	0.32	9				
Boron		20	75-125	110	100	9.5				
Boron		20	75-125	81	94	14.9				
Boron		20	75-125	81	82	1.2				
Ammonia in Gas Vapor Phase by 350.2	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Ammonia		20	80-120	97	108	11				

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
Cyanide in Gas Vapor Phase by 335.2	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Cyanide		20	75-125	100	98	2				
Chromium in Gas Vapor Phase	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Chromium (Nitric Rinse)		20	75-125	95	98	3.1				
Chromium (KOH Impinger)		20	75-125	92	101	9.3				
Formaldehyde in Gas Vapor Phase	Precision - Analytical Duplicate Accuracy - NA									
Formaldehyde		10	70-130	260	270	3.8				
Formaldehyde		10	70-130	63	60	4.9				
Formaldehyde in Gas Vapor Phase	Precision - NA Accuracy - Trip Spike									
Formaldehyde		10	70-130	94						
Formaldehyde		10	70-130	74						
Formaldehyde in Gas Vapor Phase	Precision - NA Accuracy - Lab Spike									
Formaldehyde		10	70-130	92						
Formaldehyde		10	70-130	91						
Semivolatile Compounds in Ash	Precision - Matrix-spiked Duplicate Accuracy - Matrix-spiked Sample									
Acenaphthene		50	47-145	82	90	9.3				
4-Chloro-3-methylphenol		70	22-147	68	86	23				
2-Chlorophenol		60	23-134	75	89	17				
1,4-Dichlorobenzene		50	20-124	83	91	9.2				

Table D-2 (Continued)

Measurement Parameter	How Measured	Objectives		Measured Accuracy (% Recovery)		Measured Precision	Audit Sample Accuracy	Measured Accuracy (% Recovery)		Measured Precision
		Precision (% RPD)	Accuracy (% Recovery)	MS-1	MSD-1	(% RPD)	(% Recovery)	MS-2	MSD-2	(% RPD)
2,4-Dinitrotoluene		50	39-139	77	86	11				
N-nitrosodipropylamine		130	D-230	102	108	5.7				
4-Nitrophenol		80	D-132	3.1	1.8	53				
Pentachlorophenol		90	14-176	ND	1.1 Q	NC				
Phenol		50	5-112	76	89	16				
Pyrene		50	52-115	49 Q	59	18				
1,2,4-Trichlorobenzene		50	44-142	90	98	8.5				

NA = Not applicable.

NC = Not calculable.

ND = Not detected.

Q = Data flag indicating accuracy and precision results that do not meet the stated objectives.

Table D-3
Surrogate Spike Data

Measurement Parameter	How Measured	Objective (% Rec)	Range of Recovery (% Rec)	Number Analyzed	Number Outside Objective
Volatile Organics in Vapor Phase - APF Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
1,2-Dichloroethane-d4		51-145	92-104	6	0
Toluene d-8		77-122	90-99	6	0
4-Bromofluorobenzene		60-128	87-96	6	0
Volatile Organics in Vapor Phase - APF Outlet	Precision - NA Accuracy - Surrogate Spike Recovery				
1,2-Dichloroethane-d4		51-145	73-104	6	0
Toluene d-8		77-122	87-98	6	0
4-Bromofluorobenzene		60-128	82-94	6	0
Volatile Organics in Vapor Phase - APF Field Blanks	Precision - NA Accuracy - Surrogate Spike Recovery				
1,2-Dichloroethane-d4		51-145	92-105	6	0
Toluene d-8		77-122	87-96	6	0
4-Bromofluorobenzene		60-128	84-95	6	0
Volatile Organics in Vapor Phase - ESP Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
1,2-Dichloroethane-d4		51-145	90-107	6	0
Toluene d-8		77-122	91-97	6	0
4-Bromofluorobenzene		60-128	86-93	6	0
Volatile Organics in Vapor Phase - ESP Outlet	Precision - NA Accuracy - Surrogate Spike Recovery				
1,2-Dichloroethane-d4		51-145	95-107	6	0
Toluene d-8		77-122	83-100	6	0
4-Bromofluorobenzene		60-128	74-94	6	0
Volatile Organics in Vapor Phase - ESP Field Blanks	Precision - NA Accuracy - Surrogate Spike Recovery				
1,2-Dichloroethane-d4		51-145	93-105	6	0
Toluene d-8		77-122	91-98	6	0
4-Bromofluorobenzene		60-128	91-98	6	0
Volatile Organics in Vapor Phase - Trip Blank	Precision - NA Accuracy - Surrogate Spike Recovery				
1,2-Dichloroethane-d4		51-145	105	1	0
Toluene d-8		77-122	97	1	0
4-Bromofluorobenzene		60-128	94	1	0

Table D-3 (Continued)

Measurement Parameter	How Measured	Objective (% Rec)	Range of Recovery (% Rec)	Number Analyzed	Number Outside Objective
Semivolatile Organics in APF Ash	Precision - NA Accuracy - Surrogate Spike Recovery				
2-Fluorobiphenyl		30-115	92-99	4	0
2-Fluorophenol		25-121	92-95	4	0
Nitrobenzene-d5		23-120	99-103	4	0
Phenol-d5		24-113	94-99	4	0
Terphenyl-d14		18-137	98-109	4	0
2,4,6-Tribromophenol		19-122	76-88	4	0
Semivolatile Organics in ESP Ash	Precision - NA Accuracy - Surrogate Spike Recovery				
2-Fluorobiphenyl		30-115	90-103	4	0
2-Fluorophenol		25-121	84-96	4	0
Nitrobenzene-d5		23-120	92-104	4	0
Phenol-d5		24-113	86-100	4	0
Terphenyl-d14		18-137	92-105	4	0
2,4,6-Tribromophenol		19-122	77-99	4	0
Semivolatile Organics in Bed Ash	Precision - NA Accuracy - Surrogate Spike Recovery				
2-Fluorobiphenyl		30-115	94-100	4	0
2-Fluorophenol		25-121	68-76	4	0
Nitrobenzene-d5		23-120	94-98	4	0
Phenol-d5		24-113	86-93	4	0
Terphenyl-d14		18-137	102-106	4	0
2,4,6-Tribromophenol		19-122	26-43	4	0
Semivolatile Organics in Cyclone Ash	Precision - NA Accuracy - Surrogate Spike Recovery				
2-Fluorobiphenyl		30-115	100-104	4	0
2-Fluorophenol		25-121	77-93	4	0
Nitrobenzene-d5		23-120	100-103	4	0
Phenol-d5		24-113	96-100	4	0
Terphenyl-d14		18-137	72-85	4	0
2,4,6-Tribromophenol		19-122	10-36	4	2
Semivolatile Organics in Gas Solid Phase - APF Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
Phenol-d5		50-150	17-84	6	3
Nitrobenzene-d5		50-150	30-80	6	3
1,3,5-Trichlorobenzene-d3		50-150	23-84	6	3
1,4-Dibromobenzene-d4		50-150	44-90	6	1

Table D-3 (Continued)

Measurement Parameter	How Measured	Objective (% Rec)	Range of Recovery (% Rec)	Number Analyzed	Number Outside Objective
Semivolatile Organics in Gas Solid Phase - APF Outlet	Precision - NA Accuracy - Surrogate Spike Recovery				
Phenol-d5		50-150	31-78	7	2
Nitrobenzene-d5		50-150	35-77	7	2
1,3,5-Trichlorobenzene-d3		50-150	33-78	7	2
1,4-Dibromobenzene-d4		50-150	52-96	7	0
Semivolatile Organics in Gas Solid Phase - ESP Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
Phenol-d5		50-150	46-88	10	2
Nitrobenzene-d5		50-150	34-83	10	4
1,3,5-Trichlorobenzene-d3		50-150	29-82	9	3
1,4-Dibromobenzene-d4		50-150	70-115	10	0
Semivolatile Organics in Gas Solid Phase - ESP Outlet	Precision - NA Accuracy - Surrogate Spike Recovery				
Phenol-d5		50-150	2-99	8	4
Nitrobenzene-d5		50-150	44-80	9	2
1,3,5-Trichlorobenzene-d3		50-150	41-76	9	2
1,4-Dibromobenzene-d4		50-150	66-105	9	0
Semivolatile Organics in Gas Vapor Phase - APF Field Blanks	Precision - NA Accuracy - Surrogate Spike Recovery				
Phenol-d5		50-150	71-102	2	0
Nitrobenzene-d5		50-150	52-96	2	0
1,3,5-Trichlorobenzene-d3		50-150	50-97	2	0
1,4-Dibromobenzene-d4		50-150	75-109	2	0
Semivolatile Organics in Gas Solid Phase - ESP Field Blanks	Precision - NA Accuracy - Surrogate Spike Recovery				
Phenol-d5		50-150	53-70	2	0
Nitrobenzene-d5		50-150	43-72	2	1
1,3,5-Trichlorobenzene-d3		50-150	43-74	2	1
1,4-Dibromobenzene-d4		50-150	56-88	2	0
Semivolatile Organics in Gas Vapor Phase - Trip Blank	Precision - NA Accuracy - Surrogate Spike Recovery				
Phenol-d5		50-150	60	1	0
Nitrobenzene-d5		50-150	60	1	0
1,3,5-Trichlorobenzene-d3		50-150	65	1	0
1,4-Dibromobenzene-d4		50-150	72	1	0

Table D-3 (Continued)

Measurement Parameter	How Measured	Objective (% Rec)	Range of Recovery (% Rec)	Number Analyzed	Number Outside Objective
PAH Organics in Gas Vapor Phase - APF Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
d10-Fluorene		50-150	94-96	3	0
d14-Terphenyl		50-150	103-121	3	0
PAH Organics in Gas Solid Phase - APF Outlet	Precision - NA Accuracy - Surrogate Spike Recovery				
d10-Fluorene		50-150	93-99	3	0
d14-Terphenyl		50-150	108-115	3	0
PAH Organics in Gas Solid Phase - ESP Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
d10-Fluorene		50-150	75-92	3	0
d14-Terphenyl		50-150	113-118	3	0
PAH Organics in Gas Solid Phase - ESP Outlet	Precision - NA Accuracy - Surrogate Spike Recovery				
d10-Fluorene		50-150	76-97	3	0
d14-Terphenyl		50-150	95-122	3	0
PAH Organics in Gas Solid Phase - APF Field Blank	Precision - NA Accuracy - Surrogate Spike Recovery				
d10-Fluorene		50-150	96	1	0
d14-Terphenyl		50-150	115	1	0
PAH Organics in Gas Vapor Phase - ESP Field Blank	Precision - NA Accuracy - Surrogate Spike Recovery				
d10-Fluorene		50-150	77	1	0
d14-Terphenyl		50-150	100	1	0
Dioxins/Furans in APF Ash	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		40-130	34-49	4	2
13C12-2,3,4,7,8-PeCDF		40-130	49-55	4	0
13C12-1,2,3,4,7,8-HxCDF		40-130	70-98	4	0
13C12-1,2,3,4,7,8-HxCDD		40-130	67-81	4	0
13C12-1,2,3,4,7,8,9-HpCDF		25-130	73-82	4	0
Dioxins/Furans in ESP Ash	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		40-130	46-60	4	0
13C12-2,3,4,7,8-PeCDF		40-130	47-59	4	0
13C12-1,2,3,4,7,8-HxCDF		40-130	82-98	4	0
13C12-1,2,3,4,7,8-HxCDD		40-130	79-93	4	0
13C12-1,2,3,4,7,8,9-HpCDF		25-130	71-83	4	0

Table D-3 (Continued)

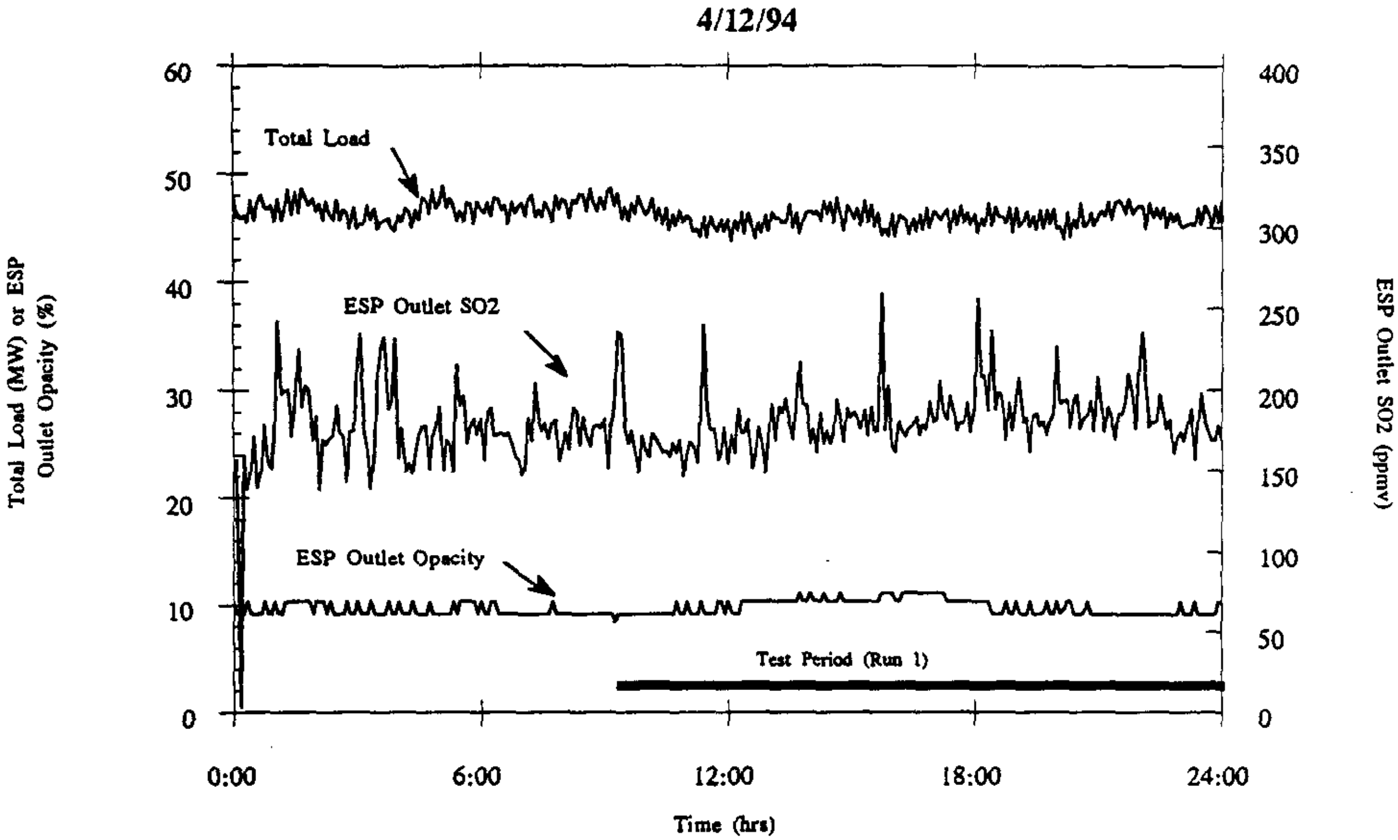
Measurement Parameter	How Measured	Objective (% Rec)	Range of Recovery (% Rec)	Number Analyzed	Number Outside Objective
Dioxins/Furans in Cyclone Ash	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		40-130	35-53	4	1
13C12-2,3,4,7,8-PeCDF		40-130	44-53	4	0
13C12-1,2,3,4,7,8-HxCDF		40-130	83-95	4	0
13C12-1,2,3,4,7,8-HxCDD		40-130	77-86	4	0
13C12-1,2,3,4,7,8,9-HpCDF		25-130	78-84	4	0
Dioxins/Furans in Gas: APF Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		70-130	88-110	3	0
13C12-2,3,4,7,8-PeCDF		70-130	78-108	3	0
13C12-1,2,3,4,7,8-HxCDF		70-130	91-127	3	0
13C12-1,2,3,4,7,8-HxCDD		70-130	89-118	3	0
13C12-1,2,3,4,7,8,9-HpCDF		70-130	60-122	3	1
Dioxins/Furans in Gas: APF Outlet - PNR/XAD Only	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		70-130	74-79	3	0
13C12-2,3,4,7,8-PeCDF		70-130	80-95	3	0
13C12-1,2,3,4,7,8-HxCDF		70-130	80-96	3	0
13C12-1,2,3,4,7,8-HxCDD		70-130	101-105	3	0
13C12-1,2,3,4,7,8,9-HpCDF		70-130	68-110	3	1
Dioxins/Furans in Gas: ESP Inlet	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		70-130	85-88	3	0
13C12-2,3,4,7,8-PeCDF		70-130	89-96	3	0
13C12-1,2,3,4,7,8-HxCDF		70-130	82-108	3	0
13C12-1,2,3,4,7,8-HxCDD		70-130	97-106	3	0
13C12-1,2,3,4,7,8,9-HpCDF		70-130	99-110	3	0
Dioxins/Furans in Gas: ESP Outlet	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		70-130	85-89	3	0
13C12-2,3,4,7,8-PeCDF		70-130	90-94	3	0
13C12-1,2,3,4,7,8-HxCDF		70-130	94-112	3	0
13C12-1,2,3,4,7,8-HxCDD		70-130	99-105	3	0
13C12-1,2,3,4,7,8,9-HpCDF		70-130	83-112	3	0

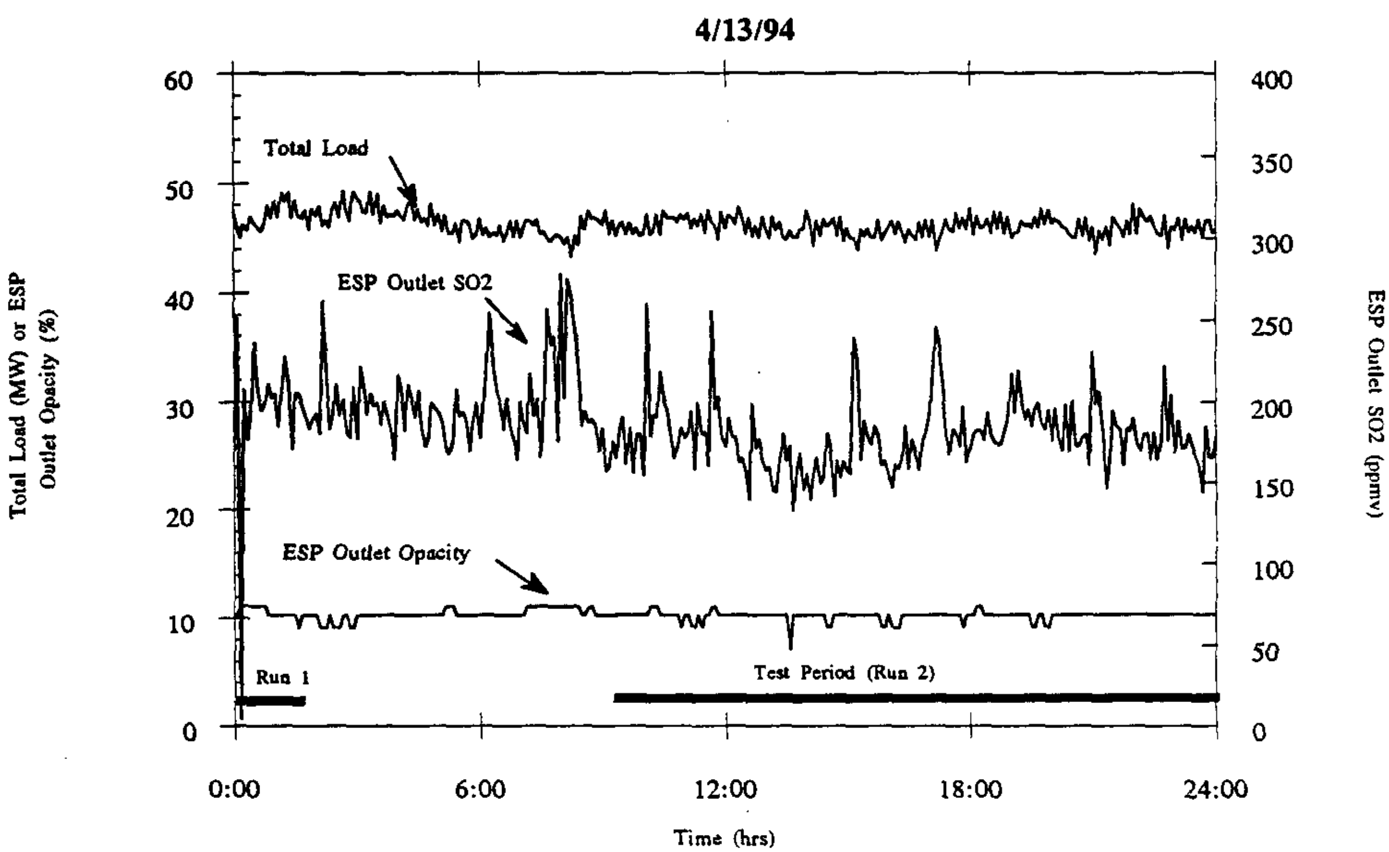
Table D-3 (Continued)

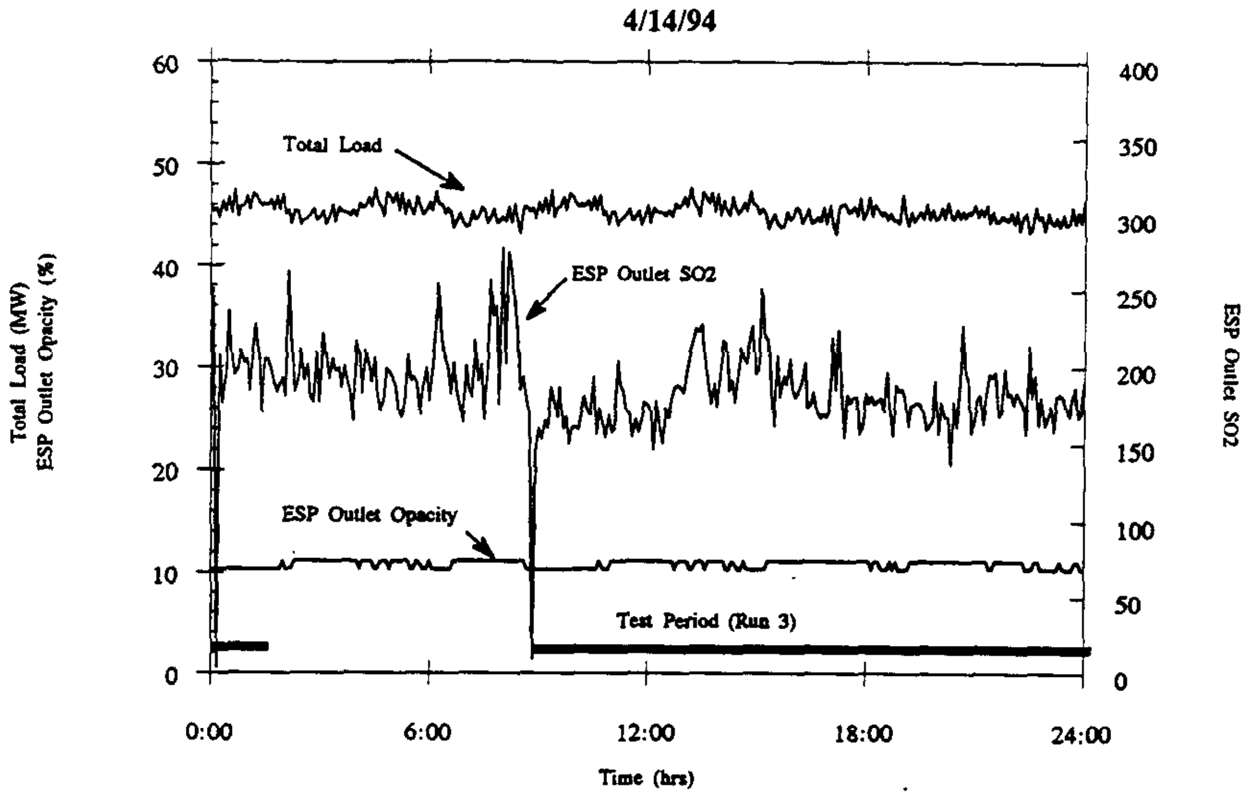
Measurement Parameter	How Measured	Objective (% Rec)	Range of Recovery (% Rec)	Number Analyzed	Number Outside Objective
Dioxins/Furans in Gas: APF Field Blank	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		70-130	84	1	0
13C12-2,3,4,7,8-PeCDF		70-130	89	1	0
13C12-1,2,3,4,7,8-HxCDF		70-130	92	1	0
13C12-1,2,3,4,7,8-HxCDD		70-130	105	1	0
13C12-1,2,3,4,7,8,9-HpCDF		70-130	96	1	0
Dioxins/Furans in Gas: ESP Field Blank	Precision - NA Accuracy - Surrogate Spike Recovery				
37C14-2,3,7,8-TCDD		70-130	85	1	0
13C12-2,3,4,7,8-PeCDF		70-130	90	1	0
13C12-1,2,3,4,7,8-HxCDF		70-130	109	1	0
13C12-1,2,3,4,7,8-HxCDD		70-130	99	1	0
13C12-1,2,3,4,7,8,9-HpCDF		70-130	93	1	0

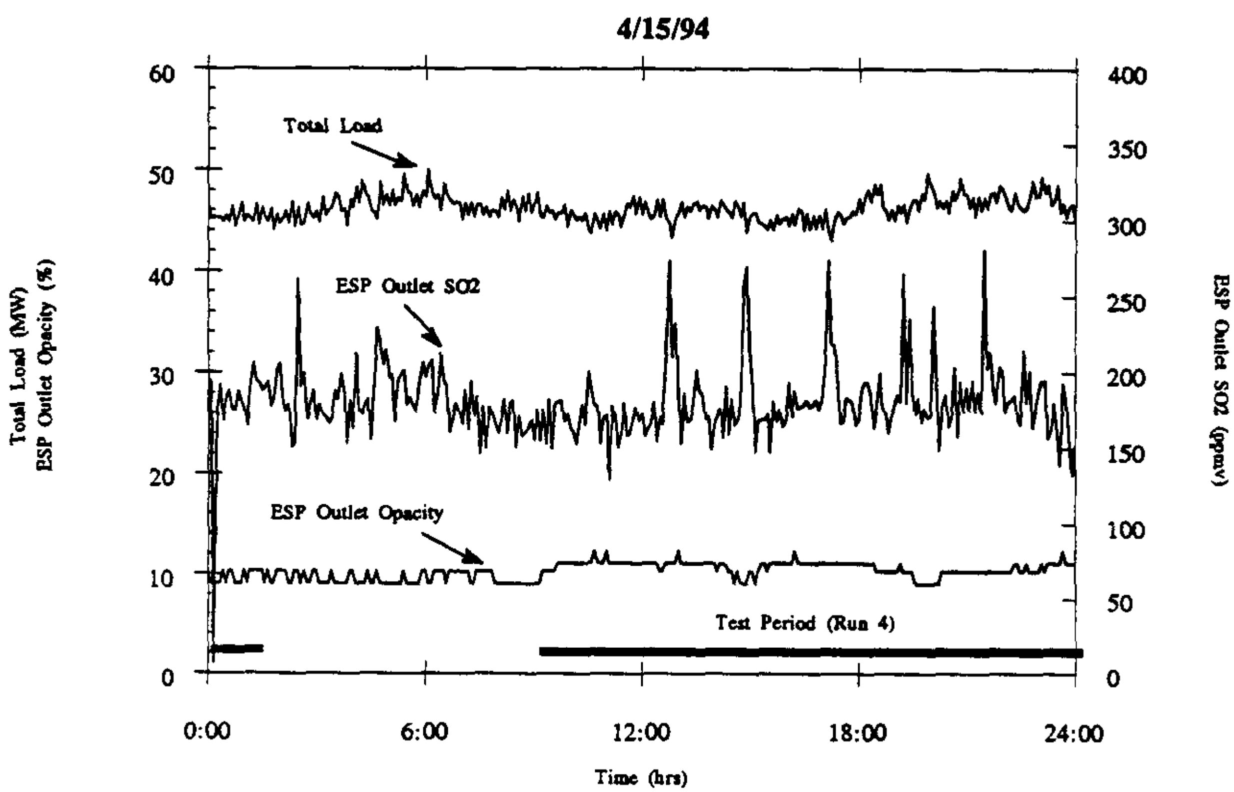
NA = Not applicable.

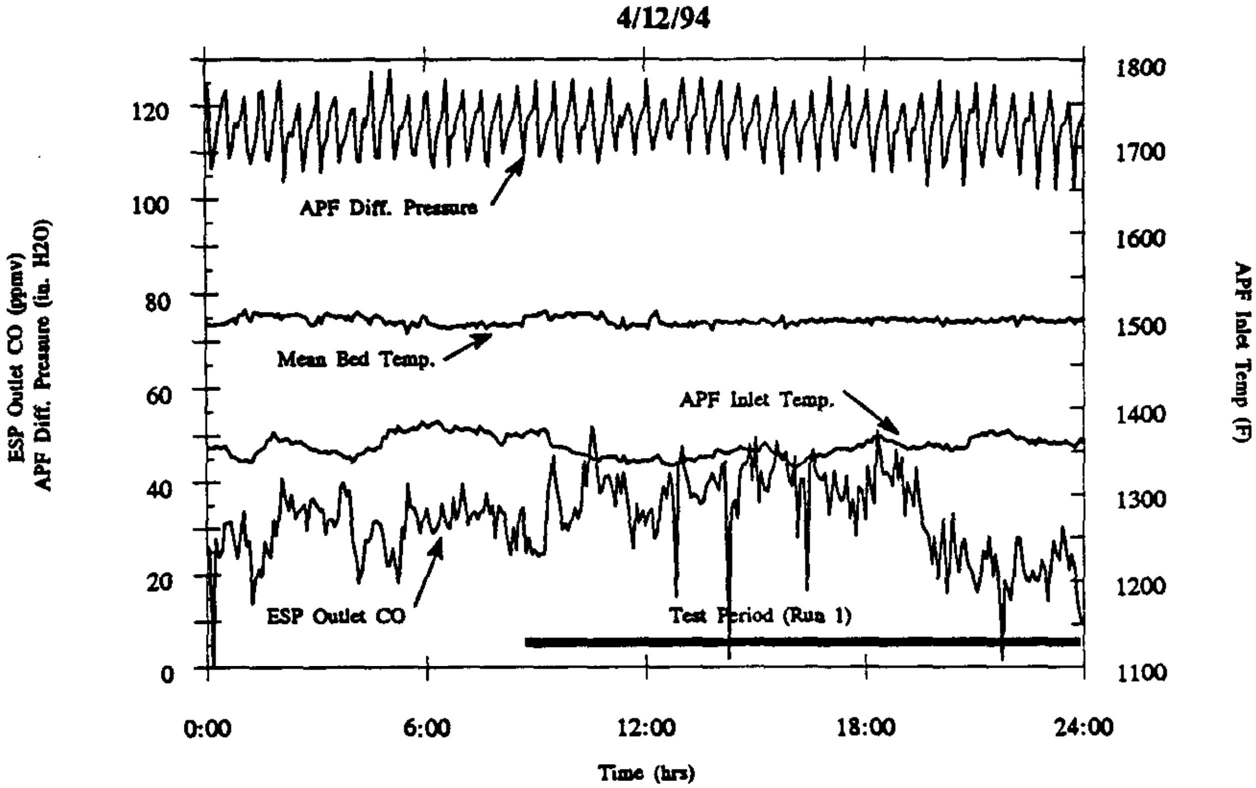
APPENDIX E: PROCESS DATA TREND PLOTS

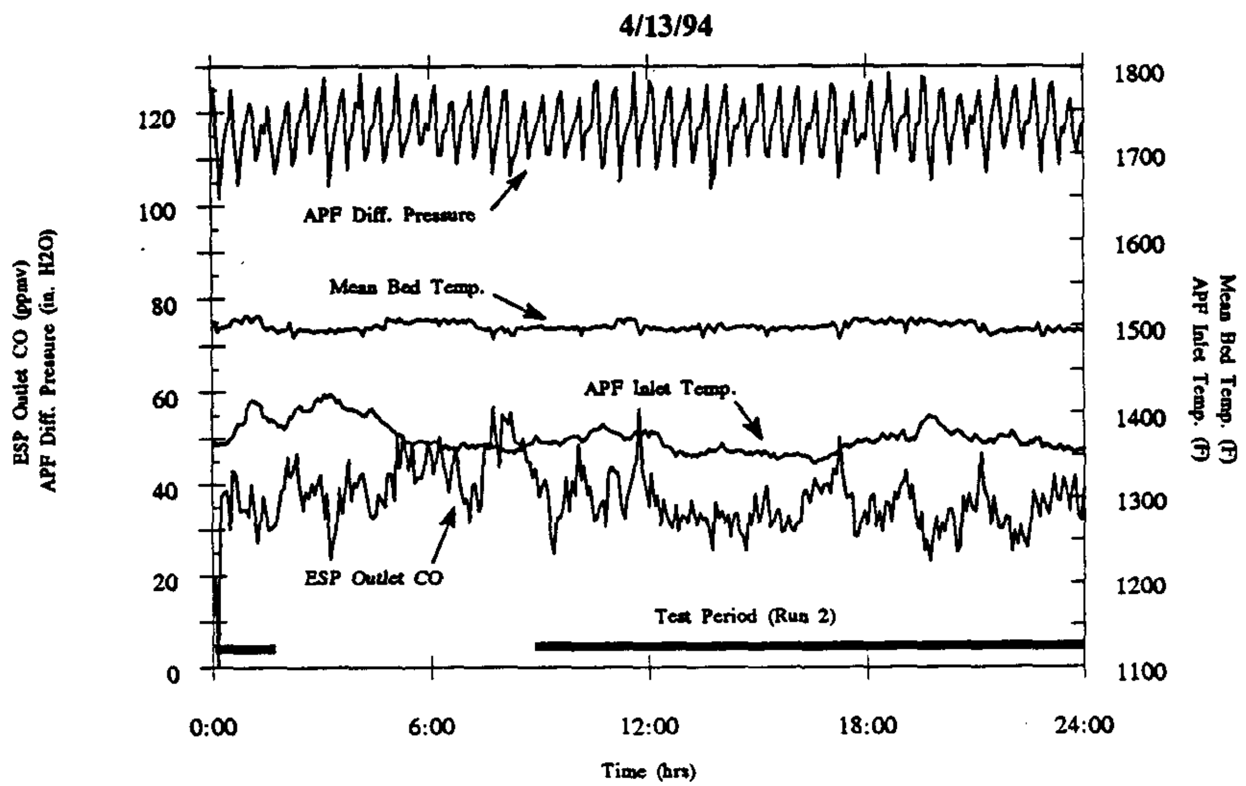

4/12/94
Total Load
ESP Outlet SO2
ESP Outlet Opacity
Test Period (Run 1)
60
50
40
30
20
10
0
400
350
300
250
200
150
100
50
0
0:00
6:00
12:00
18:00
24:00
Time (hrs)
Total Load (MW) or ESP Outlet Opacity (%)
ESP Outlet SO2 (ppmv)

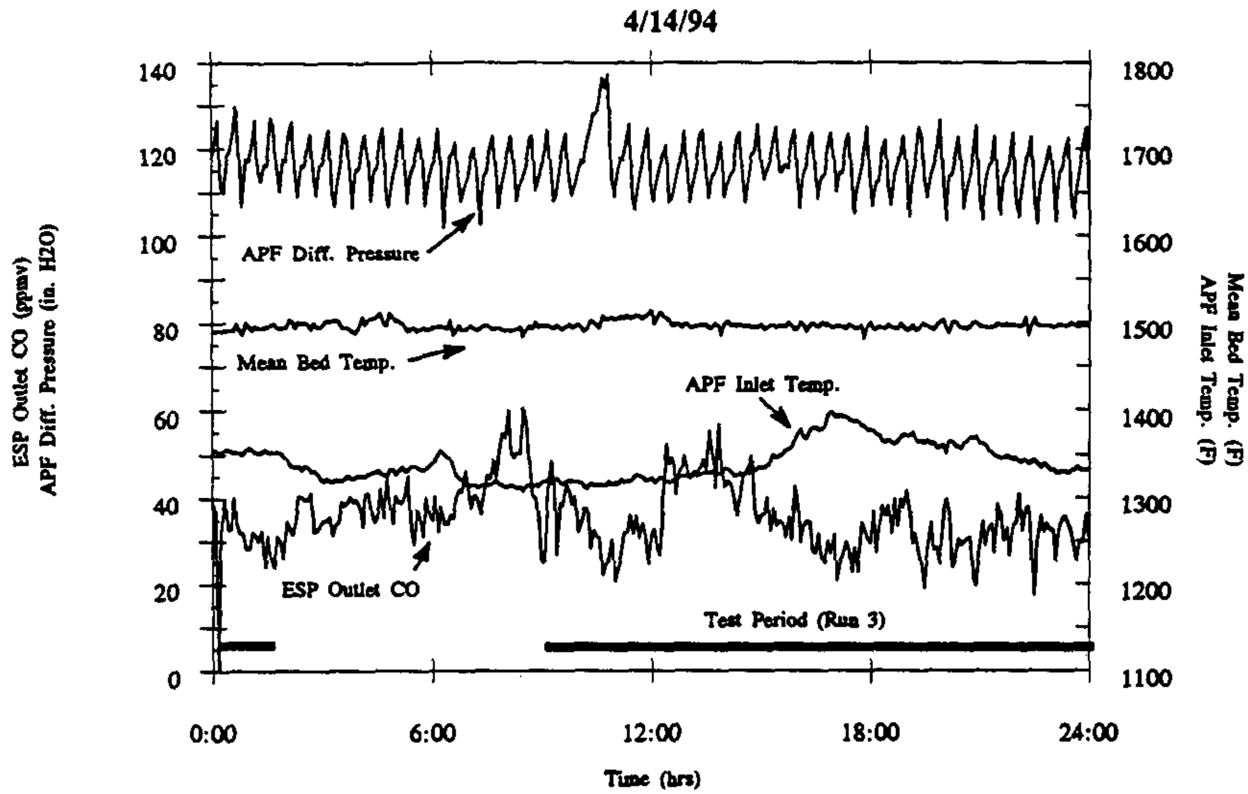

4/13/94
Total Load
ESP Outlet SO2
ESP Outlet Opacity
Run 1
Test Period (Run 2)
60
50
40
30
20
10
0
400
350
300
250
200
150
100
50
0
0:00
6:00
12:00
18:00
24:00
Time (hrs)
Total Load (MW) or ESP Outlet Opacity (%)
ESP Outlet SO2 (ppmv)

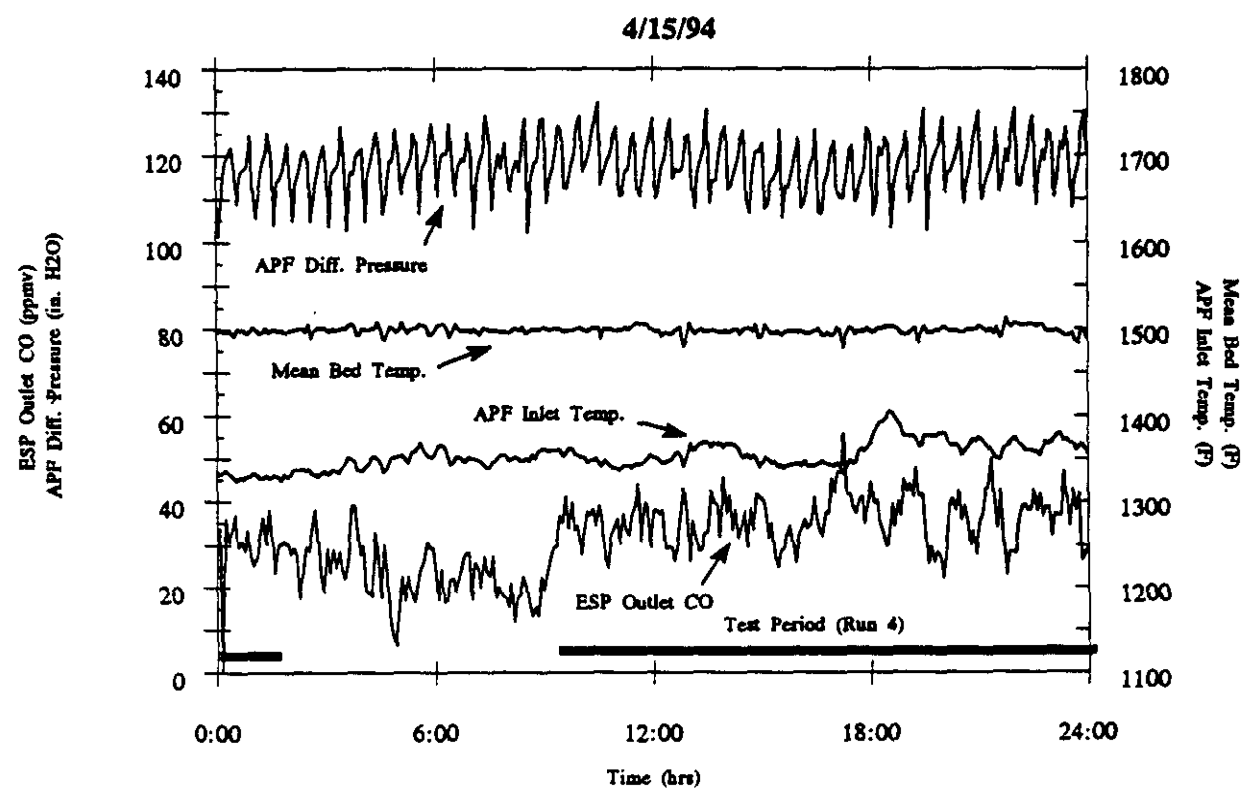

4/14/94
Total Load
ESP Outlet SO2
ESP Outlet Opacity
Test Period (Run 3)
60
50
40
30
20
10
0
400
350
300
250
200
150
100
50
0
0:00
6:00
12:00
18:00
24:00
Time (hrs)
Total Load (MW)
ESP Outlet Opacity (%)
ESP Outlet SO2


4/15/94
Total Load
ESP Outlet SO2
ESP Outlet Opacity
Test Period (Run 4)
60
50
40
30
20
10
0
400
350
300
250
200
150
100
50
0
0:00
6:00
12:00
18:00
24:00
Time (hrs)
Total Load (MW)
ESP Outlet Opacity (%)
ESP Outlet SO2 (ppmv)


4/12/94
120
100
80
60
40
20
0
1800
1700
1600
1500
1400
1300
1200
1100
APF Diff. Pressure
Mean Bed Temp.
APF Inlet Temp.
ESP Outlet CO
Test Period (Run 1)
0:00
6:00
12:00
18:00
24:00
Time (hrs)
ESP Outlet CO (ppmv)
APF Diff. Pressure (in. H2O)
Bed Temp. (F)
APF Inlet Temp (F)


4/13/94
120
100
80
60
40
20
0
1800
1700
1600
1500
1400
1300
1200
1100
APF Diff. Pressure
Mean Bed Temp.
APF Inlet Temp.
ESP Outlet CO
Test Period (Run 2)
0:00
6:00
12:00
18:00
24:00
Time (hrs)
ESP Outlet CO (ppmv)
APF Diff. Pressure (in. H2O)
Mean Bed Temp. (F)
APF Inlet Temp. (F)


4/14/94
ESP Outlet CO (ppmv)
APF Diff. Pressure (in. H2O)
Mean Bed Temp. (F)
APF Inlet Temp. (F)
APF Diff. Pressure
Mean Bed Temp.
APF Inlet Temp.
ESP Outlet CO
Test Period (Run 3)
0
20
40
60
80
100
120
140
1100
1200
1300
1400
1500
1600
1700
1800
0:00
6:00
12:00
18:00
24:00
Time (hrs)


4/15/94
ESP Outlet CO (ppmv)
APF Diff. Pressure (in. H2O)
Mean Bed Temp. (F)
APF Inlet Temp. (F)
APF Diff. Pressure
Mean Bed Temp.
APF Inlet Temp.
ESP Outlet CO
Test Period (Run 4)
0
20
40
60
80
100
120
140
1100
1200
1300
1400
1500
1600
1700
1800
0:00
6:00
12:00
18:00
24:00
Time (hrs)

APPENDIX F: FIELD SAMPLING EQUIPMENT CALIBRATION RECORDS AND FIELD DATA SHEETS

On file at Radian Corporation.

APPENDIX G: UNCERTAINTY FORMULAS

An error propagation analysis was performed on calculated results to determine the contribution of process, sampling, and analytical variability, and measurement bias, to the overall uncertainty in the result. This uncertainty was determined by propagating the bias and precision error of individual parameters through the calculation of the results. This uncertainty does not represent the total uncertainty in the result since many important bias errors are unknown and have been assigned a value of zero for this analysis. Also, this uncertainty is only for the period of time that the measurements were taken.

This method is based on ANSI/ASME PTC 19.1-1985, "Measurement Uncertainty."

Nomenclature

r = Calculated result;

S_{pi} = Sample standard deviation of parameter i;

θ_i = Sensitivity of the result to parameter i;

β_{pi} = Bias error estimate for parameter i;

v_i = Degrees of freedom in parameter i;

v_r = Degrees of freedom in result;

S_r = Precision component of result uncertainty;

β_r = Bias component of result uncertainty;

t = Student "t" factor (two-tailed distribution at 95% confidence);

U_r = Uncertainty in r; and

N_i = Number of measurements of parameter i.

For a result, r, the uncertainty in r is calculated as:

$$U_r = \sqrt{\beta_r^2 + (S_r * t)^2} \qquad \text{(eq. 1)}$$

The components are calculated by combining the errors in the parameters used in the result calculation.

$$\beta_r = \sqrt{\sum_{i=1}^{j} (\theta_i * \beta_{\overline{pi}})^2} \qquad \text{(eq. 2)}$$

$$S_r = \sqrt{\sum_{i=1}^{j} (\theta_i * S_{\overline{pi}})^2} \qquad \text{(eq. 3)}$$

The sensitivity of the result to each parameter is found from a Taylor series estimation method:

$$\theta_i = \frac{\partial r}{\partial pi} \qquad \text{(eq. 4)}$$

Or using a perturbation method (useful in computer applications):

$$\theta_i = \frac{r(P_i + \Delta P_i) - r(P_i)}{\Delta P_i} \qquad \text{(eq. 5)}$$

Equation 5 was applied to the calculations in this report. The perturbation selected for each parameter was the larger of the normalized standard deviation, $S_{\overline{pi}}$, or the bias, β_{pi}.

The standard deviation of the average for each parameter is calculated as:

$$S_{\overline{pi}} = \frac{S_{pi}}{\sqrt{N}} \qquad \text{(eq. 6)}$$

The degrees of freedom for each parameter is found from

$$v_i = N_i - 1 \qquad \text{(eq. 7)}$$

and the degrees of freedom for the result is found by weighing the sensitivity and precision error in each parameter.

$$v_r = \frac{S_r^4}{\sum_{i=1}^{j} \left[\frac{(S_{\overline{pi}} \times \theta_i)^4}{v_i} \right]} \qquad \text{(eq. 8)}$$

The student "t" in Equation 1 is associated with the degrees of freedom in the result.

The precision error terms are easily generated from the collected data. The bias error terms are more difficult to quantify. The following conventions were used for this report:

- 5% bias on coal and ash flow rates.
- No bias in gas flow rates.
- No bias in analytical results if the result is greater than the detection limit. One-half of the detection limit is used for both the parameter value and its bias in calculations if the result is below the detection limit.

Assignment of the flow rate bias values is based on engineering judgment. No bias is assigned to the analytical results (above the detection limit) or gas flow rate since a good estimate for magnitude of these terms is unknown. These bias terms may be very large (relative to the mean values of the parameters) and may represent a large amount of unaccounted uncertainty in each result. Analytical bias near the instrument detection limit may be especially large. The uncertainty values calculated for this report are, therefore, subject to these limitations.

The calculations assume that the population distribution of each measurement is normal and that the samples collected reflect the true population. Also, the uncertainty calculated is only for the average value over the sampling period. The uncertainty does not represent long-term process variations. In other words, the calculated uncertainty does not include a term to reflect the fact that the sampled system may not have been operating (and emitting) at conditions equivalent to the average conditions for that system over a longer period. Accounting for long-term system variability will require repeated sampling trips to the same location.