

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

EPA-454/R-99-049
September 1999

Air



EMISSION TEST EVALUATION OF A CREMATORY AT WOODLAWN CEMETERY IN THE BRONX, NY

VOLUME III OF III





**Emission Test Evaluation
of a Crematory
at Woodlawn Cemetery
in the Bronx, NY**

**Appendices E—J
Volume III**

**For U.S. Environmental Protection Agency
Office of Air Quality Planning and Standard
Emission Measurement Center
4930 Old Page Road
Research Triangle Park, North Carolina 27709**

Attn: Mr. Foston Curtis

**EPA Contract No. 68-D-98-027
Work Assignment No. 2-08
MRI Project No. 4951-08**

September 30, 1999

DISCLAIMER

This report presents the results of a single test program at a single cremation facility. It should not be assumed that these results would characterize emissions at other cremation facilities without further study.

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Appendix E

Galbraith Laboratory Analysis Results



Galbraith Laboratories, Inc.

Accuracy with Speed – Since 1950

LABORATORY REPORT

James S. Surman
Midwest Research Institute
425 Volker Boulevard
Kansas City MO 64110

Report Date: 07/16/99
Sample Received: 06/28/99
Purchase Order #: A 039172
Fax #: 816-753-8420

SAMPLE ID	LAB ID	ANALYSIS	RESULTS		DUPLICATE RESULTS	
1004	C-3803	Chloride	53.9	ug/mL	53.1	ug/mL
2004	C-3804	Chloride	61.0	ug/mL	60.8	ug/mL
3004	C-3805	Chloride	185.1	ug/mL	194.7	ug/mL
5004	C-3806	Chloride	130.1 152.4	ug/mL ug/mL	146.9 125.0	ug/mL ug/mL
6004	C-3807	Chloride	410.8 421.5	ug/mL ug/mL	340.8 383.3	ug/mL ug/mL
7004	C-3808	Chloride	789.8	ug/mL	782.4	ug/mL
8004	C-3809	Chloride *	349.7	ug/mL	349.1	ug/mL
9004	C-3810	Chloride	350.1	ug/mL	340.8	ug/mL
1052	C-3811	Chloride	<1.0	ug/mL	<1.0	ug/mL
1028	C-3812	Chloride	10.0	ug/mL	10.0	ug/mL
2028	C-3813	Chloride	9.4	ug/mL	9.4	ug/mL
3028	C-3814	Chloride	65.2	ug/mL	67.2	ug/mL
4028	C-3815	Chloride	89.8	ug/mL	91.3	ug/mL
5028	C-3816	Chloride	83.4	ug/mL	83.0	ug/mL
6028	C-3817	Chloride	193.4	ug/mL	205.0	ug/mL

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Page 1 of 3



Galbraith Laboratories, Inc.

Accuracy with Speed – Since 1950

LABORATORY REPORT

James S. Surman
Midwest Research Institute

Report Date: 07/16/99
Lab I.D.: C-3803 - 20

SAMPLE ID	LAB ID	ANALYSIS	RESULTS		DUPLICATE RESULTS	
7028	C-3818	Chloride	324.0	ug/mL	327.8	ug/mL
1072	C-3819	Chloride	14.2	ug/mL	14.1	ug/mL
1071	C-3820	Chloride	13.3	ug/mL	13.3	ug/mL

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Page 2 of 3



Galbraith Laboratories, Inc.

Accuracy with Speed – Since 1950

LABORATORY REPORT

James S. Surman
Midwest Research Institute

Report Date: 07/16/99
Lab I.D.: C-3803 - 20

TECHNICAL INFORMATION:

~~*Note lab weight for this sample is different than the field weight (sample condition table).~~

ajc 8/4/99
Transcription error, no net difference in weight.

Samples were analyzed according to 40 CFR 60, Appendix A, Method 26A.

Authorized Release of Data

William M Longmire

William M. Longmire, Vice-President of Technical Services

WML:smc/A

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Page 3 of 3

C-5843-20

MRI Project No. 5587.04.01

Target Analytes: Chloride by 40 CFR 60, Appendix A, Method 26A.

See analysis request memo from J. Surman.

Field Sample Condition Information Documented By J. M. C. Date: 6-16-99

[illegible]

The purpose of this form is to document the condition and to verify the integrity of samples received by the analytical laboratory. The Field Laboratory Leader completes the first two columns with sample numbers and final gross field sample weights of liquid samples or the condition of other samples as applicable. The analytical laboratory sample custodian, the analytical coordinator, the analyst, or a designee observes all samples received, reweighs liquid samples that do not have contents level marks or that are suspect, notes the condition of other samples, and documents all observations on this form.

U.S. ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, N.C. 27711

COMPLIANCE TESTING

HCl Samples

4951.08 & 5587 1071
0.1N H₂SO₄ FOR CHLORIDE
PERFORMANCE SAMPLE
For disposal call: J. SURMAN
MIDWEST RESEARCH INSTITUTE



C-3820

INSTRUCTIONS FOR USE OF ENVIRONMENTAL PROTECTION AGENCY
STATIONARY SOURCE COMPLIANCE HCl SAMPLES

Sample background:

The HCl air sampling procedure specifies sample collection for sixty minutes at a flow rate of 2L/min. The impinger solution is then quantitatively transferred to a 100 mL volumetric flask and diluted to the mark with deionized water.

Sample preparation: (for IC analysis)

HCl audit solutions have been prepared to simulate these diluted impinger samples. However, the audit solutions may require further dilution to bring them within the calibration range of the instrument being used for the analysis. This step is left to the judgement of the analyst.

Note: To minimize interference (if dilution is necessary), use eluent instead of distilled H₂O.

Calculations:

Report concentration results of sample, as received, in mg/L of Cl. ((S-B) of Eq. 26-2 of Method 26)

Results:

Audit results and compliance test results are to be transmitted by phone and/or by writing to the agency requiring the test.

JUN 28 1999

C-3820

METHOD 26 (HCI) COMPLIANCE SOURCE AUDIT

Date Issued _____ Sample No. 52017
Auditee: _____ Audit Date _____

Name Galbraith Laboratories

Address 2323 Sycamore Drive Knoxville, TN 37921

Analyst Rhonda Parolari

Audit Identification Card

Filled out with
8/5/99

Audit results in mg/L and compliance test results in total μg of HCl
are to be transmitted to the agency requiring the test.

U.S. ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, N.C. 27711
COMPLIANCE TESTING

HCl Samples



4951.08 & 5587 1072
0.1N H₂SO₄ FOR CHLORIDE
PERFORMANCE SAMPLE
For disposal call: J. SURMAN
MIDWEST RESEARCH INSTITUTE

C-3819

INSTRUCTIONS FOR USE OF ENVIRONMENTAL PROTECTION AGENCY
STATIONARY SOURCE COMPLIANCE HCl SAMPLES

Sample background:

The HCl air sampling procedure specifies sample collection for sixty minutes at a flow rate of 2L/min. The impinger solution is then quantitatively transferred to a 100 mL volumetric flask and diluted to the mark with deionized water.

Sample preparation: (for IC analysis)

HCl audit solutions have been prepared to simulate these diluted impinger samples. However, the audit solutions may require further dilution to bring them within the calibration range of the instrument being used for the analysis. This step is left to the judgement of the analyst.

Note: To minimize interference (if dilution is necessary), use eluent instead of distilled H₂O.

Calculations:

Report concentration results of sample, as received, in mg/L of Cl.

((S-B) of Eq. 26-2 of Method 26)

Results:

Audit results and compliance test results are to be transmitted by phone and/or by writing to the agency requiring the test.

ENVIRONMENTAL
SEARCH

C-3819

METHOD 26 (HCl) COMPLIANCE SOURCE AUDIT

Date Issued JUN 28 1999 Sample No. 52572
Auditee: _____ Audit Date _____

Name Balbraith Laboratories

Address 2323 Sycamore Dr. Knoxville, TN 37921

Analyst Rhonda Parolari

Audit Identification Card

Filled out by
aust 8/5/99

Audit results in mg/L and compliance test results in total μ g of HCl
are to be transmitted to the agency requiring the test.

7/29/99
14:47:59



Galbraith Laboratories, Inc.

Accuracy with Speed - Since 1950

Summary of Results and QC Runs
Galbraith Sample Numbers C-3803 to C-3820
Midwest Research Institute
----- ANALYTE= HCl; Method 26 -----

G S N		I D		D A T E		F O U N D		S P L		I N T		I N T		P A R E		C O M M E N T S		Q S T N	
a-0000	METHOD	BLK		99/07/02		.5	ug	.00mg	R	P	830	5	<						
p-1711	CONTROL	STD		99/07/02		1	ug	.00mg	R	P	830	5				100.0%R			
C-3803	SAMPLE			99/07/02		4848	ug	.00mg	R	P	830	5							
C-3803	SAMPLE			99/07/02		4856	ug	.00mg	R	P	830	5							
C-3804	SAMPLE			99/07/02		5170	ug	.00mg	R	P	830	5							
C-3804	SAMPLE			99/07/02		5260	ug	.00mg	R	P	830	5							
C-3805	SAMPLE			99/07/02		13728	ug	.00mg	R	P	830	5							
C-3805	SAMPLE			99/07/02		13624	ug	.00mg	R	P	830	5							
C-3806	SAMPLE			99/07/02		9161	ug	.00mg	R	P	830	5							
C-3806	SAMPLE			99/07/02		9040	ug	.00mg	R	P	830	5							
C-3807	SAMPLE			99/07/02		35938	ug	.00mg	R	P	830	5							
C-3807	SAMPLE			99/07/02		35909	ug	.00mg	R	P	830	5							
C-3808	SAMPLE			99/07/02		61173	ug	.00mg	R	P	830	5							
C-3808	SAMPLE			99/07/02		63435	ug	.00mg	R	P	830	5							
C-3809	SAMPLE			99/07/02		27026	ug	.00mg	R	P	830	6							
C-3809	SAMPLE			99/07/02		29854	ug	.00mg	R	P	830	6							
C-3810	SAMPLE			99/07/02		29011	ug	.00mg	R	P	830	6							
C-3810	SAMPLE			99/07/02		29248	ug	.00mg	R	P	830	6							
C-3811	SAMPLE			99/07/02		72	ug	.00mg	R	P	830	6	<						
C-3811	SAMPLE			99/07/02		72	ug	.00mg	R	P	830	6	<						
C-3812	SAMPLE			99/07/02		1033	ug	.00mg	R	P	830	6							
C-3812	SAMPLE			99/07/02		970	ug	.00mg	R	P	830	6							
C-3813	SAMPLE			99/07/02		842	ug	.00mg	R	P	830	6							
C-3813	SAMPLE			99/07/02		785	ug	.00mg	R	P	830	6							
C-3814	SAMPLE			99/07/02		5047	ug	.00mg	R	P	830	6							
C-3814	SAMPLE			99/07/02		4952	ug	.00mg	R	P	830	6							
C-3815	SAMPLE			99/07/02		6945	ug	.00mg	R	P	830	6							
C-3815	SAMPLE			99/07/02		6999	ug	.00mg	R	P	830	6							
C-3816	SAMPLE			99/07/02		4881	ug	.00mg	R	P	830	7							
C-3816	SAMPLE			99/07/02		4731	ug	.00mg	R	P	830	7							
C-3817	SAMPLE			99/07/02		10675	ug	.00mg	R	P	830	7							
C-3817	SAMPLE			99/07/02		10454	ug	.00mg	R	P	830	7							
C-3818	SAMPLE			99/07/02		29610	ug	.00mg	R	P	830	7							
C-3818	SAMPLE			99/07/02		27979	ug	.00mg	R	P	830	7							
C-3819	SAMPLE			99/07/02		1018	ug	.00mg	R	P	830	7							
C-3819	SAMPLE			99/07/02		997	ug	.00mg	R	P	830	7							
C-3820	SAMPLE			99/07/02		1044	ug	.00mg	R	P	830	7							
C-3820	SAMPLE			99/07/02		848	ug	.00mg	R	P	830	7							
C-3807	MATRIX	SPK		99/07/02		90.5	%REC	.00mg	R	P	830	7							
a-0000	METHOD	BLK		99/07/02		.5	ug	.00mg	R	P	830	7	<						

7/29/99
14:47:59



Galbraith Laboratories, Inc.

Accuracy with Speed - Since 1950

Summary of Results and QC Runs
Galbraith Sample Numbers C-3803 to C-3820
Midwest Research Institute
----- ANALYTE= HCl; Method 26 -----

G	I	D	F		S	I	I	P	C	
S	N	A	O		P	N	N	A	O	
N	D	T	U		L	I	S	E	M	
		E	N			Z	T	G		Q
			D			E				S
a-0000	METHOD	BLK	99/07/02	.5	ug	.00mg	R P	830	7	<
p-1711	CONTROL	STD	99/07/02	1.086	ug	.00mg	R P	830	7	
p-1711	CONTROL	STD	99/07/02	1.095	ug	.00mg	R P	830	8	
C-3807	MATRIX	SPK	99/07/02	94.1	%REC	.00mg	R P	830	8	
a-0000	METHOD	BLK	99/07/07	.193	ug	.00mg	R P	830	9	
p-1711	CONTROL	STD	99/07/07	.955	ug	.00mg	R P	830	9	95.5%R
C-3809	SAMPLE		99/07/07	35963	ug	.00mg	R P	830	9	
C-3809	SAMPLE		99/07/07	35901	ug	.00mg	R P	830	9	
C-3812	SAMPLE		99/07/07	990.2	ug	.00mg	R P	830	9	
C-3812	SAMPLE		99/07/07	991.2	ug	.00mg	R P	830	9	
C-3813	SAMPLE		99/07/07	872.8	ug	.00mg	R P	830	9	
C-3813	SAMPLE		99/07/07	870.95	ug	.00mg	R P	830	9	
C-3818	SAMPLE		99/07/07	40651	ug	.00mg	R P	830	9	
C-3818	SAMPLE		99/07/07	41121	ug	.00mg	R P	830	9	
C-3820	SAMPLE		99/07/07	1362.63	ug	.00mg	R P	830	9	
C-3820	SAMPLE		99/07/07	1362.63	ug	.00mg	R P	830	9	
a-0000	METHOD	BLK	99/07/07	.198	ug	.00mg	R P	830	9	
a-0000	METHOD	BLK	99/07/07	.268	ug	.00mg	R P	830	9	
p-1711	CONTROL	STD	99/07/07	.953	ug	.00mg	R P	830	10	95.3%R
p-1711	CONTROL	STD	99/07/07	.996	ug	.00mg	R P	830	10	99.6%R
a-0000	METHOD	BLK	99/07/08	.179	ug	.00mg	R P	830	11	
p-1711	CONTROL	STD	99/07/08	.943	ug	.00mg	R P	830	11	94.3%R
p-1711	CONTROL	STD	99/07/08	.938	ug	.00mg	R P	830	11	93.8%R
C-3803	SAMPLE		99/07/08	5878	ug	.00mg	R P	830	11	
C-3803	SAMPLE		99/07/08	5791	ug	.00mg	R P	830	11	
C-3804	SAMPLE		99/07/08	5523	ug	.00mg	R P	830	11	
C-3804	SAMPLE		99/07/08	5500	ug	.00mg	R P	830	11	
C-3805	SAMPLE		99/07/08	17513	ug	.00mg	R P	830	11	
C-3805	SAMPLE		99/07/08	18421	ug	.00mg	R P	830	11	
C-3806	SAMPLE		99/07/08	11784	ug	.00mg	R P	830	11	
C-3806	SAMPLE		99/07/08	10436	ug	.00mg	R P	830	11	
C-3807	SAMPLE		99/07/08	47733	ug	.00mg	R P	830	11	
C-3807	SAMPLE		99/07/08	39598	ug	.00mg	R P	830	11	
C-3807	MATRIX	SPK	99/07/08	105	%REC	.00mg	R P	830	12	
C-3807	MATRIX	SPK	99/07/08	106.1	%REC	.00mg	R P	830	12	
C-3808	SAMPLE		99/07/08	76350	ug	.00mg	R P	830	12	
C-3808	SAMPLE		99/07/08	75634	ug	.00mg	R P	830	12	
C-3810	SAMPLE		99/07/08	30244	ug	.00mg	R P	830	12	
C-3810	SAMPLE		99/07/08	29440	ug	.00mg	R P	830	12	
C-3811	SAMPLE		99/07/08	72	ug	.00mg	R P	830	12	<

7/29/99
14:47:59



Galbraith Laboratories, Inc.

Accuracy with Speed - Since 1950

Summary of Results and QC Runs
Galbraith Sample Numbers C-3803 to C-3820
Midwest Research Institute
----- ANALYTE= HCl; Method 26 -----

G	S	I	N	D	D	A	T	E	F	O	U	N	D	S	P	L	I	N	I	S	P	A	N	C	O	M	M	E	N	S	Q	S	T	N
C-3811	SAMPLE	99/07/08	72	ug	.00mg	R	P	830	12	<																								
C-3814	SAMPLE	99/07/08	6030	ug	.00mg	R	P	830	12																									
C-3814	SAMPLE	99/07/08	6220	ug	.00mg	R	P	830	12																									
C-3815	SAMPLE	99/07/08	8494	ug	.00mg	R	P	830	12																									
C-3815	SAMPLE	99/07/08	8638	ug	.00mg	R	P	830	12																									
C-3816	SAMPLE	99/07/08	6004	ug	.00mg	R	P	830	12																									
C-3816	SAMPLE	99/07/08	5973	ug	.00mg	R	P	830	12																									
C-3817	SAMPLE	99/07/08	17105	ug	.00mg	R	P	830	13																									
C-3817	SAMPLE	99/07/08	18131	ug	.00mg	R	P	830	13																									
C-3819	SAMPLE	99/07/08	1458	ug	.00mg	R	P	830	13																									
C-3819	SAMPLE	99/07/08	1454	ug	.00mg	R	P	830	13																									
a-0000	METHOD BLK	99/07/08	.179	ug	.00mg	R	P	830	13																									
p-1711	CONTROL STD	99/07/08	.977	ug	.00mg	R	P	830	13																									
p-1711	CONTROL STD	99/07/08	.891	ug	.00mg	R	P	830	13																									
a-0000	METHOD BLK	99/07/09	.148	%REC	.00mg	R	P	830	14																									
p-1711	CONTROL STD	99/07/09	1.003	%REC	.00mg	R	P	830	14																									
p-1711	CONTROL STD	99/07/09	.992	%REC	.00mg	R	P	830	14																									
C-3806	SAMPLE	99/07/09	12225	ug	.00mg	R	P	830	14																									
C-3806	SAMPLE	99/07/09	10027	ug	.00mg	R	P	830	14																									
C-3807	SAMPLE	99/07/09	48982	ug	.00mg	R	P	830	14																									
C-3807	SAMPLE	99/07/09	44537	ug	.00mg	R	P	830	14																									
a-0000	METHOD BLK	99/07/09	.183	ug	.00mg	R	P	830	14																									
p-1711	CONTROL STD	99/07/09	1.021	ug	.00mg	R	P	830	14																									
p-1711	CONTROL STD	99/07/09	1.006	ug	.00mg	R	P	830	14																									

7/29/99
14:47:59



Galbraith Laboratories, Inc.

Accuracy with Speed – Since 1950

Listing of Control Standards
Galbraith Sample Numbers C-3803 to C-3820
Midwest Research Institute

p-1711 Chloride ICS 100.00 R



Galbraith Laboratories, Inc.

Accuracy with Speed – Since 1950

July 29, 1999

Mr. James Surman
Midwest Research Institute
425 Volker Boulevard
Kansas City, MO 64110

Dear Mr. Surman:

Enclosed please find the raw data that you requested for samples C-3803 through C-3820 (your samples 1004, 2004, 3004, 5004, 6004, 7004, 8004, 9004, 1052, 1028, 2028, 3028, 4028, 5028, 6028, 7028, 1072, 1071).

If we can be of any further assistance, please do not hesitate to call.

Sincerely,

Ann M. Lescher
Report Coordinator

JUN 2 8 1999

C-3803-20

SAMPLE CONDITION AT RECEIVING LABORATORY

MRI Project No. 5587.04.01

Sample Type: Sample components recovered from M26A sampling trains and field reagent blank samples.

Target Analytes: Chloride by 40 CFR 60, Appendix A, Method 26A.

See analysis request memo from J. Surman.

Field Sample Condition Information Documented By J. McG Date: 6-16-99

Sample No.	Field Weight, grams, or Condition	Lab Weight, grams, or Condition	Comments	Received and Checked By	Date
1004	207.7		intact	JGO.	6-28-99
1028	200.4				
1052	171.2				
1071	intact				
1072	intact				
~~1073~~	~~No sample~~				
2004	189.8				
2028	193.2				
3004	204.2				
3028	193.1				
4004					
4028	193.8				
5004	179.8				
5028	171.4				
6004	217.4				
6028	187.1				
7004	195.9				
7028	225.9				
8004	101.2				
8028					
9004	186.4				
9028					

The purpose of this form is to document the condition and to verify the integrity of samples received by the analytical laboratory. The Field Laboratory Leader completes the first two columns with sample numbers and final gross field sample weights of liquid samples or the condition of other samples as applicable. The analytical laboratory sample custodian, the analytical coordinator, the analyst, or a designee observes all samples received, reweighs liquid samples that do not have contents level marks or that are suspect, notes the condition of other samples, and documents all observations on this form.

JUN 28 1999

- ☐ CHAIN OF CUSTODY RECORD
☒ SAMPLE TRACEABILITY RECORD

Container (Cooler) No. _____

Page _____ of _____ Transfer No. _____

Checked by (Initials)/Date _____

Lock or Seal Intact (Yes or No)/Time _____

Field Sample Custodian:

J. McLean

Storage Requirements:

- ☐ Ice water, $\leq 4^{\circ}\text{C}$
☐ Dry ice
☒ Room Temp., $\leq 26^{\circ}\text{C}$
☐ Other: _____

4951.08 & 5587 1004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 2004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 3004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 4004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 5004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 6004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 7004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 8004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 9004

M26A ALIQUOT OF XX003 (HC1)
 SCRUBBER INLET SAMPLE

4951.08 & 5587 1052

M26A 0.1N H2SO4
 FIELD REAGENT SAMPLE

For disposal call: J. SURMAN
 MIDWEST RESEARCH INSTITUTE

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

Sample Transfers:

Relinquished By:	Received By:	Date	Time	No.	Reason for Transfer:
<i>J. McLean</i>	<i>David L. Smith</i>	6-18-99	100	1	Shipping
<i>David L. Smith</i>	<i>J. Surman</i>	06/21/99	1100	2	Custody (to) shipment
<i>J. Surman</i>	<i>Fed Ex</i>	06/25/99	1500	3	To Fed Ex
<i>Fed Ex</i>	<i>John W. White</i>	6-28-99	9:30 AM	4	

C-3803-20

JUN 28 1999

- ☐ CHAIN OF CUSTODY RECORD
- ☒ SAMPLE TRACEABILITY RECORD

Container (Cooler) No. _____

Page _____ of _____ Transfer No. _____

Checked by (Initials)/Date _____

Lock or Seal Intact (Yes or No)/Time _____

Field Sample Custodian:

J. McC

Storage Requirements:

- ☐ Ice water, $\leq 4^{\circ}\text{C}$
- ☐ Dry ice
- ☒ Room Temp., $\leq 26^{\circ}\text{C}$
- ☐ Other: _____

4951.08 & 5587 1028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

1	2	3			
6-21-99	6-21-99	6-25-99			
✓	✓	✓			
Remarks:					

4951.08 & 5587 2028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

✓	✓	✓			
Remarks:					

4951.08 & 5587 3028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

✓	✓	✓			
Remarks:					

4951.08 & 5587 4028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

✓	✓	✓			
Remarks:					

4951.08 & 5587 5028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

✓	✓	✓			
Remarks:					

4951.08 & 5587 6028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

✓	✓	✓			
Remarks:					

4951.08 & 5587 7028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

✓	✓	✓			
Remarks:					

4951.08 & 5587 8028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

Remarks:					

4951.08 & 5587 9028
M26A ALIQUOT OF XX027 (HC1)
SCRUBBER OUTLET SAMPLE

Remarks:					

4951.08 & 5587 1071
0.1N H2SO4 FOR CHLORIDE
PERFORMANCE SAMPLE

✓	✓	✓			
Remarks:					

4951.08 & 5587 1072
0.1N H2SO4 FOR CHLORIDE
PERFORMANCE SAMPLE

For disposal call: J. SURMAN
MIDWEST RESEARCH INSTITUTE

Sample Transfers:

Relinquished By:	Received By:	Date	Time	No.	Reason for Transfer:
J. McC	Randall	6-18-99	10:00	1	Shipping
Randall	J. McC	06/21/99	1100	2	Custody til shipment
J. McC	Fed Ex	06/25/99	1500	3	To Fed Ex
Fed Ex	J. McC	6-28-99	9:30AM	4	

WML 7/12/99

WML

Method 26, 421, 9057

(b)

RECHECK

RP

RETEST CODE 56

run date: 7/2/99

enter date: 7/6/99

analyst: RP

matrix: H₂O

inst. # 830

method/std: IG

pg: 005

1 of 4

run # std.conc. area 1 area 2 avg.

5	63	0.50 ppm	184252	187641	185946
6	64	1.0 ppm	288735	285313	287024
7	65	2.0 ppm	507524	509391	508421
8	66	5.0 ppm	1225091	1249709	1237400

ICS Recovery:
run # 10: 100.022
run # 60: 108.022
run # 61: 109.522
Spike Recovery:

INSPECTED
ST 7/13/99
C-3803-20

$$C = A \times B$$

$$E = C \times D \times 1.0284$$

$$D = \frac{A}{C} \quad E = \frac{C}{A}$$

	Spl #	area	avg.	dilution	volume	µg/ml Cl	µg HCl per spl	total µg/ml Cl
9	A-1000			—	—	—	—	<.5
10	P-1711	CN5559		—	—	1.000	—	100.022
39	C-3803			(25)	106	1.779	4848	44.475
40	C-3803			(25)	1	1.782	4856	44.550
20	C-3804			(25)	88	2.285	5170	57.125
21	C-3804			(25)	1	2.325	5260	58.125
23	C-3805			(100)	92	1.451	13728	145.1
24	13 ⁽⁹⁾ C-3805			(100)	1	1.440 ⁽⁹⁾ 1.142 ⁽⁹⁾	13627	144.0
13	C-3806			(100)	78	1.142	9161	114.2
25	C-3806			(100)	1	1.127	9040	113.7
26	C-3807			(250)	113	1.237	35938	359.25
27	C-3807			(250)	1	1.236	35909	359.0
32	C-3808			(250)	94	3.164	61173	632.80
33	C-3808			(250)	1	3.281	63435	656.20

EXACT COPY OF
RAW DATA
7/14/99

(a) wrong line RP 7/6/99

(b) matrix of samples and stds affecting peak appearance and interpretation, RP 7/14/99

Spike preparation: C-3807: ind of sample and 500µl of 1000ppm Cl⁻
theory = 2ppm
std (CN5559) were put into a 250ml volumetric and made to mark with DI water.

7/12/99
WML
am

Method 26, 421, 9057

RECHECK RP
RETEST CODE SL

run date: 7/2/99

enter date: 7/6/99
analyst: RP

matrix: H₂SO₄
inst. # 830
method/std: IG

pg: 006

244

run # std.conc. area 1 area 2 avg.

ICS Recovery:

Spike Recovery:

				(B)	(D)	(A)	(E)	(C)
	Spl #	area	avg.	dilution	volume	µg/ml Cl	µg HCl per spl	total µg/ml Cl
51	C-3809	(b) RECHECK		(100)	100	2.628	27026	262.8
52	C-3809	(b) RECHECK		(100)	↓	2.903	29854	290.3
14	C-3810			(100)	84	2.821	29011	282.1
34	C-3810			(100)	↓	2.844	29248	284.4
30	C-3811	newt.		(2)	70	—	<72	<1.0
57	C-3811	newt.		(2)	↓	—	<72	<1.0
12	C-3812	(b) RECHECK		(10)	96	1.046	1033	10.46
53	C-3812	(b) RECHECK		(10)	↓	.983	970	9.83
54	C-3813	(b) RECHECK		(10)	90	.910	842	9.10
55	C-3813	(b) RECHECK		(10)	↓	.848	785	8.48
41	C-3814			(25)	90	2.181	5047	54.525
42	C-3814			(25)	↓	2.170 2.210	4952	53.500
43	C-3815			(25)	92	2.936	6945	73.400
44	C-3815			(25)	↓	2.959	6999	73.975

(a) wrong value as 7/6/99

(b) Doesn't meet client duplicate specs as 7/6/99

EXACT COPY OF
RAW DATA 7/1/99

WML

Method 26, 421, 9057

RECHECK RP

RETEST CODE SL

run date: 7/2/99

enter date: 7/6/99
analyst: RP

pg: 007

matrix: H₂SO₄
inst. #830
method/std: I G

364

run # std.conc. area 1 area 2 avg.

ICS Recovery:

Spike Recovery:

	Spl #	area	avg.	dilution	volume	µg/ml Cl	µg HCl per spl	Total µg Cl
				(B)	(D)	(A)	(E)	(C)
45	C-3816			(25)	70	2.712	4881	67.8
46	C-3816			(25)	1	2.629	4731	65.725
35	C-3817			(100)	86	1.207	10675	120.7
36	C-3817			(100)	1	1.182	10454	118.2
37	C-3818	RECHECK (b)		(250)	122	.944	29610	236
38	C-3818	RECHECK (b)		(250)	1	.892	27979	223
47	C-3819			(10)	100	.990	1018	9.90
48	C-3819			(10)	100	.969	997	9.69
49	C-3820	RECHECK (b)		(10)	100	1.015	1044	10.15
50	C-3820	RECHECK (b)		(10)	100	0.825	848	8.25
29	C-3807	spike		(250)	113	3.047	-	90.526
58	A-0000			-	-	-	-	<.5
59	A-0000			-	-	-	-	<.5
60	p-1711	CN5559		-	-	1.086	-	108.6%

① using value RP 7/6/99

② Doesn't meet client duplicate specs RP 7/6/99

CUT 7/9/99
EXACT COPY OF
RAW DATA

4 of 4

02/19/99
EXACT COPY OF
RAW DATA

Line	Sample	Sample Type	Level	Method
1	peakid	Sample		m26h2so4.met
2	peakid	Sample		m26h2so4.met
3	di	Sample		m26h2so4.met
4	0.25ppm	Sample		m26h2so4.met
5	0.5ppm	Calibration St	1	m26h2so4.met
6	1ppm	Calibration St	2	m26h2so4.met
7	2ppm	Calibration St	3	m26h2so4.met
8	5ppm	Calibration St	4	m26h2so4.met
9	a-0000	Sample		m26h2so4.met
10	ics	Sample		m26h2so4.met
11	C-3811x5	Sample		m26h2so4.met
12	C-3812x10	Sample		m26h2so4.met
13	C-3806x100	Sample		m26h2so4.met
14	C-3810x100	Sample		m26h2so4.met
15	C-3818x500	Sample		m26h2so4.met
16	C-3809spike	Sample		m26h2so4.met
17	di	Sample		m26h2so4.met
18	C-3811x10	Sample		m26h2so4.met
19	C-3809	Sample		m26h2so4.met
20	C-3804x25	Sample		m26h2so4.met
21	C-3804x25	Sample		m26h2so4.met
22	di	Sample		m26h2so4.met
23	C-3805x100	Sample		m26h2so4.met
24	C-3805x100	Sample		m26h2so4.met
25	C-3806x100	Sample		m26h2so4.met
26	C-3807x250	Sample		m26h2so4.met
27	C-3807x250	Sample		m26h2so4.met
28	C-3807x250spike	Sample		m26h2so4.met
29	C-3811(neut.)	Sample		m26h2so4.met
30	C-3811x2(neut.)	Sample		m26h2so4.met
31	C-3811x2(neut.)spike	Sample		m26h2so4.met
32	C-3808x200	Sample		m26h2so4.met
33	C-3808x200	Sample		m26h2so4.met
34	C-3810x100	Sample		m26h2so4.met
35	C-3817x100	Sample		m26h2so4.met
36	C-3817x100	Sample		m26h2so4.met
37	C-3818x250	Sample		m26h2so4.met
38	C-3818x250	Sample		m26h2so4.met
39	C-3803x25	Sample		m26h2so4.met
40	C-3803x25	Sample		m26h2so4.met
41	C-3814x25	Sample		m26h2so4.met
42	C-3814x25	Sample		m26h2so4.met
43	C-3815x25	Sample		m26h2so4.met
44	C-3815x25	Sample		m26h2so4.met
45	C-3816x25	Sample		m26h2so4.met
46	C-3816x25	Sample		m26h2so4.met
47	C-3819x10	Sample		m26h2so4.met
48	C-3819x10	Sample		m26h2so4.met
49	C-3820x10	Sample		m26h2so4.met
50	C-3820x10	Sample		m26h2so4.met
51	C-3809x100	Sample		m26h2so4.met
52	C-3809x100	Sample		m26h2so4.met
53	C-3812x10	Sample		m26h2so4.met
54	C-3813x10	Sample		m26h2so4.met
55	C-3813x10	Sample		m26h2so4.met
56	C-3807x250spike	Sample		m26h2so4.met
57	C-3811x2(neut.)	Sample		m26h2so4.met
58	a-0000	Sample		m26h2so4.met
59	a-0000	Sample		m26h2so4.met
60	ics	Sample		m26h2so4.met

all

RECHECK RP
RETEST CODE SLC

matrix of samples and
stds affecting appearance
and integration of CCE
peak 7/11/99

RP
7/2/99
#830

per method beginning and
ending curve are averaged
and data processed with
average curve

RP 7/6/99

EXACT COPY OF
RAW DATA

Line	Sample	Sample Type	Level	Method
61	ics	Sample		m26h2so4.met
62	0.25ppm	Sample		m26h2so4.met
63	0.5ppm	Sample		m26h2so4.met
64	1ppm	Sample		m26h2so4.met
65	2ppm	Sample		m26h2so4.met
66	5ppm	Sample		m26h2so4.met
67	sd	Sample		shutdown.met
68	sd	Sample		shutdown.met

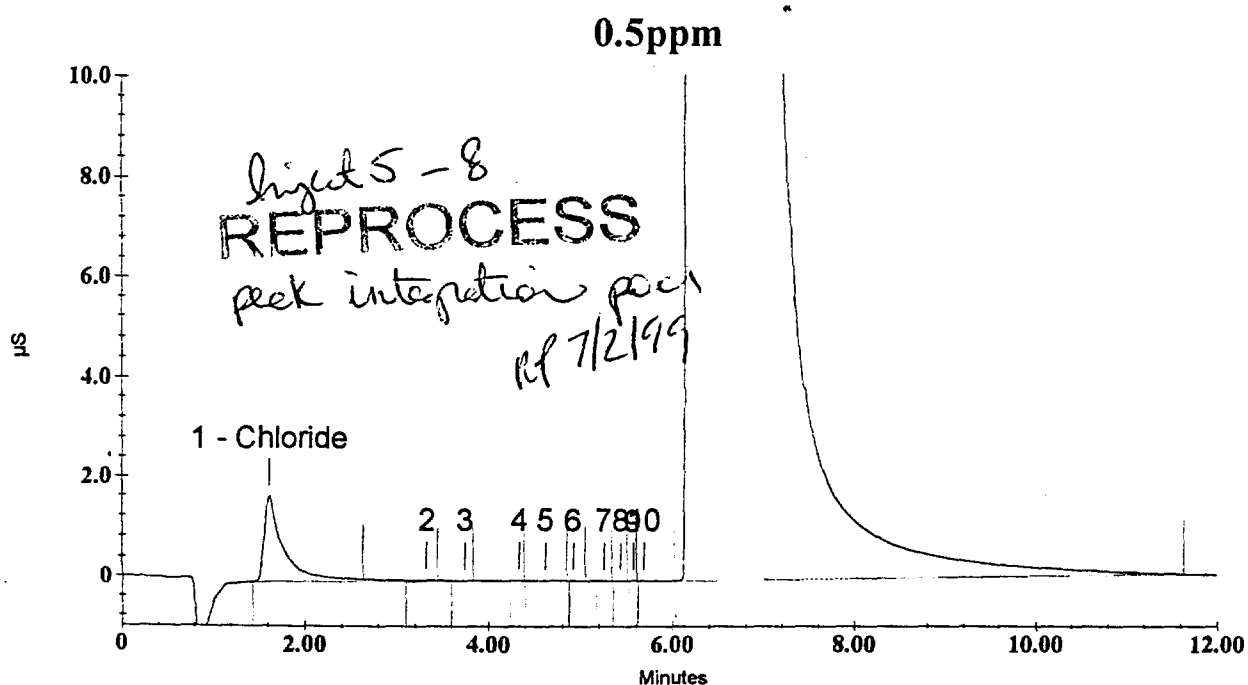
authn
EXACT COPY OF
RAW DATA

Data File : ...05ppm_005.DXD
 Sample Name : 0.5ppm
 Inject # : 5
 Method File : c:\peaknet\method\m26h2so4.met
 System Name : Instr. 830 DX500

Collected : 7/2/99 7:25:22 AM
 Updated : 7/2/99 7:37:25 AM
 Calibrated : 7/2/99 7:37:23 AM
 Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.500	262112	16787
2	3.33		0.000	4962	272
3	3.75		0.000	2451	190
4	4.33		0.000	1492	168
5	4.62		0.000	4171	185
6	4.92		0.000	1296	137
7	5.25		0.000	960	106
8	5.43		0.000	606	96
9	5.57		0.000	133	33
10	5.68		0.000	1040	75
11	6.30		0.000	44468750	1204174

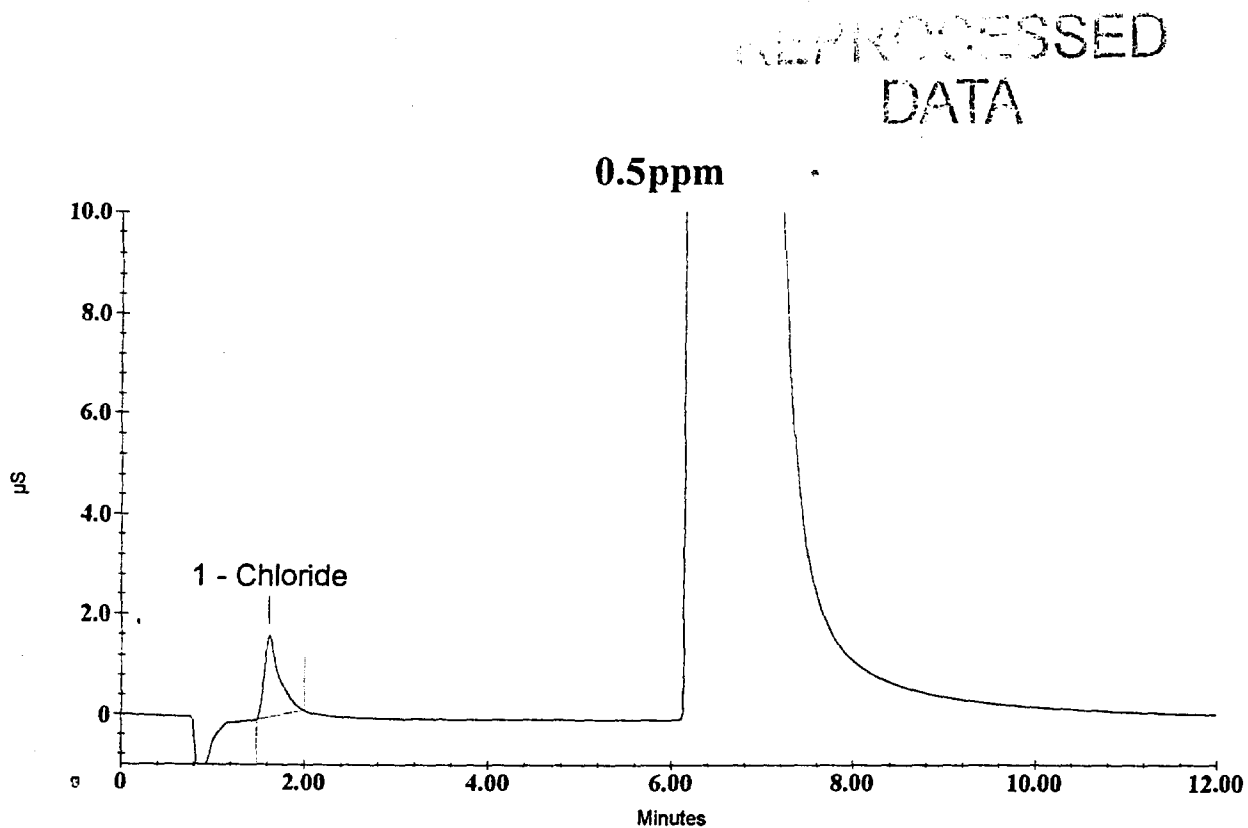


per 7/2/99
 EXACT COPY OF
 RAW DATA

Data File : ...\\05ppm_005.DXD
Sample Name : 0.5ppm
Inject # : 5
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 7:25:22 AM
Updated : 7/2/99 9:11:59 AM
Calibrated : 7/2/99 9:10:19 AM
Operator : rp

Peak Information : All Peaks					
Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.500	184252	16126



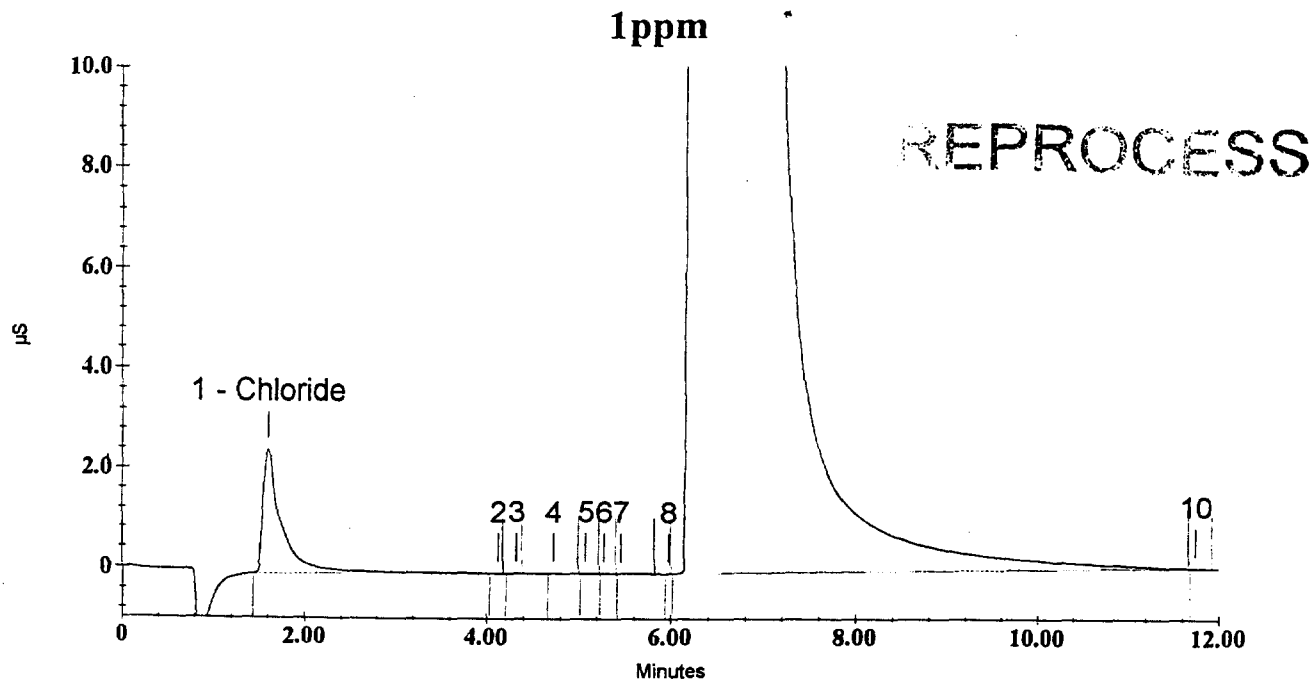
7/29/99
EXACT COPY OF
RAW DATA

Data File : ...1ppm_006.DXD
 Sample Name : 1ppm
 Inject # : 6
 Method File : c:\peaknet\method\m26h2so4.met
 System Name : Instr. 830 DX500

Collected : 7/2/99 7:38:27 AM
 Updated : 7/2/99 7:50:29 AM
 Calibrated : 7/2/99 7:50:27 AM
 Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.000	344355	24620
2	4.13		0.000	1057	125
3	4.33		0.000	1165	127
4	4.73		0.000	2365	142
5	5.08		0.000	1140	108
6	5.28		0.000	941	101
7	5.47		0.000	1053	85
8	5.98		0.000	34	16
9	6.33		0.000	42272238	1164042
10	11.75		0.000	171	20



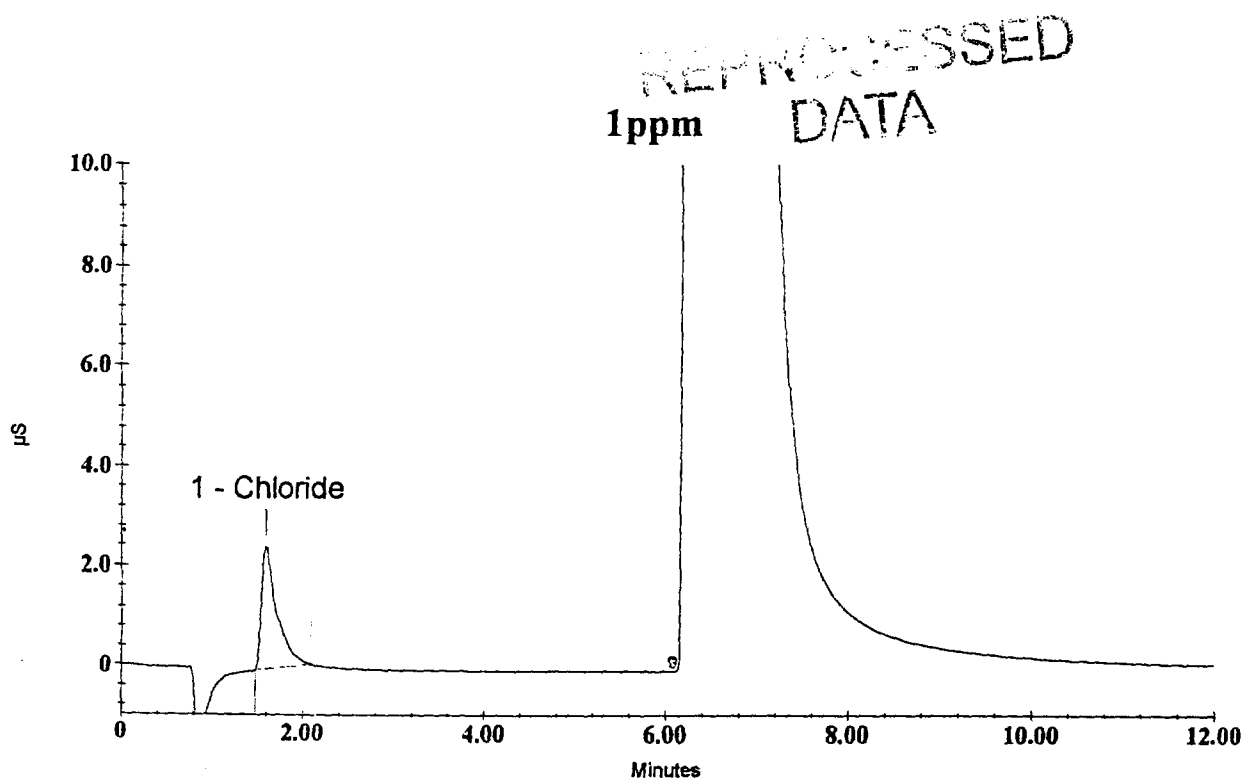
an/akn
 EXACT COPY OF
 RAW DATA

Data File : ...1ppm_006.DXD
Sample Name : 1ppm
Inject # : 6
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 7:38:27 AM
Updated : 7/2/99 9:10:12 AM
Calibrated : 7/2/99 9:05:08 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.000	288735	24153



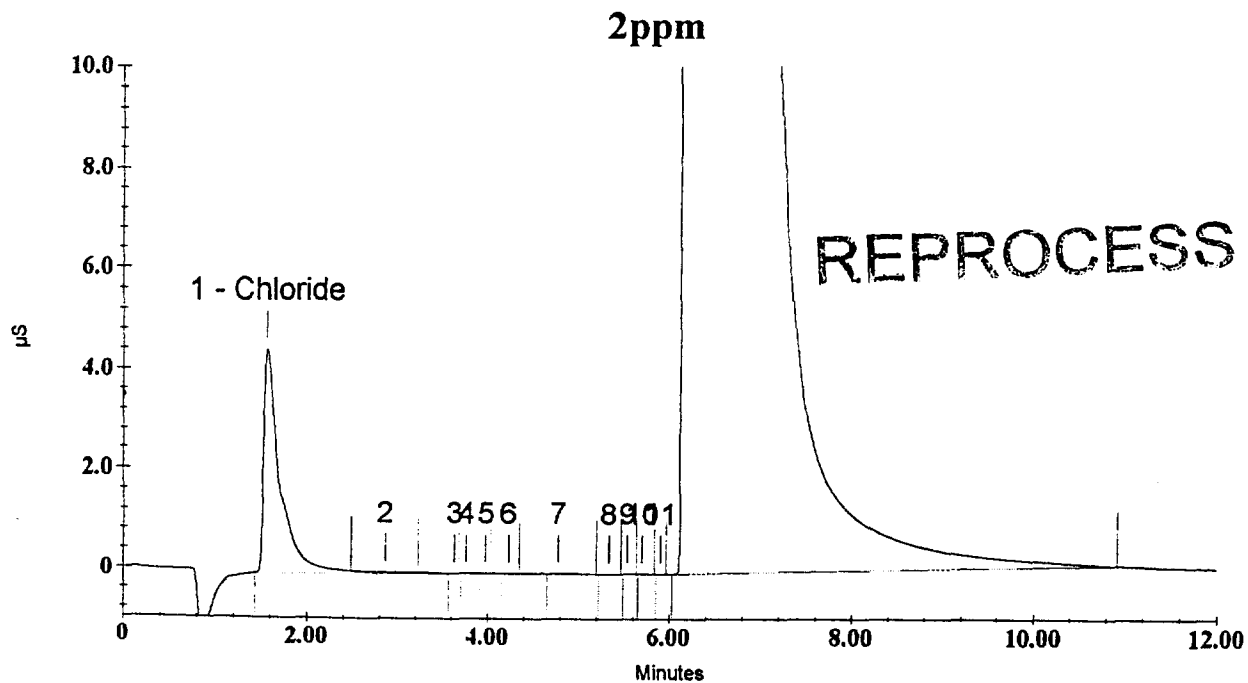
7/29/99
EXACT COPY OF
RAW DATA

Data File : ...2ppm_007.DXD
Sample Name : 2ppm
Inject # : 7
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 7:51:31 AM
Updated : 7/2/99 8:03:37 AM
Calibrated : 7/2/99 8:03:35 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	2.000	560899	44699
2	2.87		0.000	6159	262
3	3.63		0.000	1376	207
4	3.77		0.000	2172	206
5	3.98		0.000	1254	185
6	4.23		0.000	1895	180
7	4.78		0.000	3373	137
8	5.33		0.000	1034	81
9	5.53		0.000	446	56
10	5.70		0.000	486	67
11	5.90		0.000	107	24
12	6.30		0.000	45311128	1229389



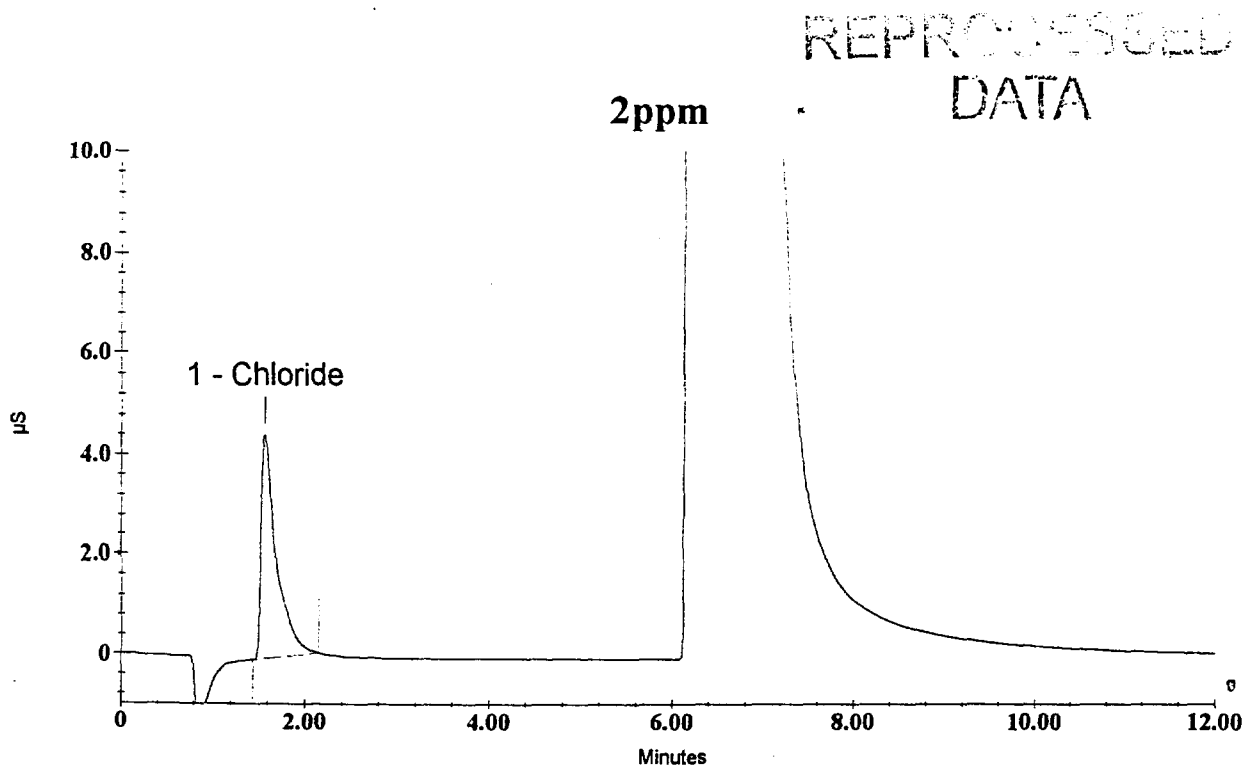
07/29/99
EXACT COPY OF
RAW DATA

Data File : ...2ppm_007.DXD
Sample Name : 2ppm
Inject # : 7
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 7:51:31 AM
Updated : 7/2/99 9:03:19 AM
Calibrated : 7/2/99 9:01:19 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	2.000	507524	44450



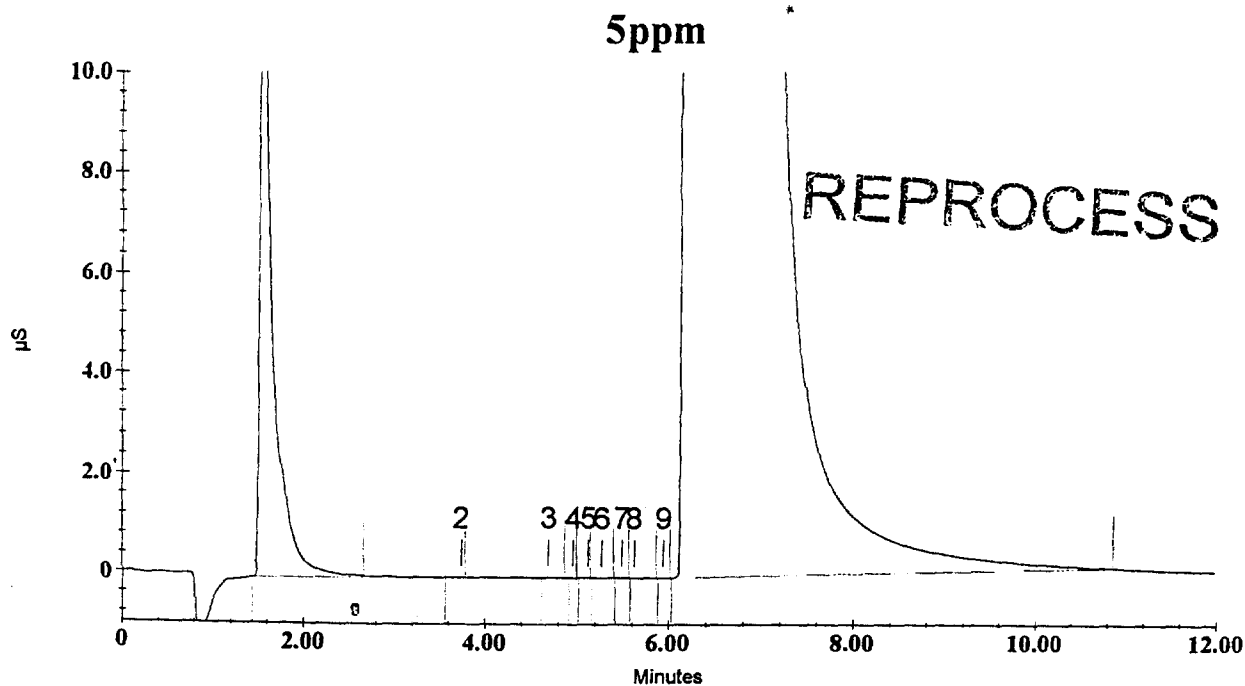
7/2/99
EXACT COPY OF
RAW DATA

Data File : ...\\5ppm_008.DXD
Sample Name : 5ppm
Inject # : 8
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 8:04:35 AM
Updated : 7/2/99 8:16:41 AM
Calibrated : 7/2/99 8:16:40 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	5.000	1284110	138509
2	3.75		0.000	1126	113
3	4.70		0.000	1202	114
4	4.97		0.000	214	54
5	5.13		0.000	365	76
6	5.28		0.000	1079	93
7	5.50		0.000	504	70
8	5.63		0.000	570	79
9	5.95		0.000	145	38
10	6.30		0.000	47586818	1270995



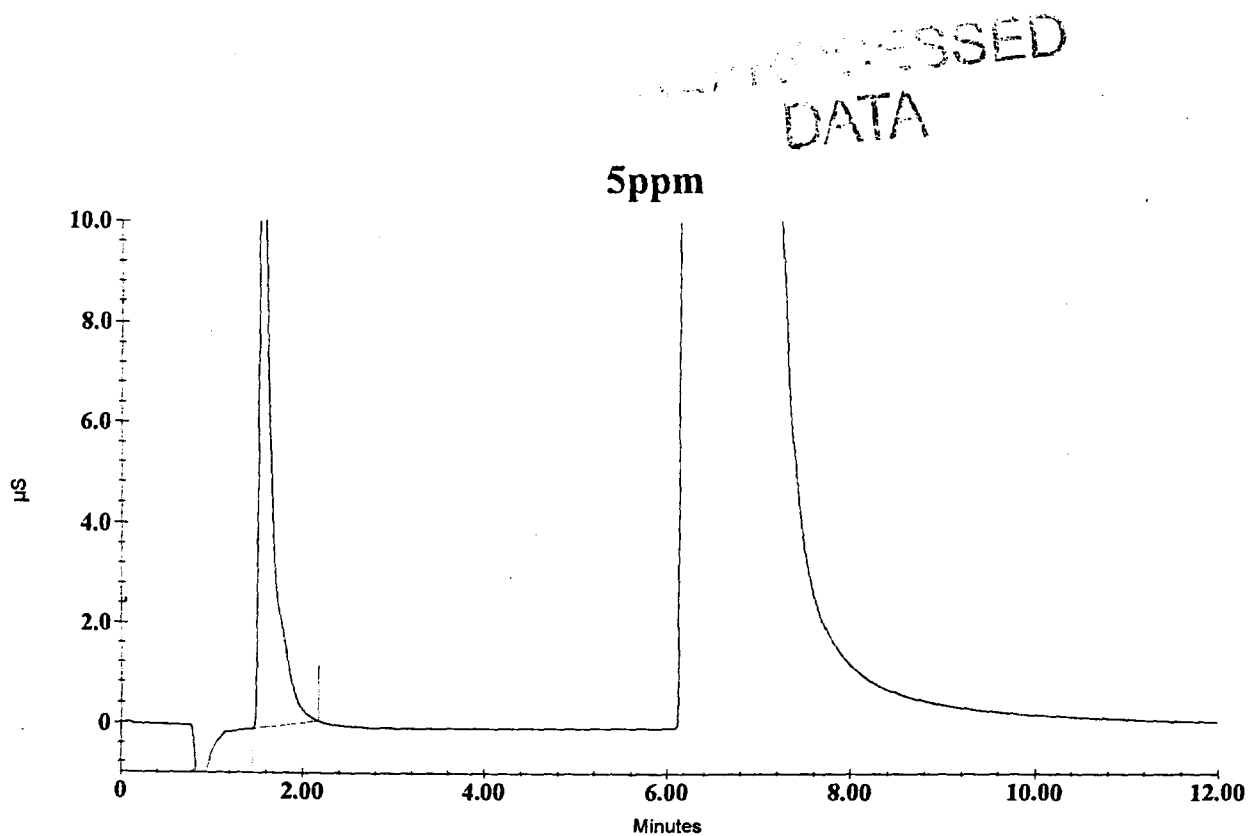
7/29/99
EXACT COPY OF
RAW DATA

Data File : ...5ppm_008.DXD
Sample Name : 5ppm
Inject # : 8
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 8:04:35 AM
Updated : 7/2/99 9:13:46 AM
Calibrated : 7/2/99 9:12:05 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	5.000	1225091	138293



07/29/99
EXACT COPY OF
RAW DATA

Data File : ...\\blk_009.DXD
Sample Name : a-0000
Inject # : 9
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 8:17:39 AM
Updated : 7/2/99 8:29:42 AM
Calibrated : 7/2/99 8:16:40 AM
Operator : rp

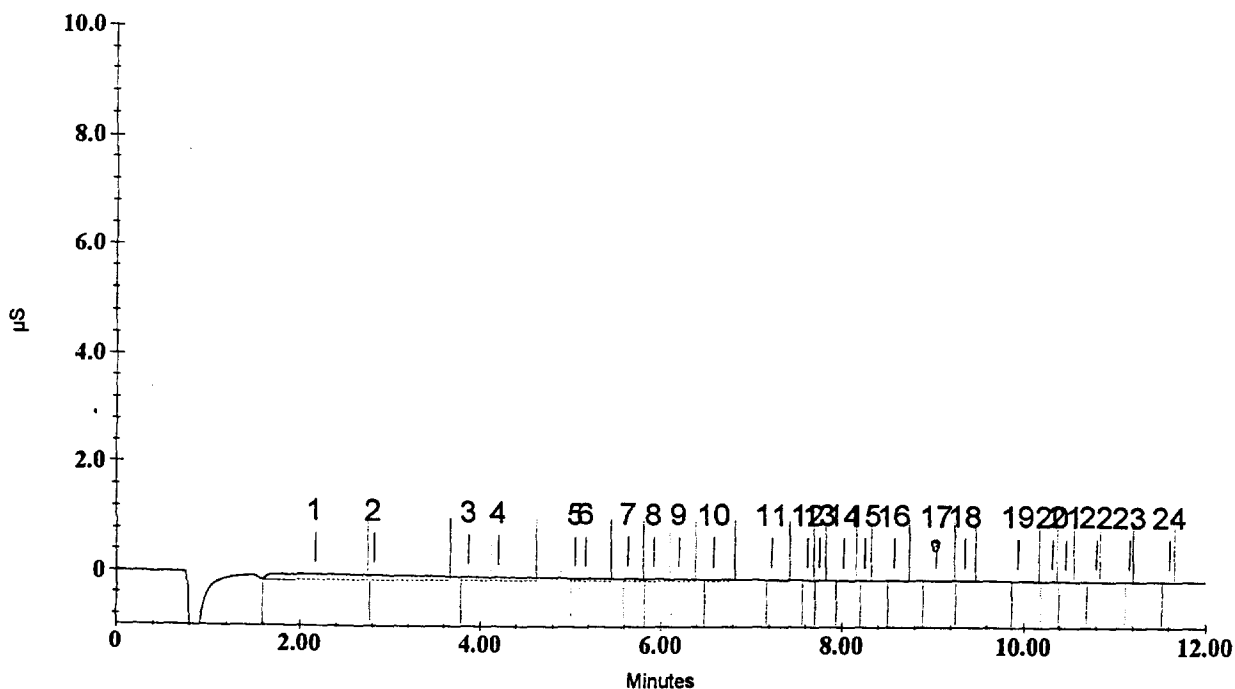
Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	2.17		0.000	67624	1049

REPROCESS

a-0000

*with averaged curve
up 7/6/99*



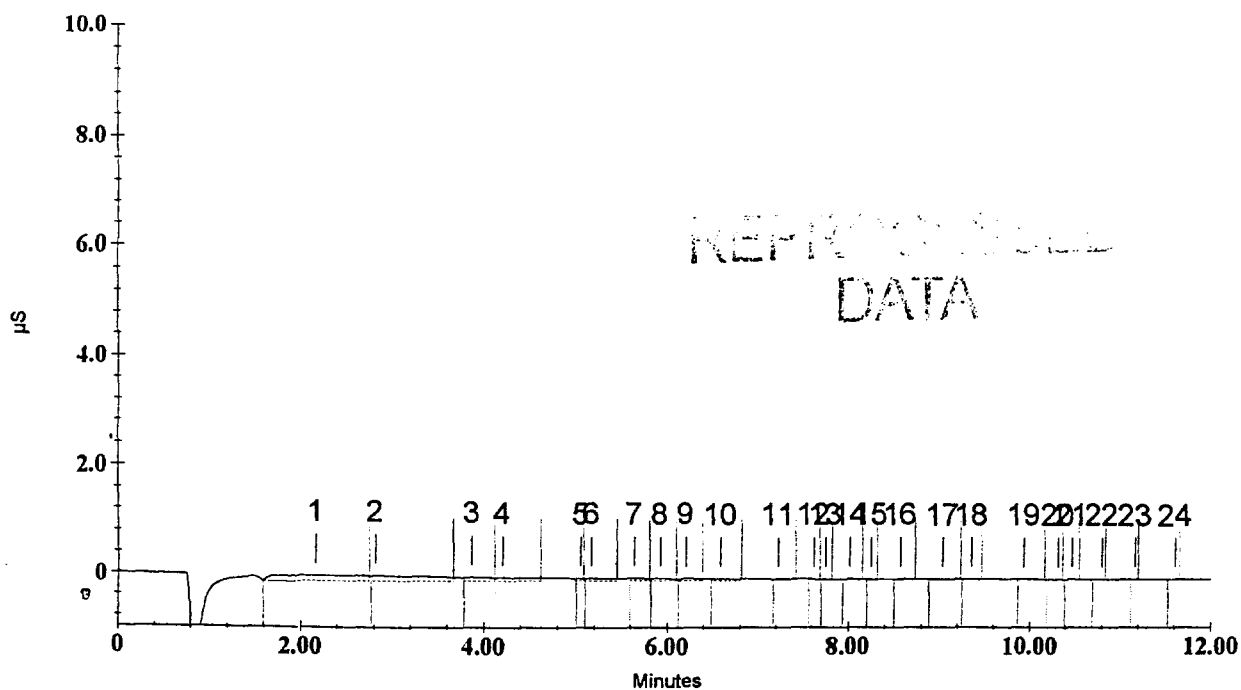
07/29/99
EXACT COPY OF
RAW DATA

Data File : ...\\BLK_009.DXD
Sample Name : a-0000
Inject # : 9
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 8:17:39 AM
Updated : 7/6/99 10:37:35 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	2.17		0.000	67624	1049

a-0000



07/29/99
EXACT COPY OF
RAW DATA

Data File : ...ics_010.DXD

Sample Name : ics

Inject # : 10

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 8:30:42 AM

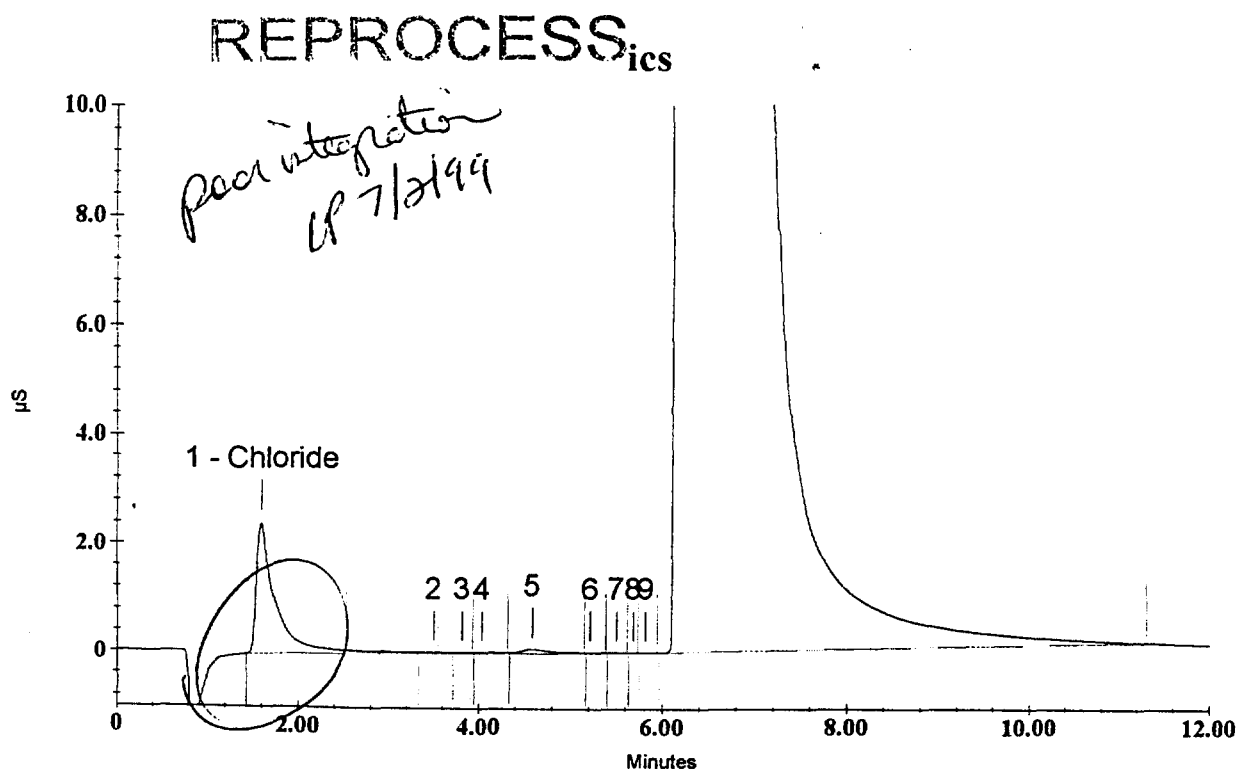
Updated : 7/2/99 8:42:49 AM

Calibrated : 7/2/99 8:16:40 AM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.990	350898	24216



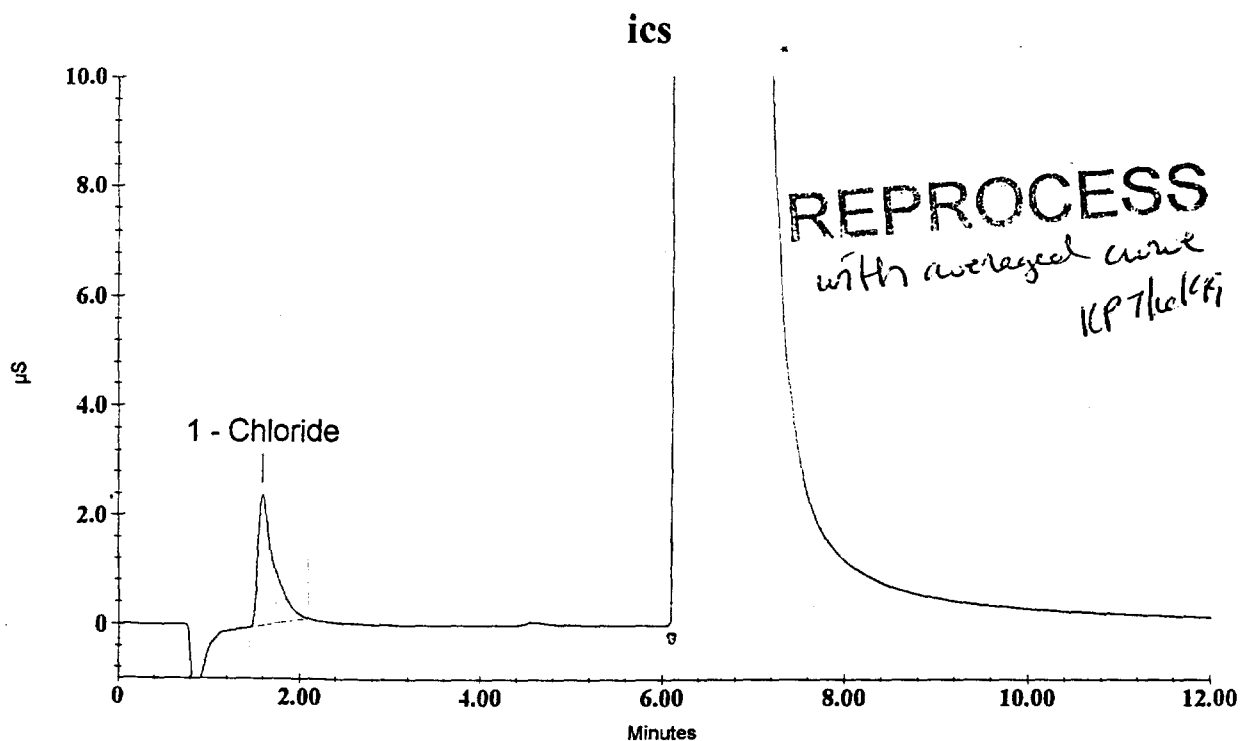
ac 7/2/99
EXACT COPY OF
RAW DATA

Data File : ...ics_010.DXD
Sample Name : ics
Inject # : 10
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 8:30:42 AM
Updated : 7/2/99 9:22:41 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.001	289757	23809

REPROCESSED
DATA



07/29/99
EXACT COPY OF
RAW DATA

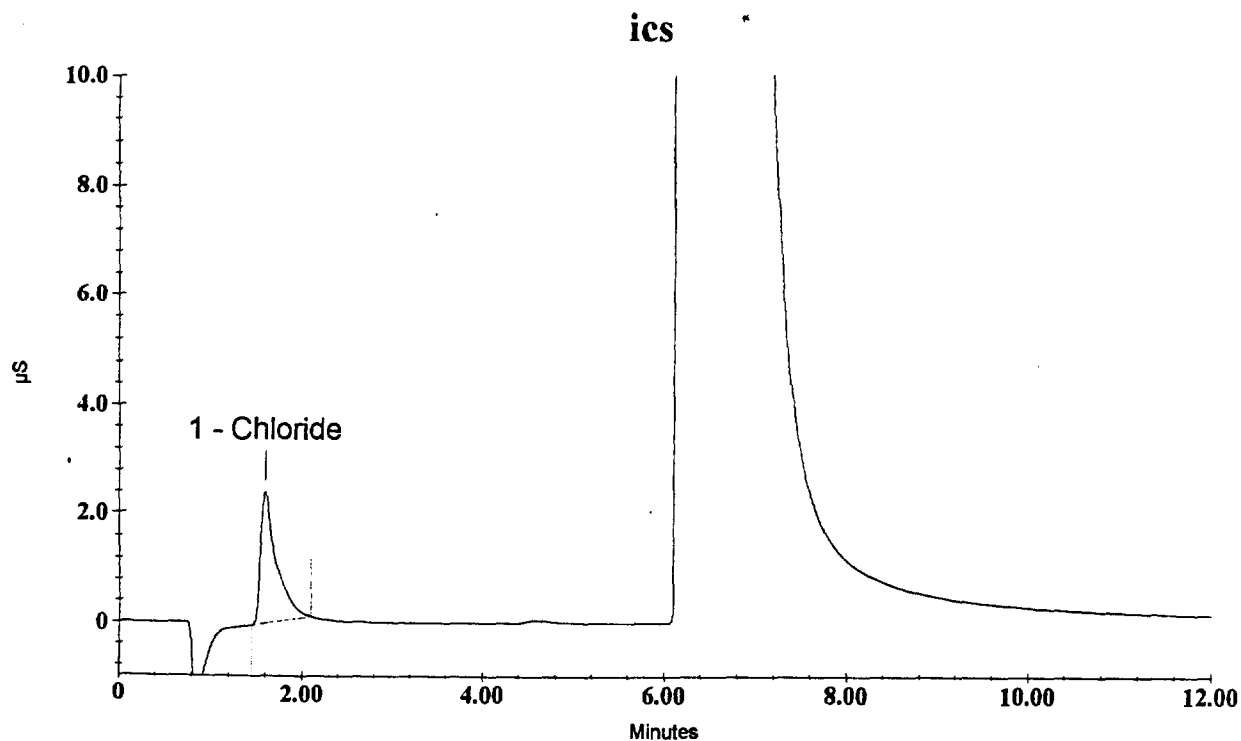
Data File : ...VCS_010.DXD
Sample Name : ics
Inject # : 10
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 8:30:42 AM
Updated : 7/6/99 9:39:06 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.000	289757	2380

REPROCESSED
DATA



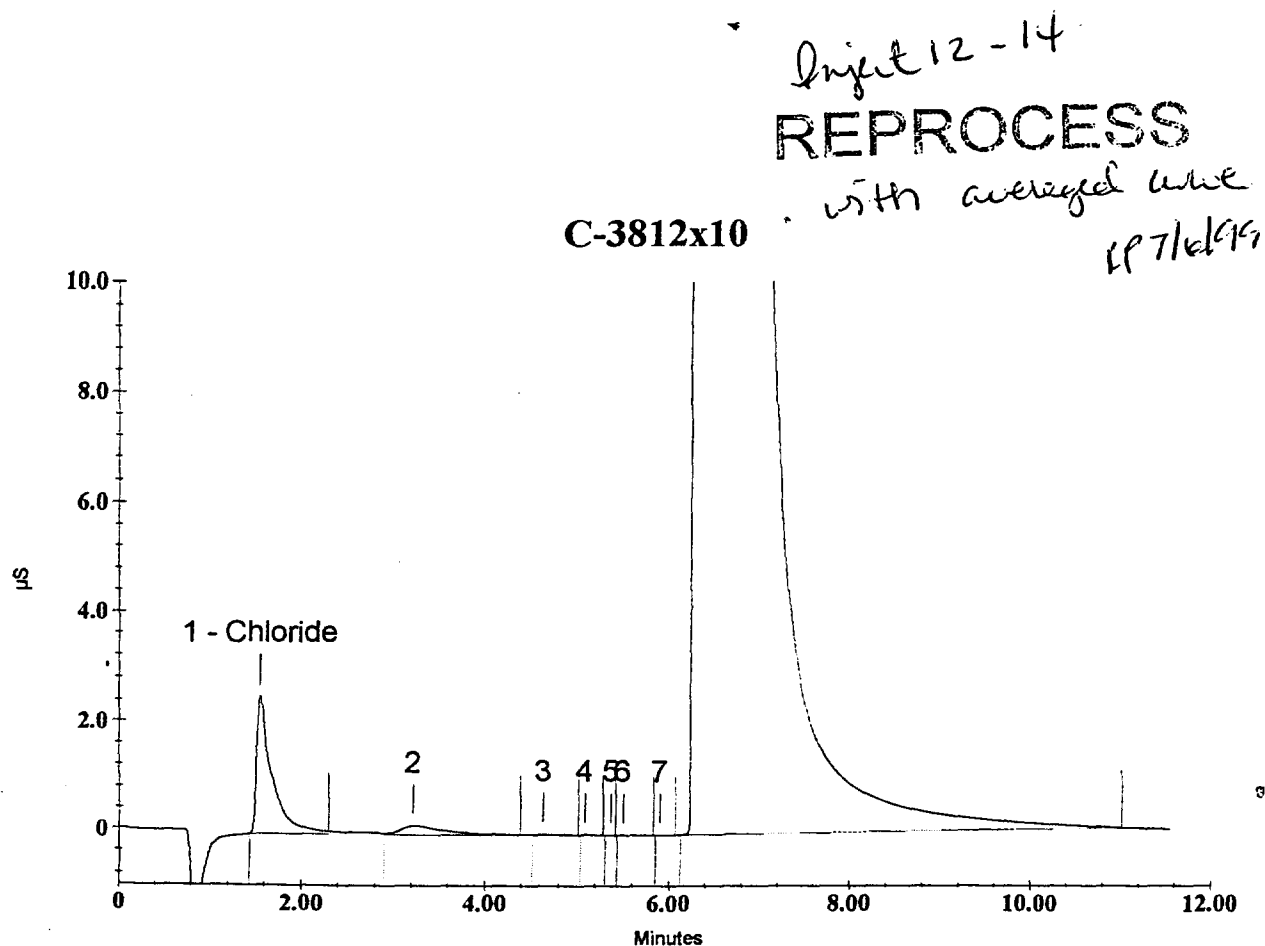
ae 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3812_012.DXD
Sample Name : C-3812x10
Inject # : 12
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 9:58:51 AM
Updated : 7/2/99 9:58:53 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.047	300618	25207



18 7/29/99
**EXACT COPY OF
RAW DATA**

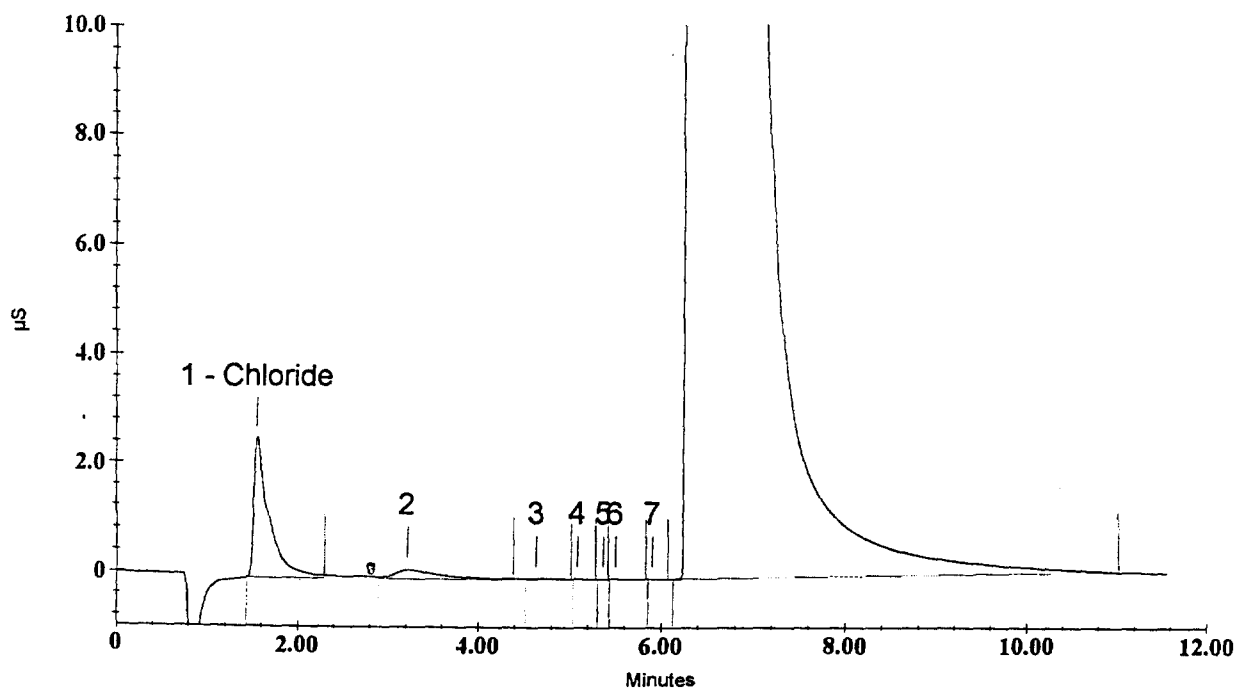
Data File : ...\\3812_012.DXD
Sample Name : C-3812x10
Inject # : 12
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 9:58:51 AM
Updated : 7/6/99 9:43:55 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Heigh
1	1.55	Chloride	1.046	300618	25207

REPROCESSED
DATA

C-3812x10 *



01/29/99
EXACT COPY OF
RAW DATA

Data File : ...\\3806_013.DXD
Sample Name : C-3806x100
Inject # : 13
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

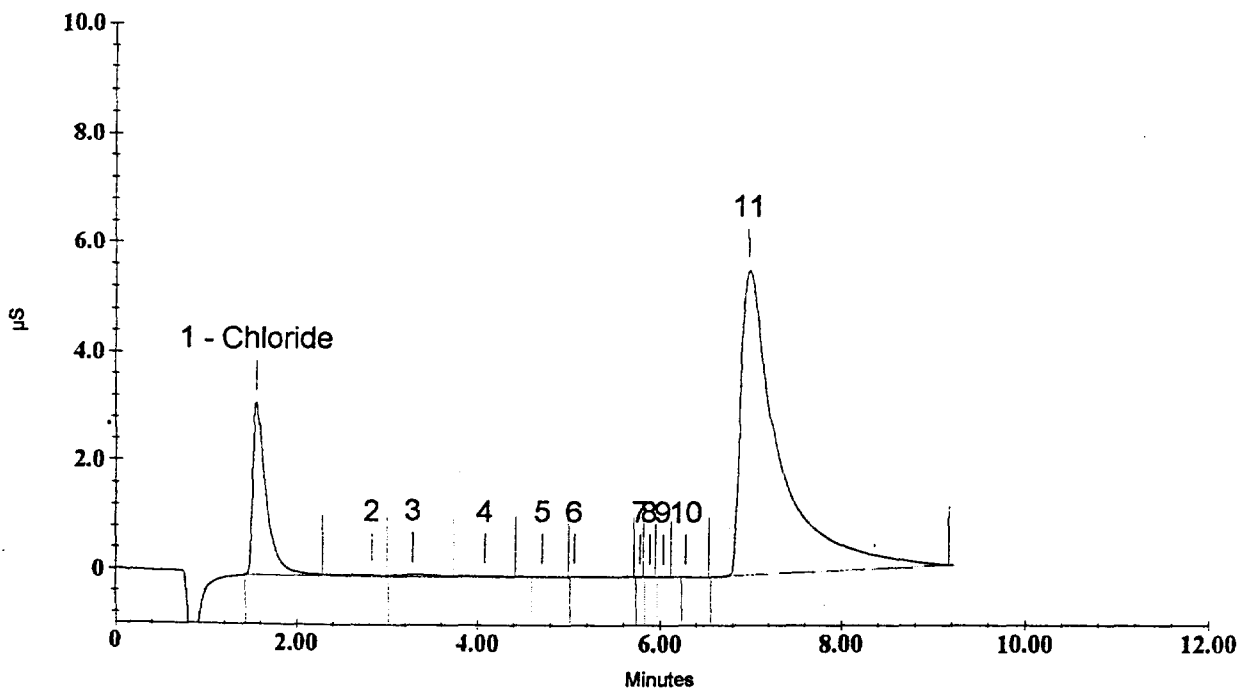
Collected : 7/2/99 10:09:08 AM
Updated : 7/2/99 10:09:09 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.144	323212	31610

REPROCESS

C-3806x100



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EXACT COPY OF
RAW DATA

Sample Name : C-3806x100
Inject # : 13
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

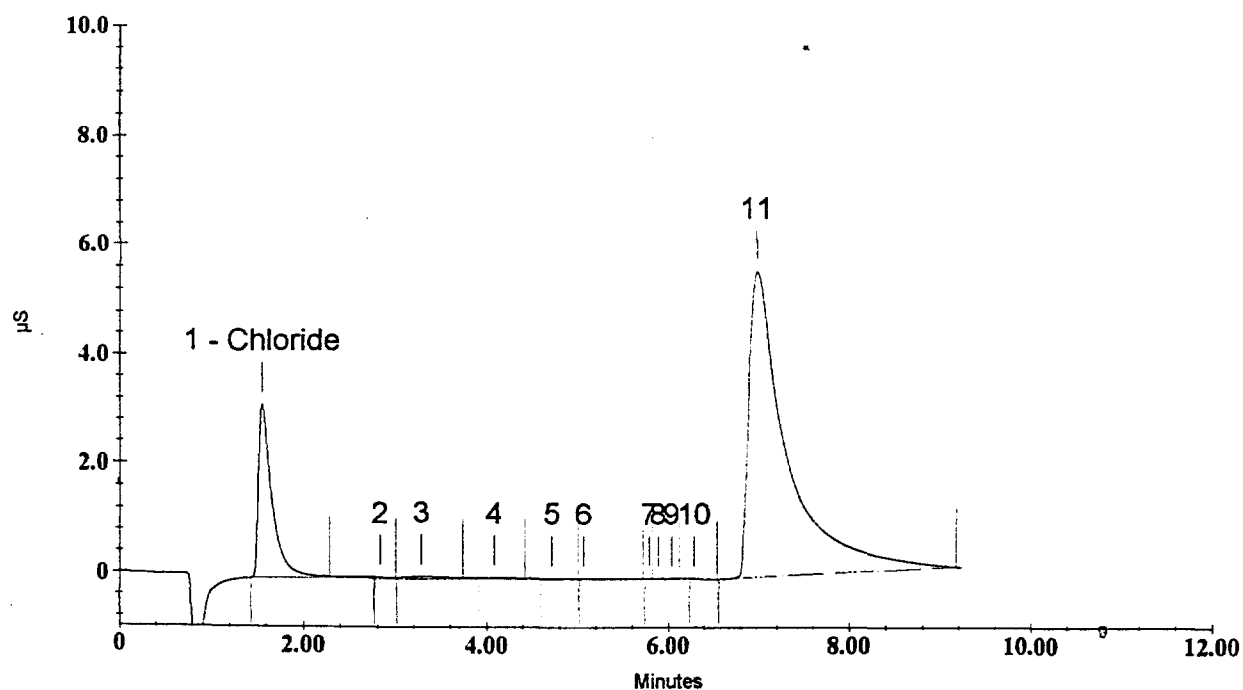
Updated : 7/6/99 9:45:54 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.142	323212	31610

REPROCESSED
DATA

C-3806x100



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EXACT COPY OF
RAW DATA

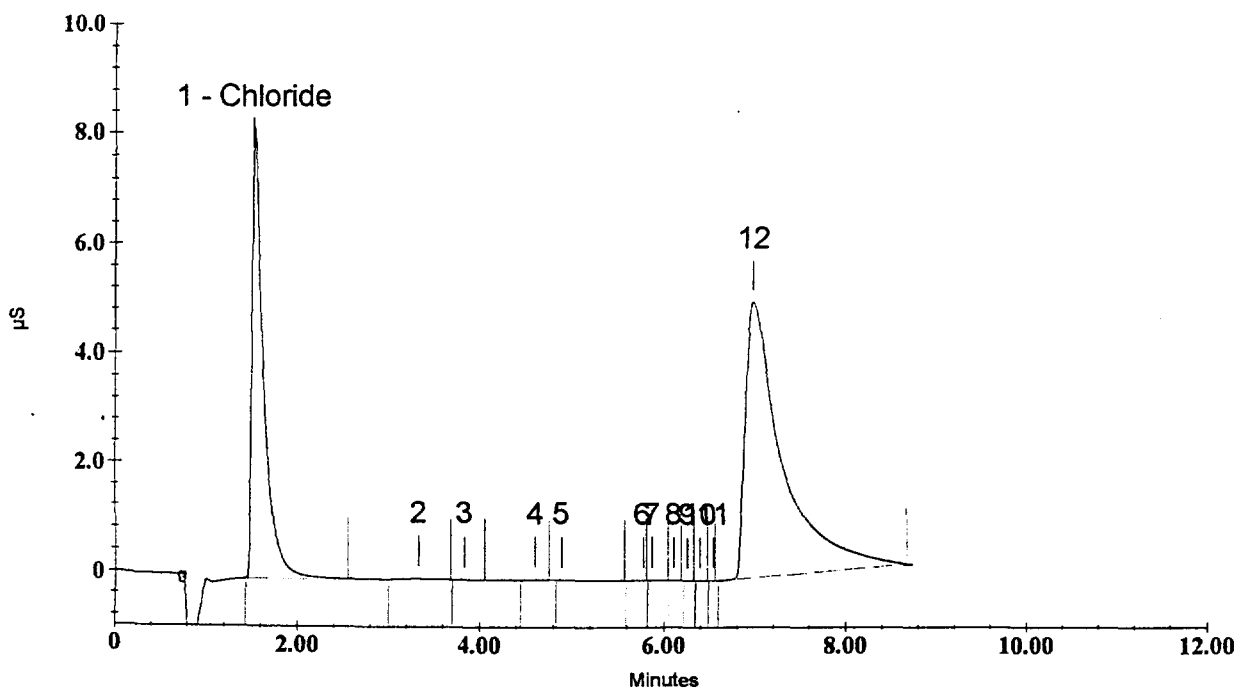
Data File : ...3810_014.DXD
Sample Name : C-3810x100
Inject # : 14
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 10:18:59 AM
Updated : 7/2/99 10:19:00 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.843	718565	76195

REPROCESS

C-3810x100



ae 7/29/99
EXACT COPY OF
RAW DATA

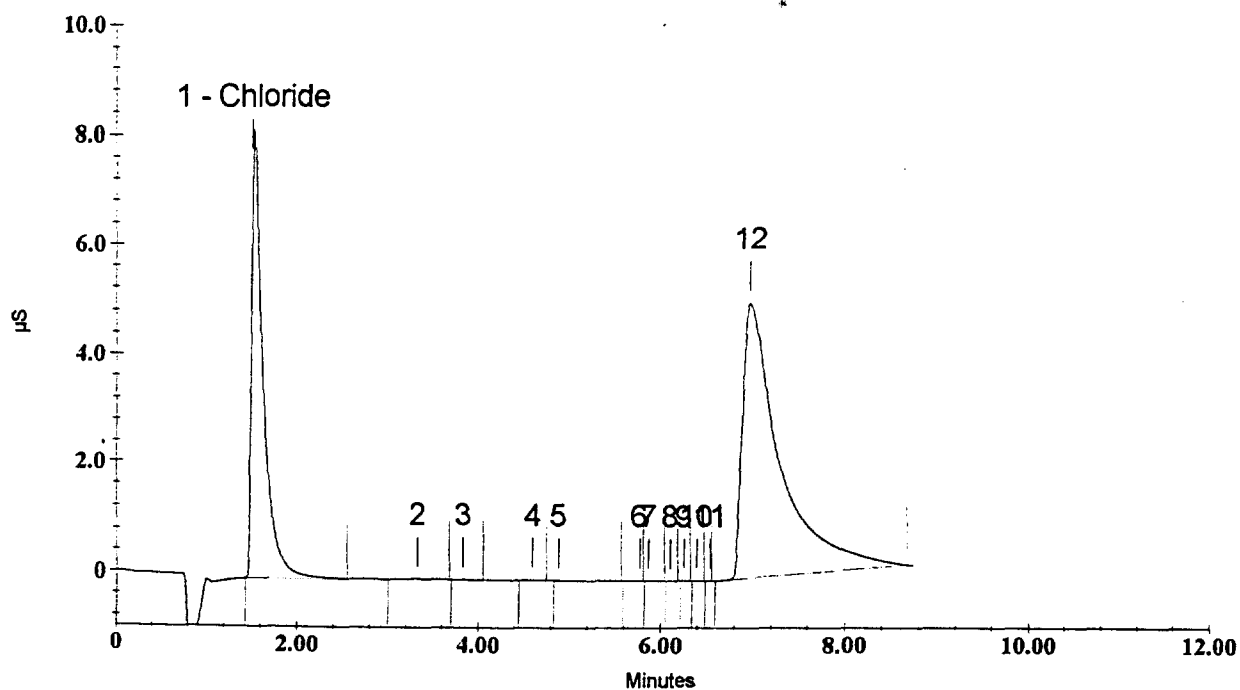
Data File : ...3810_014.DXD
Sample Name : C-3810x100
Inject # : 14
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 10:18:59 AM
Updated : 7/6/99 9:46:39 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.821	718565	76195

REPROCESSED
DATA

C-3810x100



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RAW DATA

Data File : ...3804_020.DXD
Sample Name : C-3804x25
Inject # : 20
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

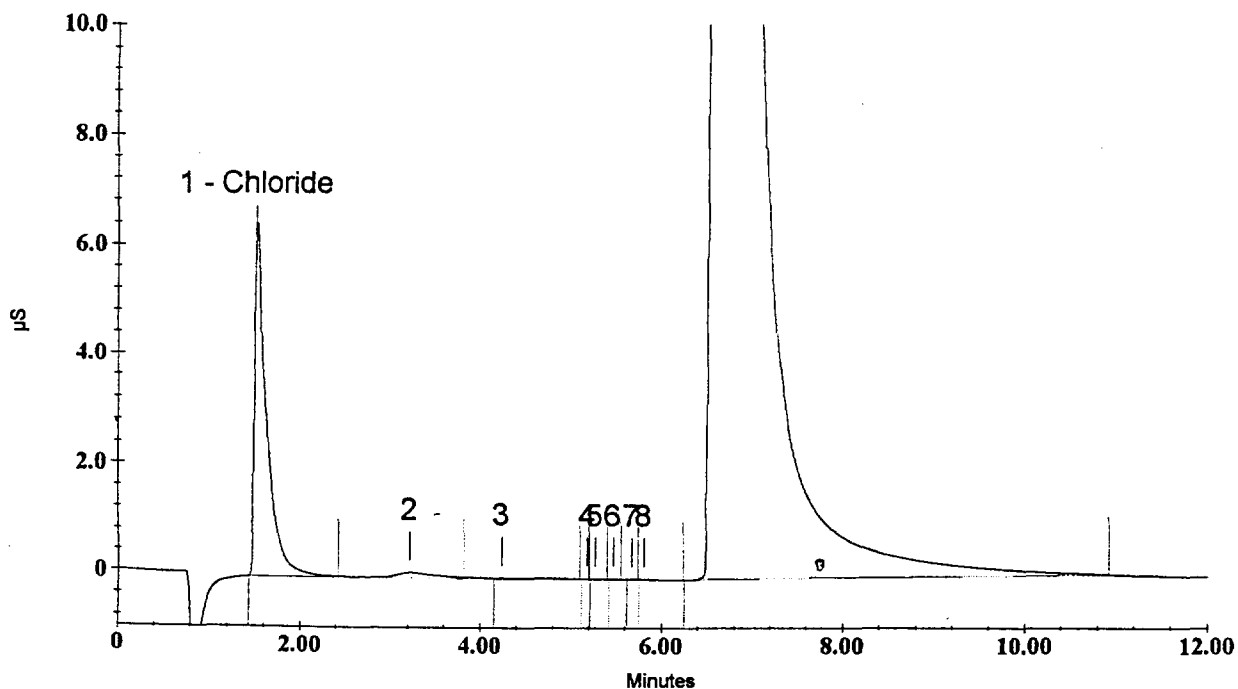
Collected : 7/2/99 11:23:51 AM
Updated : 7/2/99 11:35:56 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.301	592379	60078

Inj 2021
REPROCESS
with averaged curve
RP 7/2/99

C-3804x25



RP 7/2/99
**EXACT COPY OF
RAW DATA**

Data File : ...3804_020.DXD
Sample Name : C-3804x25
Inject # : 20
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

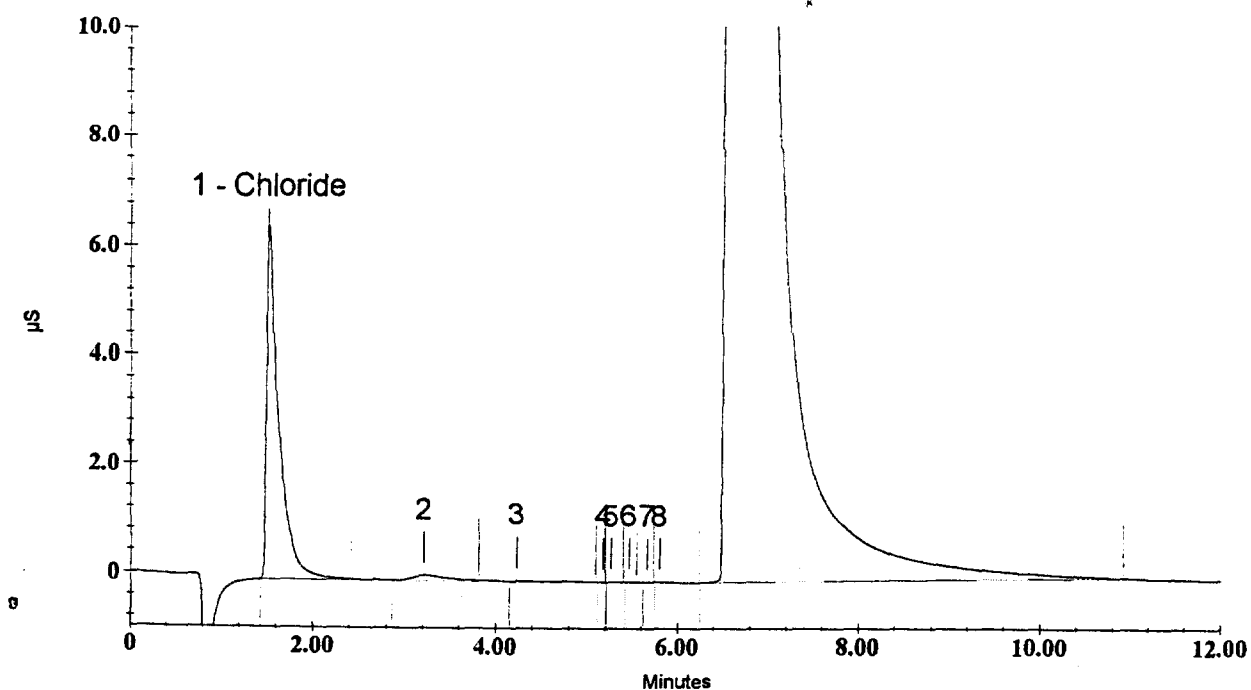
Collected : 7/2/99 11:23:51 AM
Updated : 7/6/99 9:48:08 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.285	592379	60078

REPROCESSED
DATA

C-3804x25



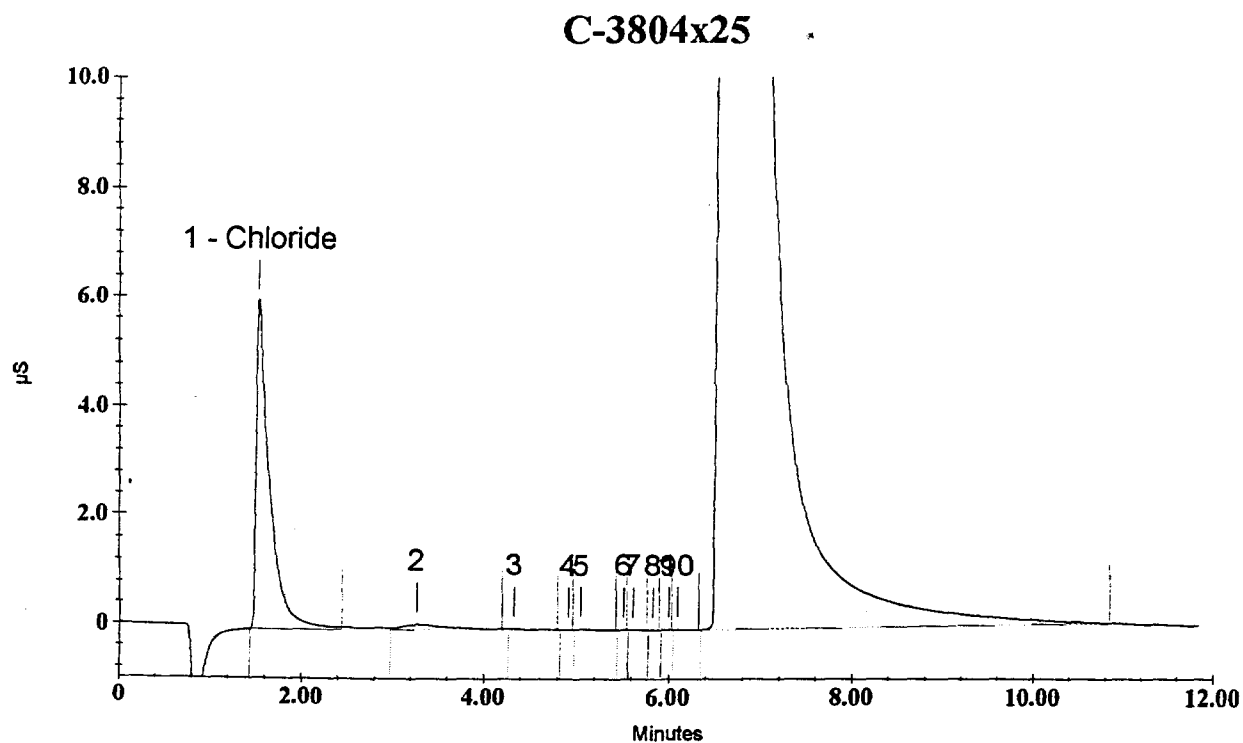
7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3804_021.DXD
Sample Name : C-3804x25
Inject # : 21
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 11:48:51 AM
Updated : 7/2/99 11:48:53 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	2.342	601847	59557

REPROCESS



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RAW DATA

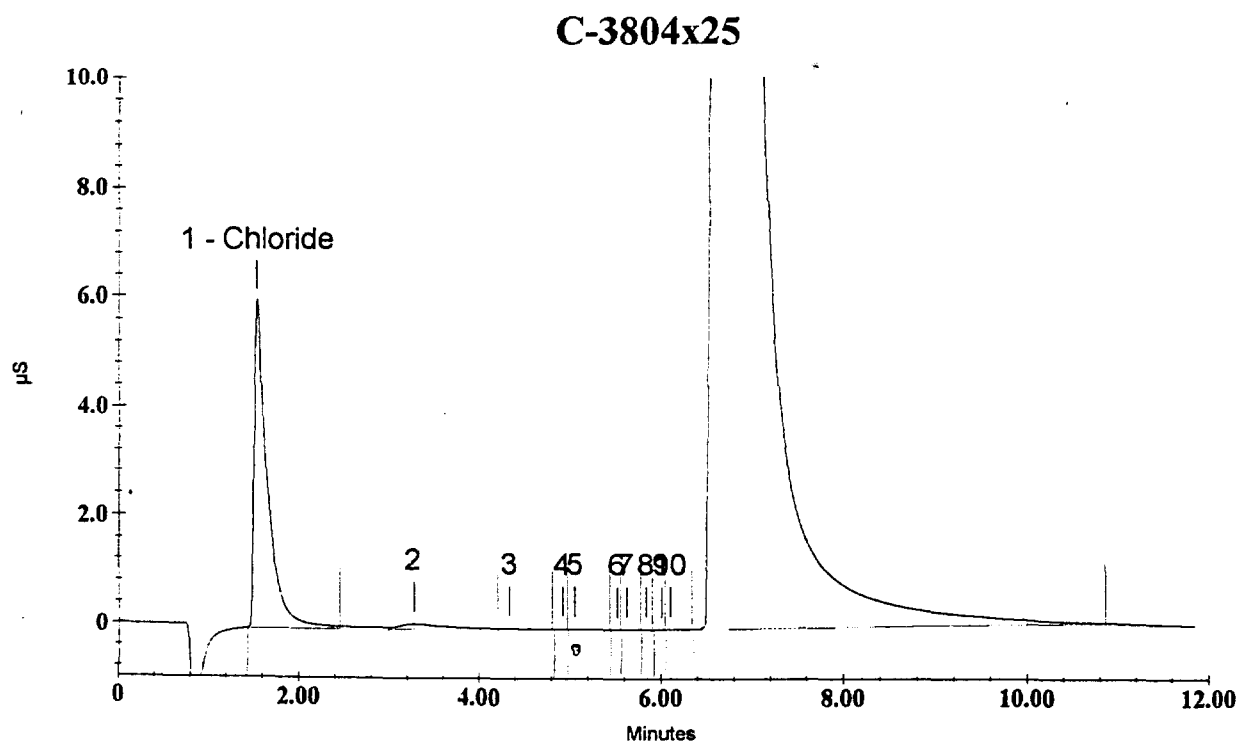
Data File : ...\\3804_021.DXD
Sample Name : C-3804x25
Inject # : 21
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 11:48:51 AM
Updated : 7/6/99 9:48:22 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	2.325	601847	59557

REPROCESSED
DATA



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EXACT COPY OF
RAW DATA

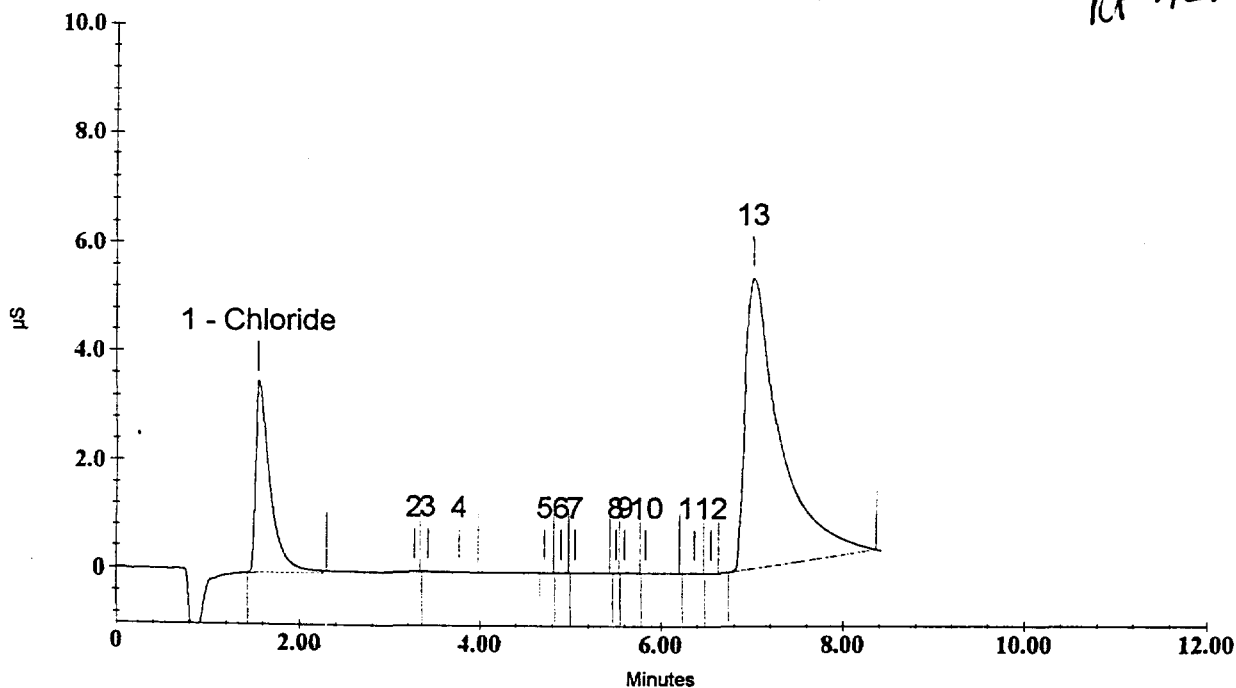
Data File : ...3805_023.DXD
Sample Name : C-3805x100
Inject # : 23
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 12:02:14 PM
Updated : 7/2/99 12:02:15 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.457	395902	34498

- Inject 23 - 28
REPROCESS
with averaged curve
C-3805x100
RP 7/6/99



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**EXACT COPY OF
RAW DATA**

Data File : ...3805_023.DXD

Sample Name : C-3805x100

Inject # : 23

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 12:02:14 PM

Updated : 7/6/99 9:49:28 AM

Calibrated : 7/6/99 9:30:09 AM

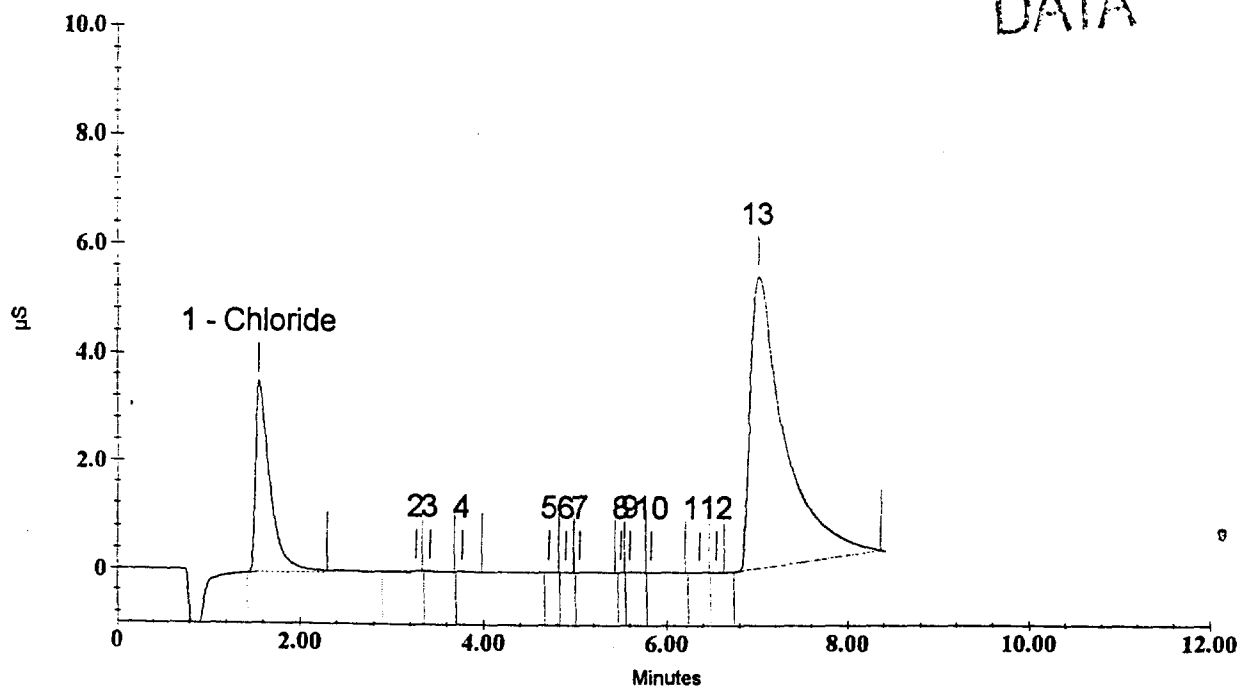
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.451	395902	34498

C-3805x100

REPROCESSED
DATA



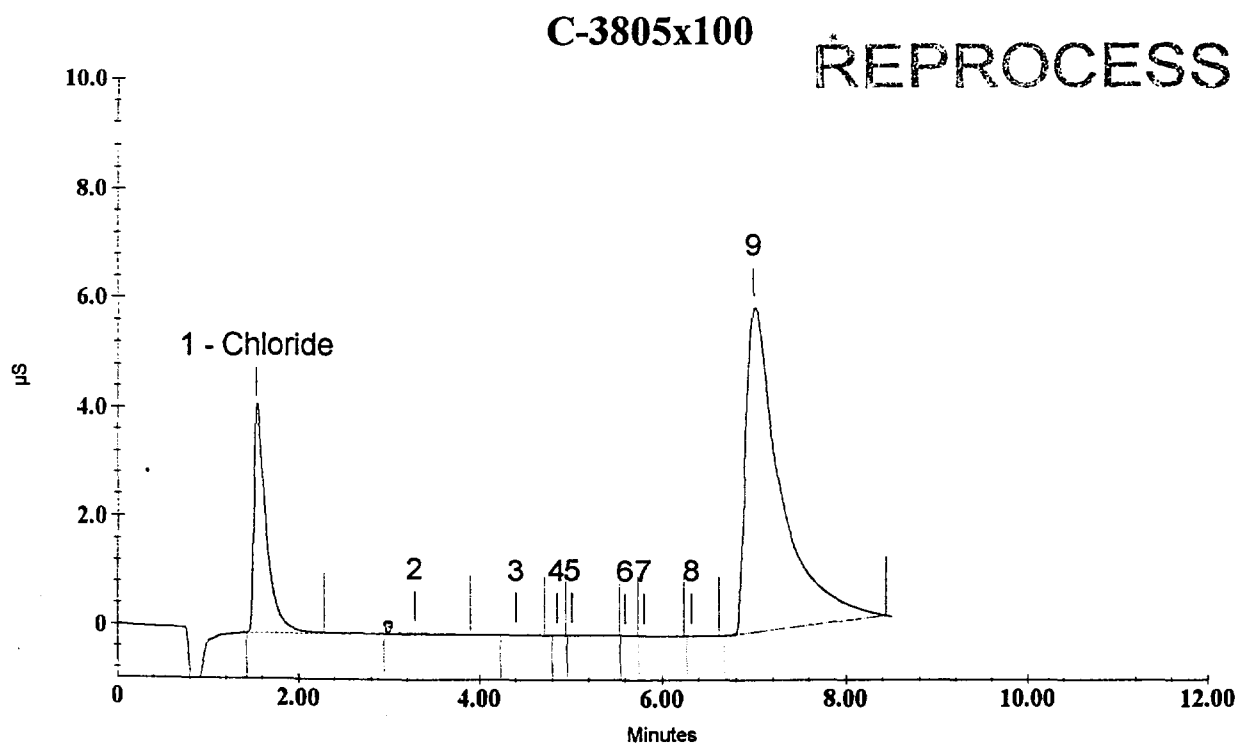
OK 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3805_024.DXD
Sample Name : C-3805x100
Inject # : 24
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 12:11:58 PM
Updated : 7/2/99 12:11:59 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.446	393415	40966



EXACT COPY OF
RAW DATA

7/2/99

Data File : ...3805_024.DXD
Sample Name : C-3805x100
Inject # : 24
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

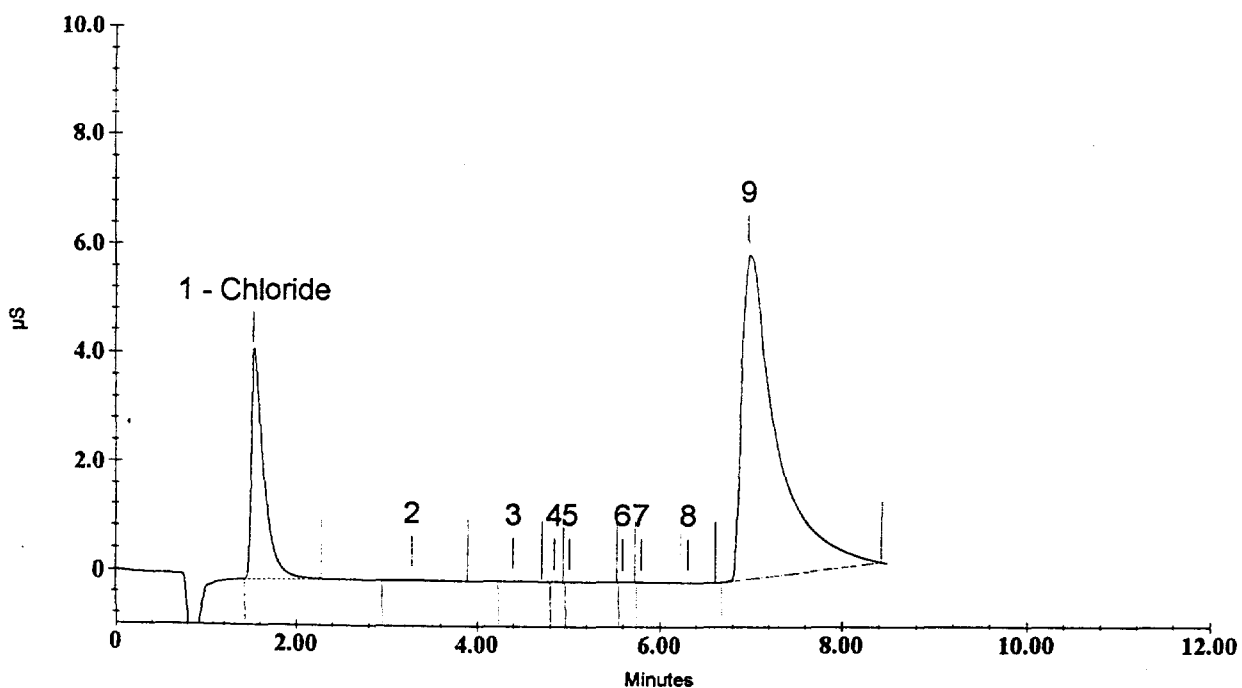
Collected : 7/2/99 12:11:58 PM
Updated : 7/6/99 9:49:43 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.440	393415	40966

REPROCESSED
DATA

C-3805x100



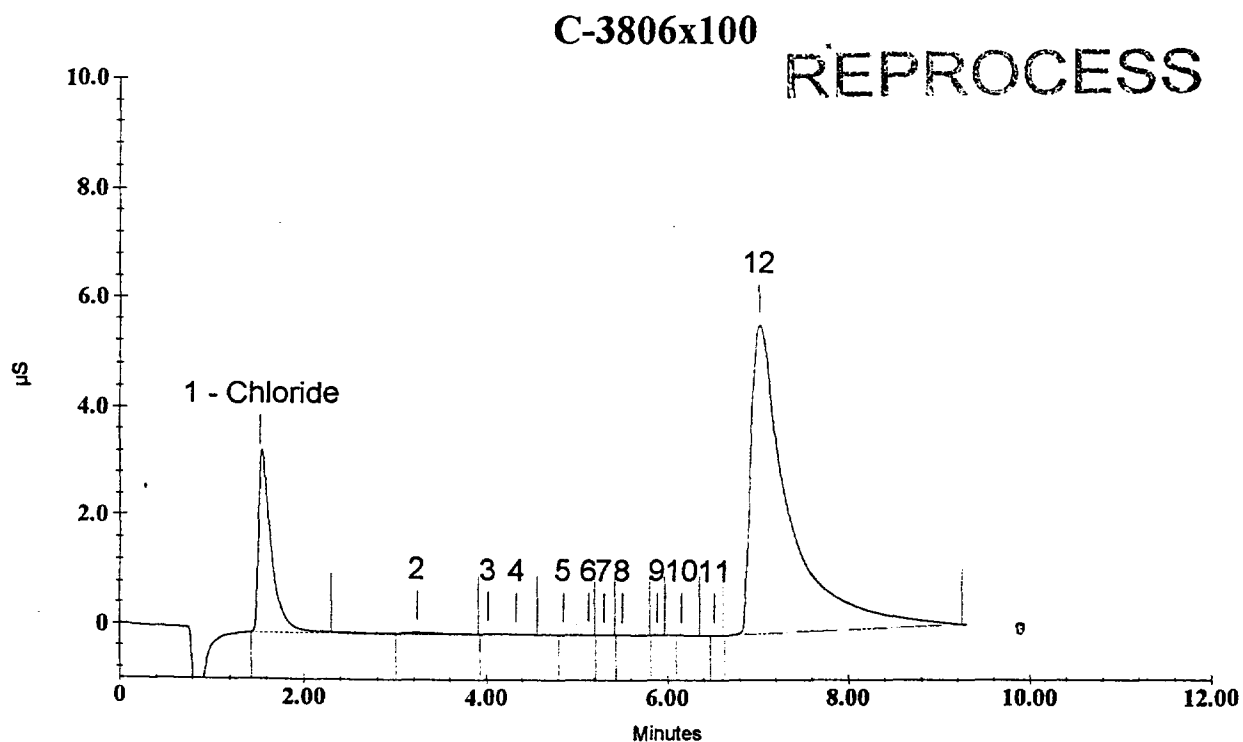
EXACT COPY OF
RAW DATA

Data File : ...\\3806_025.DXD
Sample Name : C-3806x100
Inject # : 25
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 12:22:20 PM
Updated : 7/2/99 12:22:22 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.129	319582	32163



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RAW DATA

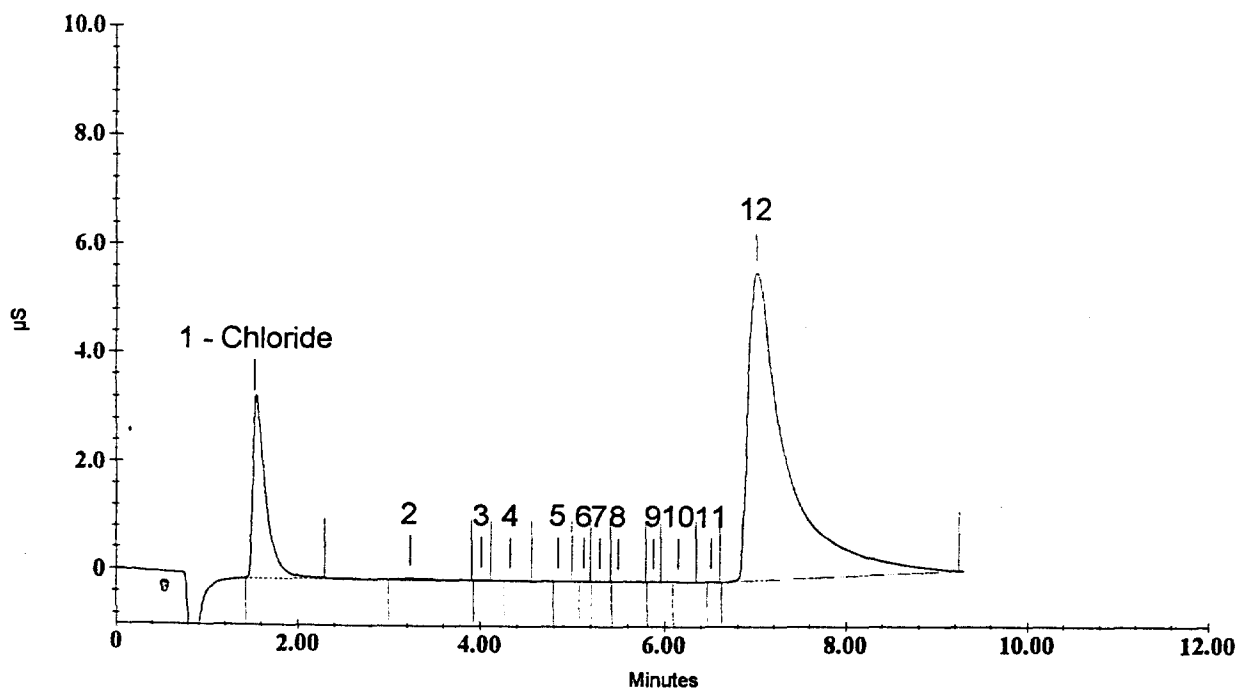
Data File : ...3806_025.DXD
Sample Name : C-3806x100
Inject # : 25
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 12:22:20 PM
Updated : 7/6/99 9:50:48 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.127	319582	32163

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DATA

C-3806x100



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RAW DATA

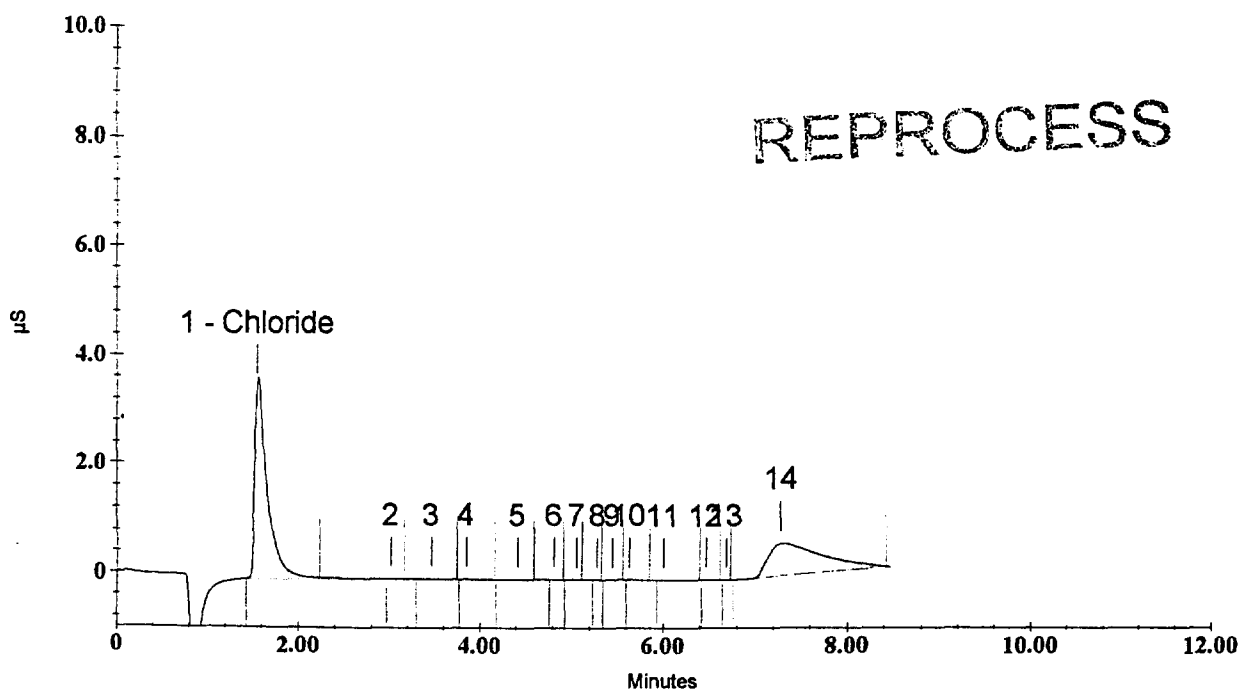
Data File : ...\\3807_026.DXD
Sample Name : C-3807x250
Inject # : 26
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 12:32:02 PM
Updated : 7/2/99 12:32:03 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.240	345461	35179

C-3807x250



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RAW DATA

Data File : ...\\3807_026.DXD
Sample Name : C-3807x250
Inject # : 26
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

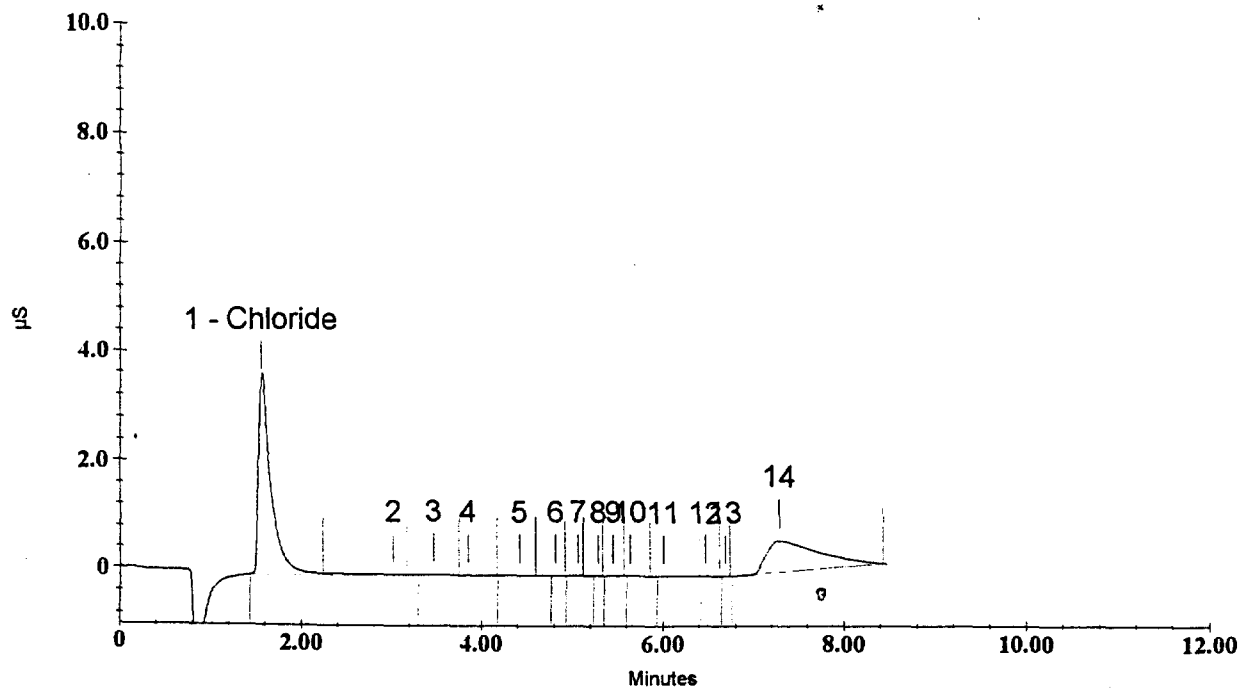
Collected : 7/2/99 12:32:02 PM
Updated : 7/6/99 9:51:02 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.237	345461	35179

REPROCESSED
DATA

C-3807x250



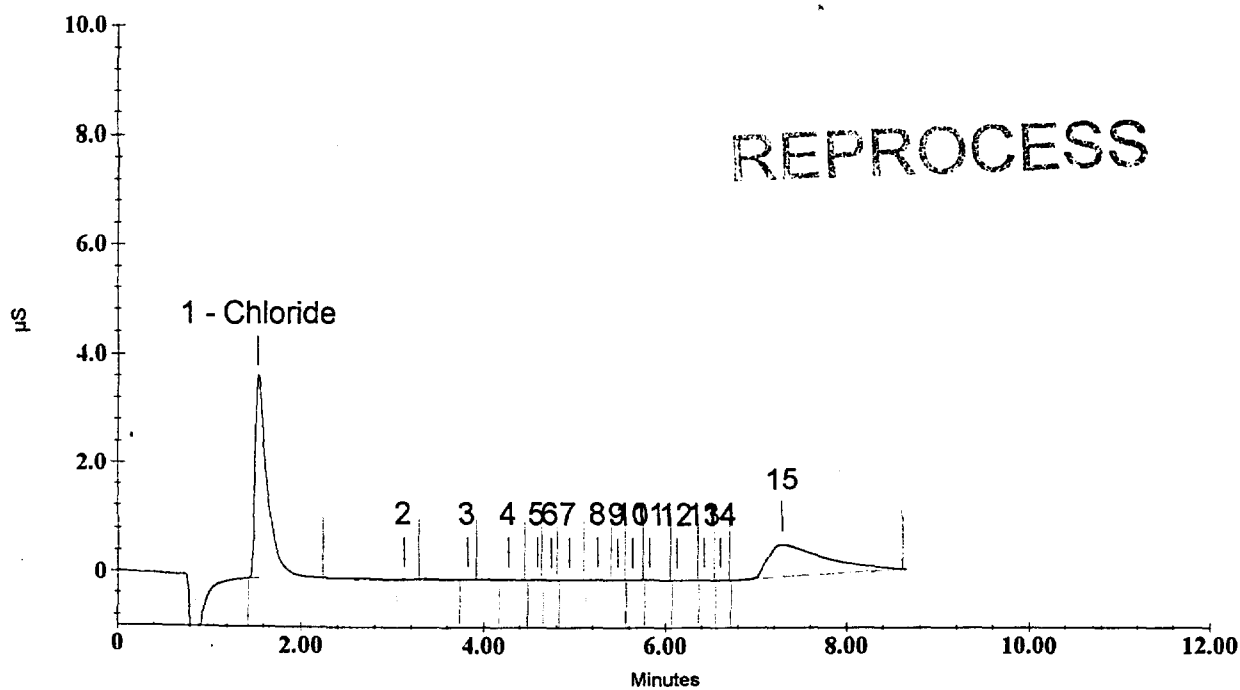
ae 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3807_027.DXD
Sample Name : C-3807x250
Inject # : 27
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 12:41:43 PM
Updated : 7/2/99 12:41:44 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.239	345231	36618

C-3807x250



9/7/99
EXACT COPY OF
RAW DATA

Data File : ...3807_027.DXD
Sample Name : C-3807x250
Inject # : 27
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

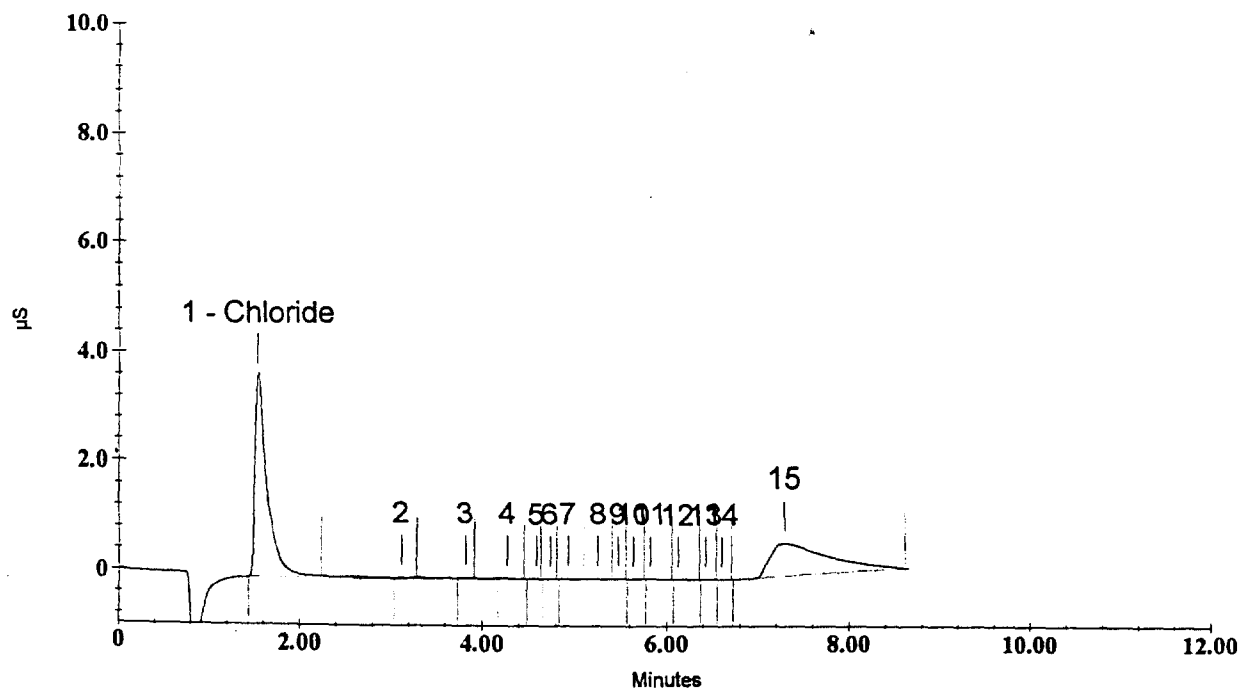
Collected : 7/2/99 12:41:43 PM
Updated : 7/6/99 9:51:16 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.236	345231	36618

REPROCESSED
DATA

C-3807x250



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EXACT COPY OF
RAW DATA

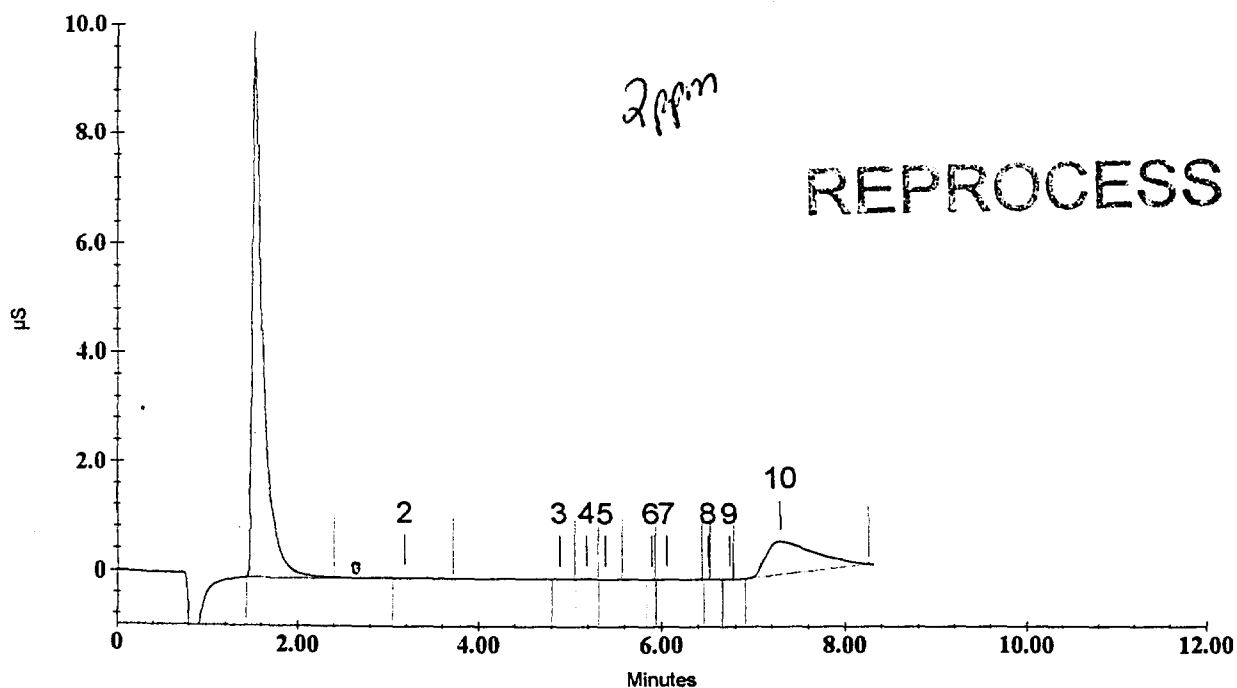
Data File : ...3807s_028.DXD
Sample Name : C-3807x250spike
Inject # : 28
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 12:51:09 PM
Updated : 7/2/99 12:51:11 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.072	771836	91809

C-3807x250spike



6/27/99
EXACT COPY OF
RAW DATA

Data File : ...3807S_~1.DXD
Sample Name : C-3807x250spike
Inject # : 28
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

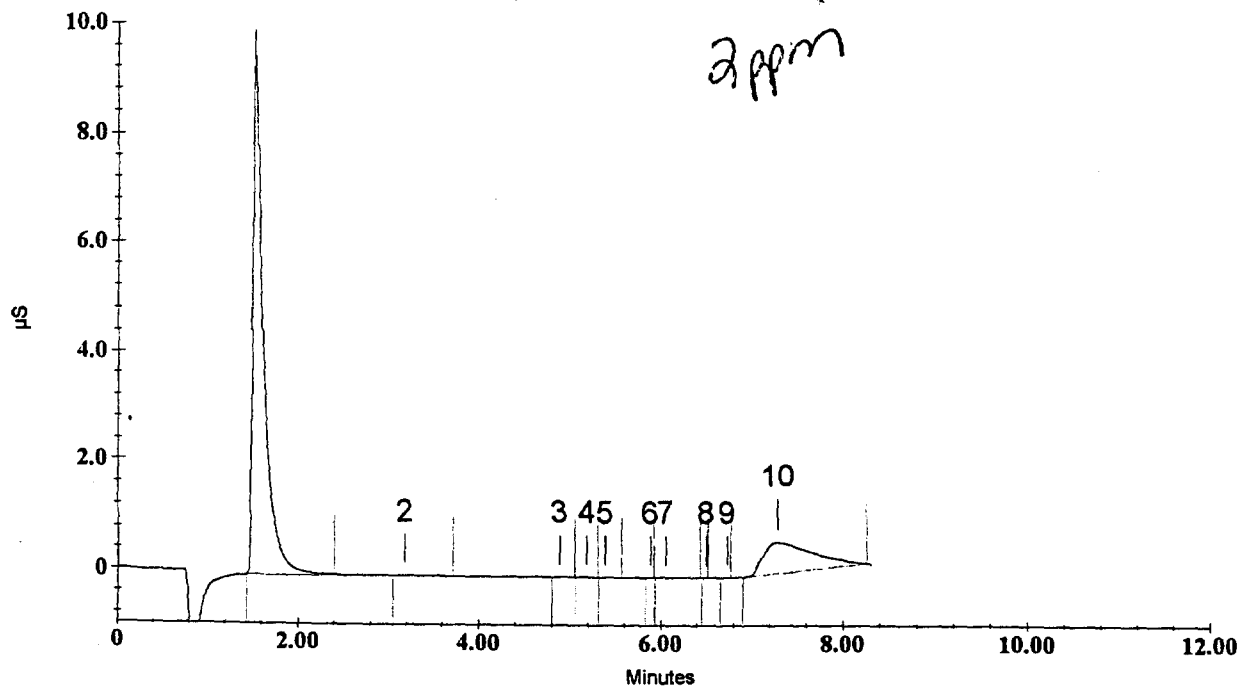
Collected : 7/2/99 12:51:09 PM
Updated : 7/6/99 9:51:45 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.047	771836	91809

REPROCESSED
DATA

C-3807x250spike



07/19/99
EXACT COPY OF
RAW DATA

Data File : ...3811_030.DXD
Sample Name : C-3811x2(neut.)
Inject # : 30
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 1:10:54 PM
Updated : 7/2/99 1:10:55 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

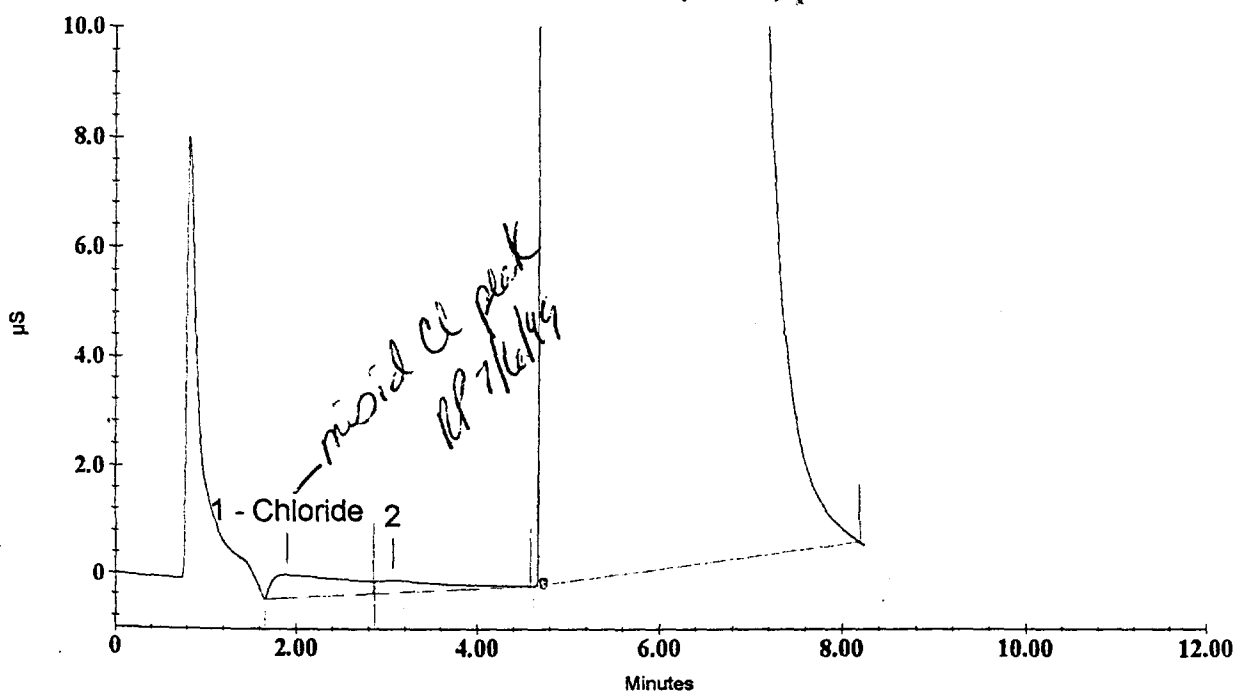
Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.90	Chloride	0.793	241470	4397

REPROCESS

with averaged curve points
RP 7/6/99

C-3811x2(neut.)



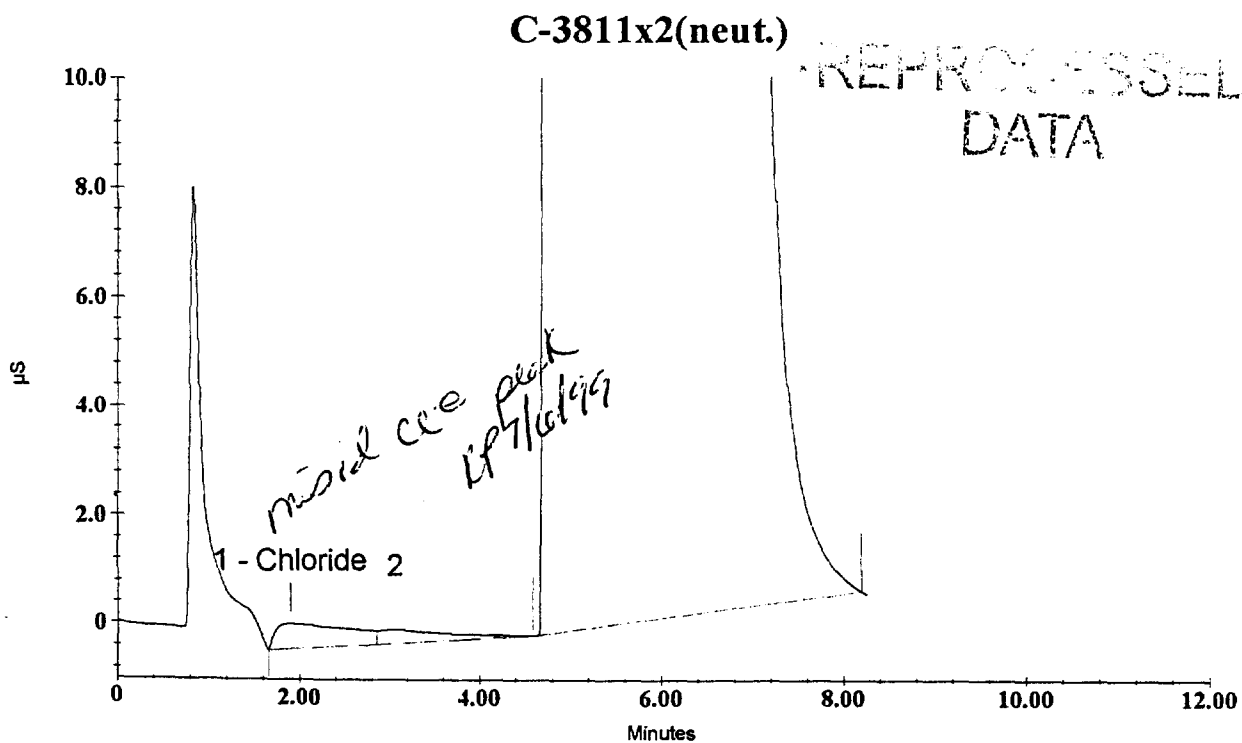
7/2/99
EXACT COPY OF
RAW DATA

Data File : ...3811_030.DXD
Sample Name : C-3811x2(neut.)
Inject # : 30
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 1:10:54 PM
Updated : 7/6/99 9:53:13 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.90	Chloride	0.795	241470	4397



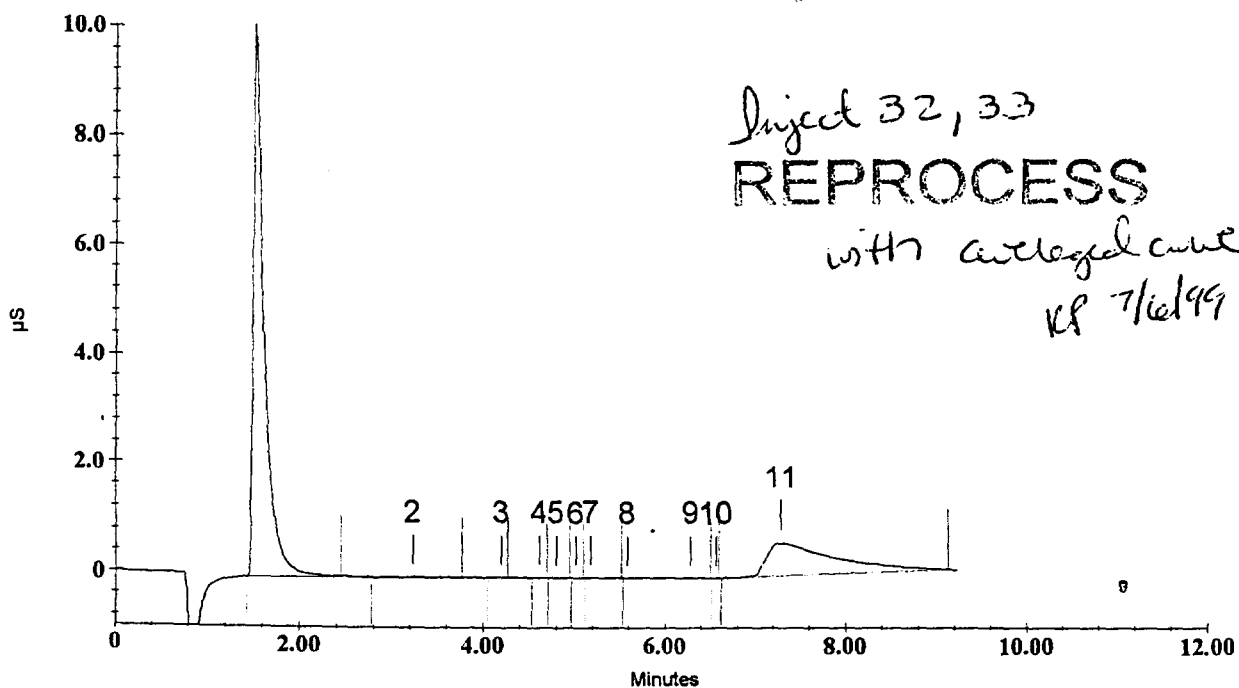
02/29/99
EXACT COPY OF
RAW DATA

Data File : ...\\3808_032.DXD
Sample Name : C-3808x200
Inject # : 32
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 1:34:00 PM
Updated : 7/2/99 1:34:02 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.191	799495	93727

C-3808x200



7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3808_032.DXD

Sample Name : C-3808x200

Inject # : 32

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 1:34:00 PM

Updated : 7/6/99 10:29:13 AM

Calibrated : 7/6/99 9:30:09 AM

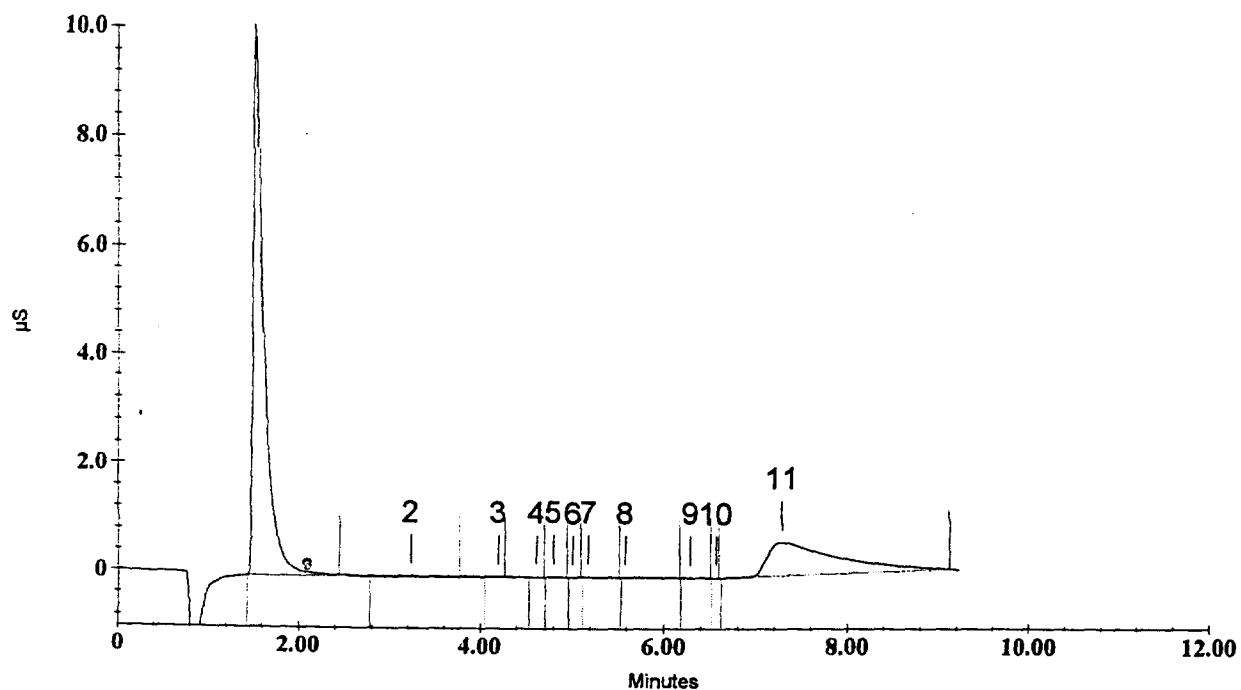
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.164	799495	93727

REPROCESSED
DATA

C-3808x200



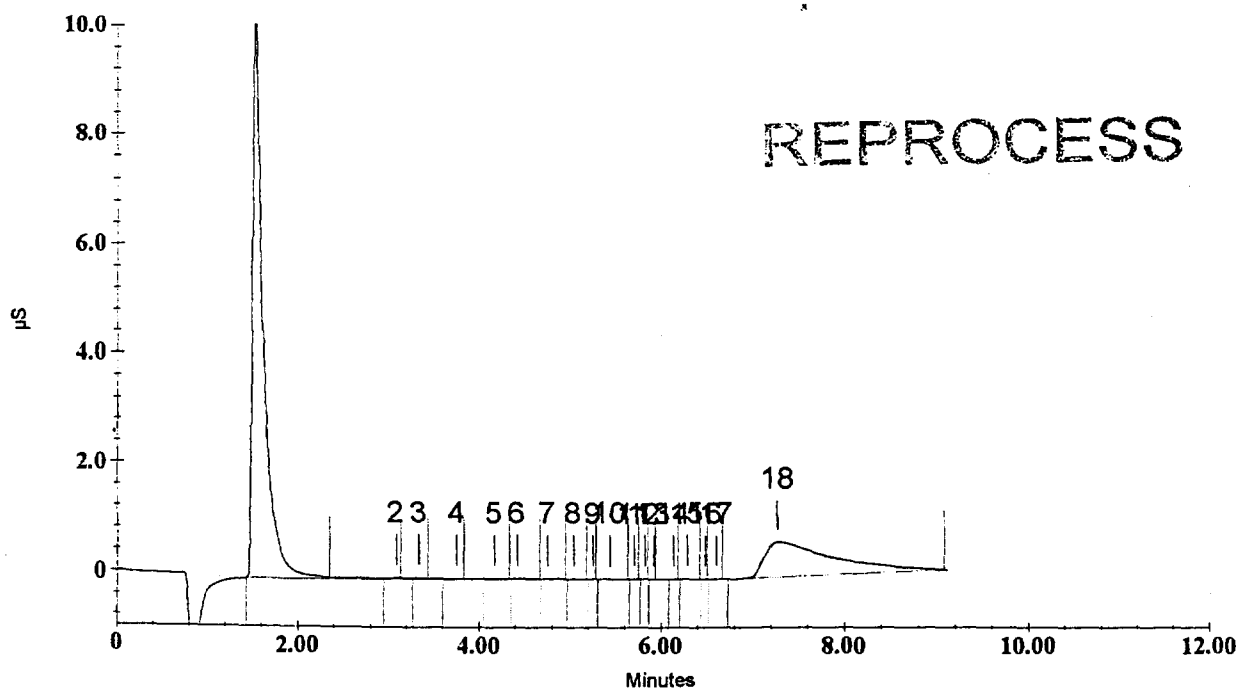
am 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3808_033.DXD
Sample Name : C-3808x200
Inject # : 33
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 1:44:12 PM
Updated : 7/2/99 1:44:14 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.309	827024	96727

C-3808x200



07/29/99
EXACT COPY OF
RAW DATA

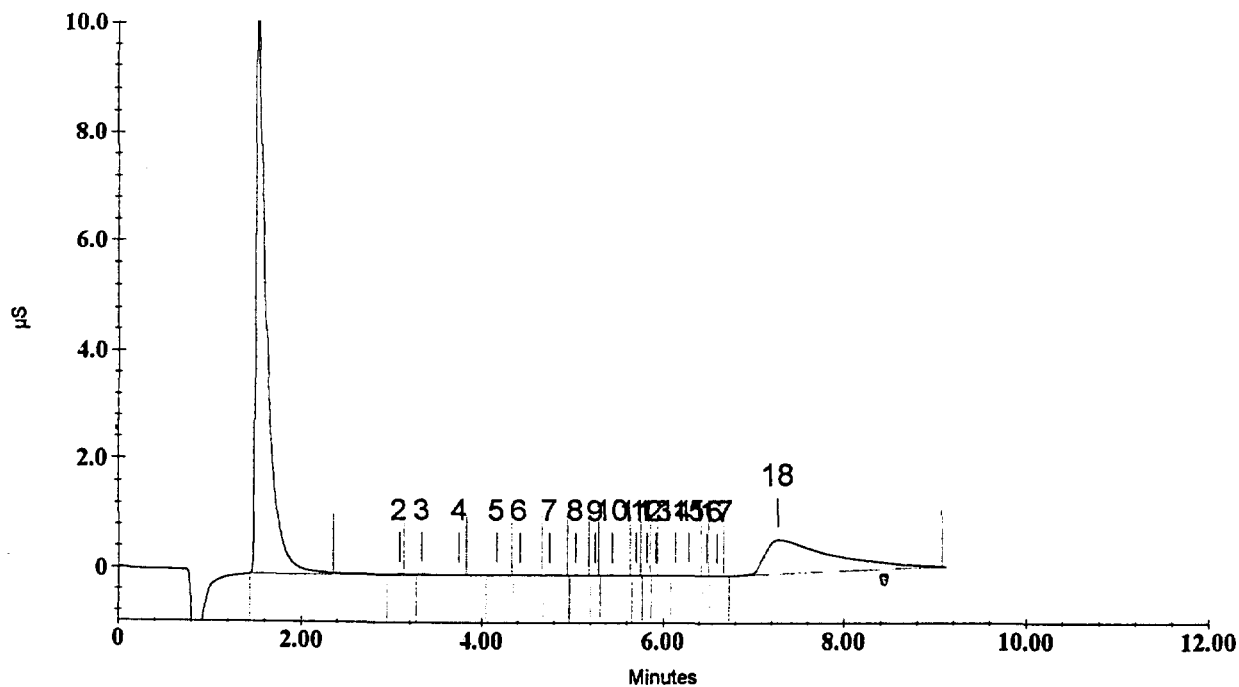
Data File : ...\\3808_033.DXD
Sample Name : C-3808x200
Inject # : 33
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 1:44:12 PM
Updated : 7/6/99 10:29:28 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.281	827024	96727

REPROCESSED
DATA

C-3808x200



07/29/99
EXACT COPY OF
RAW DATA

Data File : ...3810_034.DXD
Sample Name : C-3810x100
Inject # : 34
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 1:45:17 PM
Updated : 7/2/99 1:54:22 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

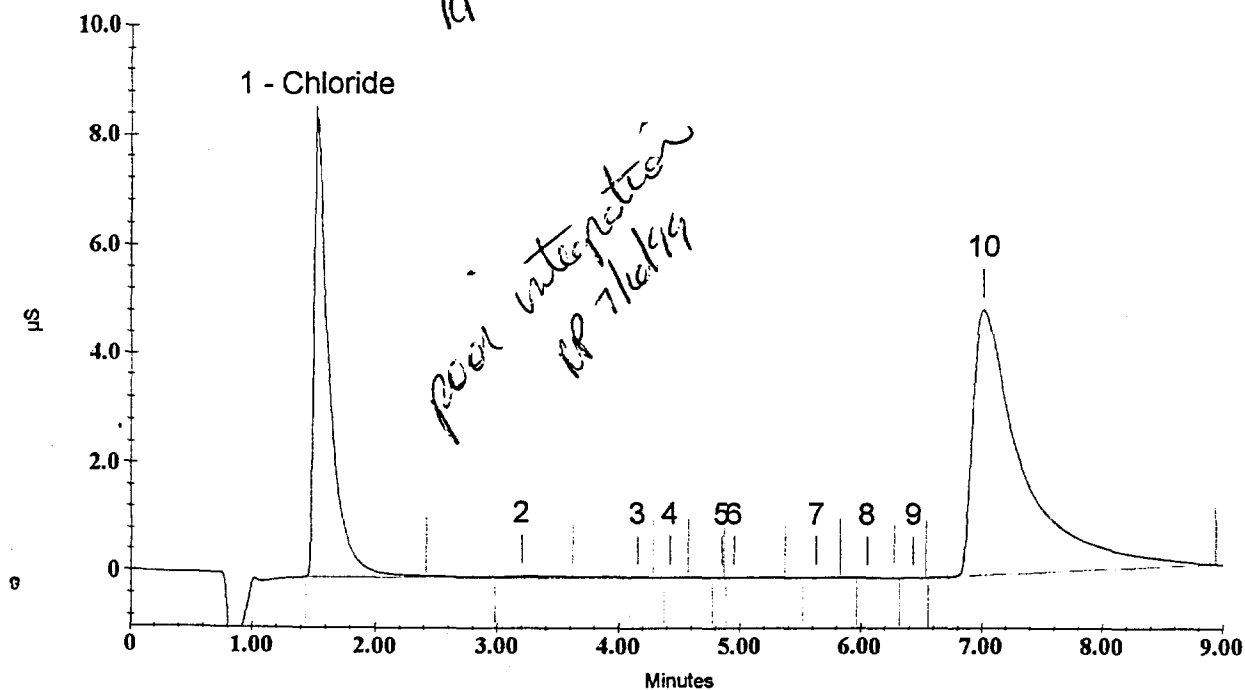
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.870	724749	78454

Inject 34-49

REPROCESS

with averaged curve

KP 7/16/99 C-3810x100



OK 7/29/99
**EXACT COPY OF
RAW DATA**

Data File : ...3810_034.DXD
Sample Name : C-3810x100
Inject # : 34
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

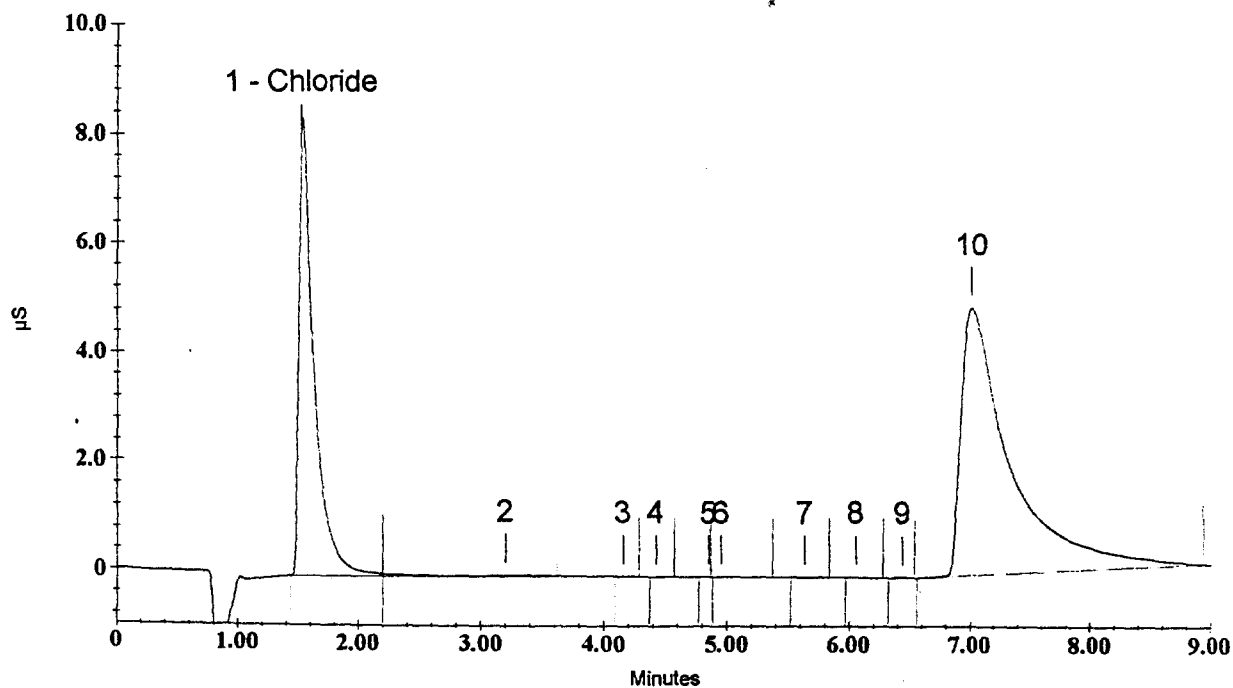
Collected : 7/2/99 1:45:17 PM
Updated : 7/6/99 9:57:27 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.844	724058	78454

REPROCESSED
DATA

C-3810x100



7/6/99
EXACT COPY OF
RAW DATA

Sample Name : C-3817x100
Inject # : 35
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

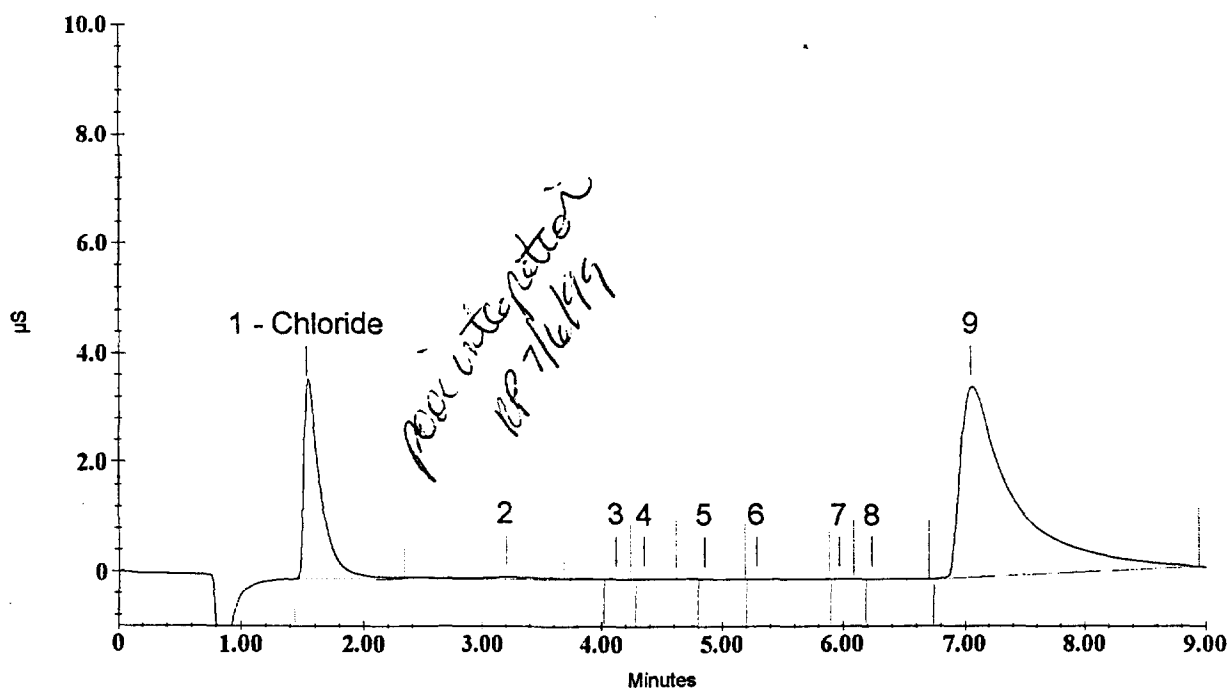
Updated : 7/2/99 2:04:26 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.209	338233	34841

REPROCESS

C-3817x100



RP 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...\\3817_035.DXD
Sample Name : C-3817x100
Inject # : 35
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

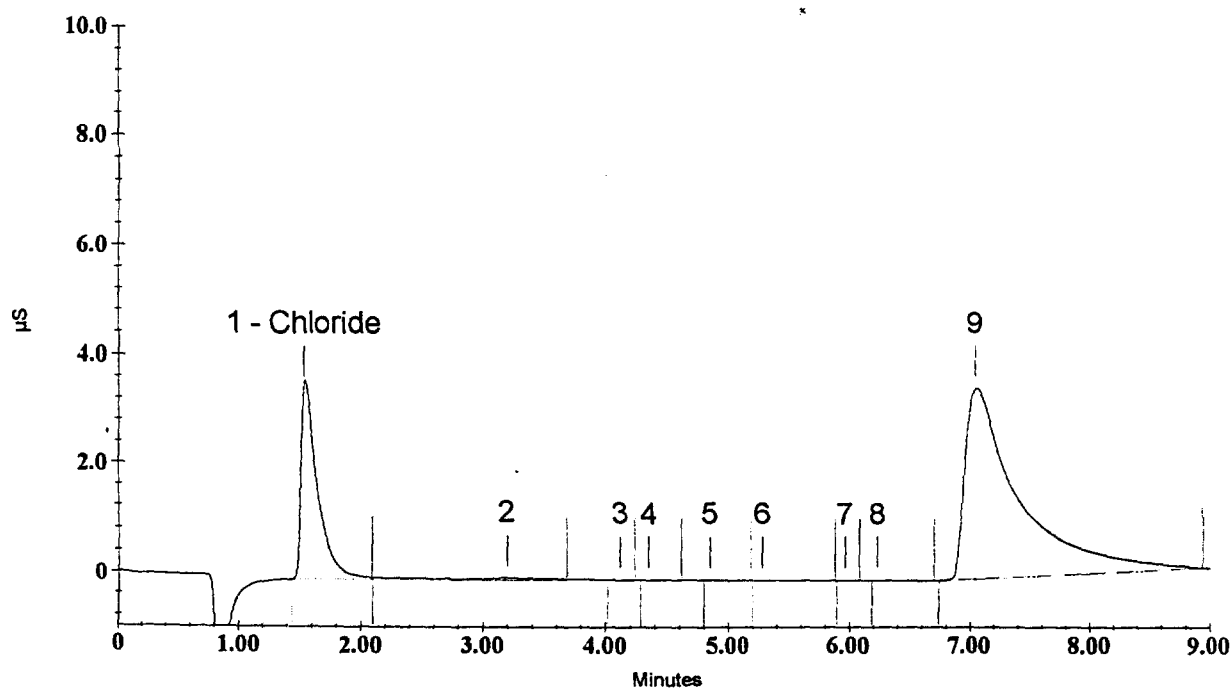
Collected : 7/2/99 1:55:21 PM
Updated : 7/6/99 10:35:23 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.207	338536	34841

REPROCESSED
DATA

C-3817x100



EXACT COPY OF
RAW DATA

AL 7/29/99

Data File : ...\\3817_036.DXD
Sample Name : C-3817x100
Inject # : 36
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

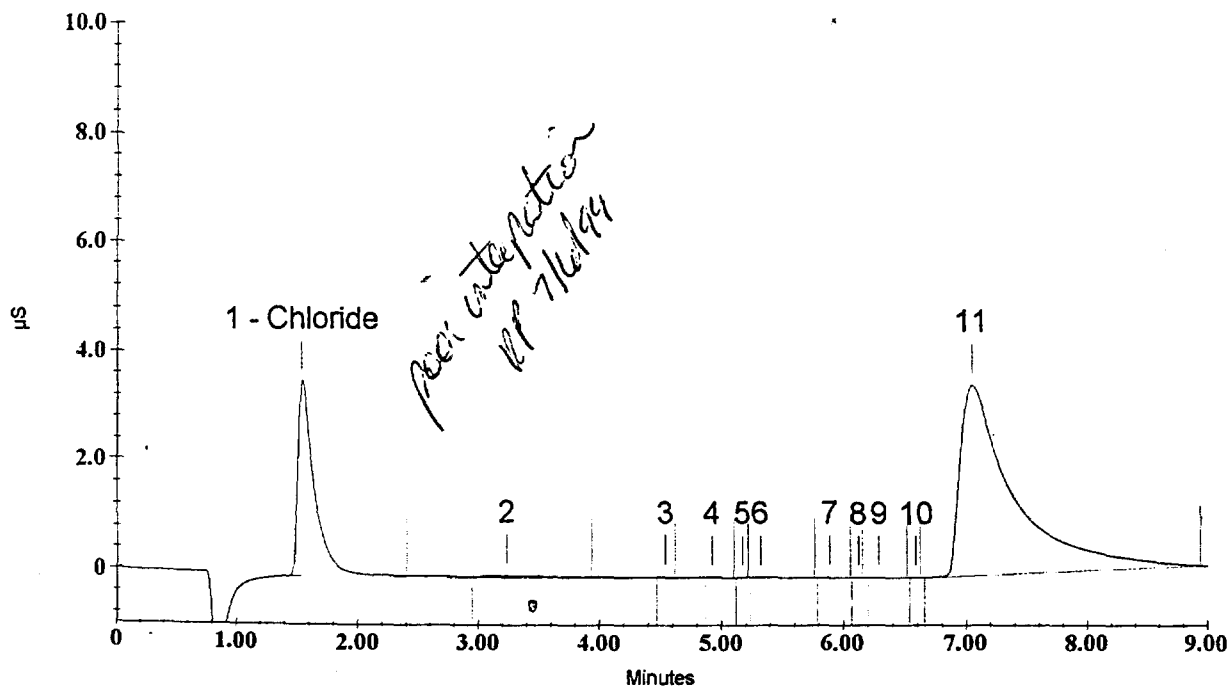
Collected : 7/2/99 2:05:24 PM
Updated : 7/2/99 2:14:26 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.185	332673	35350

REPROCESS

C-3817x100



06/29/99
EXACT COPY OF
RAW DATA

Data File : ...3817_036.DXD
Sample Name : C-3817x100
Inject # : 36
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

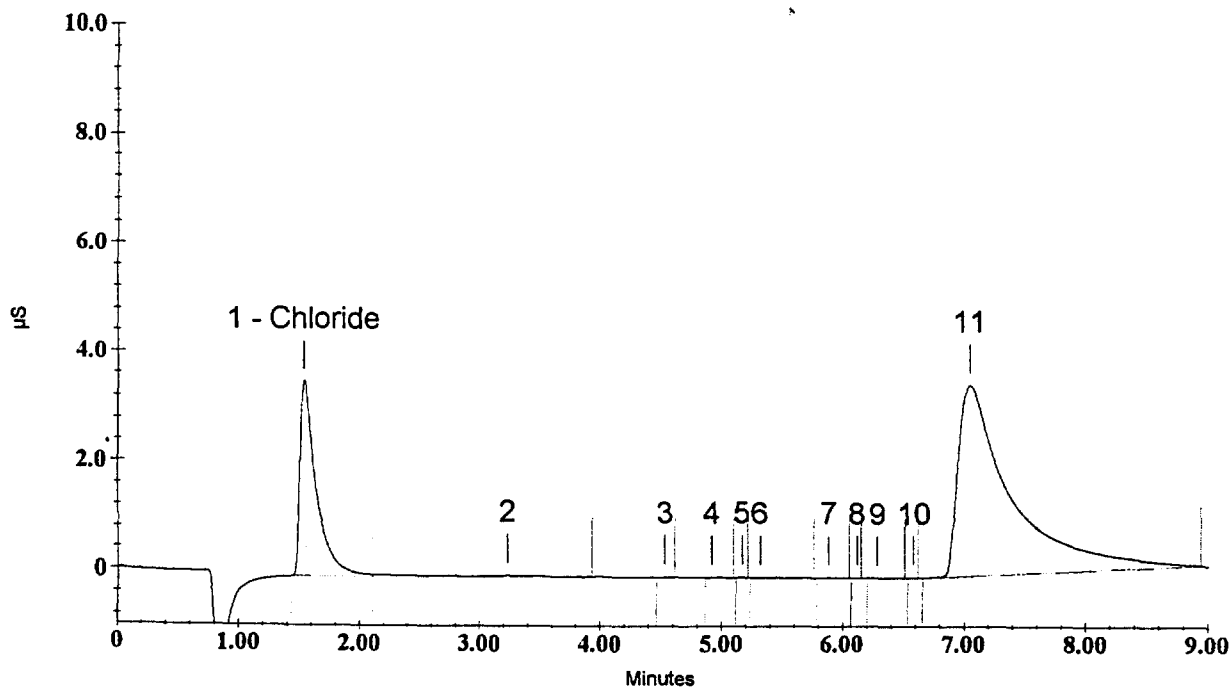
Collected : 7/2/99 2:05:24 PM
Updated : 7/6/99 10:35:38 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.182	332553	35350

REPROCESSED
DATA

C-3817x100



07/29/99
EXACT COPY OF
RAW DATA

Data File : ...3818_037.DXD

Sample Name : C-3818x250

Inject # : 37

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 2:15:29 PM

Updated : 7/2/99 2:24:32 PM

Calibrated : 7/2/99 9:13:53 AM

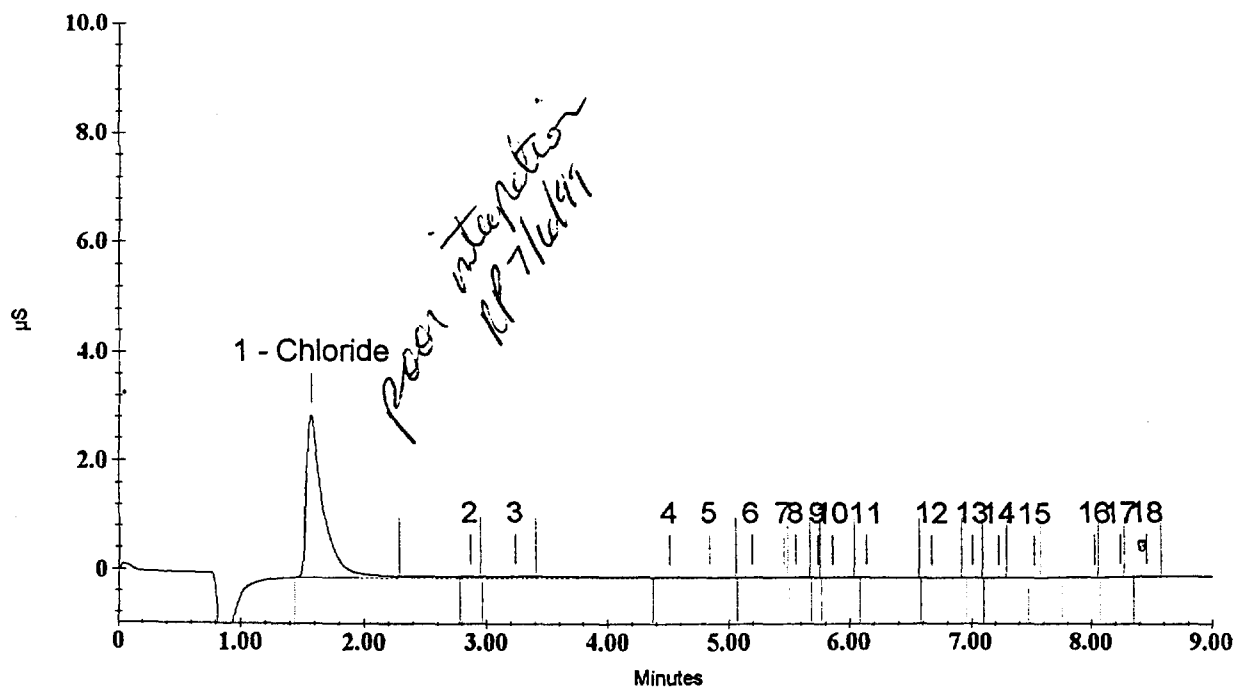
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	0.940	275549	29657

REPROCESS

C-3818x250



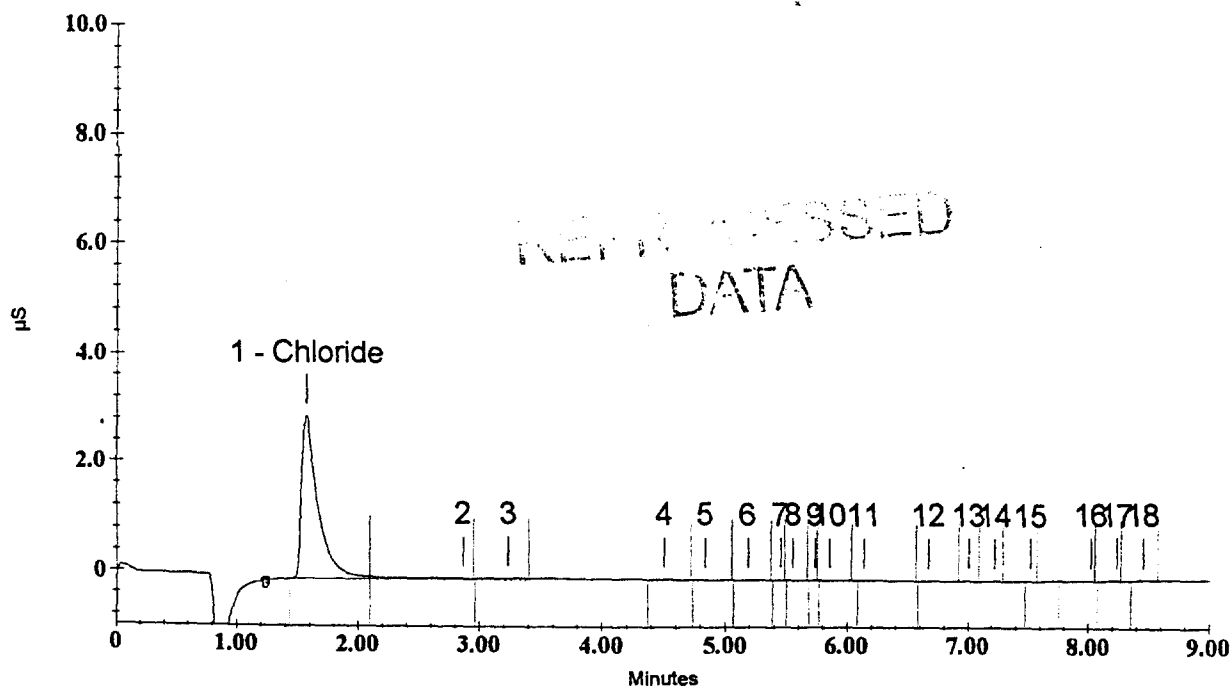
ae 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3818_037.DXD
Sample Name : C-3818x250
Inject # : 37
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 2:15:29 PM
Updated : 7/6/99 10:36:07 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	0.944	276503	29657

C-3818x250



OK 7/29/99
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RAW DATA

Data File : ...\\3818_038.DXD

Sample Name : C-3818x250

Inject # : 38

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 2:25:32 PM

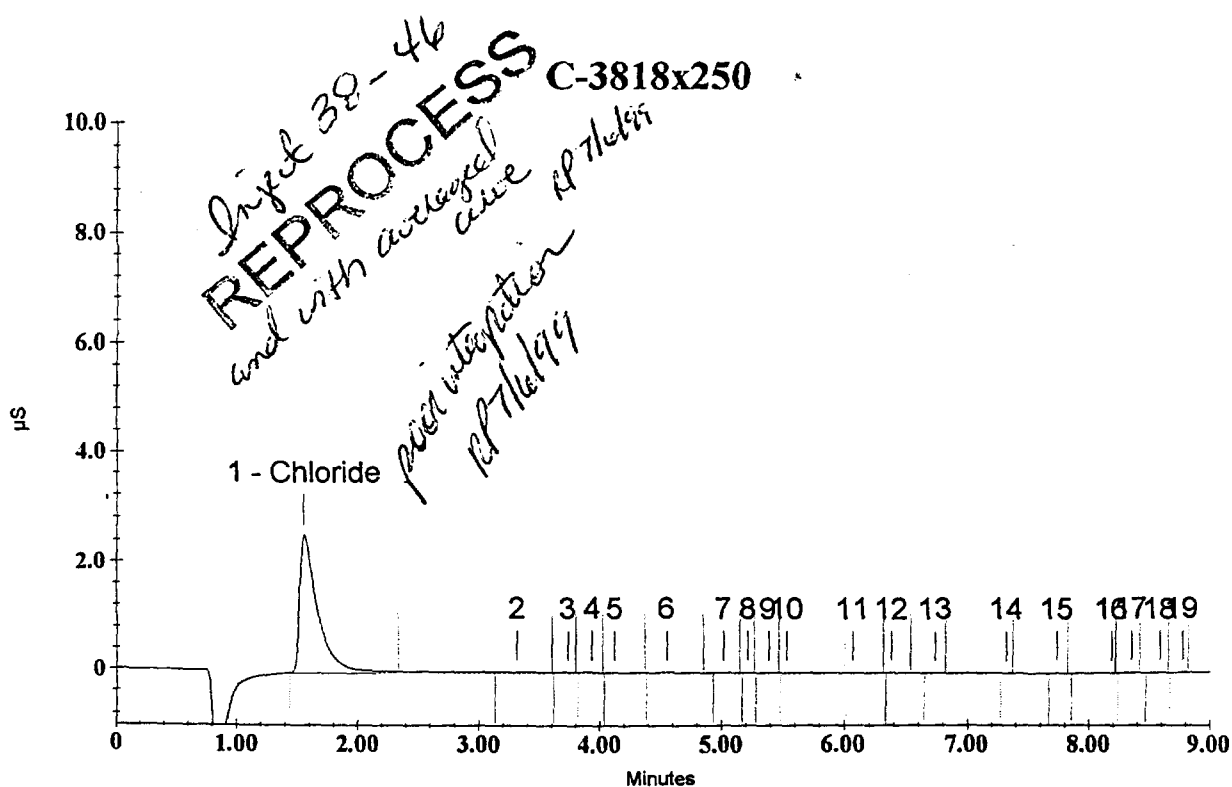
Updated : 7/2/99 2:34:39 PM

Calibrated : 7/2/99 9:13:53 AM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.958	279805	24982



RP 7/29/99
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RAW DATA

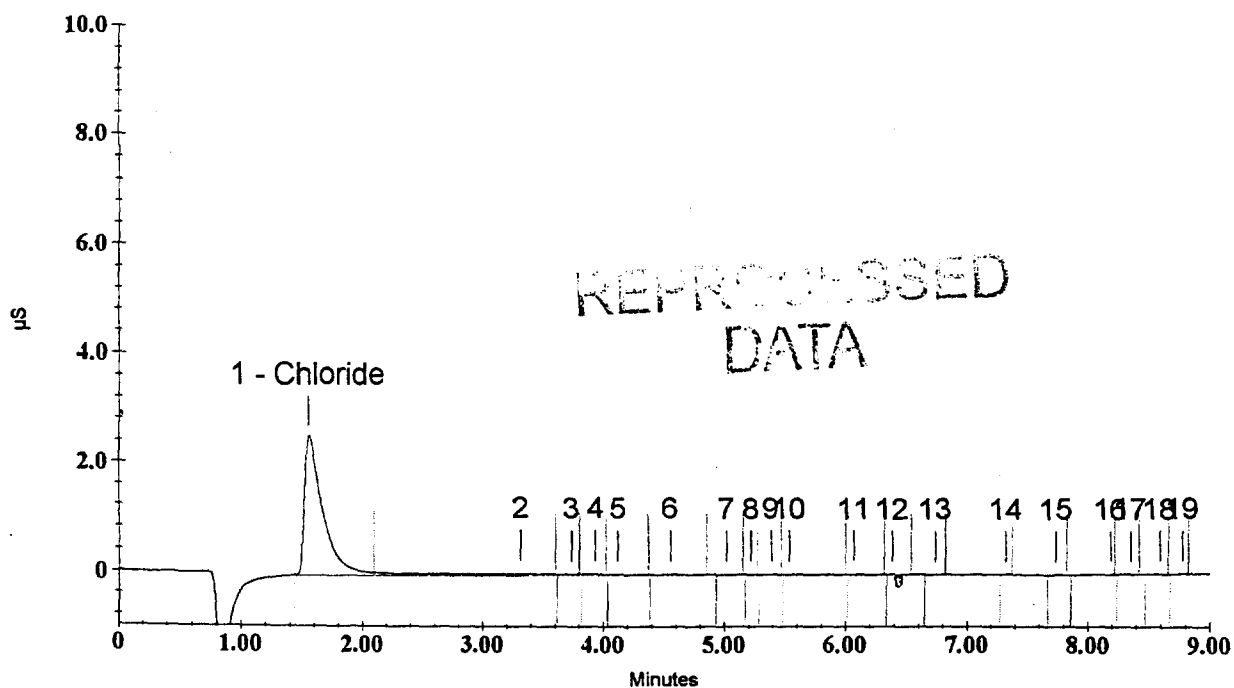
Data File : ...3818_038.DXD
Sample Name : C-3818x250
Inject # : 38
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 2:25:32 PM
Updated : 7/6/99 10:36:22 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.892	264270	24982

C-3818x250

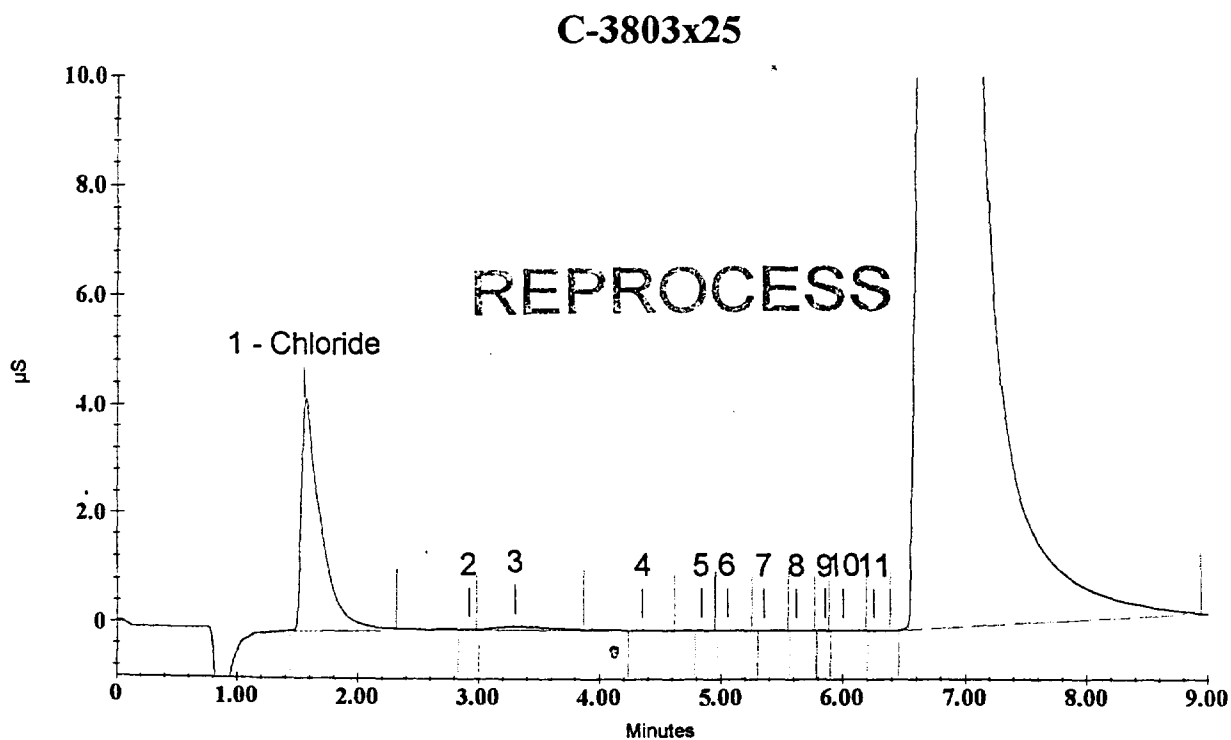


07/29/99
EXACT COPY OF
RAW DATA

Data File : ...3803_039.DXD
Sample Name : C-3803x25
Inject # : 39
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 2:35:36 PM
Updated : 7/2/99 2:44:43 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.917	503089	40578



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EXACT COPY OF
RAW DATA

Data File : ...3803_039.DXD
Sample Name : C-3803x25
Inject # : 39
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

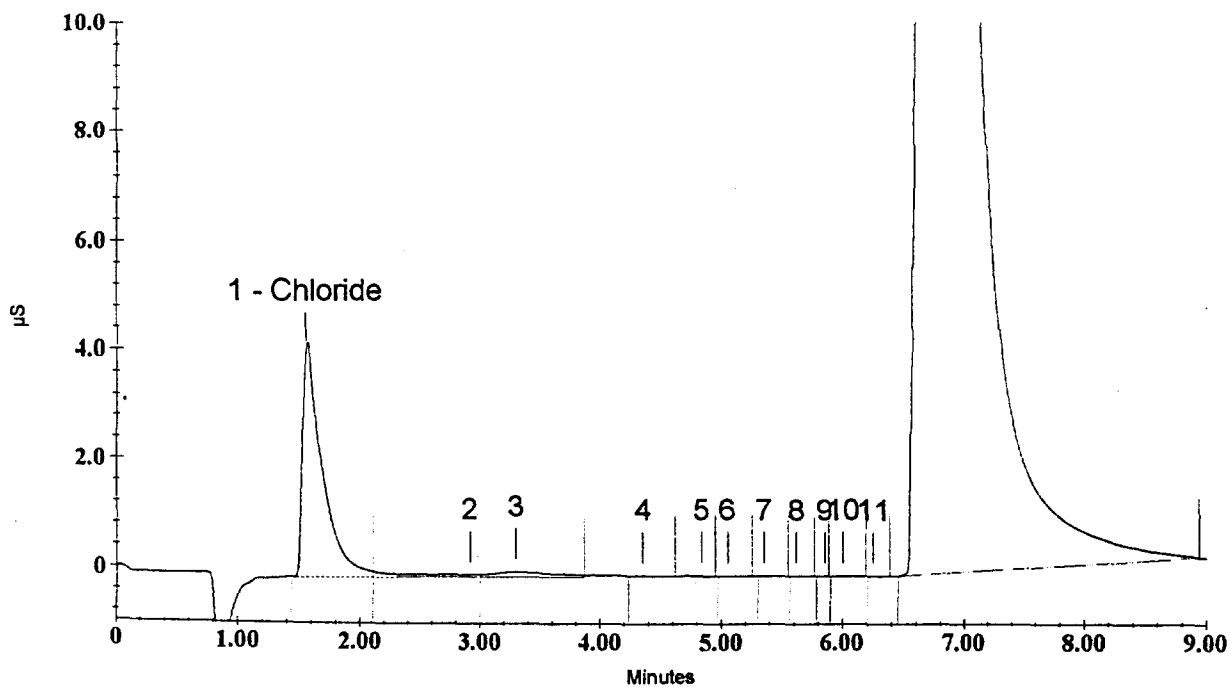
Collected : 7/2/99 2:35:36 PM
Updated : 7/6/99 10:27:18 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.779	473090	40578

REPROCESSED
DATA

C-3803x25



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RAW DATA

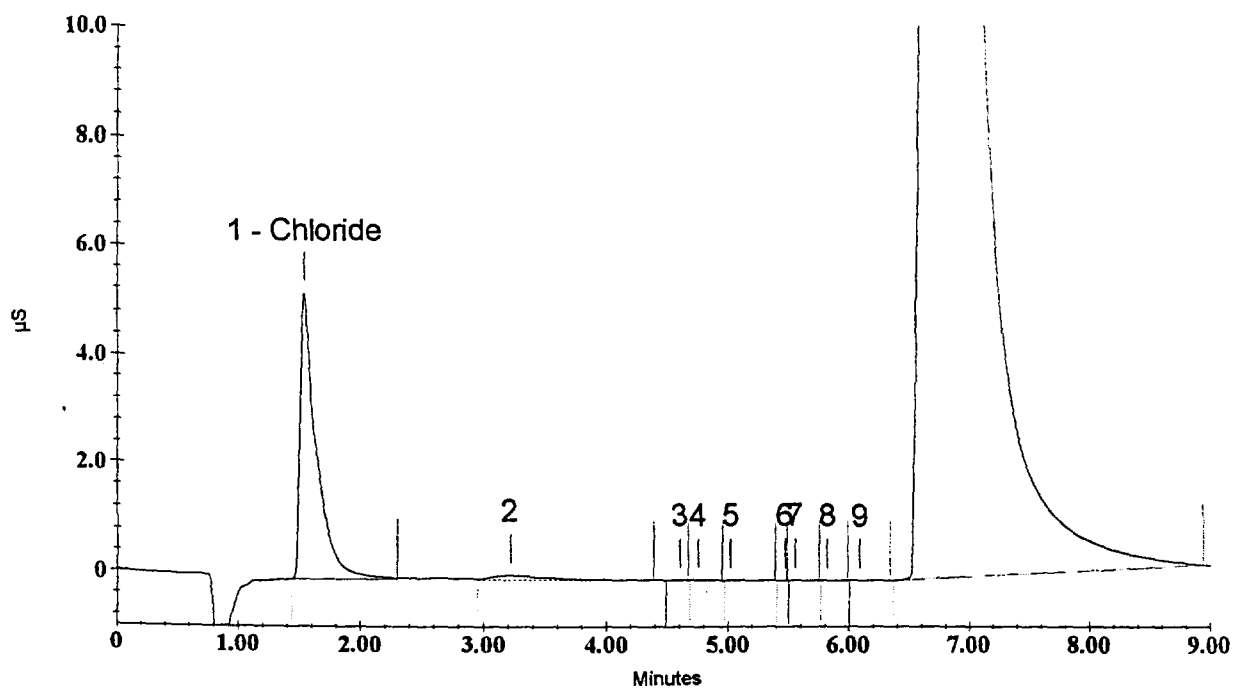
Data File : ...3803_040.DXD
Sample Name : C-3803x25
Inject # : 40
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 2:45:40 PM
Updated : 7/2/99 2:54:42 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.852	487974	52044

REPROCESS

C-3803x25.



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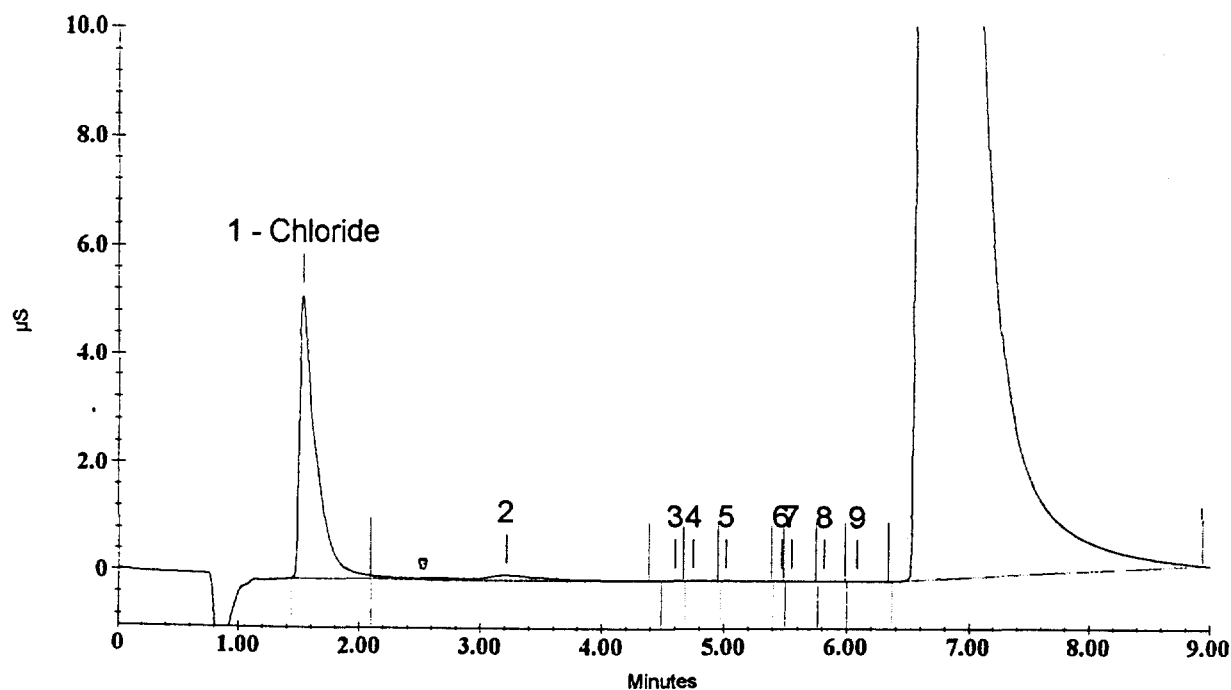
Data File : ...3803_040.DXD
Sample Name : C-3803x25
Inject # : 40
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 2:45:40 PM
Updated : 7/6/99 10:27:33 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.782	473932	52044

REPROCESSED
DATA

C-3803x25



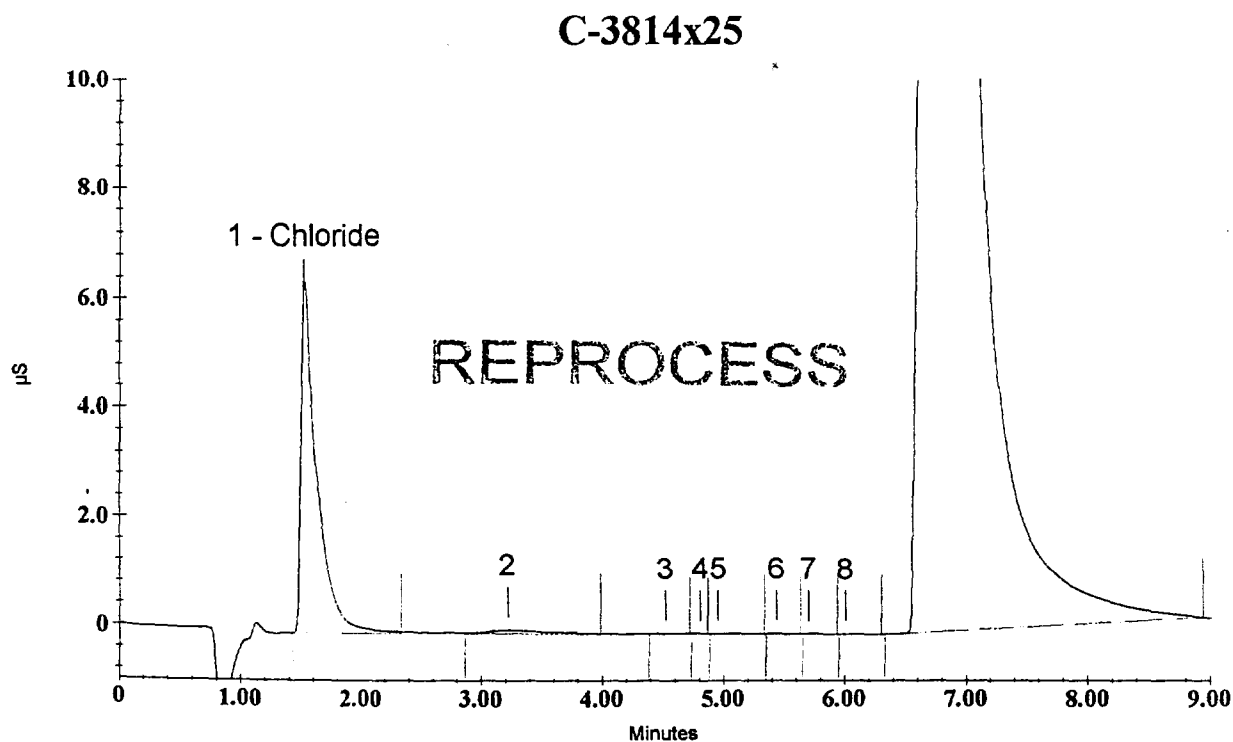
EXACT COPY OF
RAW DATA

06/29/99

Data File : ...3814_041.DXD
Sample Name : C-3814x25
Inject # : 41
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 2:55:47 PM
Updated : 7/2/99 3:04:52 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.237	577400	60681



EXACT COPY OF
RAW DATA

Ge 7/29/99

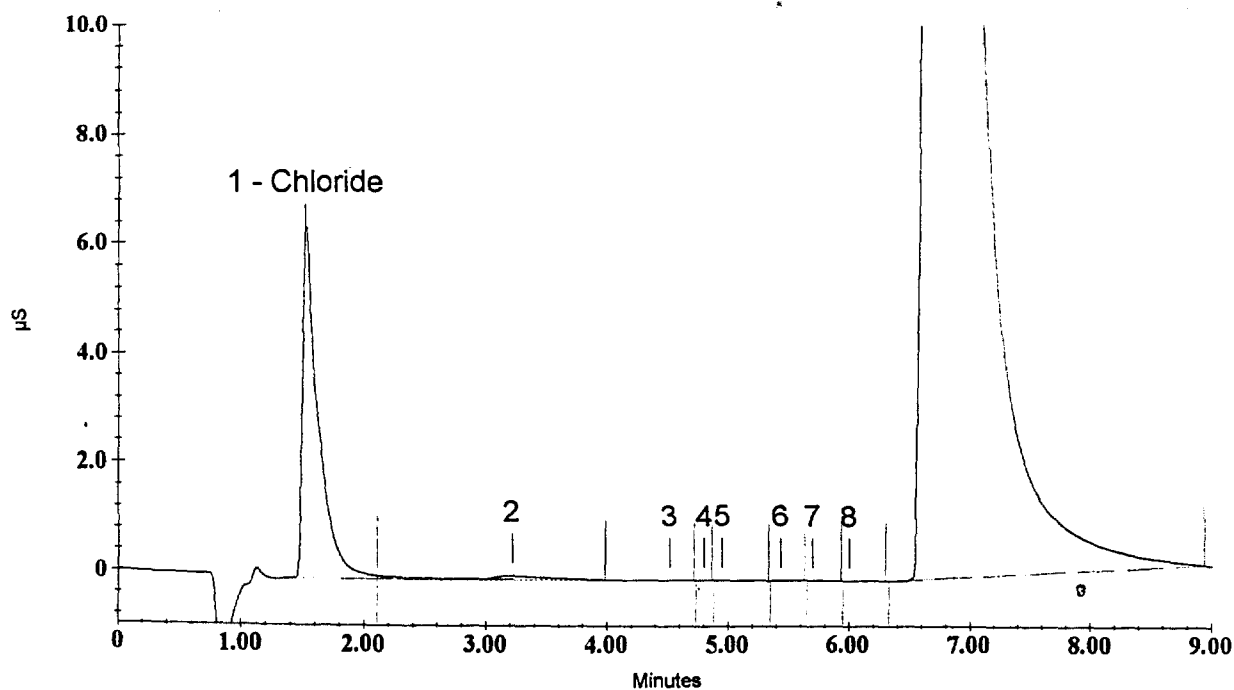
Data File : ...3814_041.DXD
Sample Name : C-3814x25
Inject # : 41
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 2:55:47 PM
Updated : 7/6/99 10:34:00 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.181	567907	60681

REPROCESSED
DATA

C-3814x25



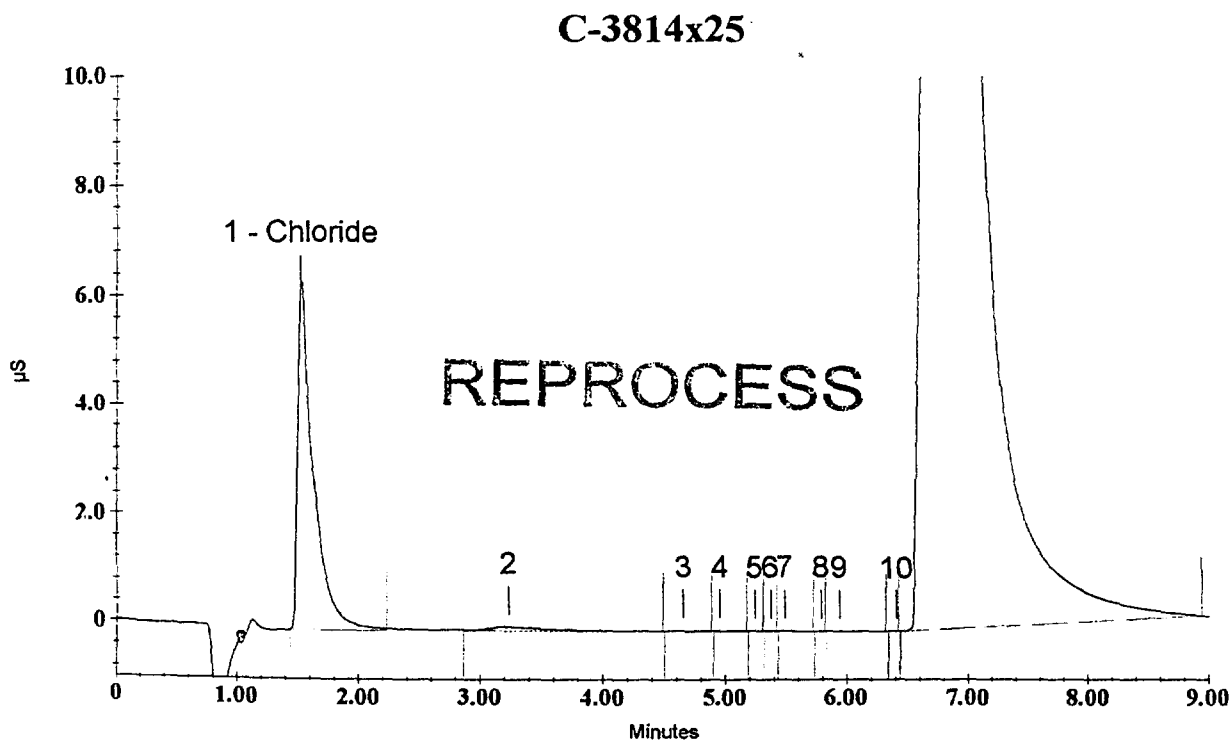
EXACT COPY OF
RAW DATA

07/29/99

Data File : ...\\3814_042.DXD
Sample Name : C-3814x25
Inject # : 42
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 3:05:52 PM
Updated : 7/2/99 3:14:54 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.211	571429	60852



EXACT COPY OF
RAW DATA

06/29/99

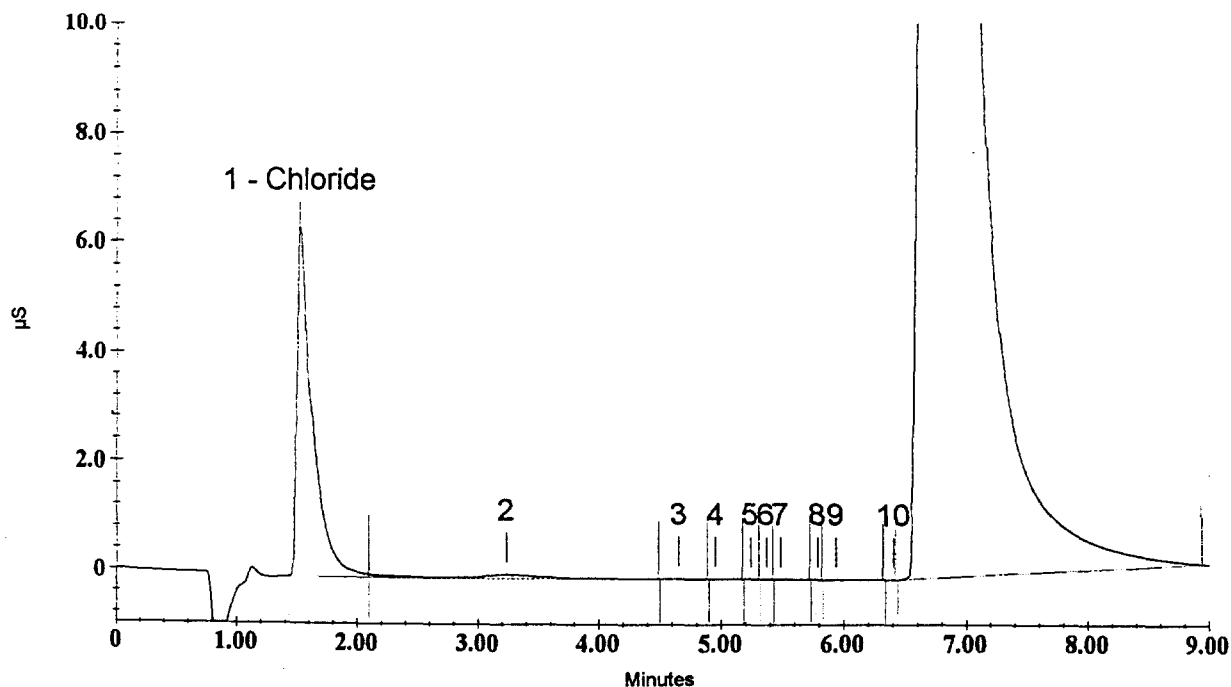
Data File : ...\\3814_042.DXD
Sample Name : C-3814x25
Inject # : 42
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 3:05:52 PM
Updated : 7/6/99 10:34:13 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.140	558119	60852

REPROCESSED
DATA

C-3814x25



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RAW DATA

07/24/99

Data File : ...3815_043.DXD
Sample Name : C-3815x25
Inject # : 43
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

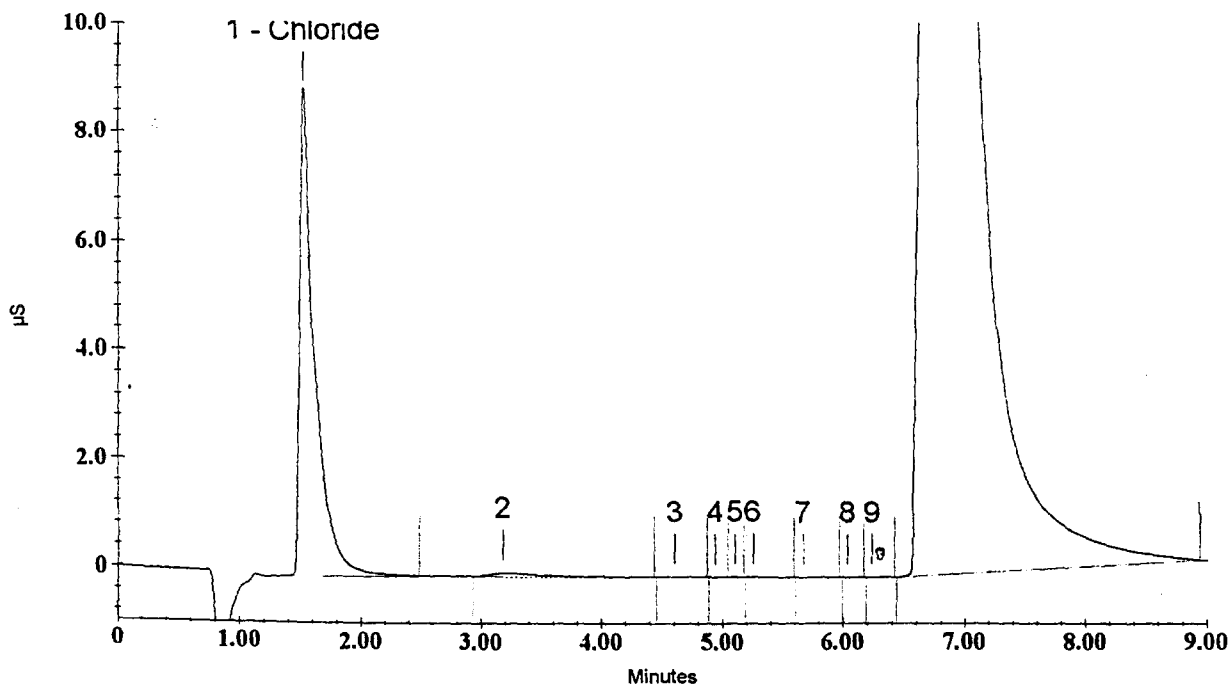
Collected : 7/2/99 3:15:57 PM
Updated : 7/2/99 3:24:59 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.992	753158	88092

REPROCESS

C-3815x25



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RAW DATA

6/7/29/99

Data File : ...3815_043.DXD
Sample Name : C-3815x25
Inject # : 43
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

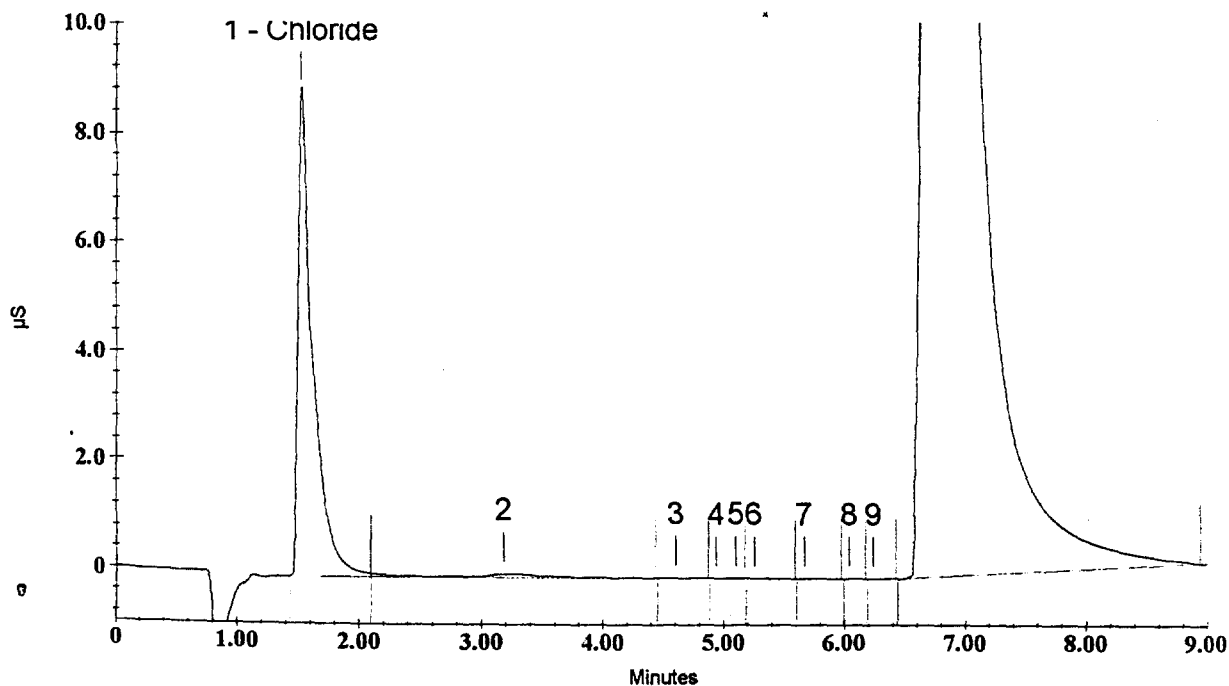
Collected : 7/2/99 3:15:57 PM
Updated : 7/6/99 10:34:27 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.936	745844	88092

REPROCESSED
DATA

C-3815x25



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RAW DATA

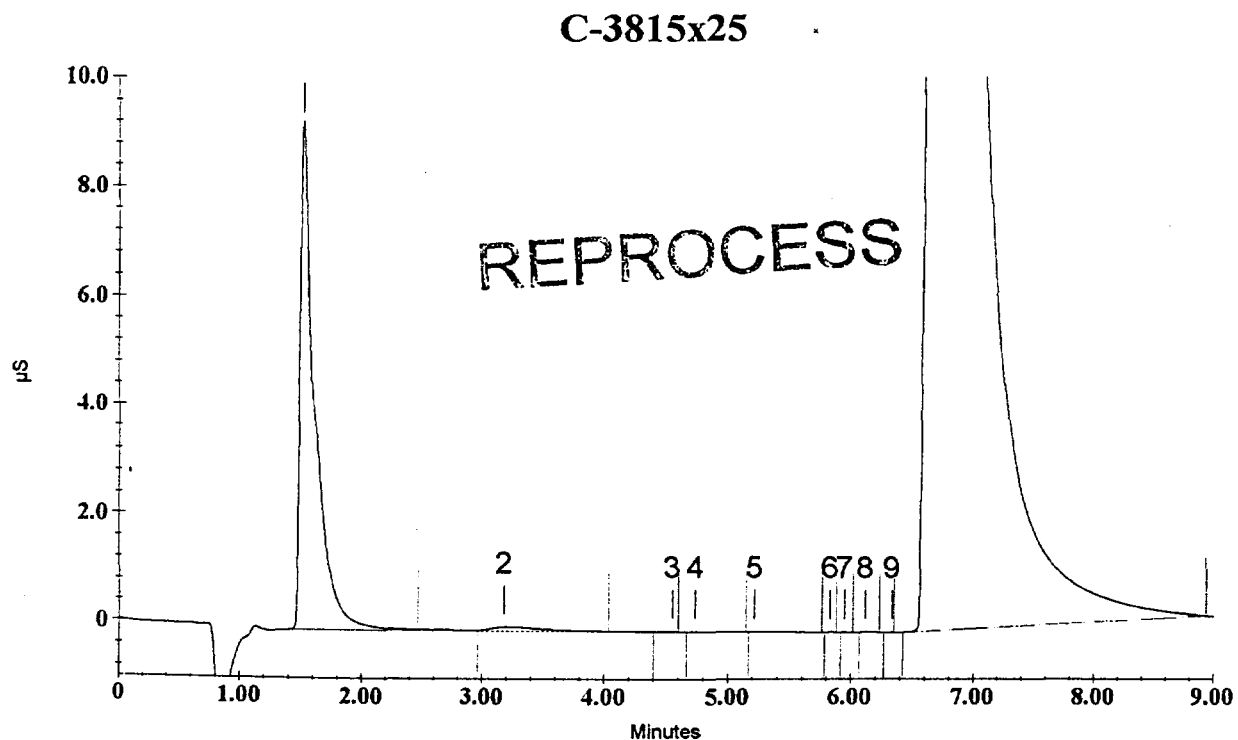
re 7/19/99

Data File : ...\\3815_044.DXD
Sample Name : C-3815x25
Inject # : 44
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 3:26:01 PM
Updated : 7/2/99 3:35:08 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.087	775233	92281



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RAW DATA

GC 7/29/99

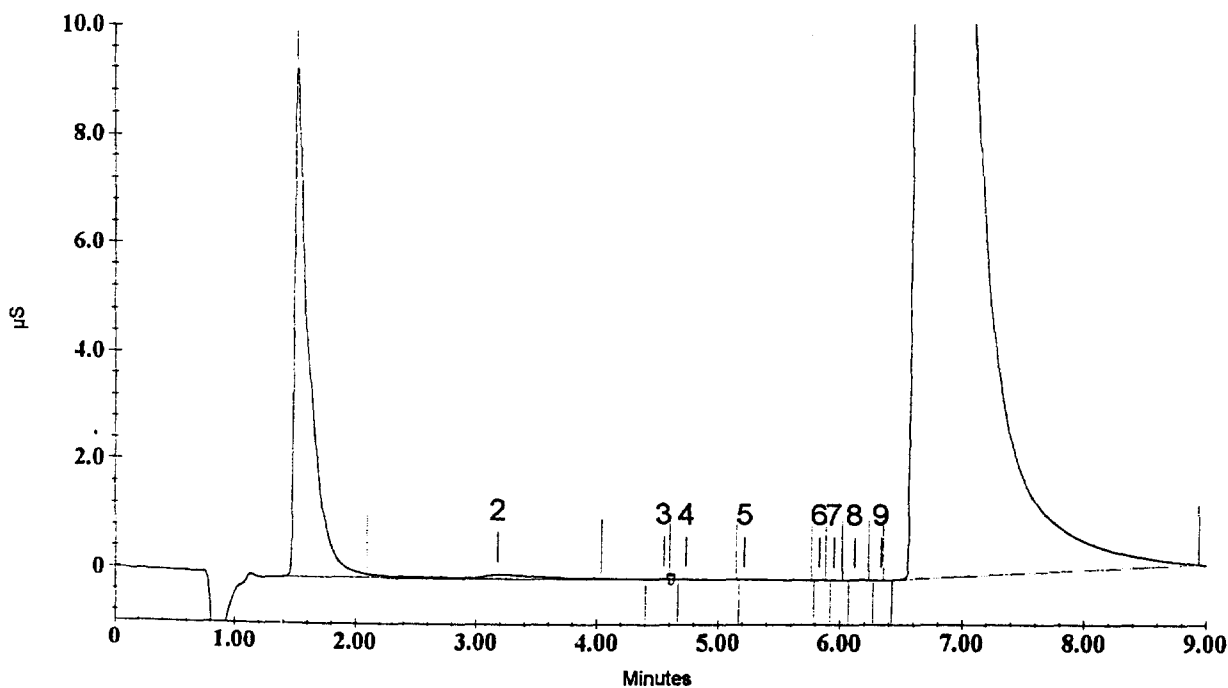
Data File : ...3815_044.DXD
Sample Name : C-3815x25
Inject # : 44
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 3:26:01 PM
Updated : 7/6/99 10:34:41 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.959	751057	92281

REPROCESSED
DATA

C-3815x25



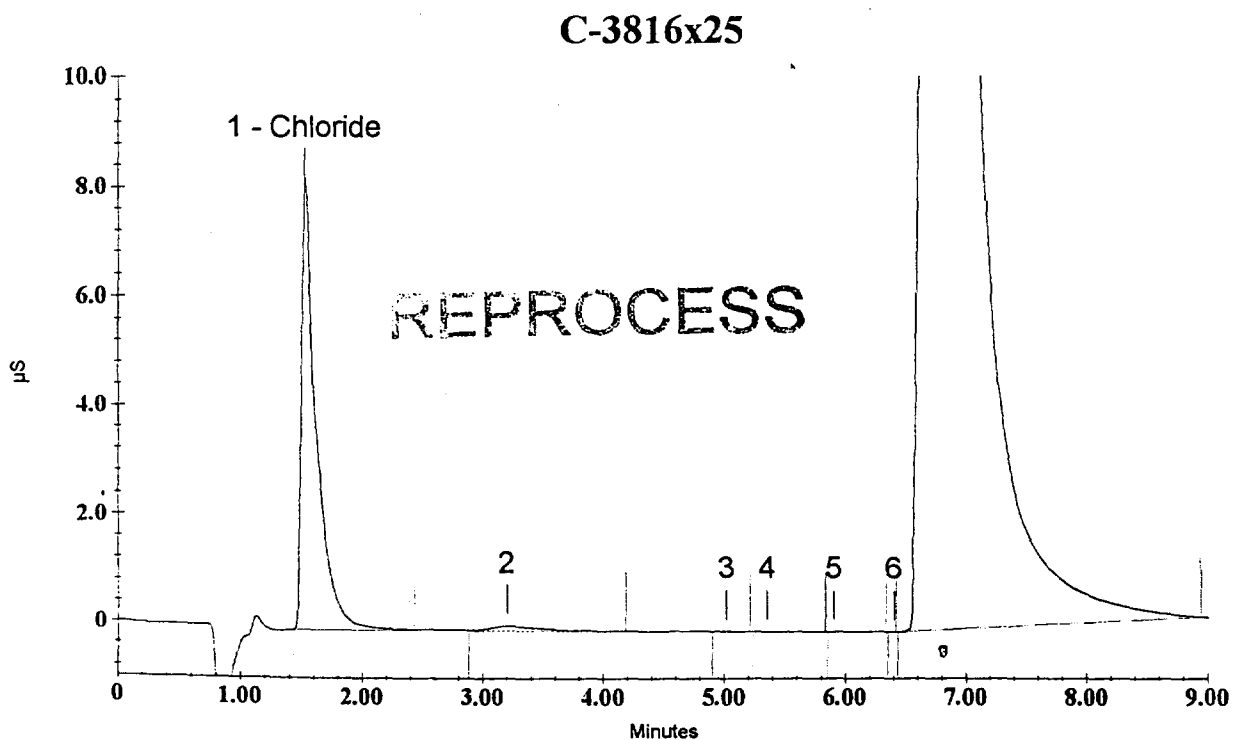
EXACT COPY OF
RAW DATA

6/29/99

Data File : ...\\3816_045.DXD
Sample Name : C-3816x25
Inject # : 45
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 3:36:06 PM
Updated : 7/2/99 3:45:11 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.784	704786	80497



EXACT COPY OF
RAW DATA
02/24/99

Data File : ...3816_045.DXD
Sample Name : C-3816x25
Inject # : 45
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

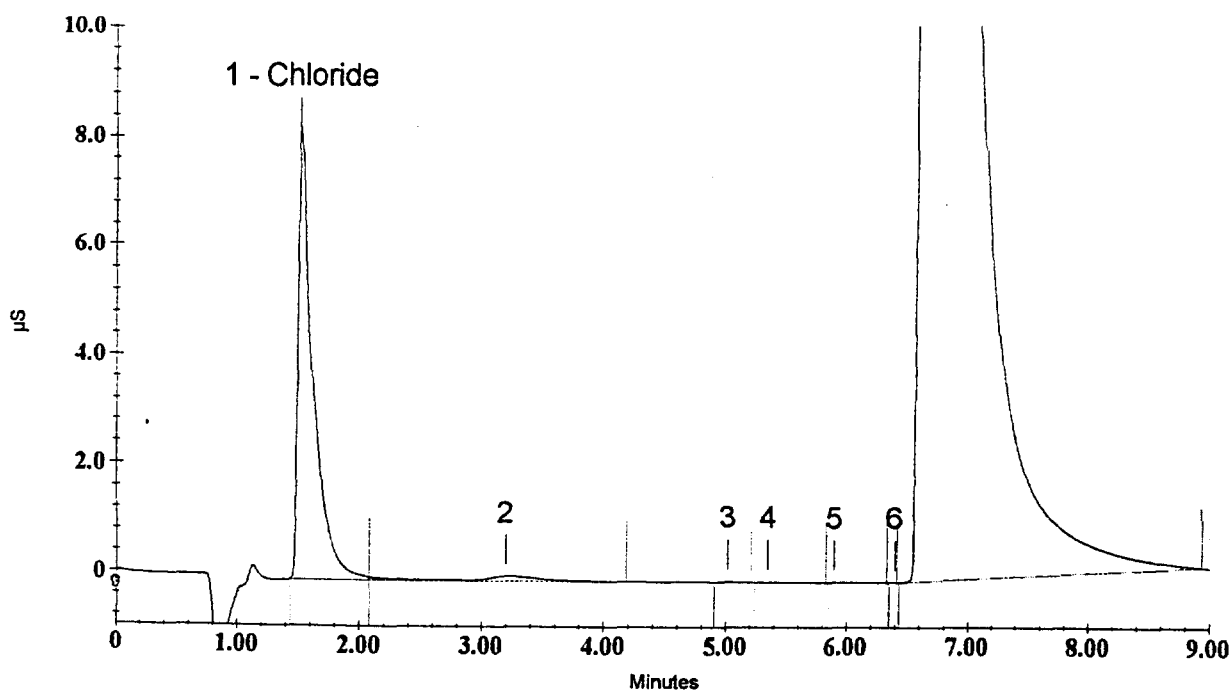
Collected : 7/2/99 3:36:06 PM
Updated : 7/6/99 10:34:55 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.712	692937	80497

REPRODUCTION
DATA

C-3816x25



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RAW DATA

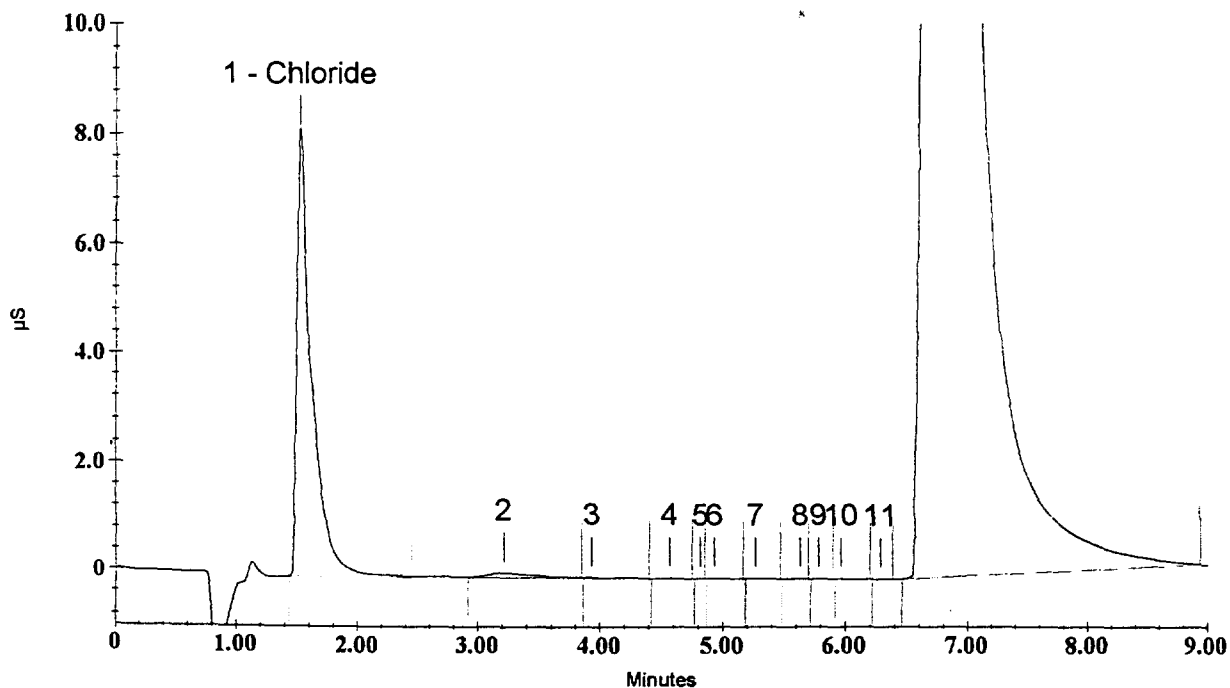
Data File : ...3816_046.DXD
Sample Name : C-3816x25
Inject # : 46
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 3:46:11 PM
Updated : 7/2/99 3:55:13 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.759	698883	80445

REPROCESS

C-3816x25



06/29/99
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RAW DATA

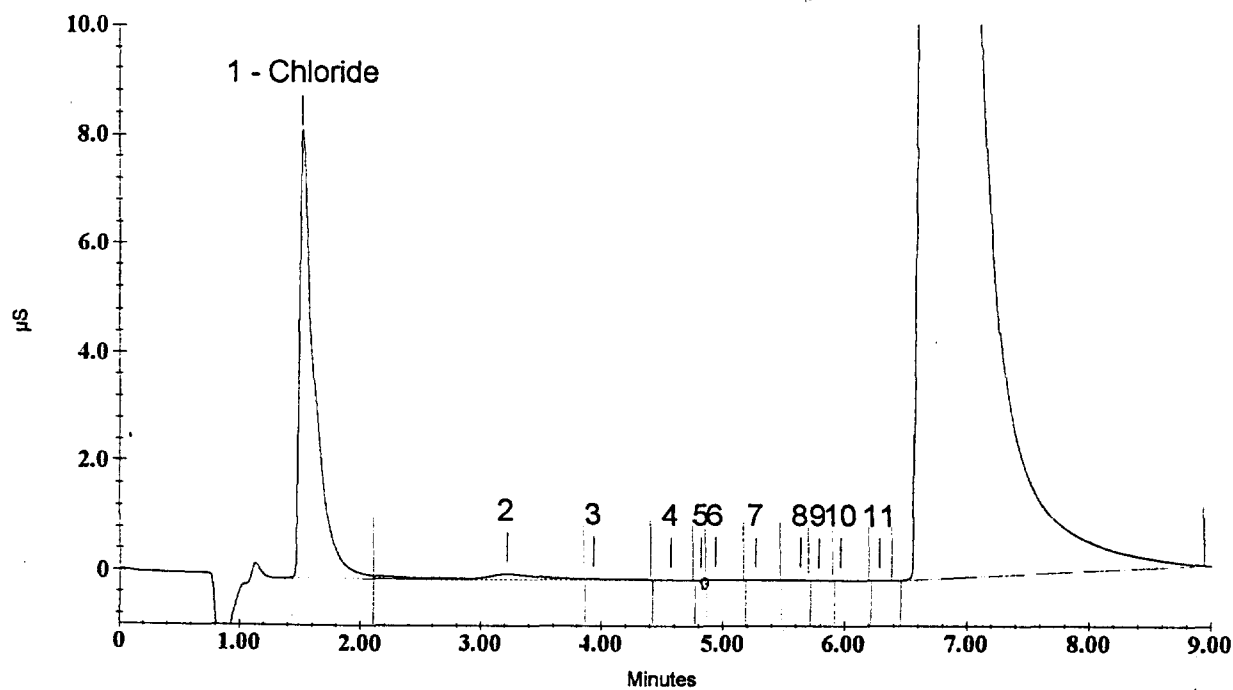
Data File : ...3816_046.DXD
Sample Name : C-3816x25
Inject # : 46
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 3:46:11 PM
Updated : 7/6/99 10:35:09 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.629	673424	80445

REPRODUCIBLE
DATA

C-3816x25



genh/ea
EXACT COPY OF
RAW DATA

Data File : ...3819_047.DXD
Sample Name : C-3819x10
Inject # : 47
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

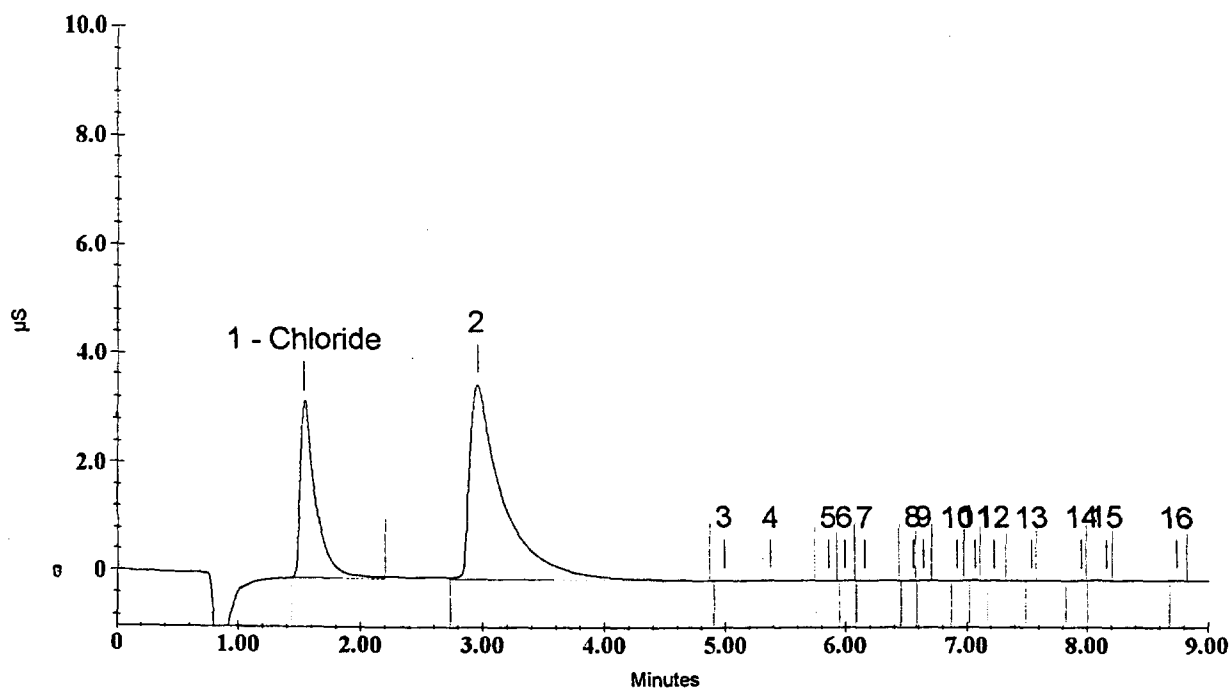
Collected : 7/2/99 3:56:15 PM
Updated : 7/2/99 4:05:35 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	0.990	287266	32028

REPROCESS

C-3819x10



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EXACT COPY OF
RAW DATA

Data File : ...3819_047.DXD
Sample Name : C-3819x10
Inject # : 47
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

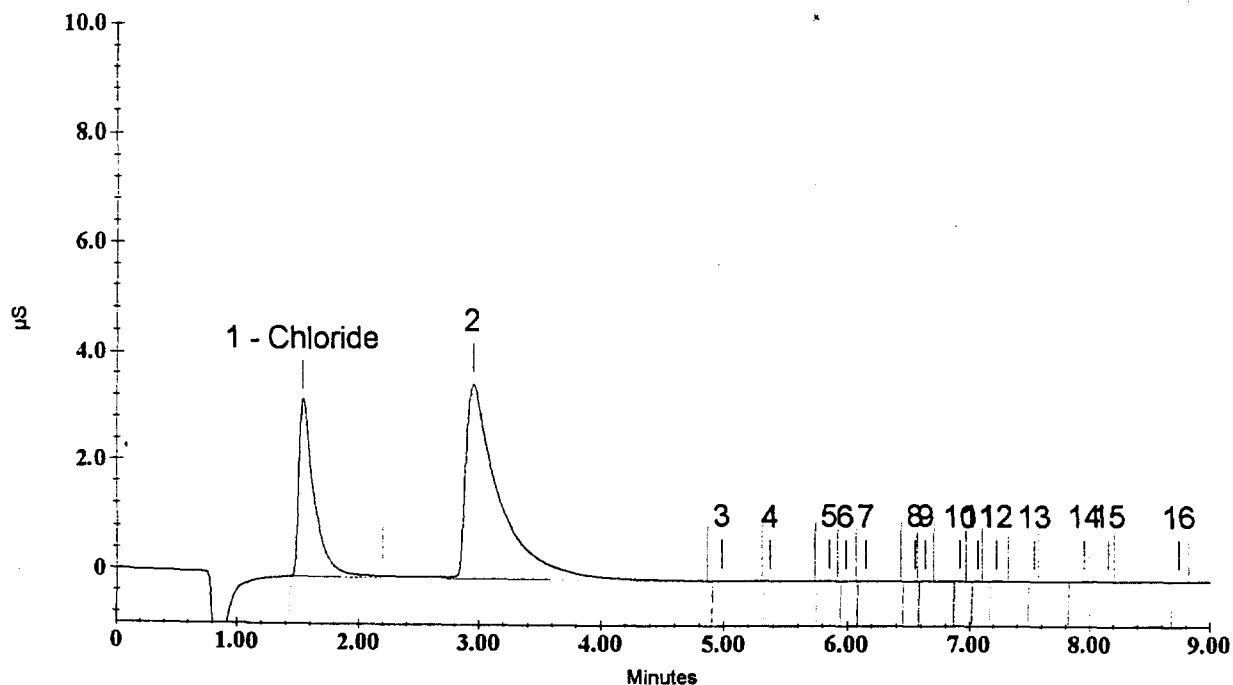
Collected : 7/2/99 3:56:15 PM
Updated : 7/6/99 10:36:36 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	0.990	287266	32028

REPROCESSED
DATA

C-3819x10



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RAW DATA

Data File : ...\\3819_048.DXD
Sample Name : C-3819x10
Inject # : 48
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

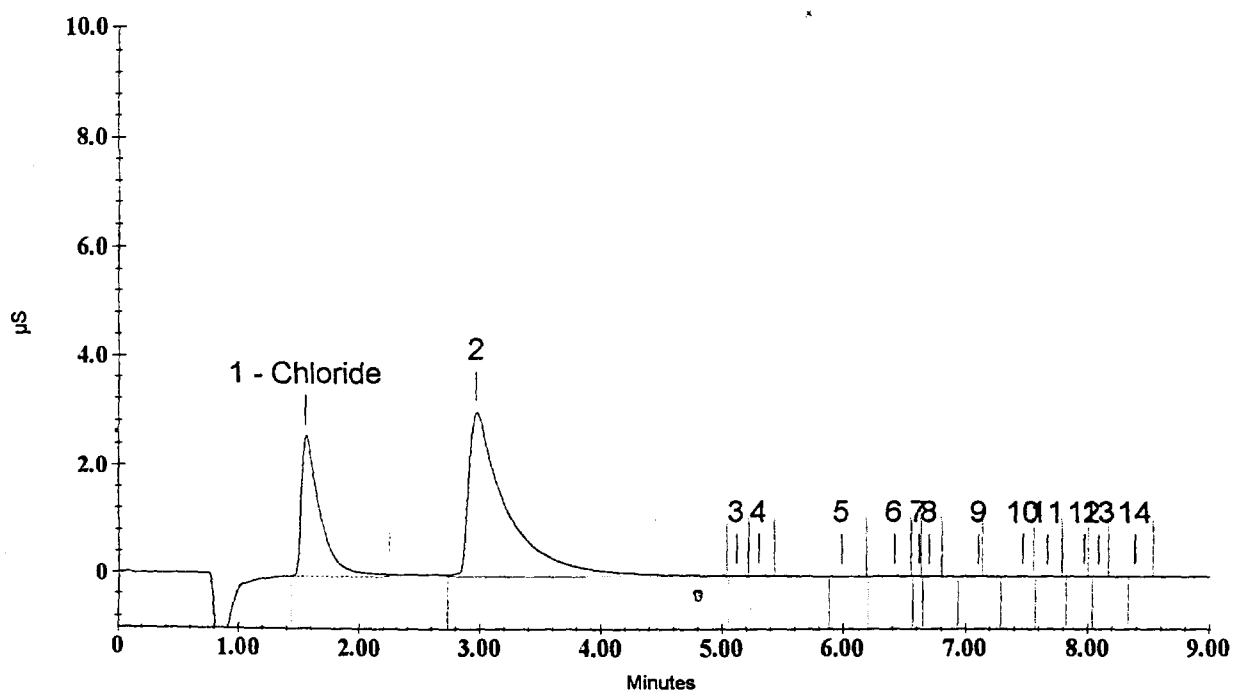
Collected : 7/2/99 4:06:19 PM
Updated : 7/2/99 4:15:21 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.969	282472	25384

REPROCESS

C-3819x10



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RAW DATA

Handwritten signature/initials
7/19/99

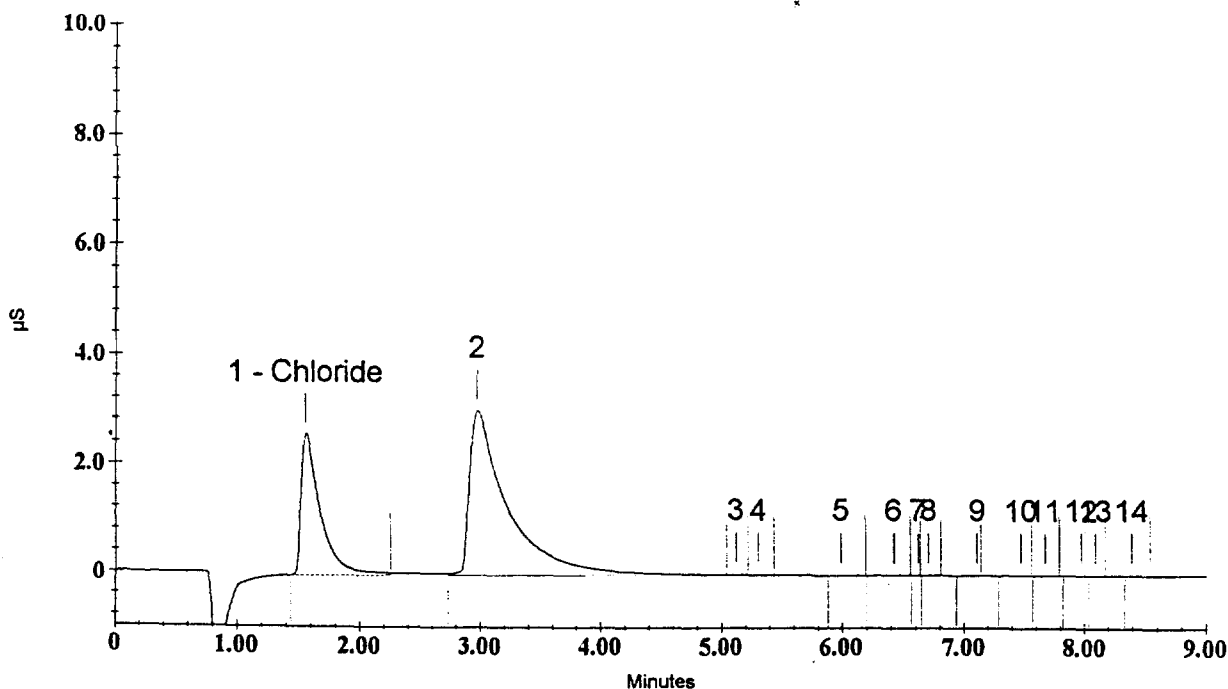
Data File : ...\\3819_048.DXD
Sample Name : C-3819x10
Inject # : 48
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 4:06:19 PM
Updated : 7/6/99 10:36:52 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.969	282472	25384

REPROCESSED
DATA

C-3819x10



EXACT COPY OF
RAW DATA

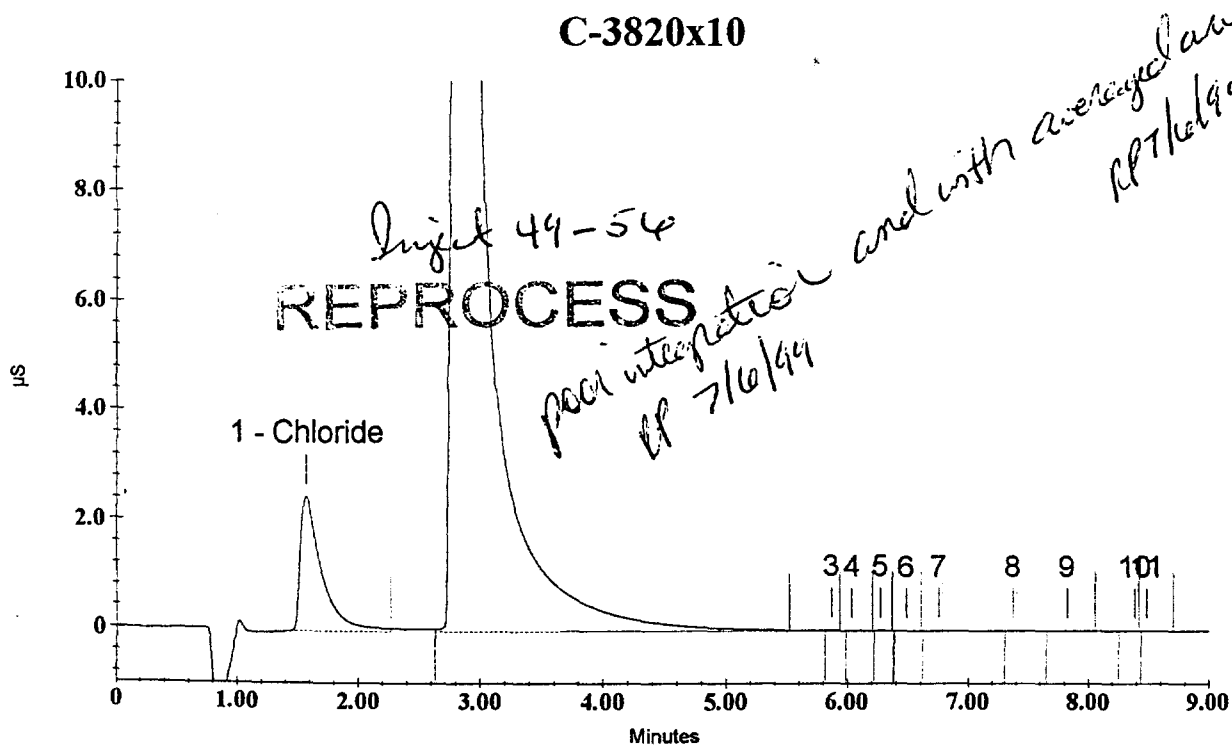
OK 7/29/99

Data File : ...3820_049.DXD
Sample Name : C-3820x10
Inject # : 49
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 4:16:22 PM
Updated : 7/2/99 4:25:34 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	1.042	299380	24527



EXACT COPY OF
RAW DATA

RP 7/29/99

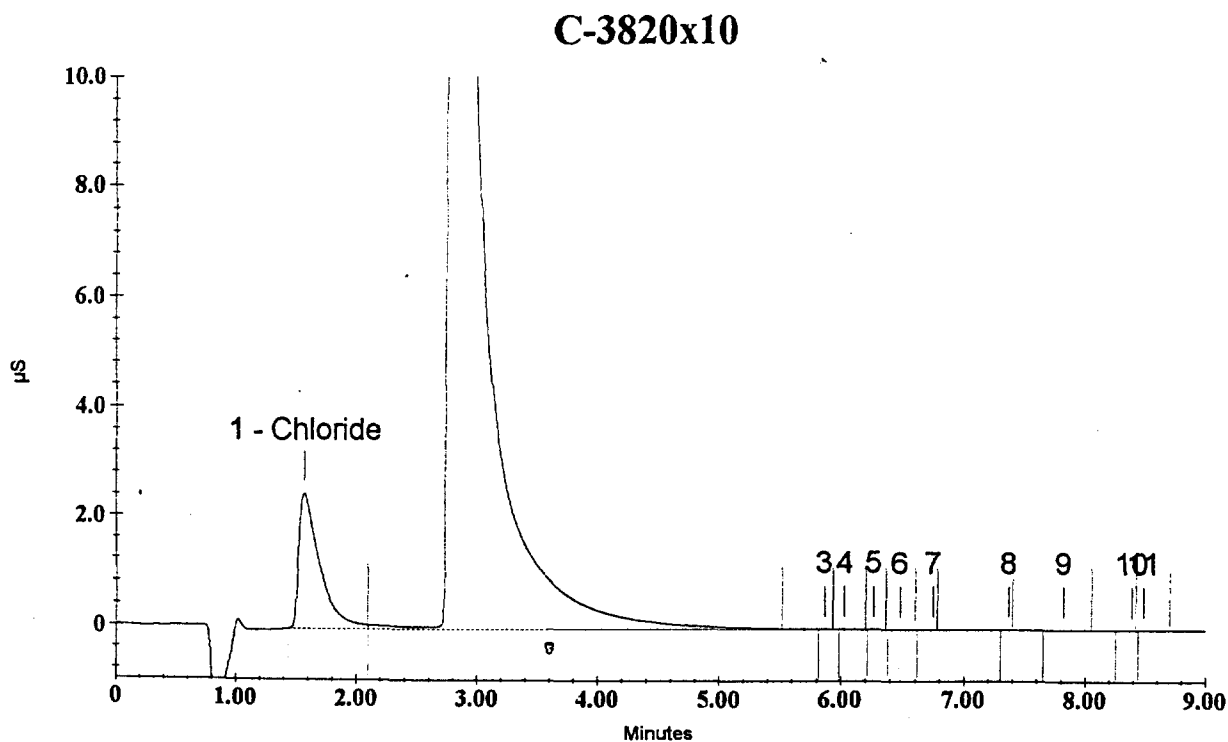
Data File : ...3820_049.DXD
Sample Name : C-3820x10
Inject # : 49
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 4:16:22 PM
Updated : 7/6/99 10:37:07 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	1.015	293123	24527

UNRESOLVED
DATA



07/29/99
EXACT COPY OF
RAW DATA

Data File : ...3820_050.DXD

Sample Name : C-3820x10

Inject # : 50

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 4:26:27 PM

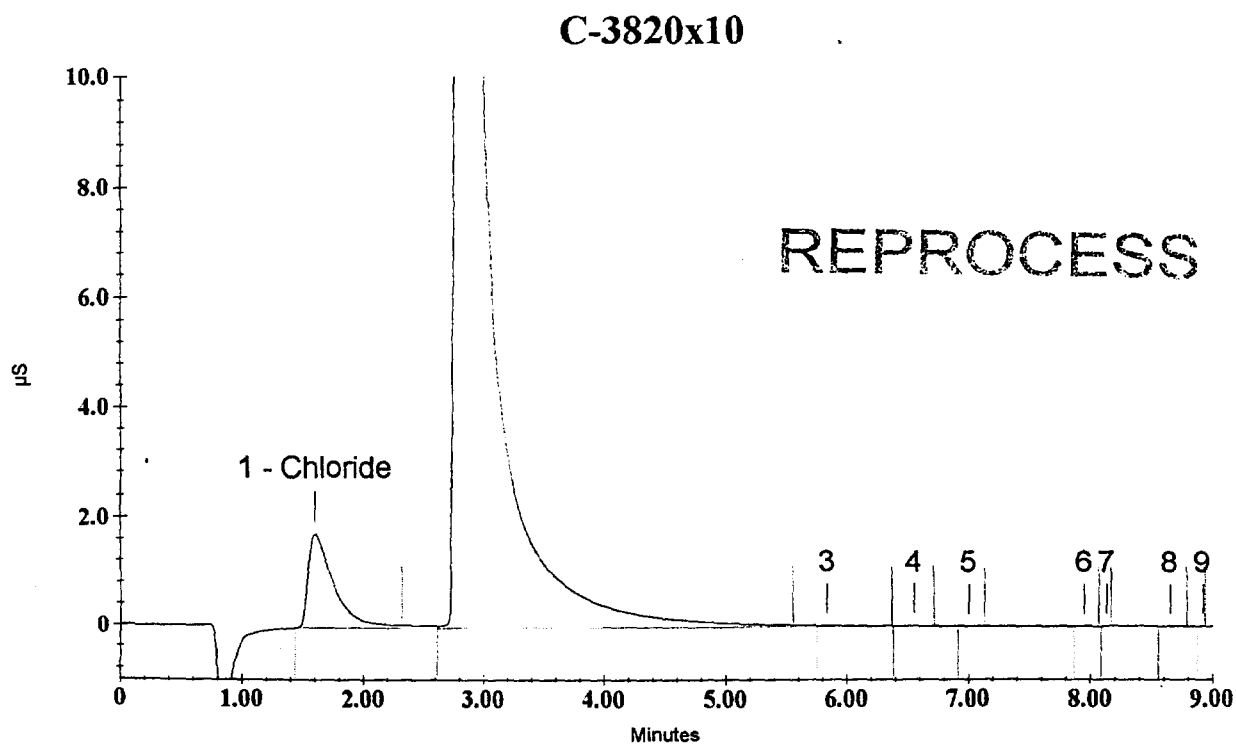
Updated : 7/2/99 4:35:33 PM

Calibrated : 7/2/99 9:13:53 AM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.860	257098	17346



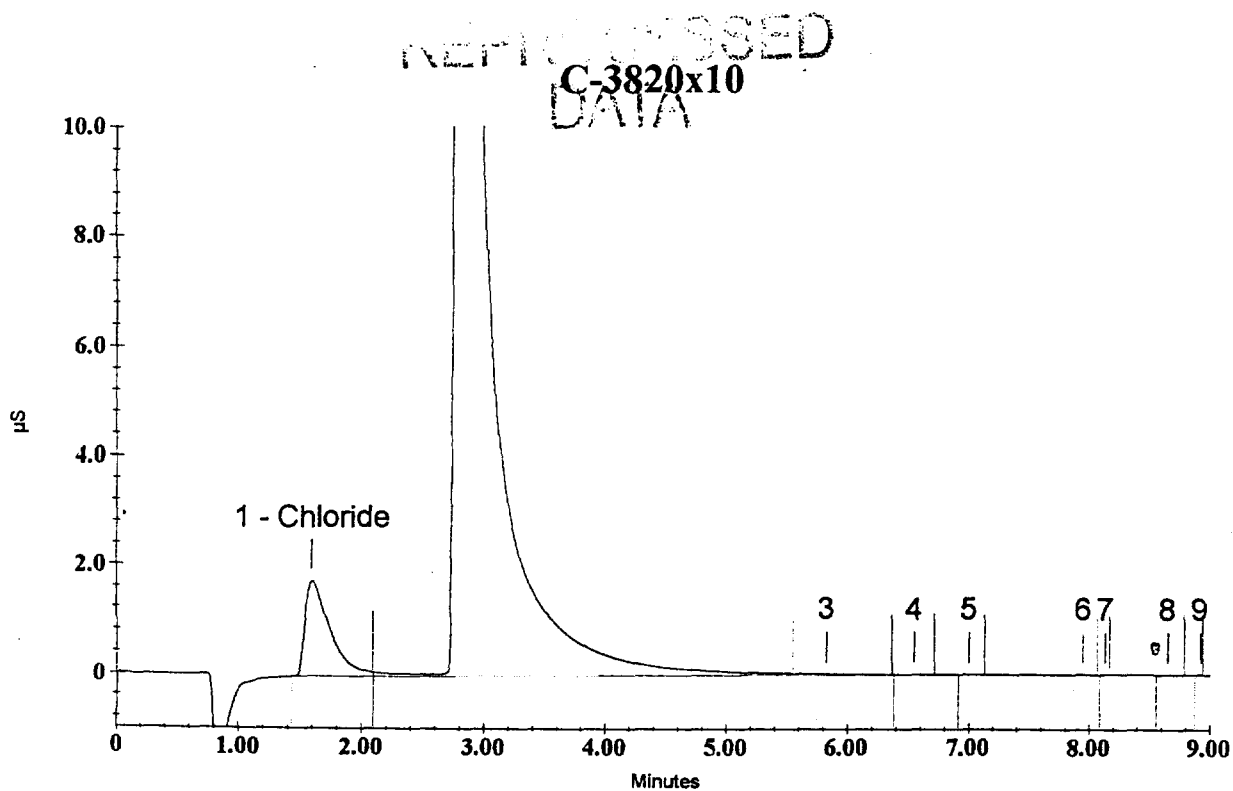
EXACT COPY OF
RAW DATA

06/29/99

Data File : ...3820_050.DXD
Sample Name : C-3820x10
Inject # : 50
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 4:26:27 PM
Updated : 7/6/99 10:37:21 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.825	248379	17346



07/19/99
EXACT COPY OF
RAW DATA

Data File : ...\\3809_051.DXD
Sample Name : C-3809x100
Inject # : 51
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

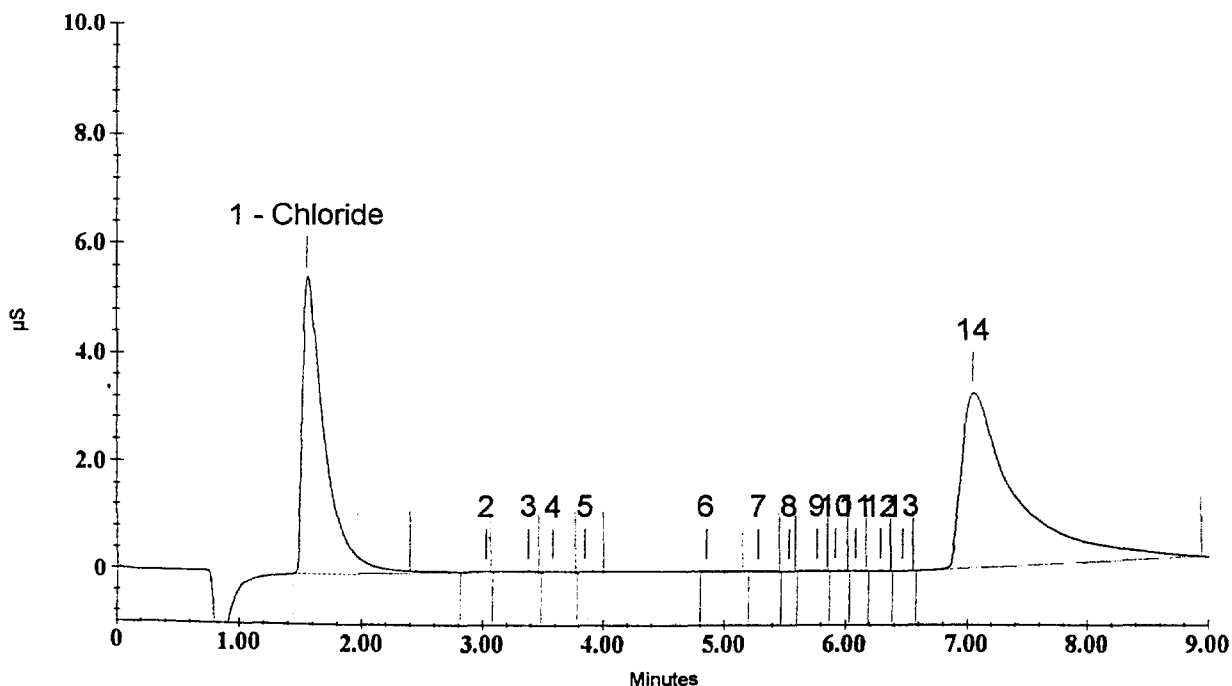
Collected : 7/2/99 4:36:33 PM
Updated : 7/2/99 4:45:39 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	2.730	692092	53785

REPROCESS

C-3809x100



Aug 1999
EXACT COPY OF
RAW DATA

Data File : ...3809_051.DXD
Sample Name : C-3809x100
Inject # : 51
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

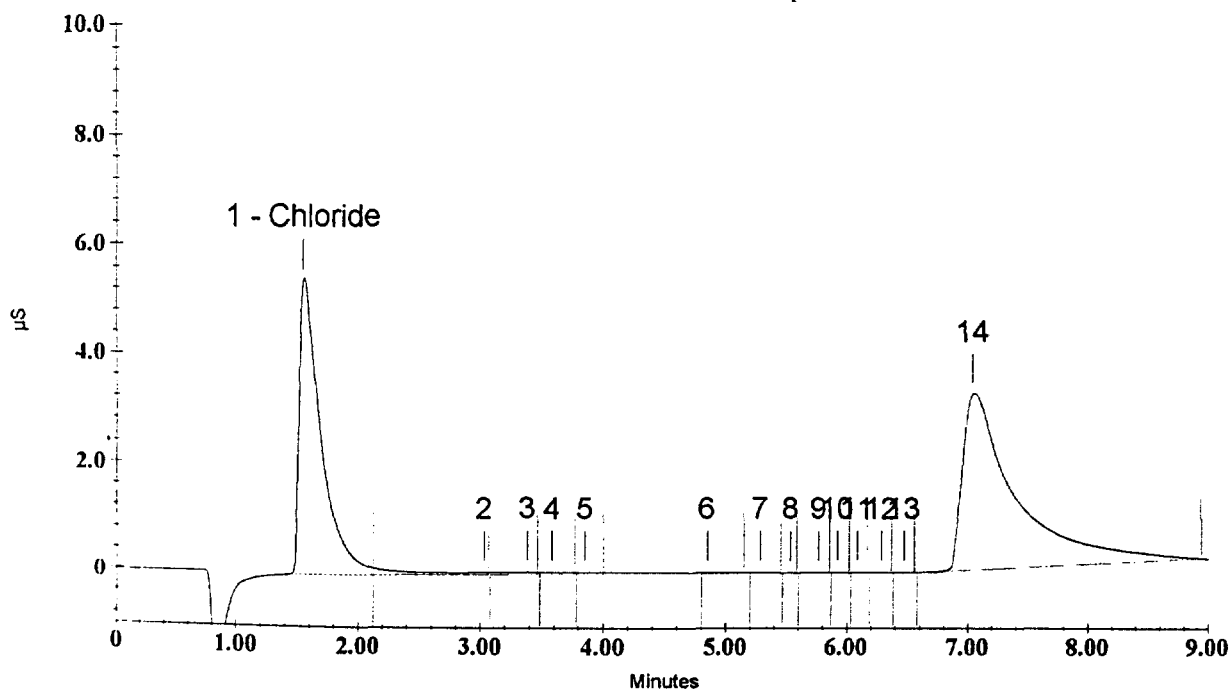
Collected : 7/2/99 4:36:33 PM
Updated : 7/6/99 10:29:56 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	2.628	673270	53785

REPROCESSED
DATA

C-3809x100



Genhaka
EXACT COPY OF
RAW DATA

Data File : ...3809_052.DXD
Sample Name : C-3809x100
Inject # : 52
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

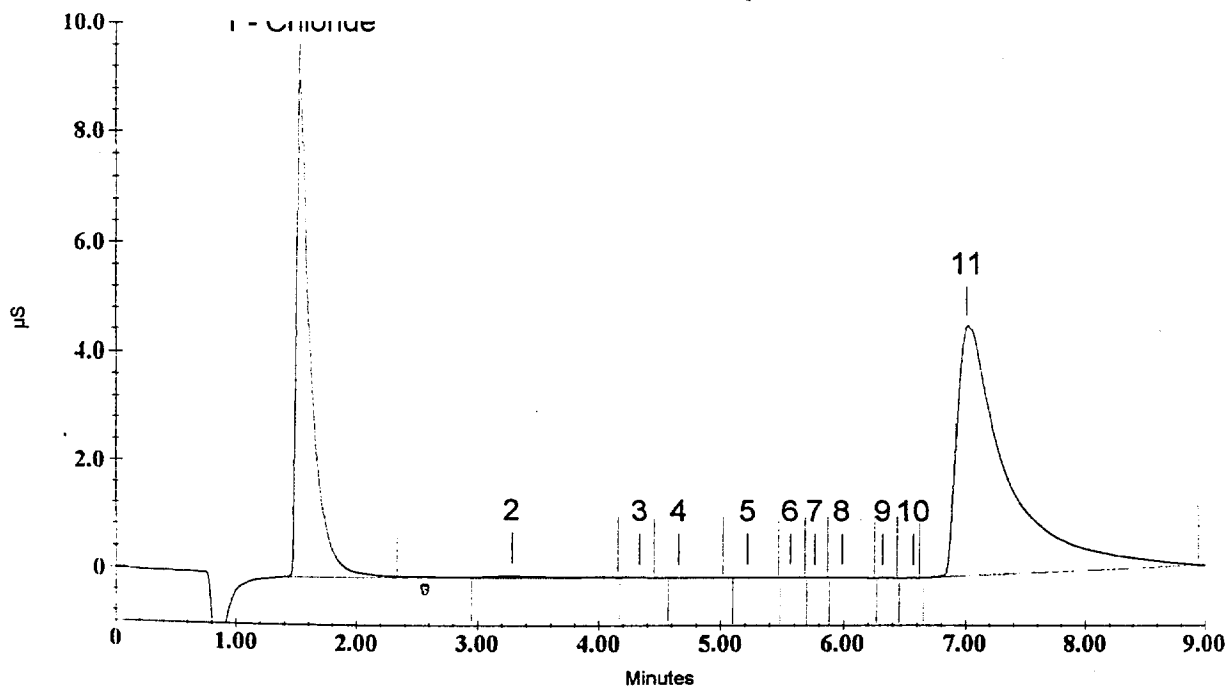
Collected : 7/2/99 4:46:38 PM
Updated : 7/2/99 4:55:58 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.929	738554	8928

REPROCESS

C-3809x100



EXACT COPY OF
RAW DATA
6/27/99

Data File : ...\\3809_052.DXD
Sample Name : C-3809x100
Inject # : 52
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

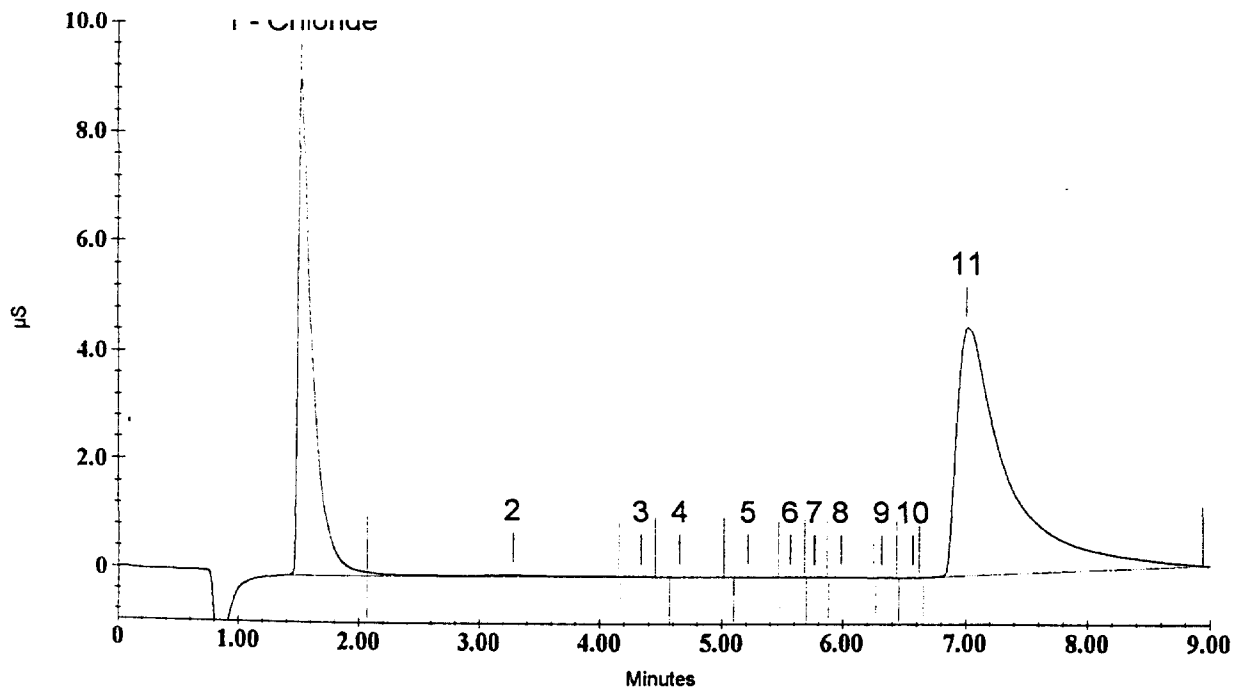
Collected : 7/2/99 4:46:38 PM
Updated : 7/6/99 10:30:10 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.903	737971	89282

REPROCESSING
DATA

C-3809x100



Gerhale
EXACT COPY OF
RAW DATA

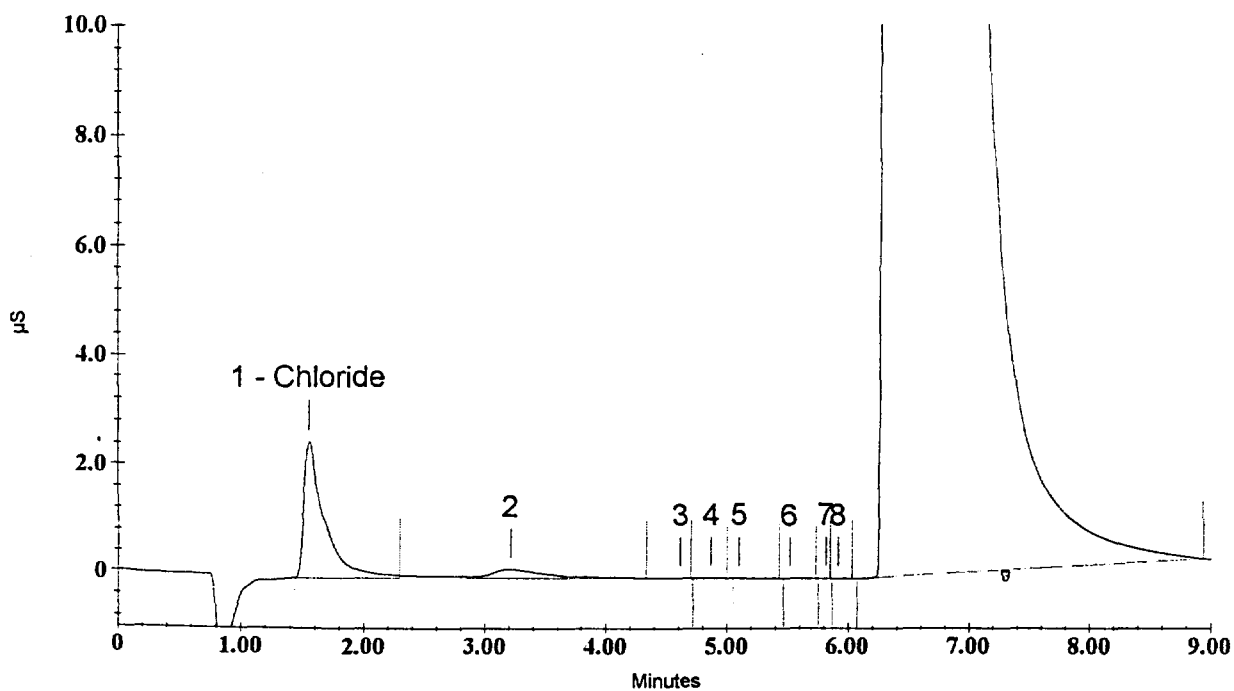
Data File : ...\\3812_053.DXD
Sample Name : C-3812x10
Inject # : 53
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 4:56:44 PM
Updated : 7/2/99 5:05:49 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.034	297523	24948

REPROCESS

C-3812x10



6/7/99
EXACT COPY OF
RAW DATA

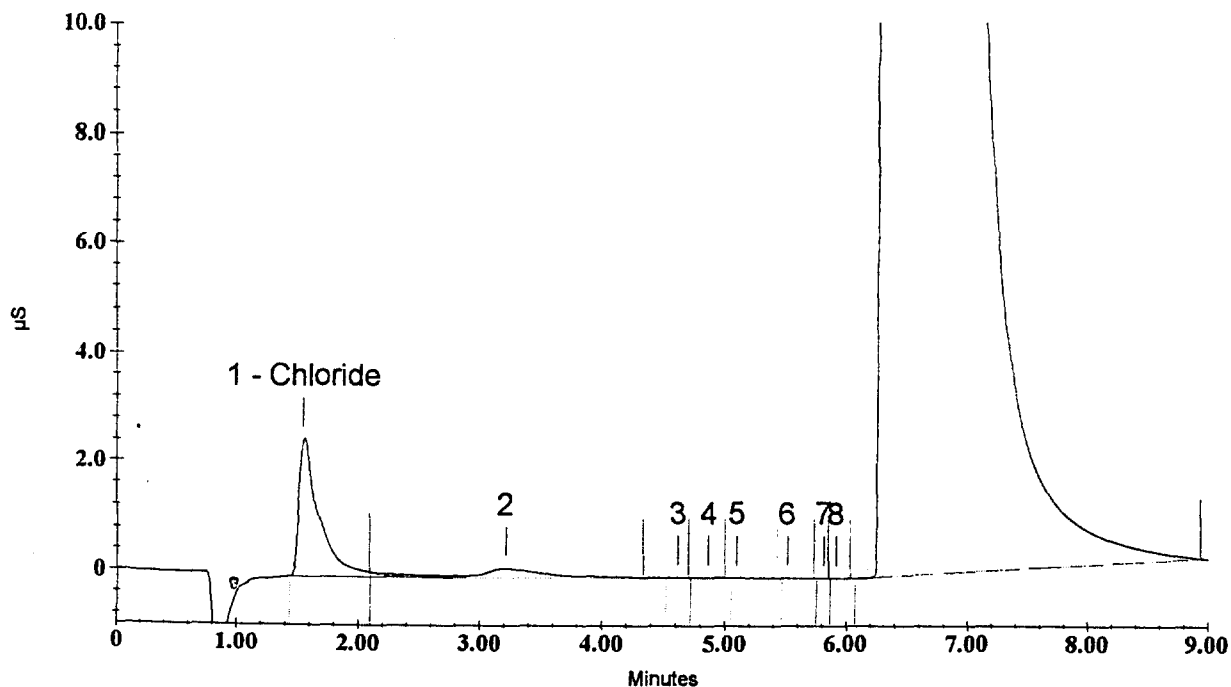
Data File : ...3812_053.DXD
Sample Name : C-3812x10
Inject # : 53
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 4:56:44 PM
Updated : 7/6/99 10:33:32 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.983	285737	24948

REPROCESSED
DATA

C-3812x10



ac 7/19/99
EXACT COPY OF
RAW DATA

Data File : ...3813_054.DXD

Sample Name : C-3813x10

Inject # : 54

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 5:06:08 PM

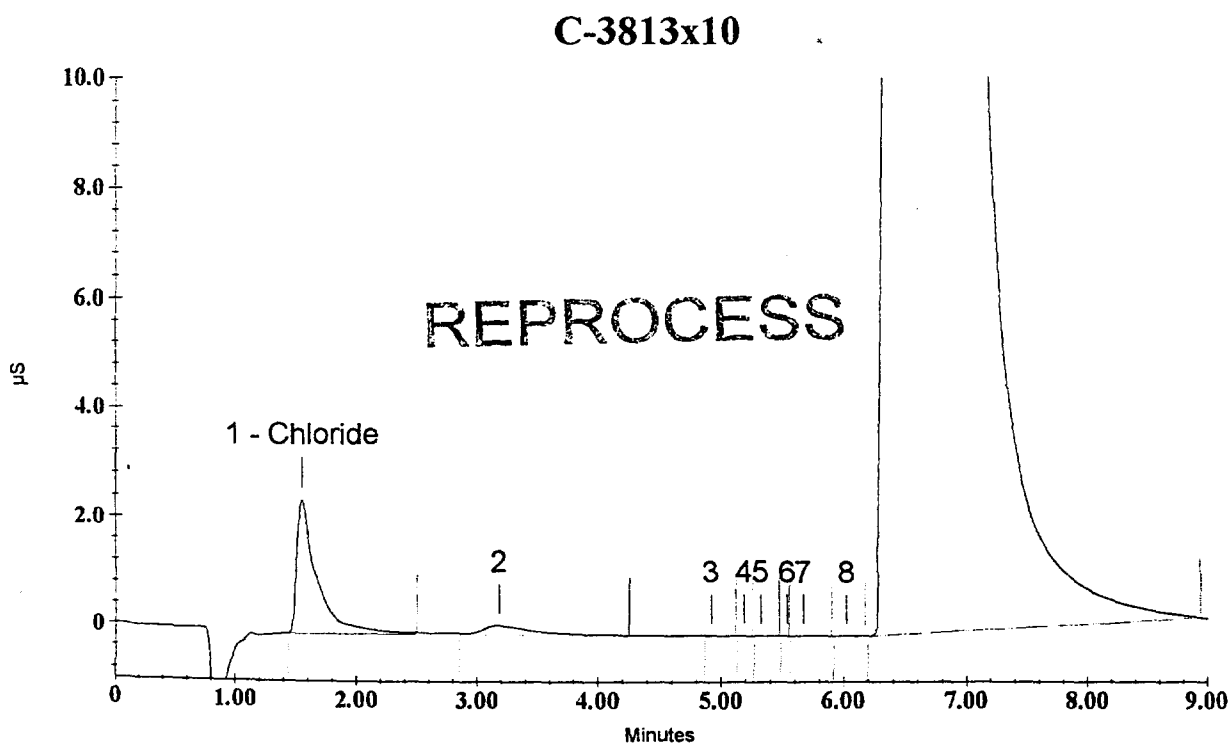
Updated : 7/2/99 5:15:10 PM

Calibrated : 7/2/99 9:13:53 AM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.014	292862	24680



7/2/99
EXACT COPY OF
RAW DATA

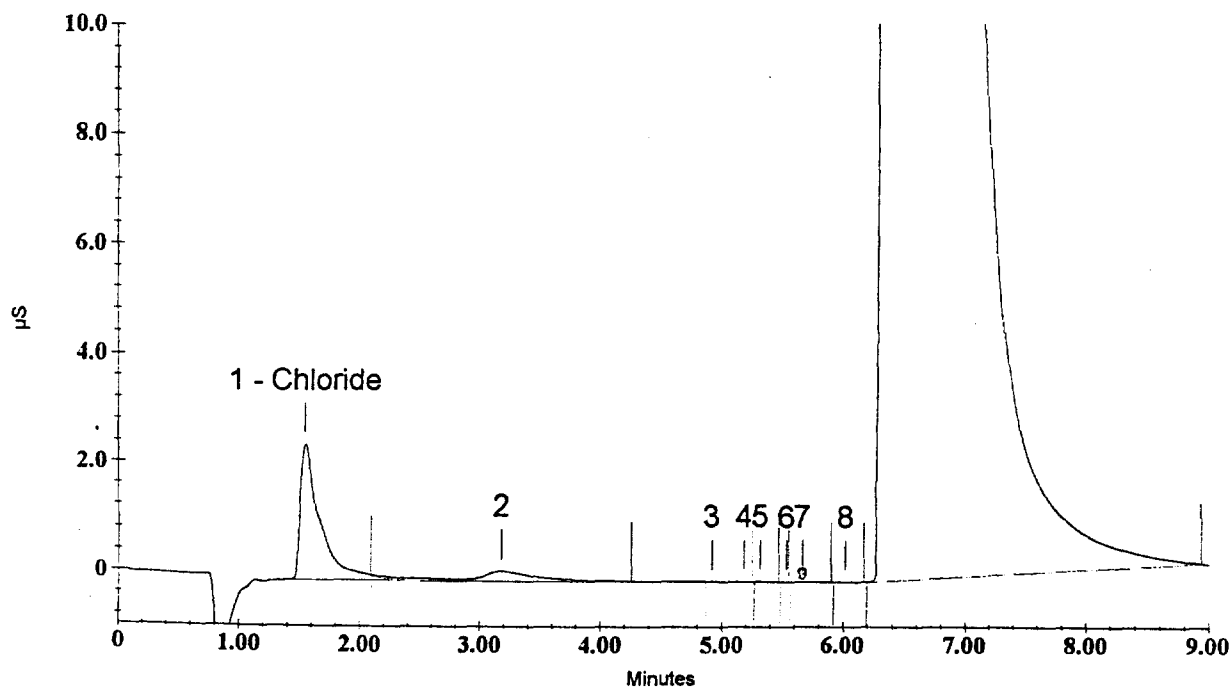
Data File : ...3813_054.dxd
Sample Name : C-3813x10
Inject # : 54
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 5:06:08 PM
Updated : 7/6/99 10:41:20 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.910	268417	24680

REPROCESSED
DATA

C-3813x10



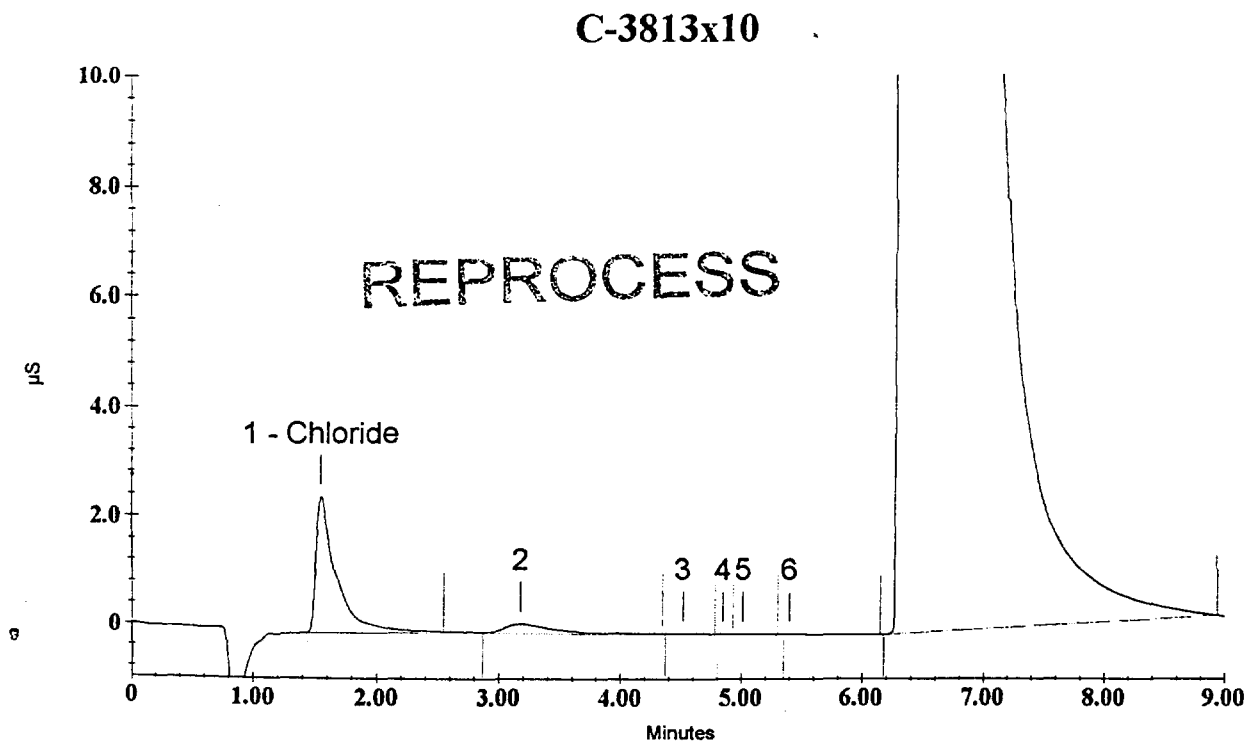
Gen 7/19/99
EXACT COPY OF
RAW DATA

Data File : ...3813_055.DXD
Sample Name : C-3813x10
Inject # : 55
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 5:16:12 PM
Updated : 7/2/99 5:25:16 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	1.029	296468	24721



Gen/24/99
EXACT COPY OF
RAW DATA

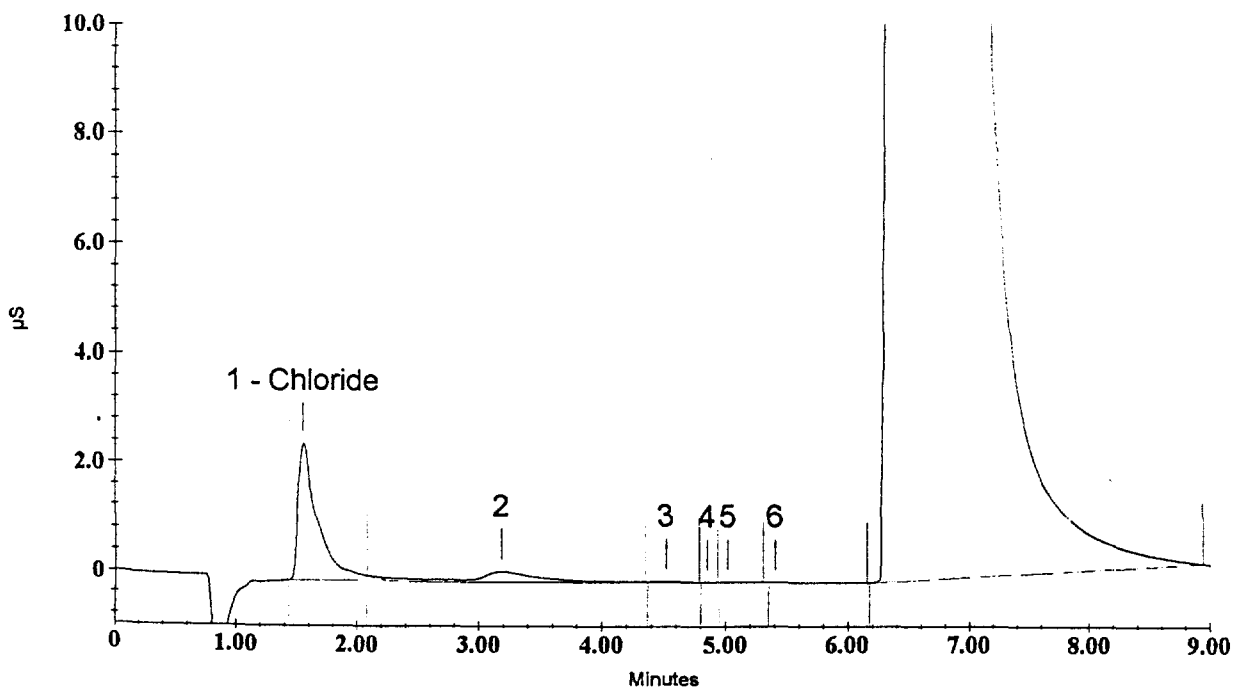
Data File : ...3813_055.DXD
Sample Name : C-3813x10
Inject # : 55
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 5:16:12 PM
Updated : 7/6/99 10:33:46 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.848	253826	24721

REPROCESSED
DATA

C-3813x10

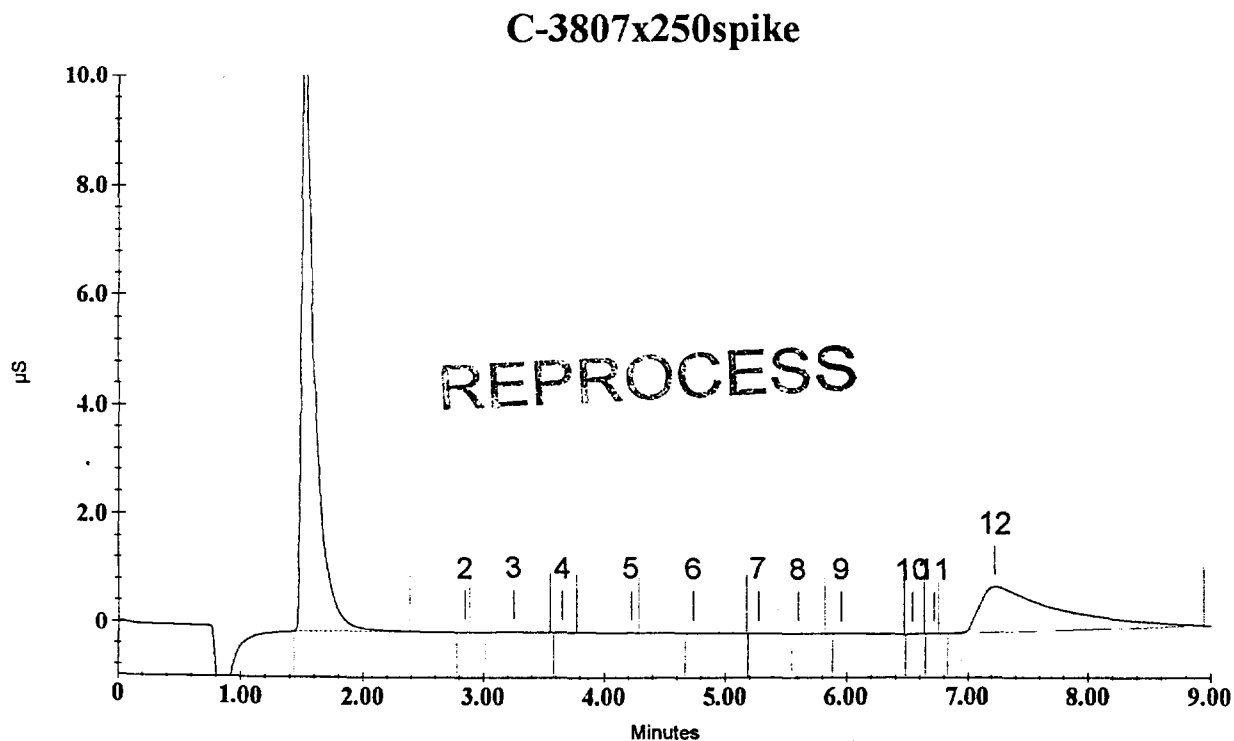


06/17/99
EXACT COPY OF
RAW DATA

Data File : ...\\3807_056.DXD
Sample Name : C-3807x250spike
Inject # : 56
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 5:26:17 PM
Updated : 7/2/99 5:35:24 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.179	796767	108694



OK 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3807_056.DXD
Sample Name : C-3807x250spike
Inject # : 56
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

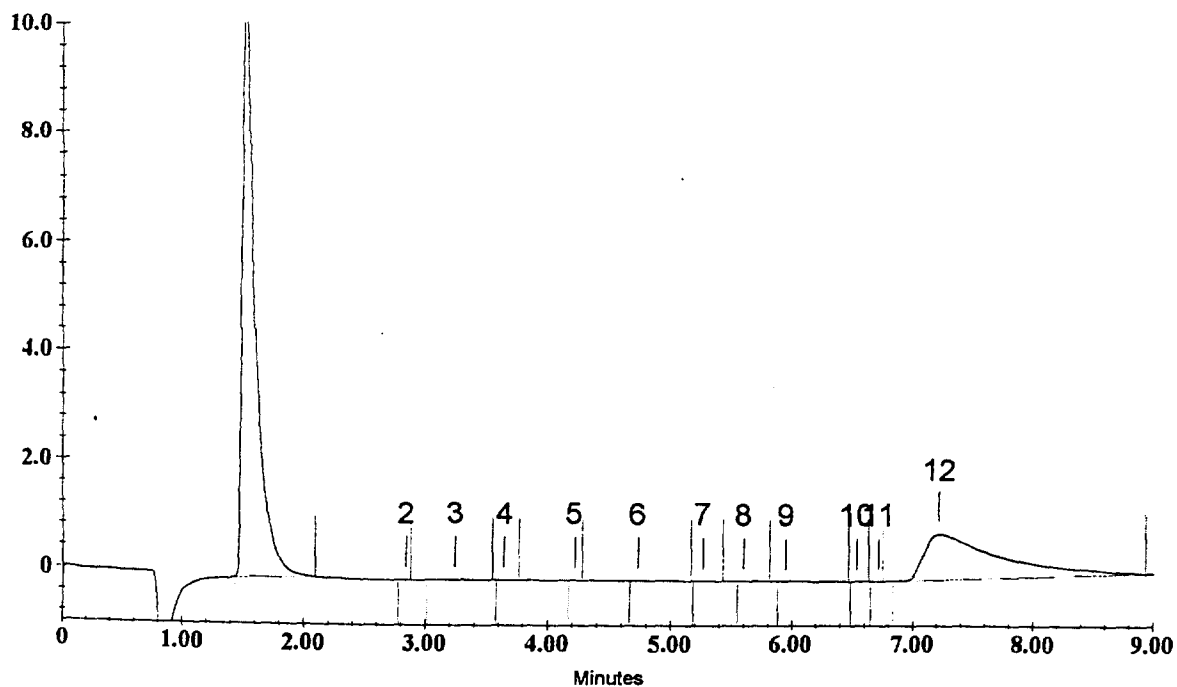
Collected : 7/2/99 5:26:17 PM
Updated : 7/6/99 10:22:55 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	3.119	788830	108658

REPROCESSED
DATA

C-3807x250spike



INSPECTED
37 7/13/99
C-3807x250
E-3803-20

07/29/99

EXACT COPY OF
RAW DATA

Data File : ...\\blk_058.DXD
Sample Name : a-0000
Inject # : 58
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

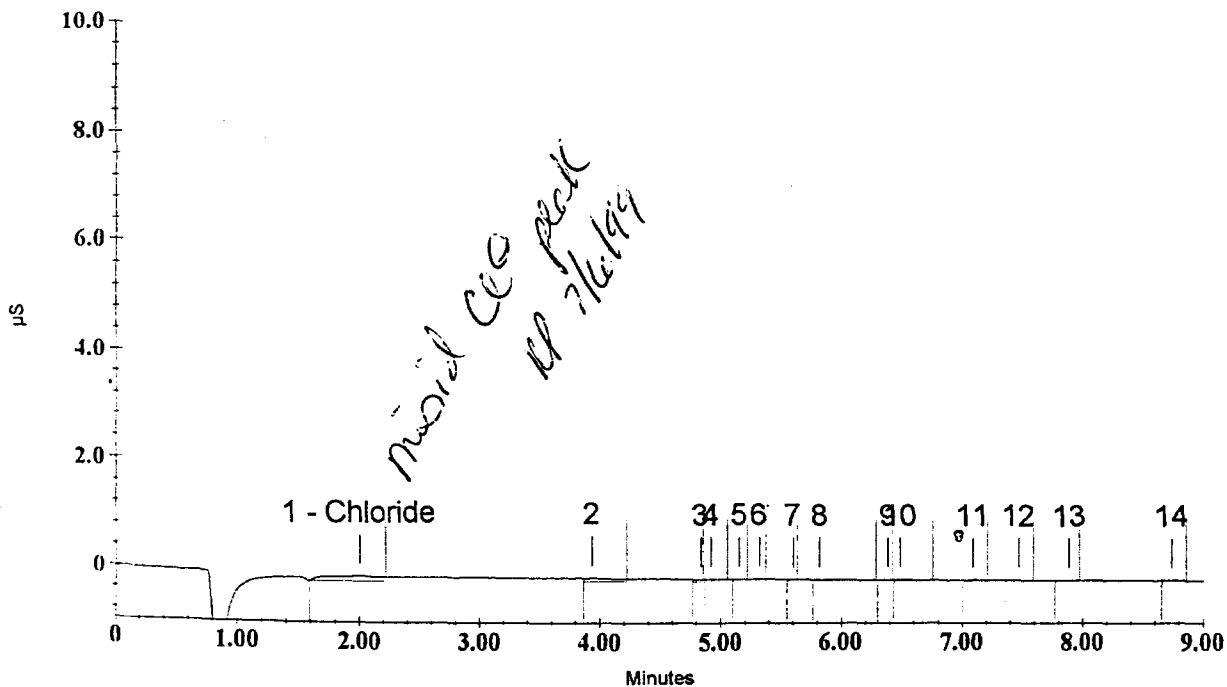
Collected : 7/2/99 5:46:25 PM
Updated : 7/2/99 5:55:30 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	2.00	Chloride	-0.115	30123	899

Inject 58, 59
REPROCESS
with average use
rf 7/6/99

a-0000



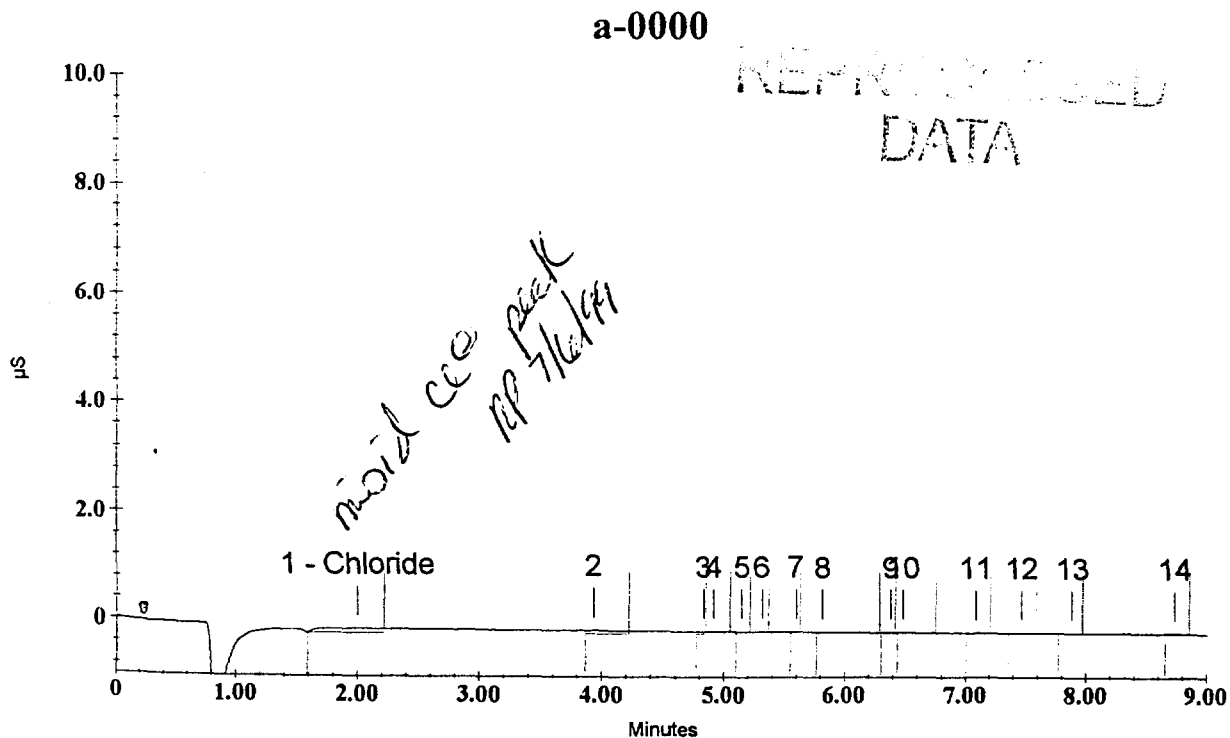
ae7/6/99
**EXACT COPY OF
RAW DATA**

Data File : ...\\BLK_058.DXD
Sample Name : a-0000
Inject # : 58
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 5:46:25 PM
Updated : 7/6/99 10:37:51 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	2.00	Chloride	-0.102	30123	899



6/27/99

EXACT COPY OF
RAW DATA

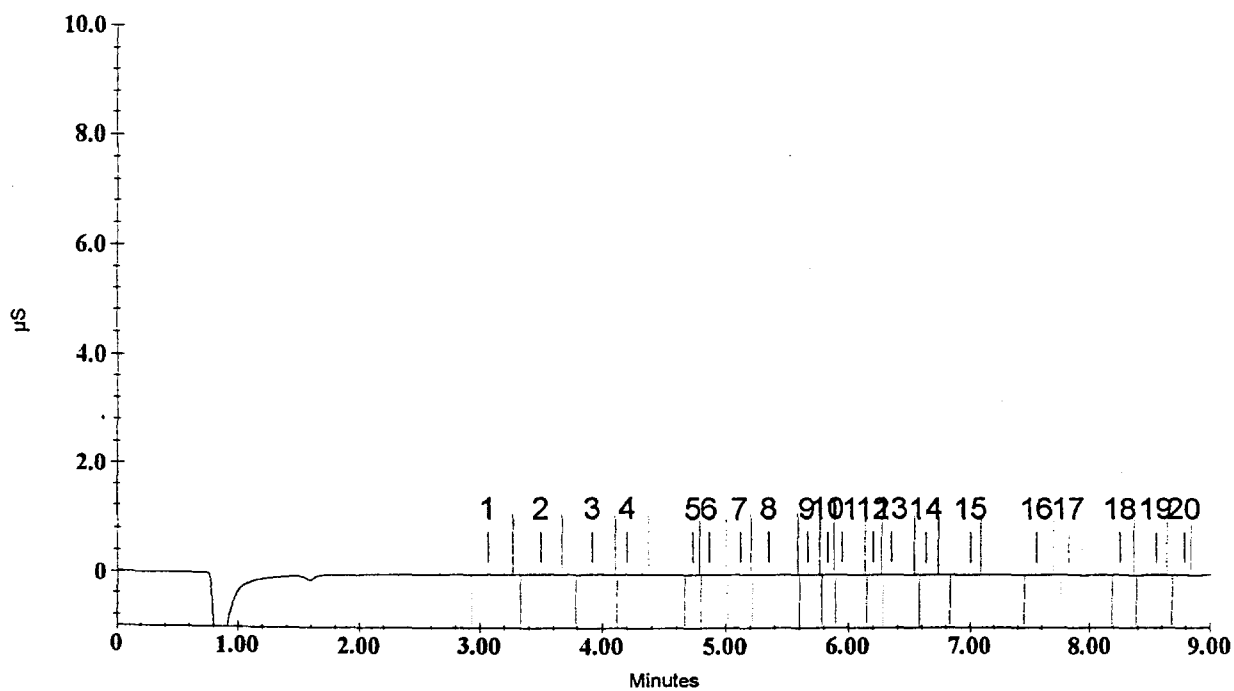
Data File : ...\\blk_059.DXD
Sample Name : a-0000
Inject # : 59
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 5:56:30 PM
Updated : 7/2/99 6:05:34 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	3.07		0.000	736	61

REPROCESS

a-0000



06/29/99
EXACT COPY OF
RAW DATA

Data File : ...\BLK_059.DXD
Sample Name : a-0000
Inject # : 59
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

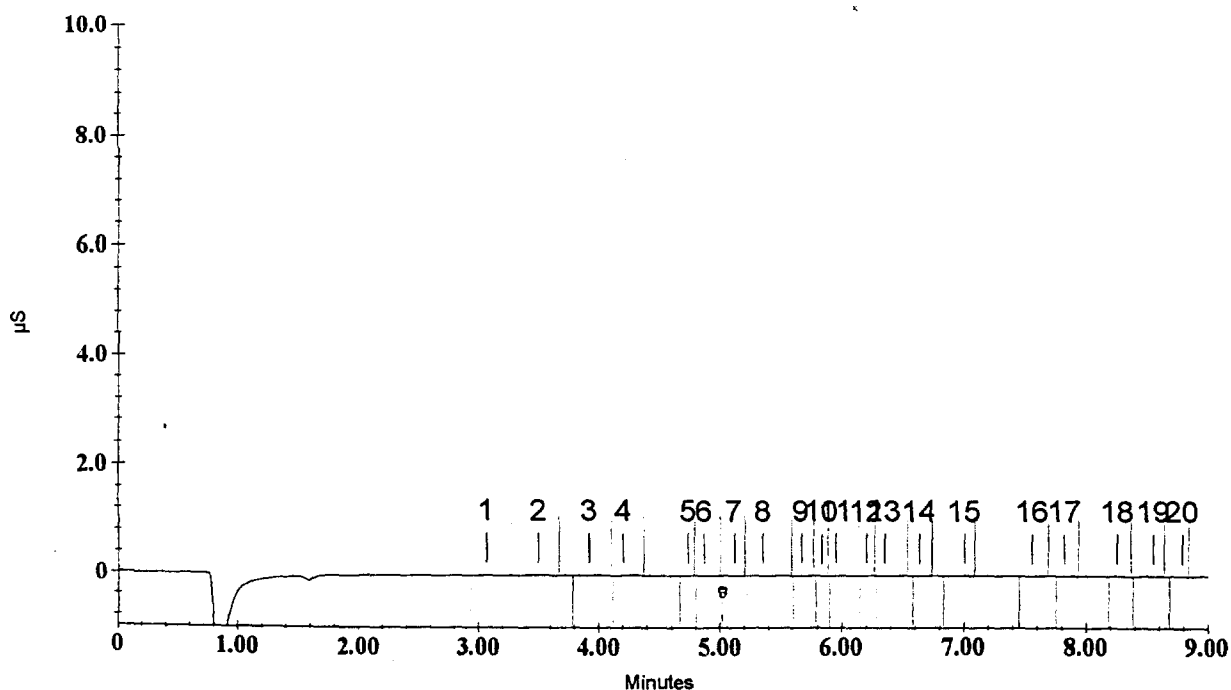
Collected : 7/2/99 5:56:30 PM
Updated : 7/6/99 10:38:05 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	3.07		0.000	736	61

REPROCESSED
DATA

a-0000



EXACT COPY OF
RAW DATA

Qezh9499

Data File : ...Aics_060.DXD

Sample Name : ics

Inject # : 60

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 6:06:34 PM

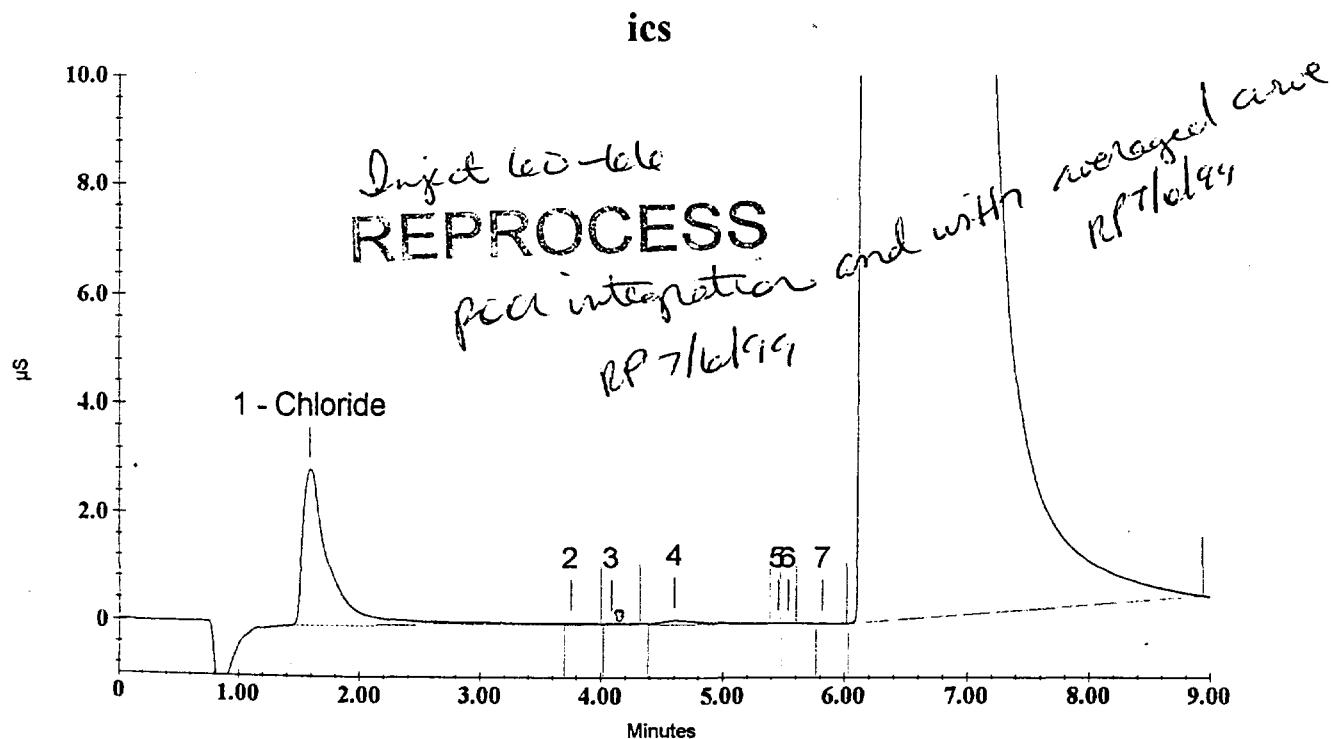
Updated : 7/2/99 6:15:40 PM

Calibrated : 7/2/99 9:13:53 AM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	1.565	420980	28492



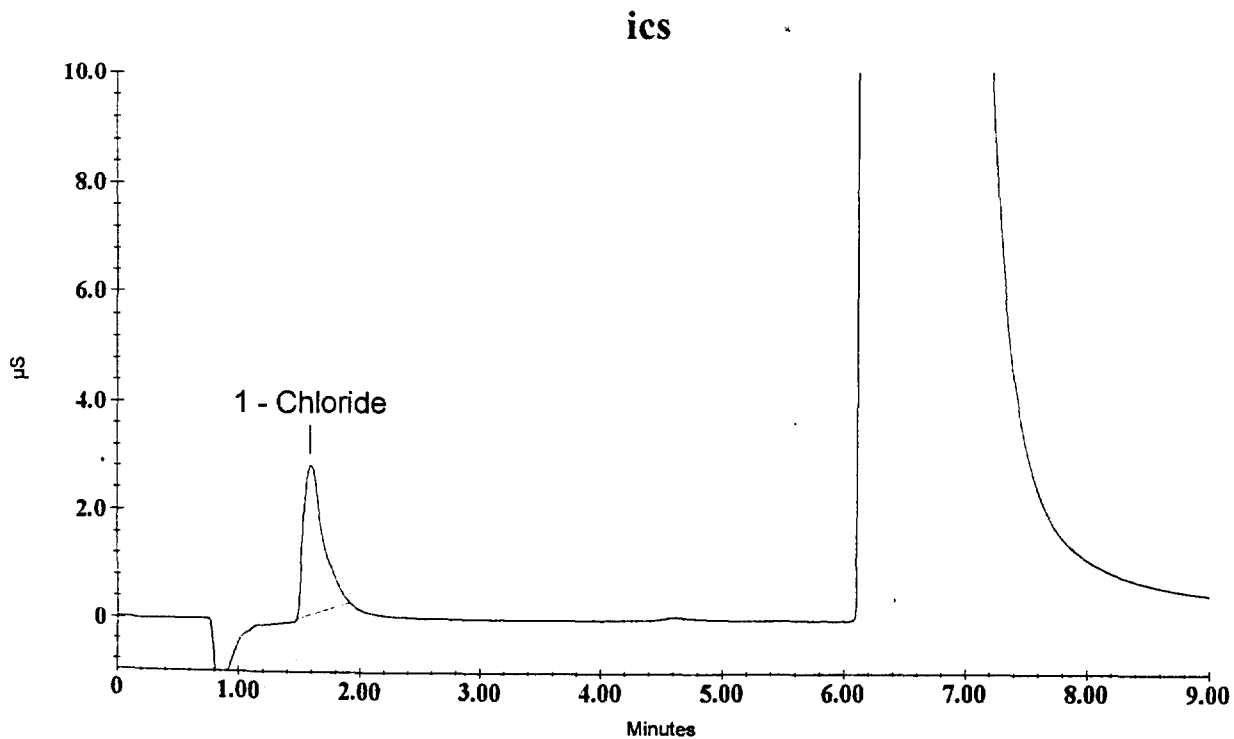
06/7/99
EXACT COPY OF
RAW DATA

Data File : ...ICS_060.DXD
Sample Name : ics
Inject # : 60
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:06:34 PM
Updated : 7/6/99 9:42:53 AM
Calibrated : 7/6/99 9:30:09 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	1.086	309854	27076

REPROCESSED
DATA



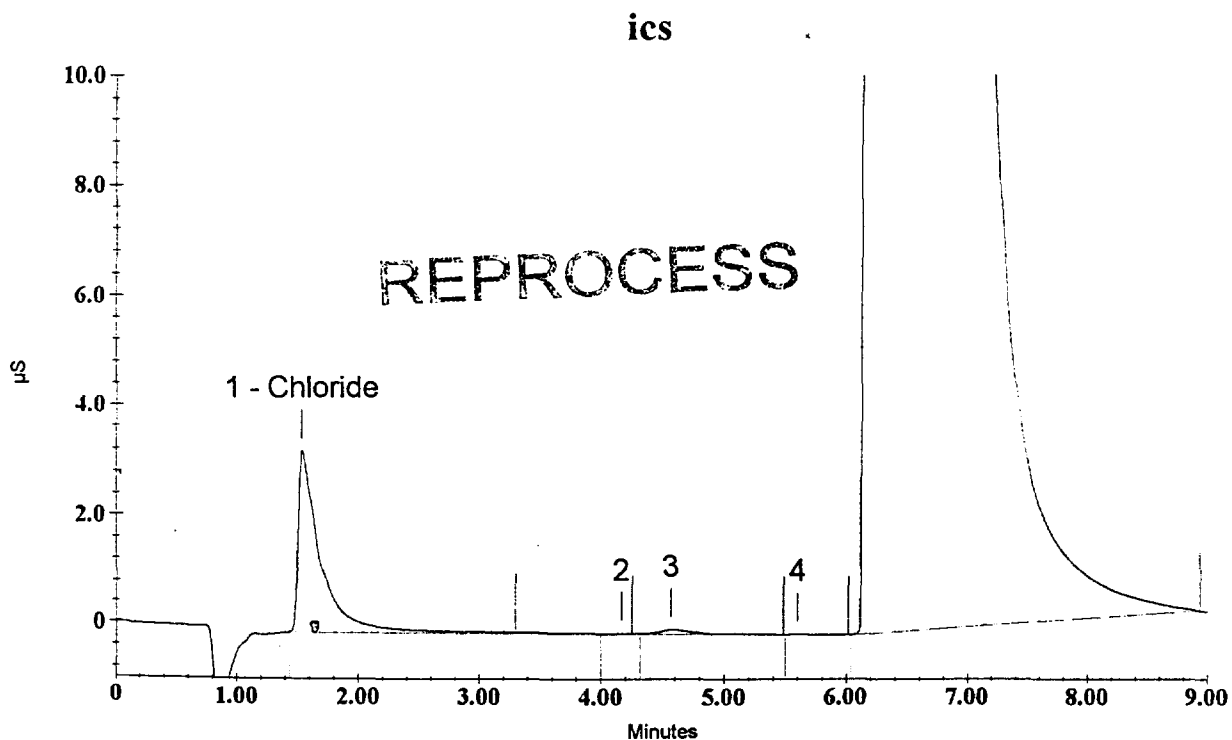
07/2/99
EXACT COPY OF
RAW DATA

Data File : ...ics_061.DXD
Sample Name : ics
Inject # : 61
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:16:40 PM
Updated : 7/2/99 6:25:44 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.596	428285	32935



02/29/99
EXACT COPY OF
RAW DATA

Data File : ...ICS_061.DXD

Sample Name : ics

Inject # : 61

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/2/99 6:16:40 PM

Updated : 7/6/99 10:56:31 AM

Calibrated : 7/2/99 9:13:53 AM

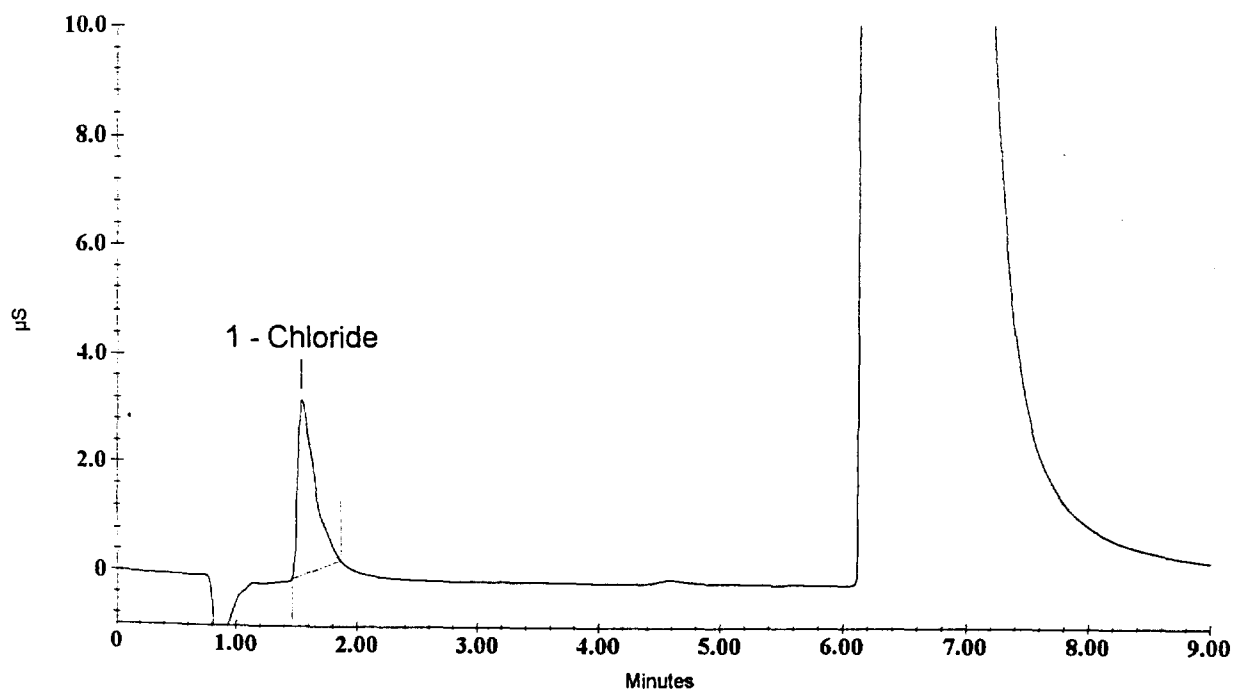
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.095	311673	31860

REPROCESSED
DATA

ics



EXACT COPY OF
RAW DATA

WML

Method 26, 421, 9057

run date: 7/7/99

WML
7/12/99enter date: 7/8/99
analyst: Rf

1 of 2

matrix: H₂SO₄
inst. # 830
method/std: I/C

pg: 009

run # std.conc. area 1 area 2 avg.

3	23	0.5ppm	100889	110547	105718
4	24	1.0ppm	210935	211339	211137
5	25	2.0ppm	431565	443357	437461
6	26	5.0ppm	1255422	1237697	1246560

run # 21 # 22
ICS Recovery: 95.32%, 99.62%
run # 8 95.52%
Spike Recovery:

$$[C] = [A] * [B]$$

$$[E] = [C] * [D] * 1.0284$$

	Spl #	area	avg.	dilution [B]	volume [D]	µg/ml Cl [A]	µg HCl per spl [E]	Total µg [C]
7	A-0000			—	—	0.193	—	4.5
8	P-1711	205554		—	—	0.455	—	95.5%
9	C-3809			100	100	3.497	35963	349.7
10	C-3809			1	100	3.491	35901	349.1
11	C-3812			10	96	1.003	990.2	10.03
12	C-3812			1	96	1.004	991.2	10.04
13	C-3813			10	90	.943	872.8	9.43
14	C-3813			1	90	.941	870.95	9.41
15	C-3818			250	122	1.296	40651	324.0
16	C-3818			1	122	1.311	4121	327.75
17	C-3820			10	100	1.325	1362.63	13.25
18	C-3820			1	100	1.325	1362.63	13.25
19	A-0000			—	—	0.198	—	4.5
20	A-0000			—	—	0.268	—	4.5

EXACT COPY OF
RAW DATA

7/15/99
INSPECTED
ST 7/14/99
C3809-20
(3809, 12, 13, 18, 20)

262

WML
7/12/99

enter date: 7/8/99
analyst: RF

pg: 010

run #	std.conc.	area 1	area 2	avg.

ICS Recovery:

Spike Recovery:

[illegible]

EXACT COPY OF
RAW DATA

Line	Sample	Sample Type	Level	Method
1	peakid	Sample		m26h2so4.met
2	di	Sample		m26h2so4.met
3	0.5ppm	Calibration St	1	m26h2so4.met
4	1ppm	Calibration St	2	m26h2so4.met
5	2ppm	Calibration St	3	m26h2so4.met
6	5ppm	Calibration St	4	m26h2so4.met
7	a-0000	Sample		m26h2so4.met
8	ics	Sample		m26h2so4.met
9	C-3809x100	Sample		m26h2so4.met
10	C-3809x100	Sample		m26h2so4.met
11	C-3812x10	Sample		m26h2so4.met
12	C-3812x10	Sample		m26h2so4.met
13	C-3813x10	Sample		m26h2so4.met
14	C-3813x10	Sample		m26h2so4.met
15	C-3818x250	Sample		m26h2so4.met
16	C-3818x250	Sample		m26h2so4.met
17	C-3820x10	Sample		m26h2so4.met
18	C-3820x10	Sample		m26h2so4.met
19	a-0000	Sample		m26h2so4.met
20	a-0000	Sample		m26h2so4.met
21	ics	Sample		m26h2so4.met
22	ics	Sample		m26h2so4.met
23	0.5ppm	Calibration St	1	m26h2so4.met
24	1ppm	Calibration St	2	m26h2so4.met
25	2ppm	Calibration St	3	m26h2so4.met
26	5ppm	Calibration St	4	m26h2so4.met
27	peakid	Sample		anions as4.met
28	peakid	Sample		anions as4.met
29	di	Sample		anions as4.met
30	0.5ppm	Calibration St	1	anions as4.met
31	1ppm	Calibration St	2	anions as4.met
32	2ppm	Calibration St	3	anions as4.met
33	5ppm	Calibration St	4	anions as4.met
34	di	Sample		anions as4.met
35	ics	Sample		anions as4.met
36	ics	Sample		anions as4.met

RP/SP
#830
7/7/99

SP run # 27-36 only

EXACT COPY OF
RAW DATA

Data File : ...05ppm_003.DXD

Sample Name : 0.5ppm

Inject # : 3

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 8:08:11 AM

Updated : 7/7/99 8:22:16 AM

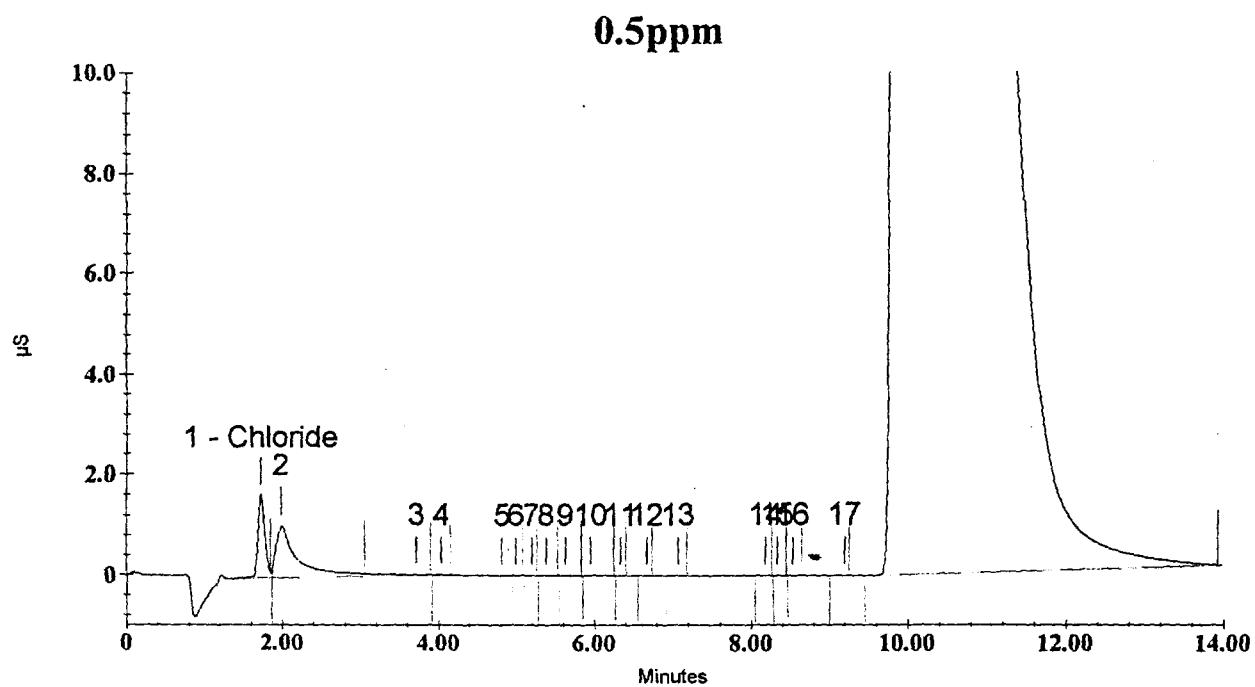
Calibrated : 7/7/99 8:22:15 AM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.72	Chloride	0.500	100889	16091
2	1.98		0.000	252167	10330
3	3.72		0.000	1717	126
4	4.03		0.000	1093	97
5	4.82		0.000	319	43
6	5.00		0.000	278	43
7	5.20		0.000	306	38
8	5.38		0.000	586	52
9	5.63		0.000	421	39
10	5.95		0.000	292	26
11	6.33		0.000	122	29
12	6.67		0.000	125	24
13	7.07		0.000	62	10
14	8.18		0.000	3	2
15	8.33		0.000	29	9
16	8.53		0.000	24	7
17	9.20		0.000	124	10
18	9.98		0.000	45904431	764073

027/09/99
EXACT COPY OF
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Data File : ...\\1ppm_004.DXD

Sample Name : 1ppm

Inject # : 4

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 8:35:46 AM

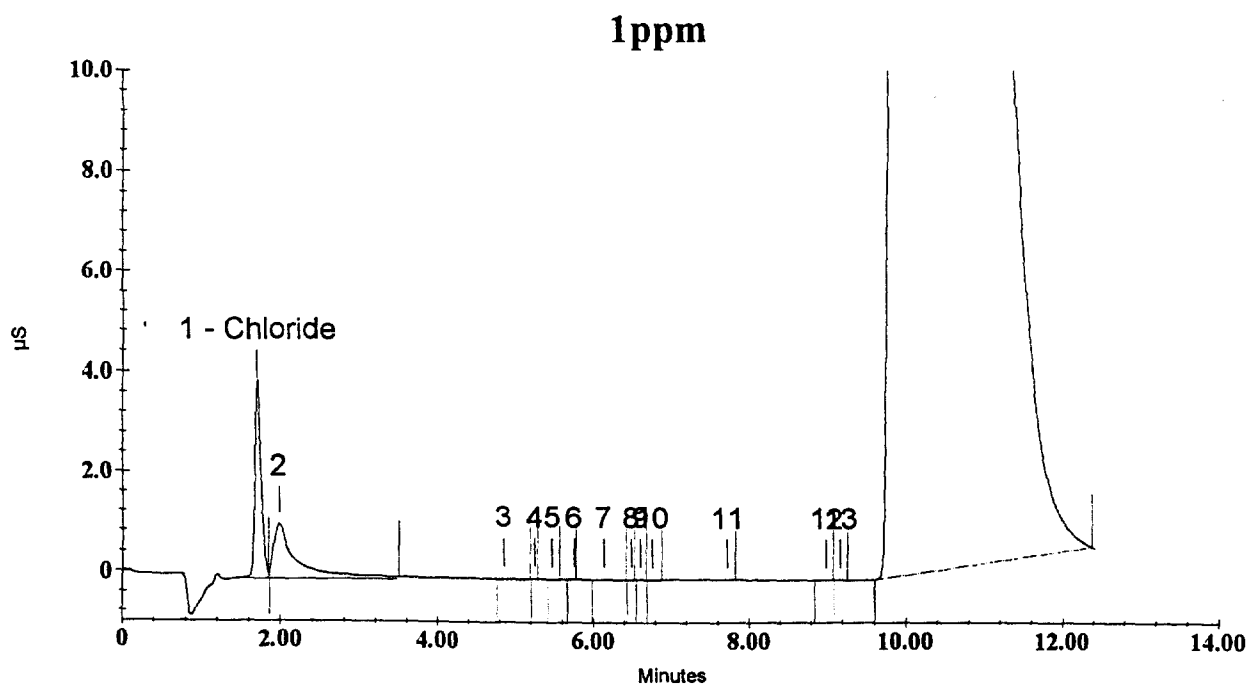
Updated : 7/7/99 8:35:47 AM

Calibrated : 7/7/99 8:35:46 AM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	1.000	210935	37624
2	1.98		0.000	218164	10507
3	4.85		0.000	4620	205
4	5.25		0.000	824	164
5	5.47		0.000	1390	172
6	5.75		0.000	840	142
7	6.13		0.000	2623	127
8	6.48		0.000	447	94
9	6.60		0.000	565	93
10	6.75		0.000	834	83
11	7.72		0.000	211	32
12	8.98		0.000	350	46
13	9.17		0.000	114	19
14	9.97		0.000	44382818	753184



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RAW DATA

Data File : ...\\2ppm_005.DXD

Sample Name : 2ppm

Inject # : 5

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 8:49:44 AM

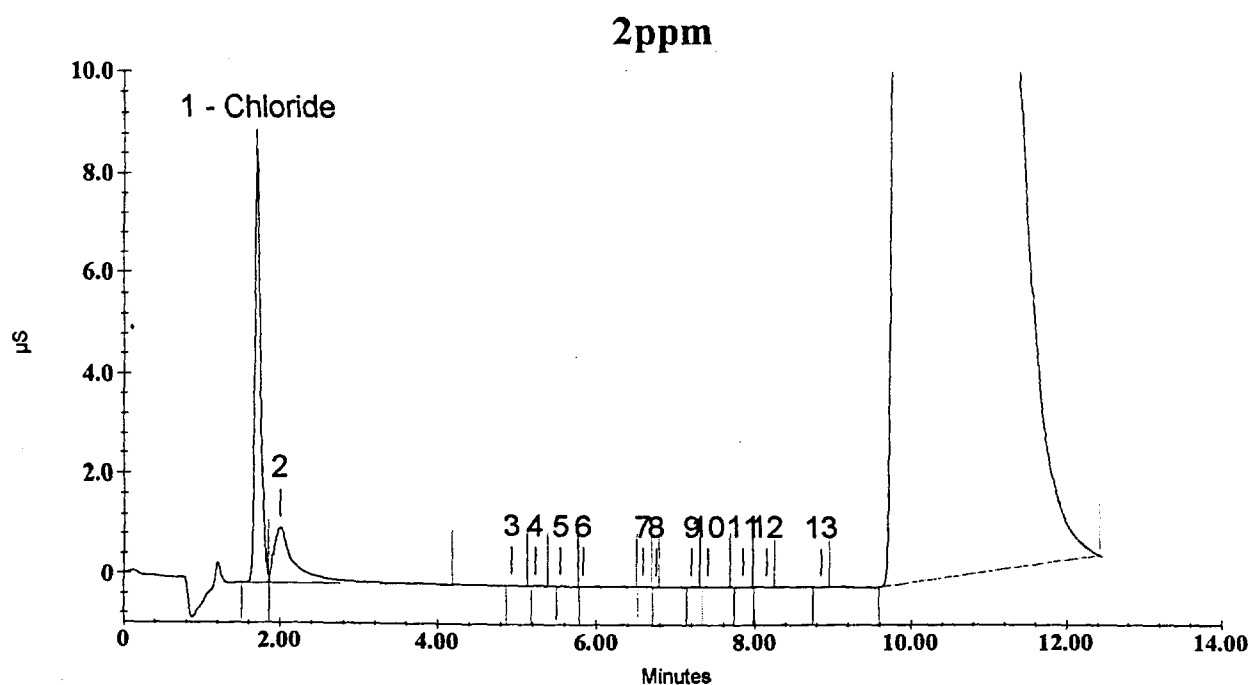
Updated : 7/7/99 8:49:45 AM

Calibrated : 7/7/99 8:49:44 AM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	2.000	431565	82869
2	2.00		0.000	219534	11080
3	4.93		0.000	400	28
4	5.23		0.000	459	56
5	5.55		0.000	331	27
6	5.83		0.000	721	40
7	6.58		0.000	287	40
8	6.75		0.000	114	28
9	7.20		0.000	571	68
10	7.40		0.000	968	52
11	7.85		0.000	502	62
12	8.15		0.000	518	60
13	8.85		0.000	189	24
14	9.95		0.000	47269094	786160



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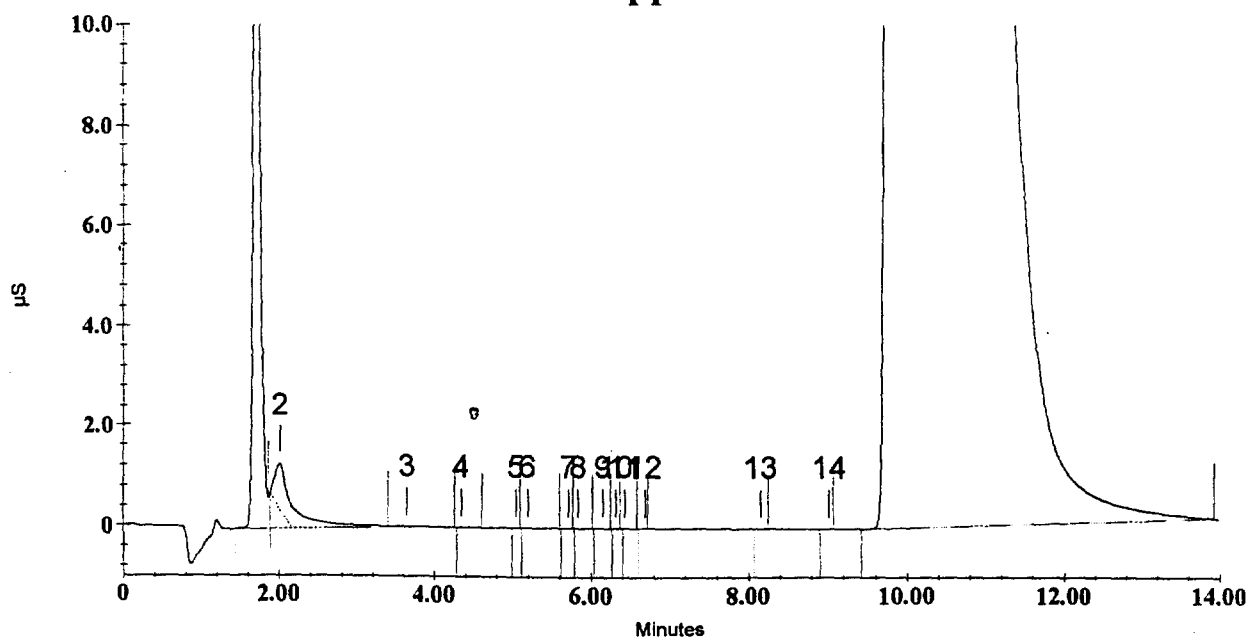
Data File : ...5ppm_006.DXD
Sample Name : 5ppm
Inject # : 6
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 8:59:49 AM
Updated : 7/7/99 9:13:55 AM
Calibrated : 7/7/99 9:13:54 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	5.000	1255422	236457
2	2.02		0.000	222366	12542
3	3.65		0.000	11089	306
4	4.35		0.000	3944	221
5	5.05		0.000	990	167
6	5.20		0.000	4960	203
7	5.72		0.000	1369	171
8	5.83		0.000	2155	169
9	6.15		0.000	1820	150
10	6.32		0.000	753	132
11	6.43		0.000	1216	114
12	6.68		0.000	874	139
13	8.15		0.000	968	105
14	9.02		0.000	148	21
15	9.92		0.000	48144399	790543

5ppm



EXACT COPY OF
RAW DATA

Data File : ...\\blk_007.DXD

Sample Name : a-0000

Inject # : 7

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 9:14:53 AM

Updated : 7/7/99 9:28:59 AM

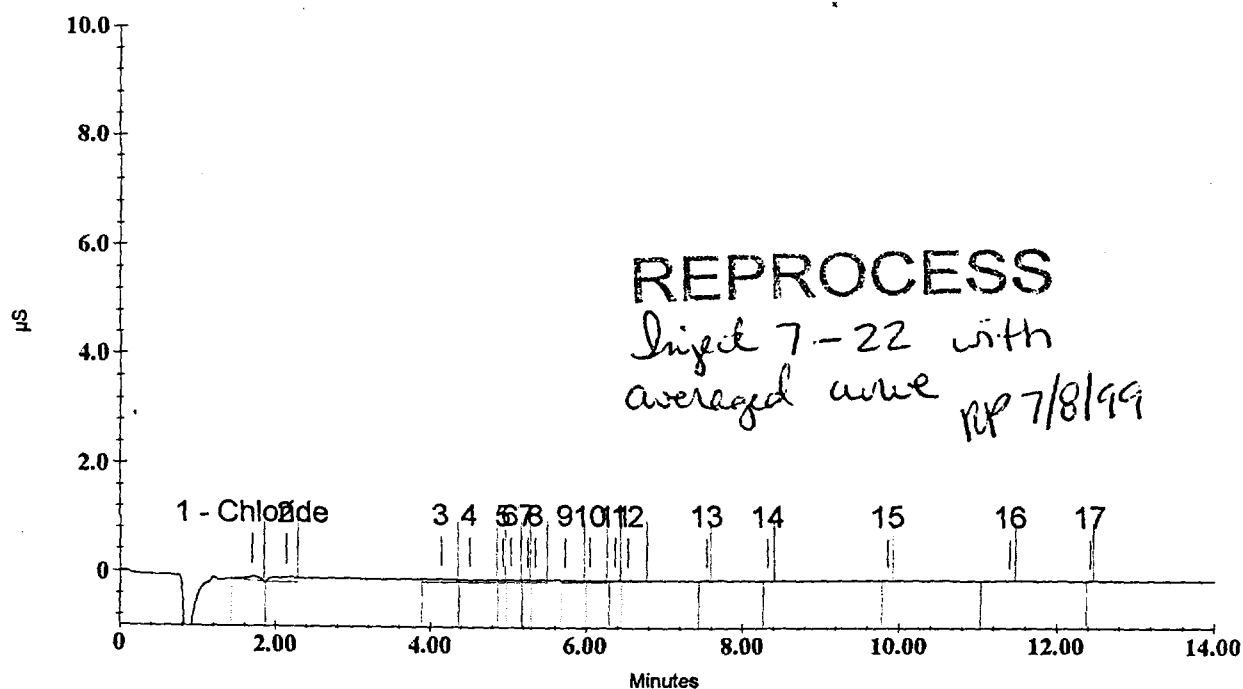
Calibrated : 7/7/99 9:13:54 AM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.237	9969	782

a-0000



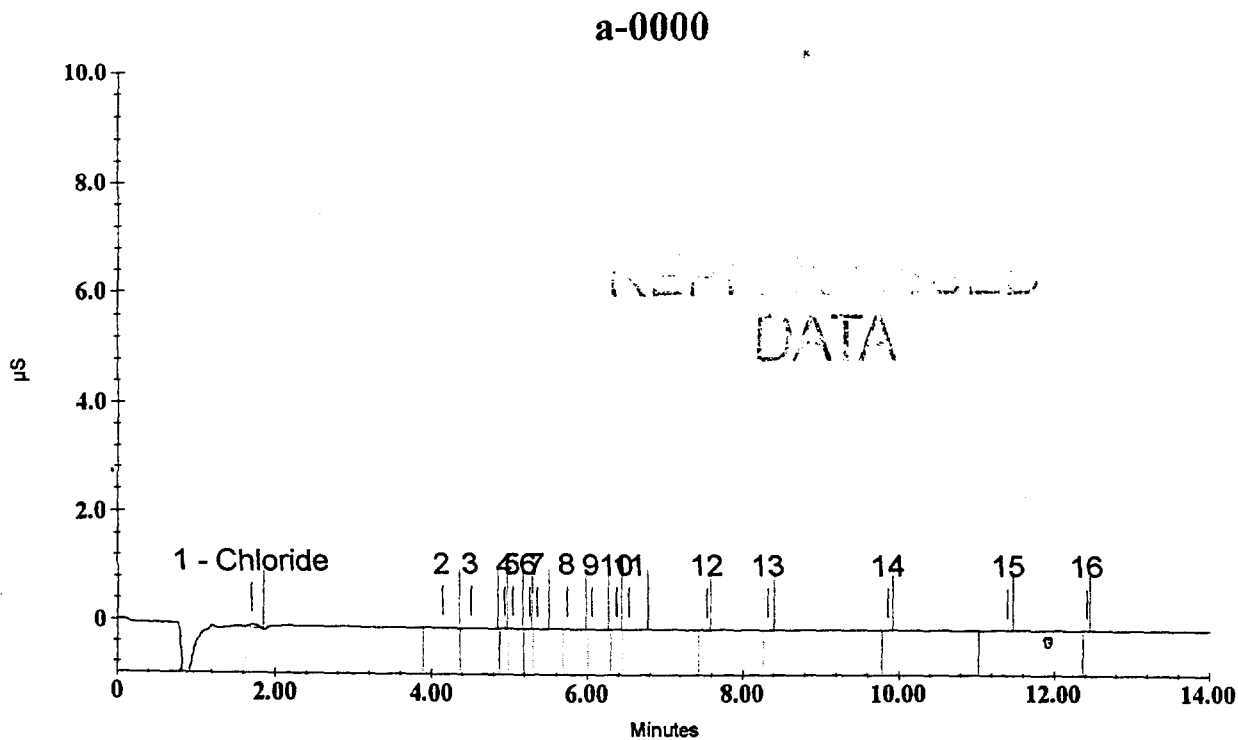
EXACT COPY OF
RAW DATA

Data File : ...BLK_007.DXD
Sample Name : a-0000
Inject # : 7
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 9:14:53 AM
Updated : 7/8/99 5:16:43 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.193	4821	512



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RAW DATA

07/29/99

Data File : ...ics_008.DXD

Sample Name : ics

Inject # : 8

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 9:29:57 AM

Updated : 7/7/99 9:44:02 AM

Calibrated : 7/7/99 9:13:54 AM

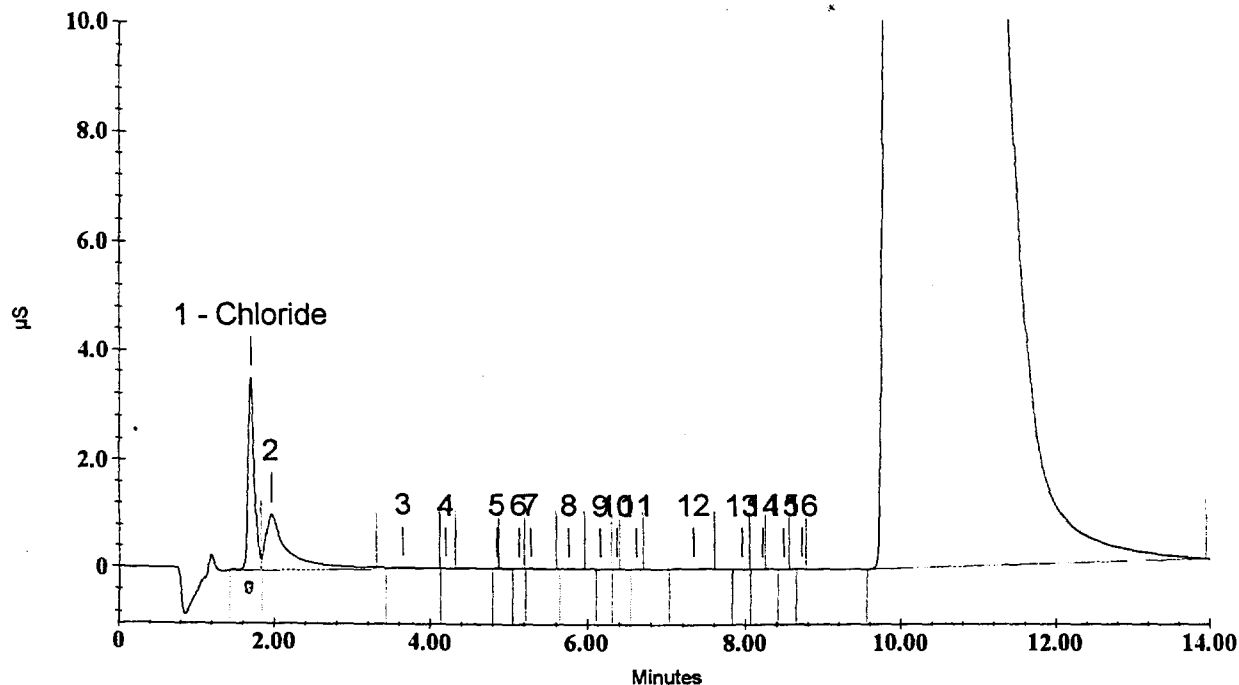
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.970	200098	35345

REPROCESS

ics



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07/29/99

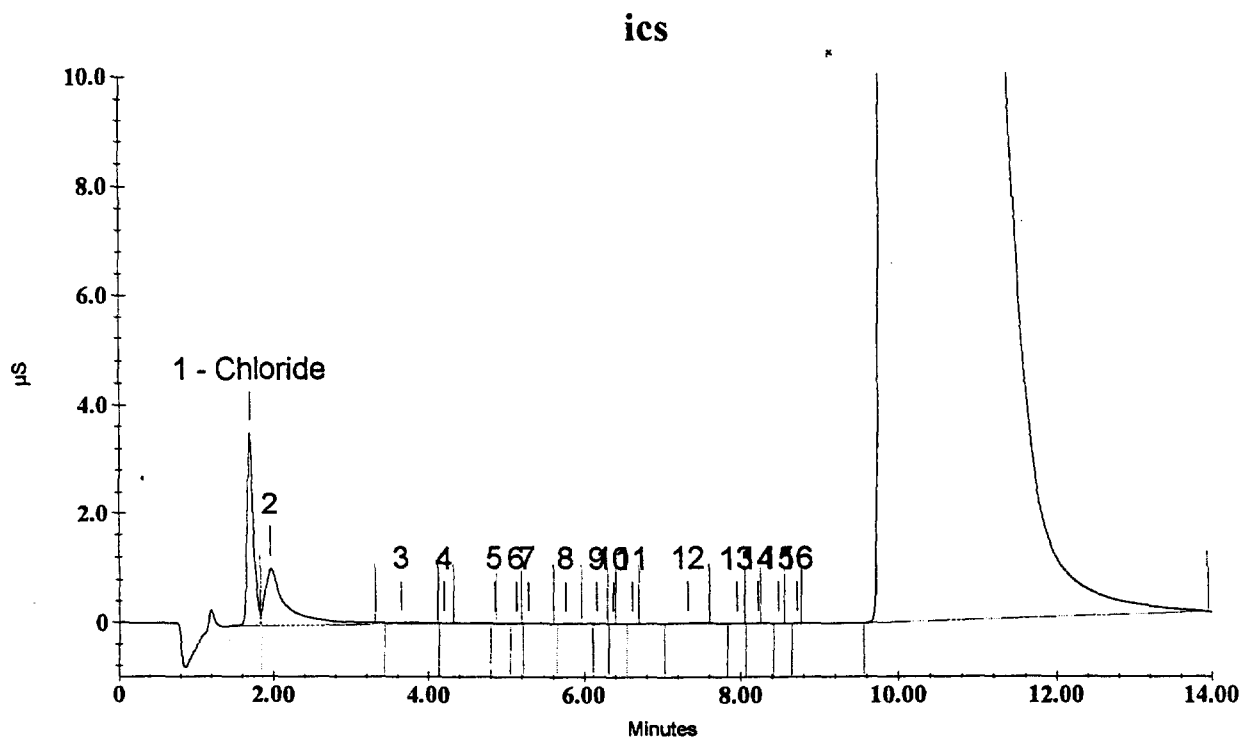
Data File : ...\\ics_008.DXD
Sample Name : ics
Inject # : 8
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 9:29:57 AM
Updated : 7/8/99 5:14:15 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.955	200098	35345

REPROCESSED
DATA



Q27/2/99
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RAW DATA

Data File : ...3809_009.DXD

Sample Name : C-3809x100

Inject # : 9

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 9:58:03 AM

Updated : 7/7/99 9:58:05 AM

Calibrated : 7/7/99 9:13:54 AM

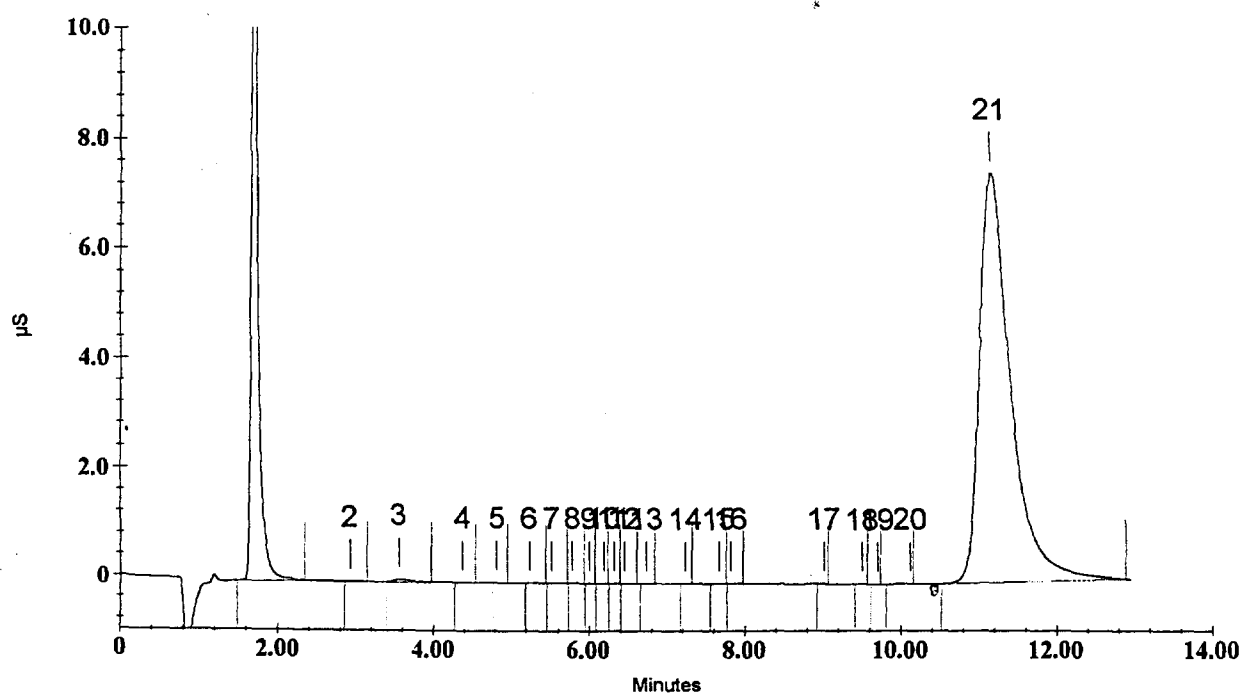
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	3.483	852063	163229

RÉPROCESS

C-3809x100



EXACT COPY OF
RAW DATA

6/29/99

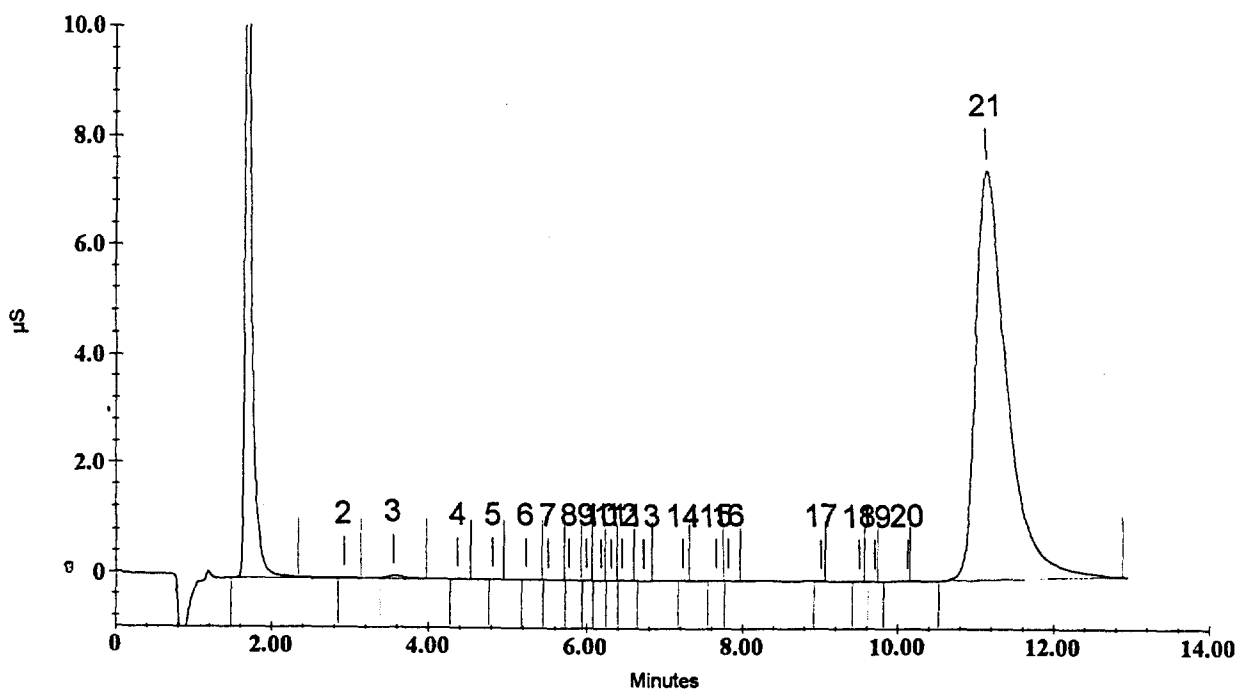
Data File : ...3809_009.DXD
Sample Name : C-3809x100
Inject # : 9
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 9:58:03 AM
Updated : 7/8/99 5:14:31 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	3.497	852063	163229

REPROCESSED
DATA

C-3809x100



EXACT COPY OF
RAW DATA

QZ 7/29/99

Data File : ...3809_010.DXD
Sample Name : C-3809x100
Inject # : 10
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

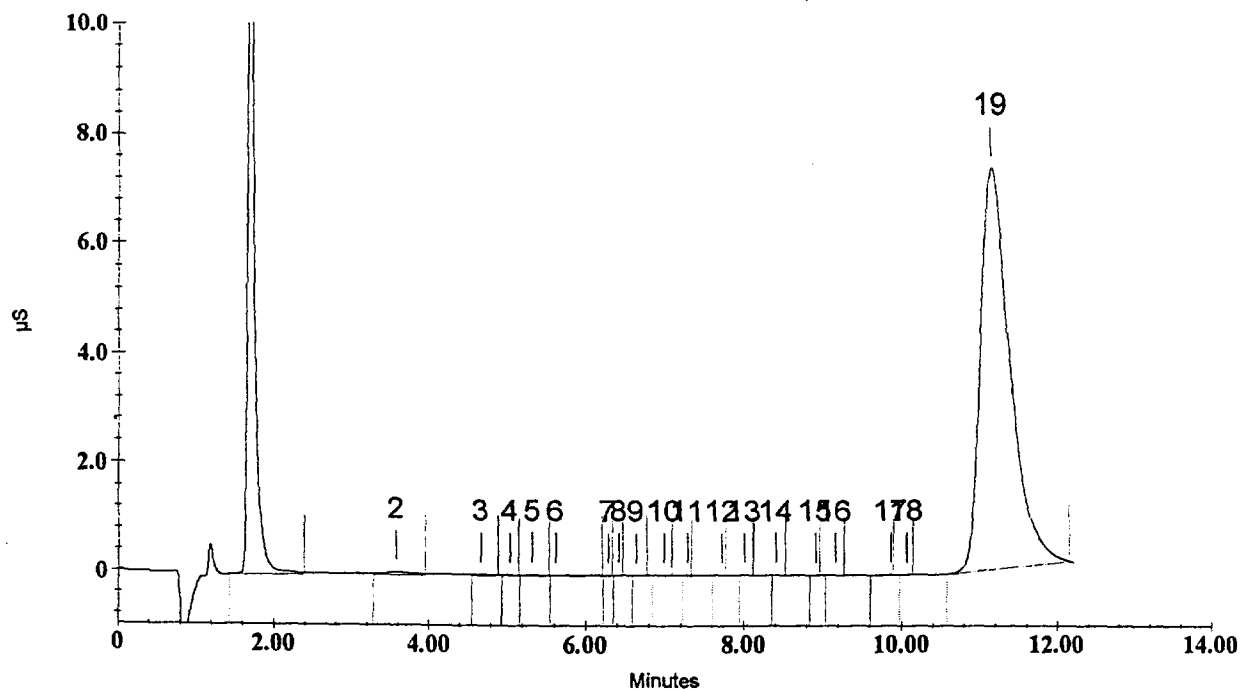
Collected : 7/7/99 10:11:28 AM
Updated : 7/7/99 10:11:29 AM
Calibrated : 7/7/99 9:13:54 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	3.478	850590	159109

REPROCESS

C-3809x100



02/29/99

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Data File : ...3809_010.DXD
Sample Name : C-3809x100
Inject # : 10
Method File : M26h2so4.met
System Name : Instr. 830 DX500

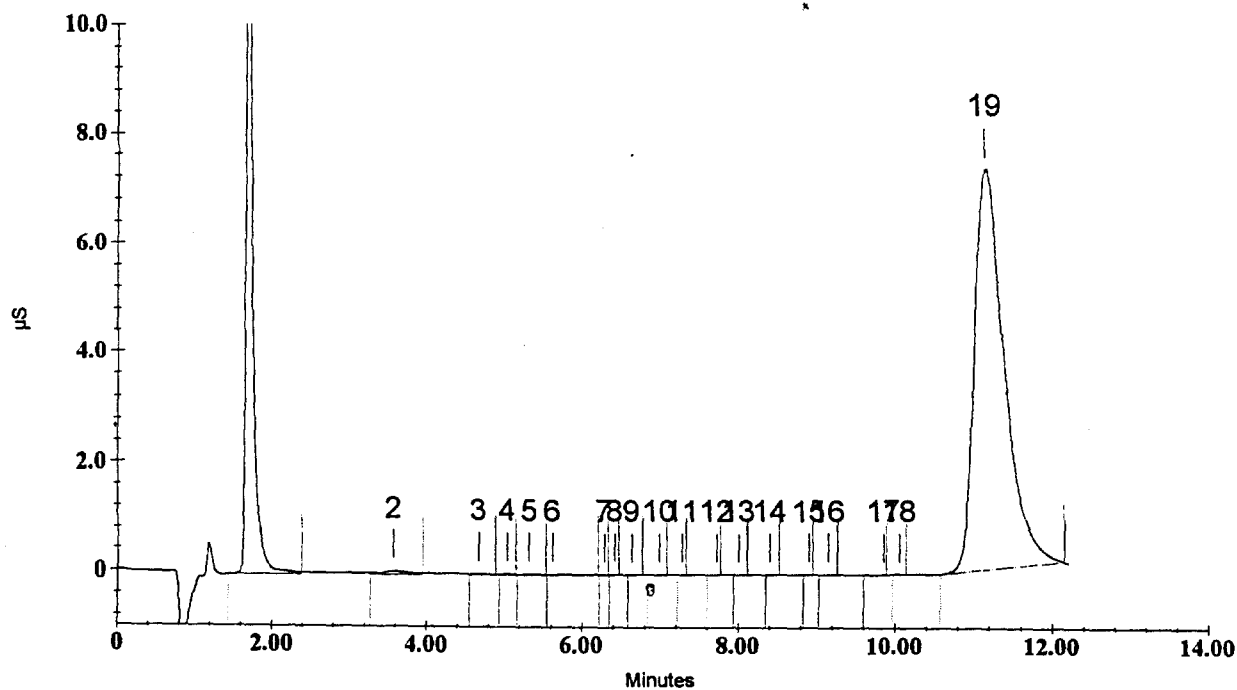
Collected : 7/7/99 10:11:28 AM
Updated : 7/8/99 5:14:46 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	3.491	850590	159109

REPROCESSED
DATA

C-3809x100



ae 7/29/99

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Data File : ...\\3812_011.DXD

Sample Name : C-3812x10

Inject # : 11

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 10:25:09 AM

Updated : 7/7/99 10:25:10 AM

Calibrated : 7/7/99 9:13:54 AM

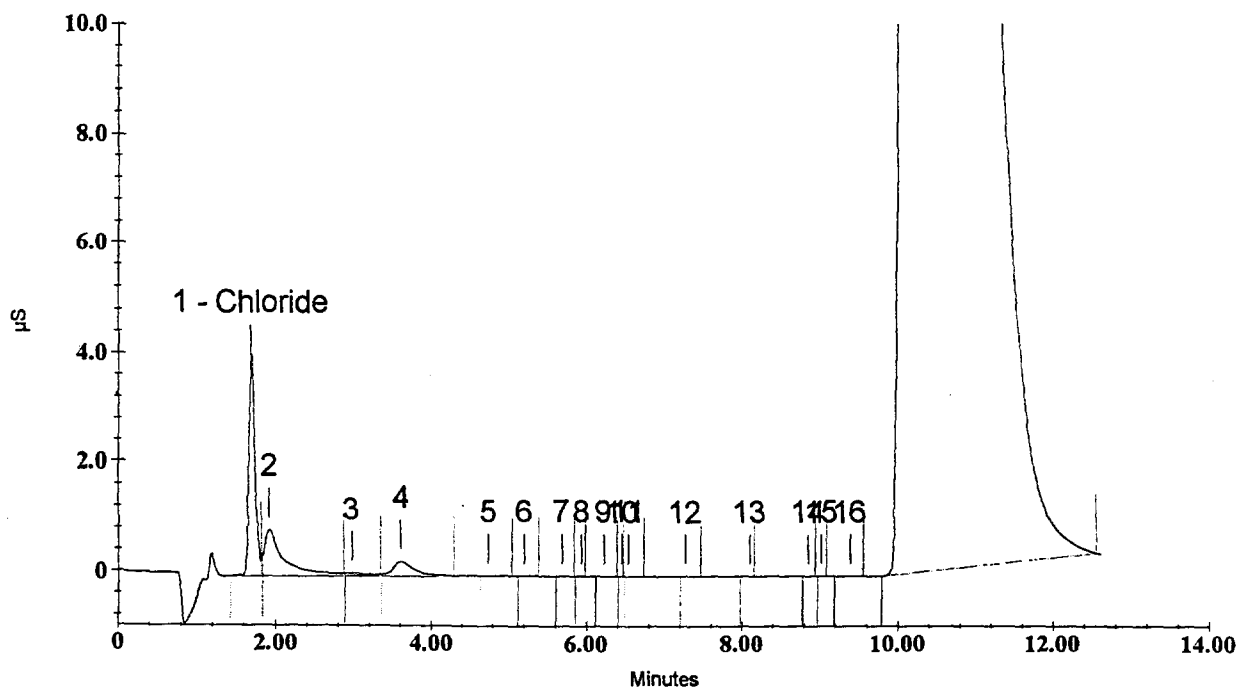
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.017	212327	38370

REPROCESS

C-3812x10



07/29/99
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RAW DATA

Data File : ...3812_011.DXD
Sample Name : C-3812x10
Inject # : 11
Method File : M26h2so4.met
System Name : Instr. 830 DX500

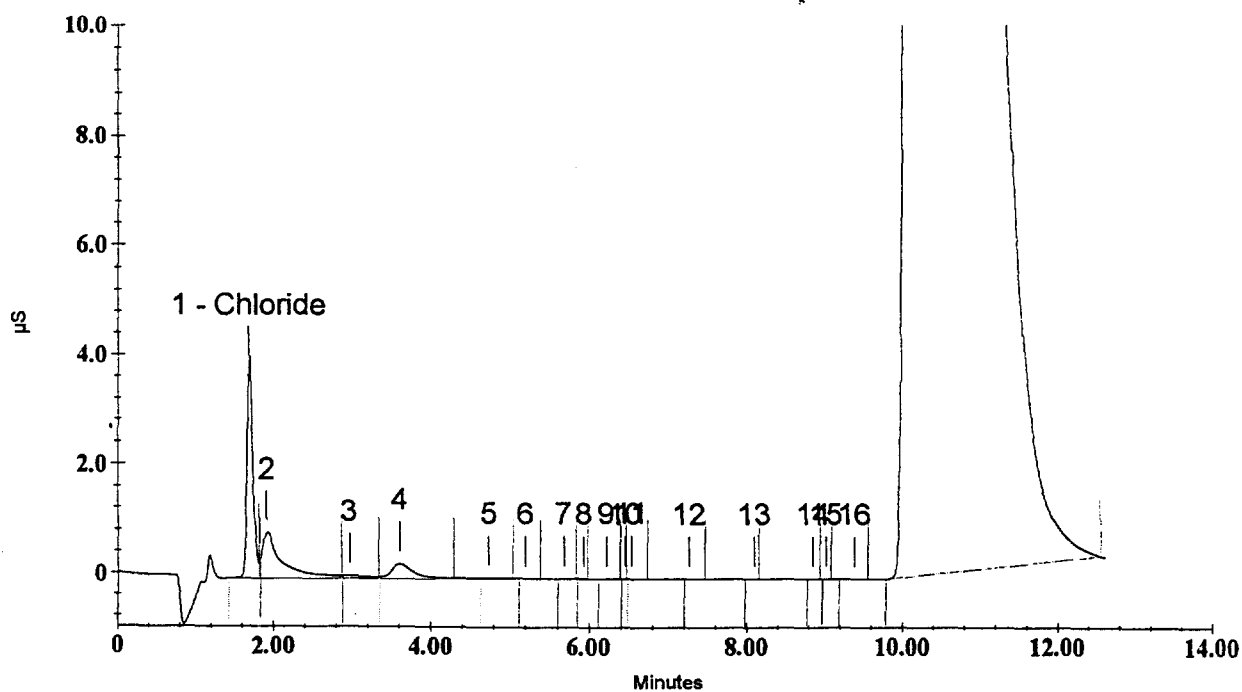
Collected : 7/7/99 10:25:09 AM
Updated : 7/8/99 5:15:02 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.003	212327	38370

UNPROCESSED
DATA

C-3812x10



07/29/99

EXACT COPY OF
RAW DATA

Data File : ...3812_012.DXD

Sample Name : C-3812x10

Inject # : 12

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 10:26:15 AM

Updated : 7/7/99 10:40:23 AM

Calibrated : 7/7/99 9:13:54 AM

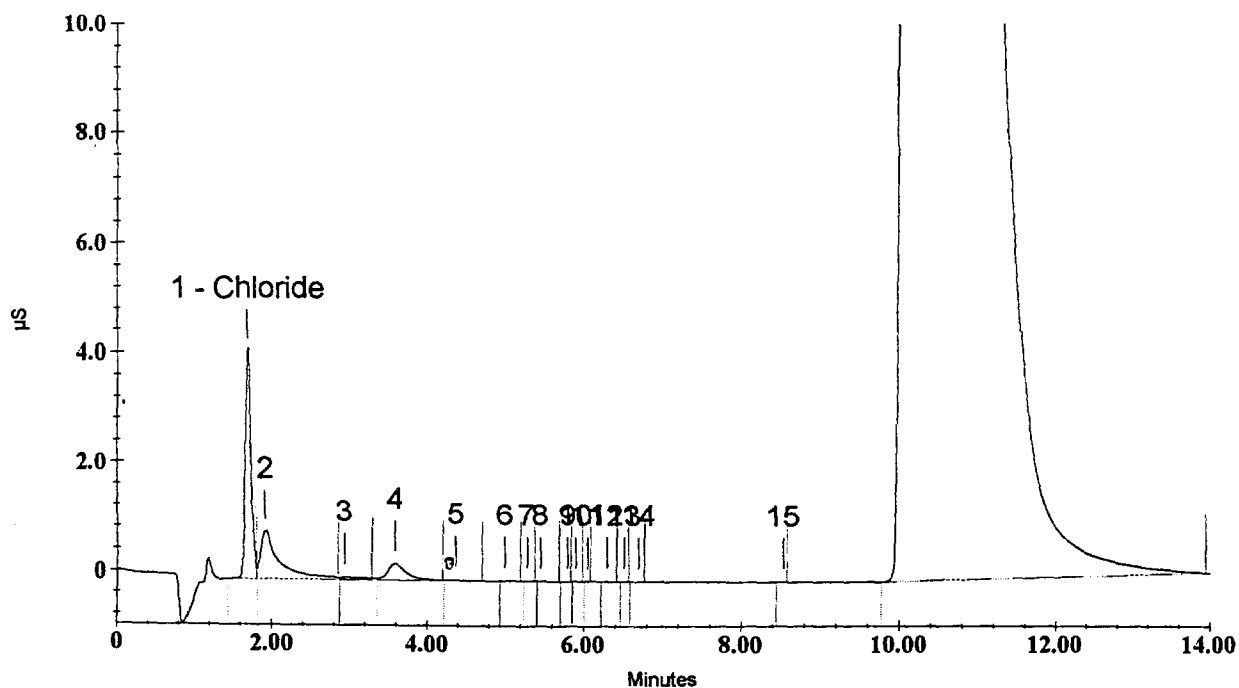
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.019	212823	41340

REPROCESS

C-3812x10



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RAW DATA

ae 7/29/99

Data File : ...3812_012.DXD
Sample Name : C-3812x10
Inject # : 12
Method File : M26h2so4.met
System Name : Instr. 830 DX500

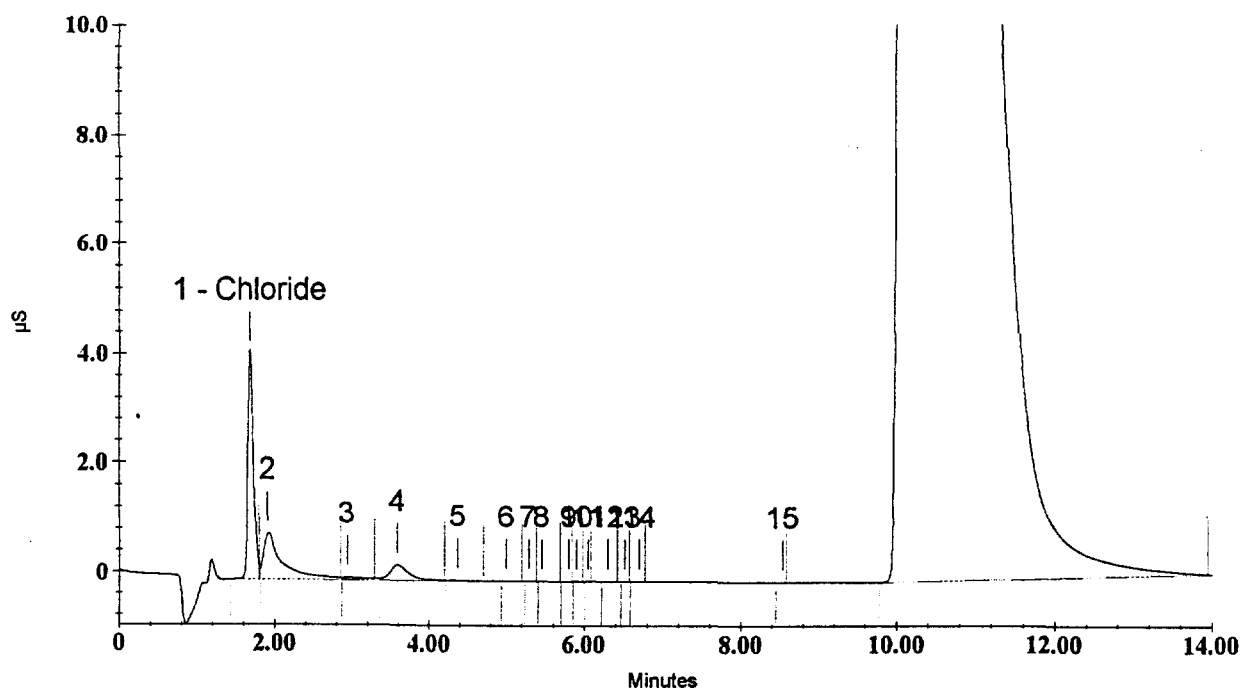
Collected : 7/7/99 10:26:15 AM
Updated : 7/8/99 5:15:18 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.004	212823	41340

NOT REFINISHED
DATA

C-3812x10



EXACT COPY OF
RAW DATA

AC 7/29/99

Data File : ...\\3813_013.DXD

Sample Name : C-3813x10

Inject # : 13

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 10:54:21 AM

Updated : 7/7/99 10:54:23 AM

Calibrated : 7/7/99 9:13:54 AM

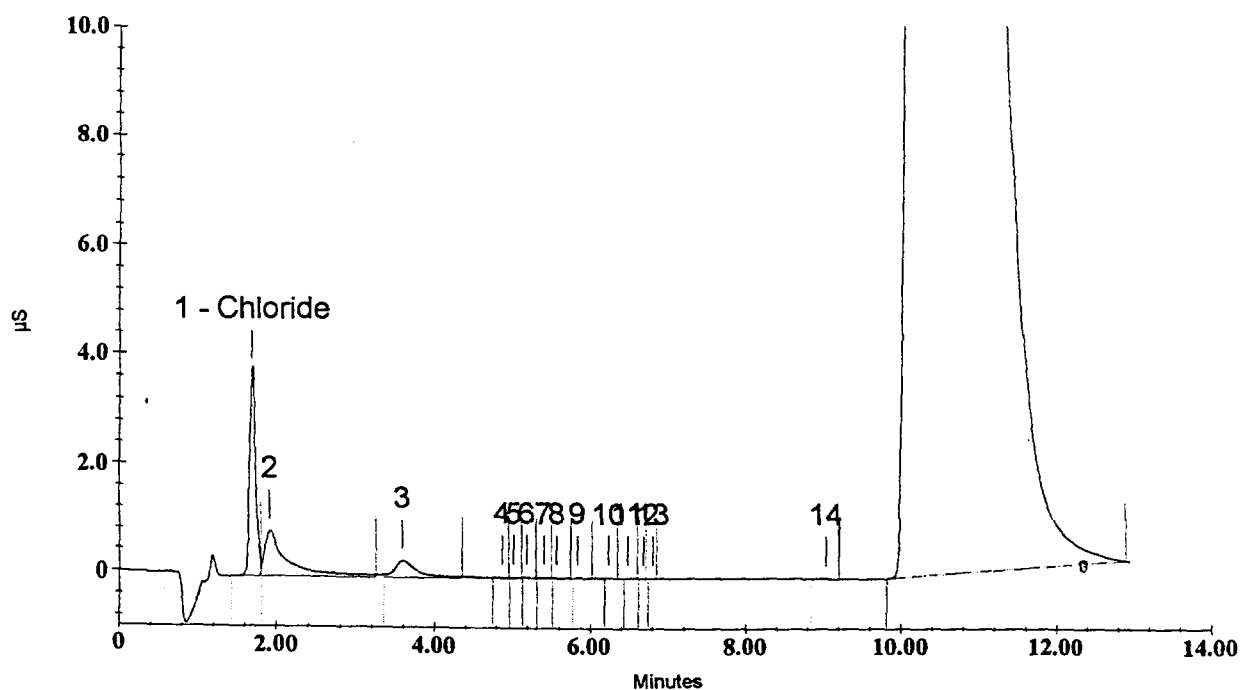
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	0.958	197052	37357

REPROCESS

C-3813x10



EXACT COPY OF
RAW DATA

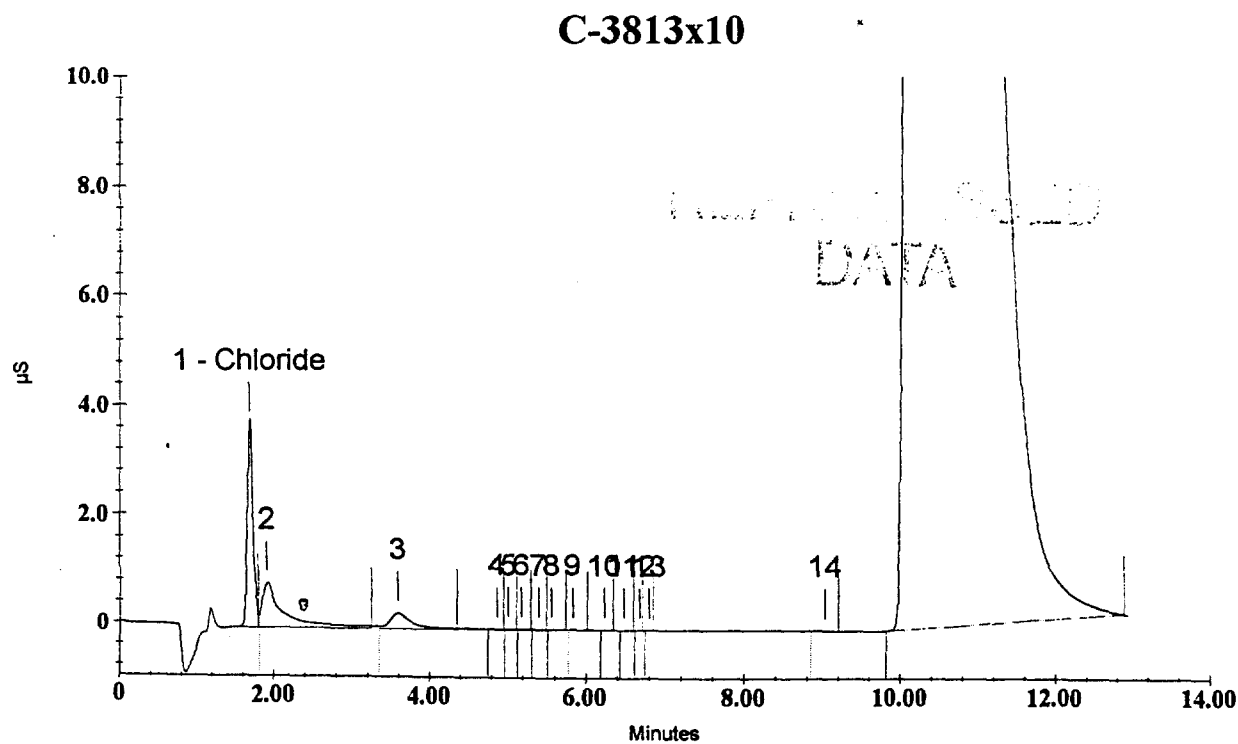
ae 7/19/99

Data File : ...3813_013.DXD
Sample Name : C-3813x10
Inject # : 13
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 10:54:21 AM
Updated : 7/8/99 5:15:33 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	0.943	197052	37357



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07/29/99

Data File : ...3813_014.DXD

Sample Name : C-3813x10

Inject # : 14

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 10:55:28 AM

Updated : 7/7/99 11:09:29 AM

Calibrated : 7/7/99 9:13:54 AM

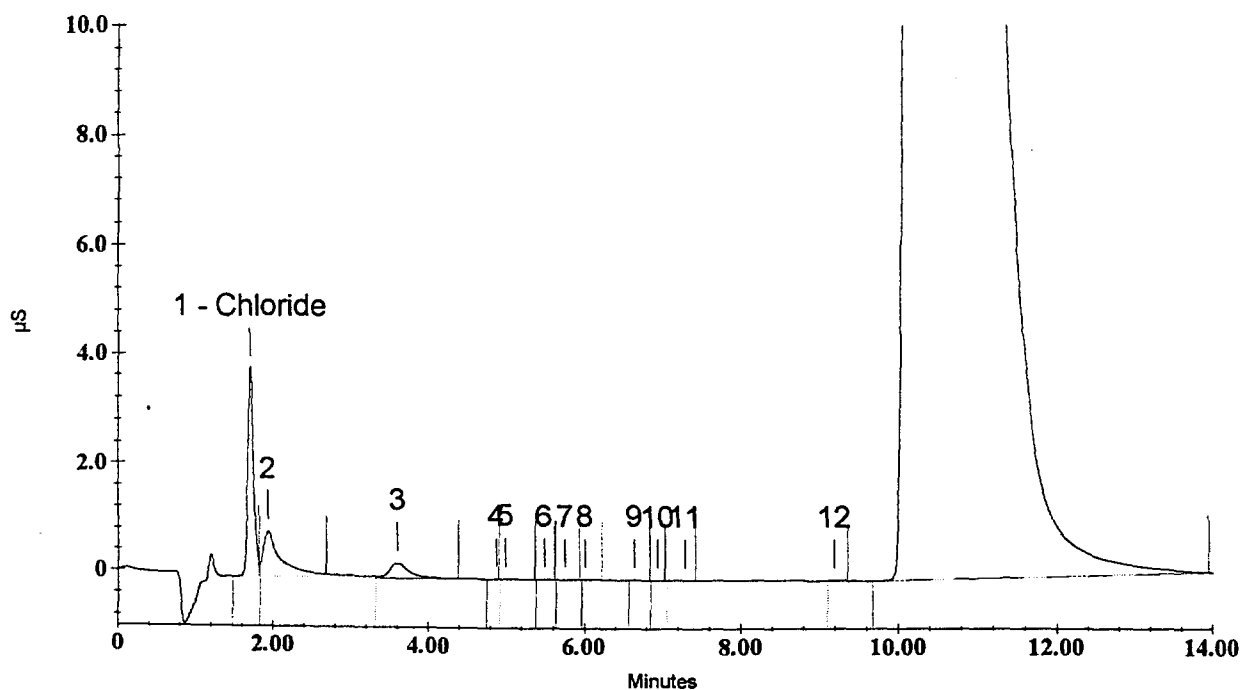
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.957	196661	38149

REPROCESS

C-3813x10



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RAW DATA

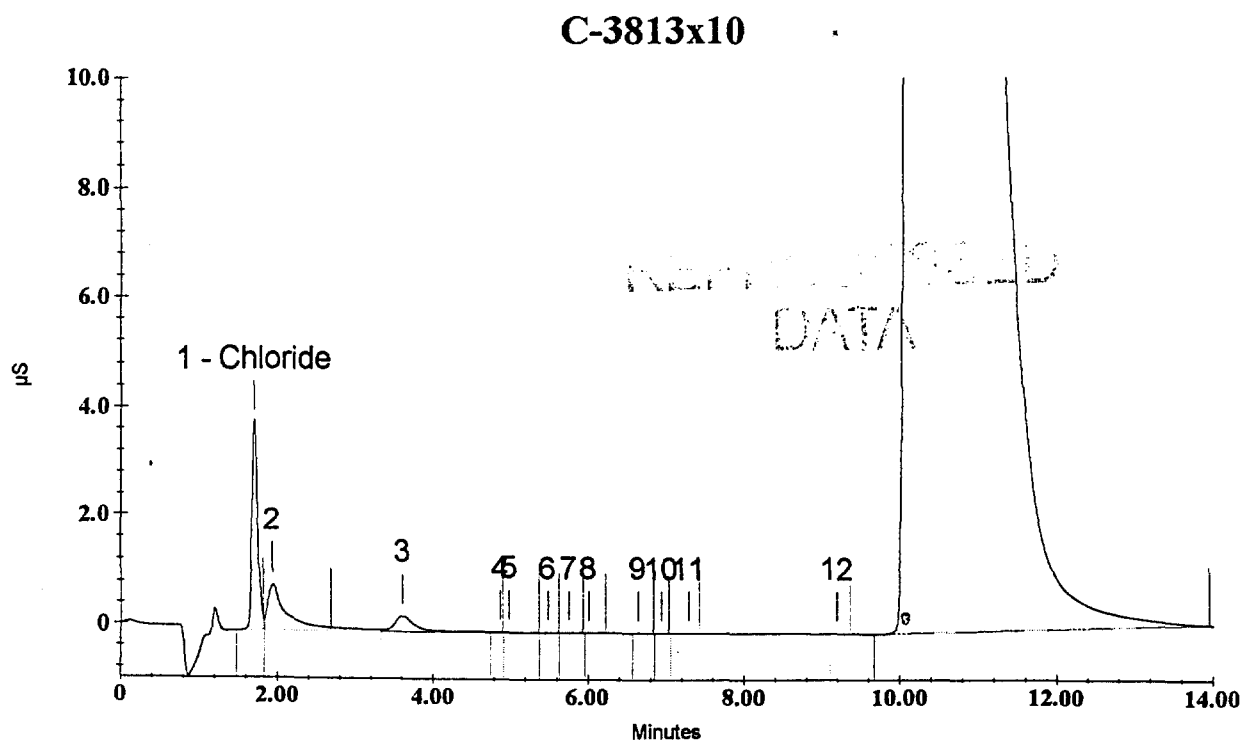
07/29/99

Data File : ...3813_014.DXD
Sample Name : C-3813x10
Inject # : 14
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 10:55:28 AM
Updated : 7/8/99 5:15:48 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.941	196661	38149



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Data File : ...3818_015.DXD

Sample Name : C-3818x250

Inject # : 15

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 11:10:32 AM

Updated : 7/7/99 11:24:39 AM

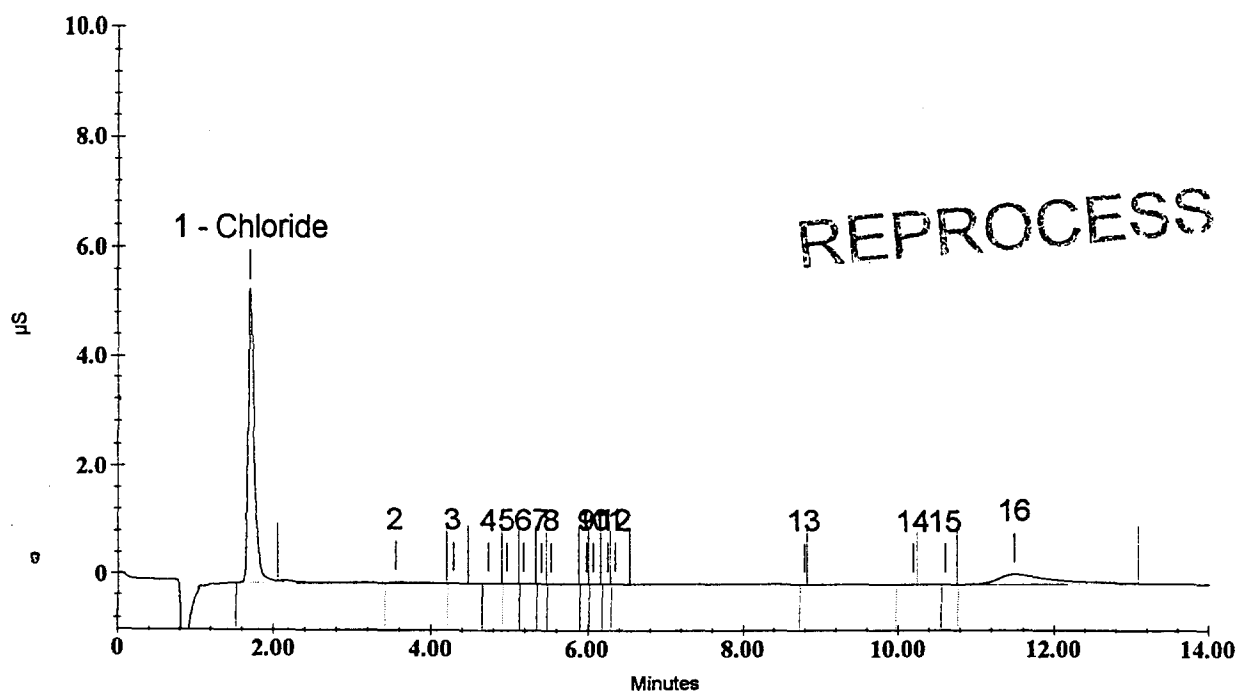
Calibrated : 7/7/99 9:13:54 AM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	1.307	287625	53413

C-3818x250



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RAW DATA

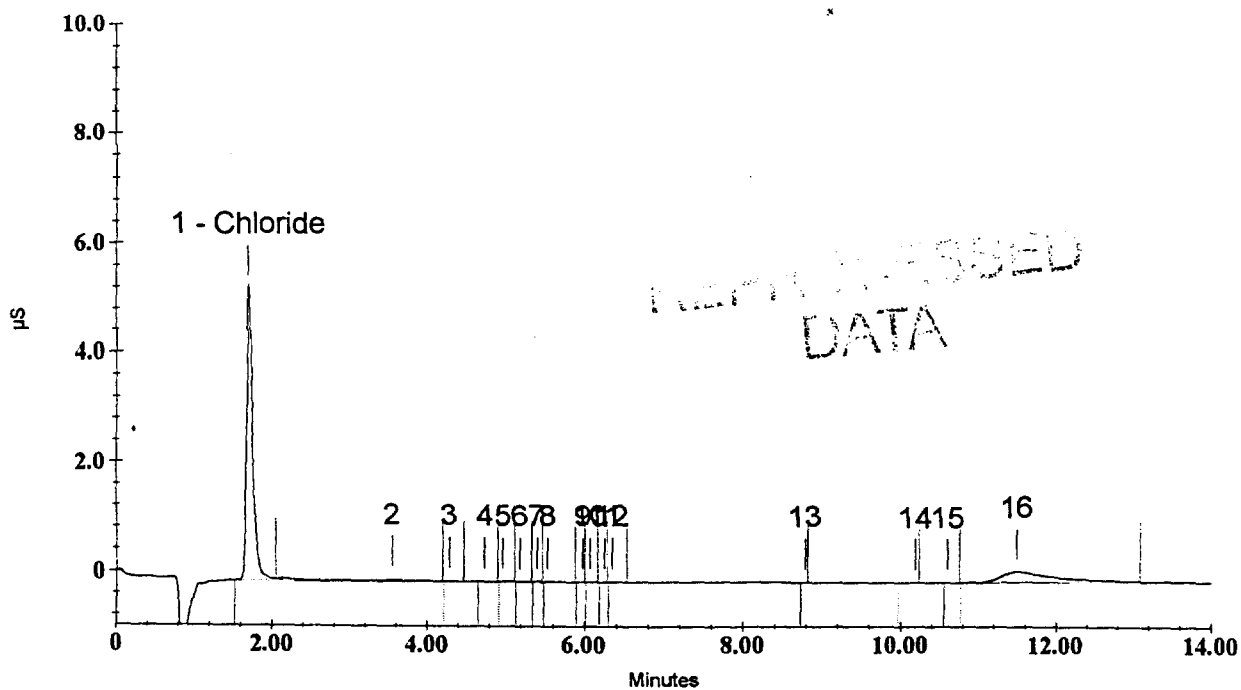
Data File : ...\\3818_015.DXD
Sample Name : C-3818x250
Inject # : 15
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 11:10:32 AM
Updated : 7/8/99 5:16:07 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	1.296	287625	53413

C-3818x250



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RAW DATA

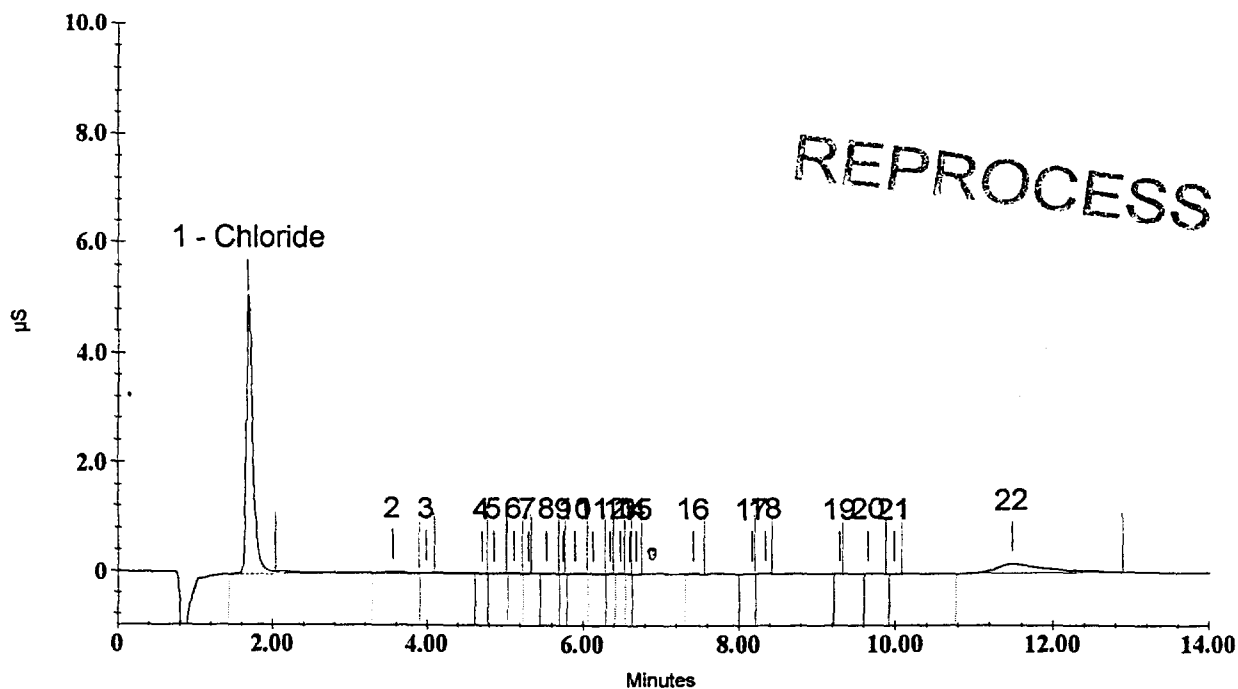
Data File : ...3818_016.DXD
Sample Name : C-3818x250
Inject # : 16
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 11:25:36 AM
Updated : 7/7/99 11:39:40 AM
Calibrated : 7/7/99 9:13:54 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.323	291556	49573

C-3818x250



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RAW DATA

Data File : ...3818_016.DXD
Sample Name : C-3818x250
Inject # : 16
Method File : M26h2so4.met
System Name : Instr. 830 DX500

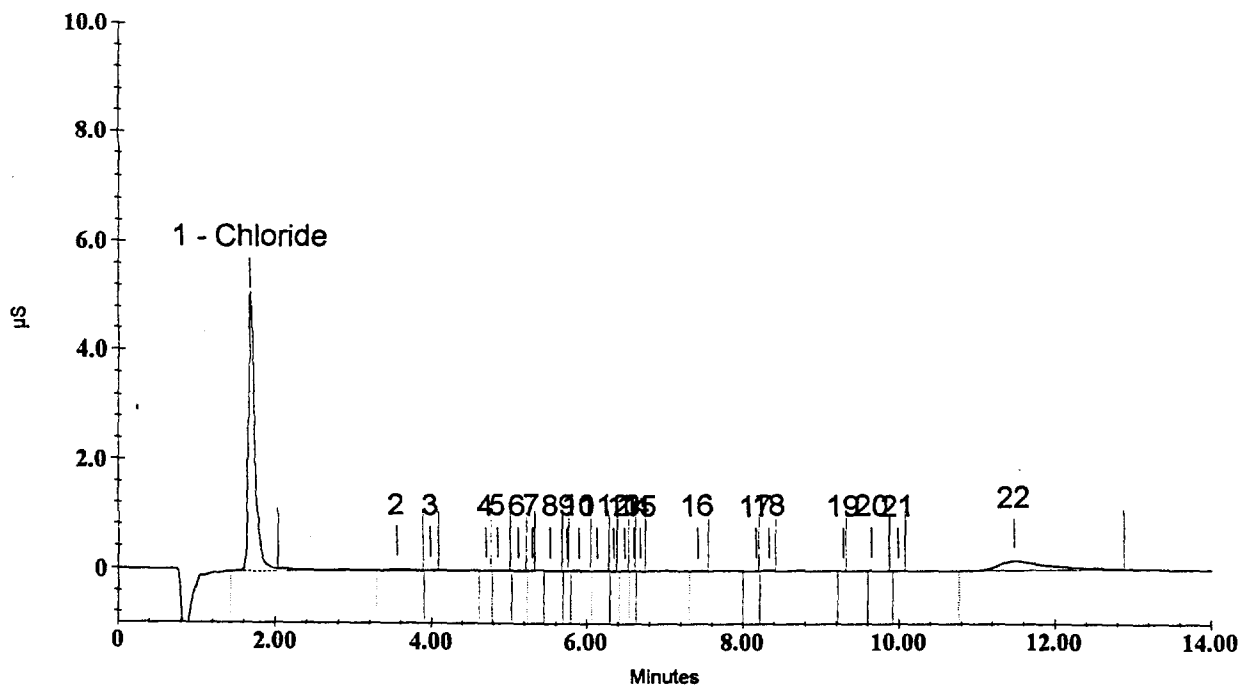
Collected : 7/7/99 11:25:36 AM
Updated : 7/8/99 5:16:28 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.311	291556	49573

REPROCESSED
DATA

C-3818x250



EXACT COPY OF
RAW DATA

OK 7/29/99

Data File : ...3820_017.DXD
Sample Name : C-3820x10
Inject # : 17
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

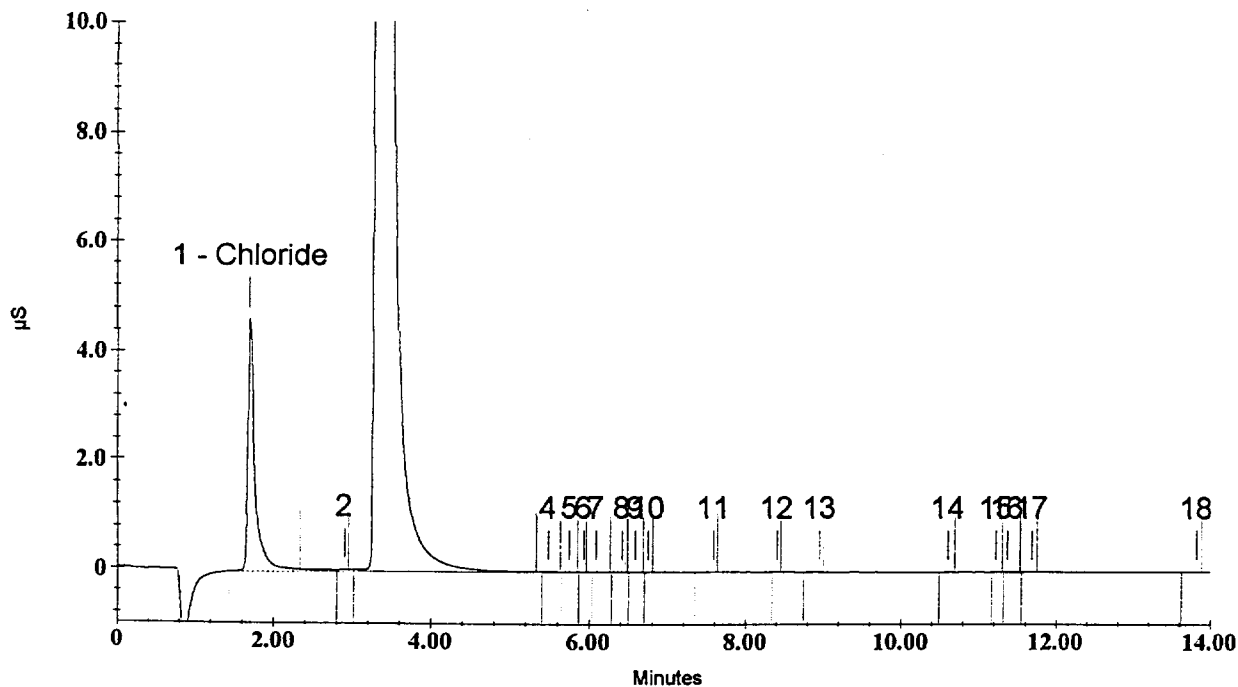
Collected : 7/7/99 11:40:40 AM
Updated : 7/7/99 11:54:46 AM
Calibrated : 7/7/99 9:13:54 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	1.336	295144	45978

REPROCESS

C-3820x10



EXACT COPY OF
RAW DATA

Data File : ...3820_017.DXD
Sample Name : C-3820x10
Inject # : 17
Method File : M26h2so4.met
System Name : Instr. 830 DX500

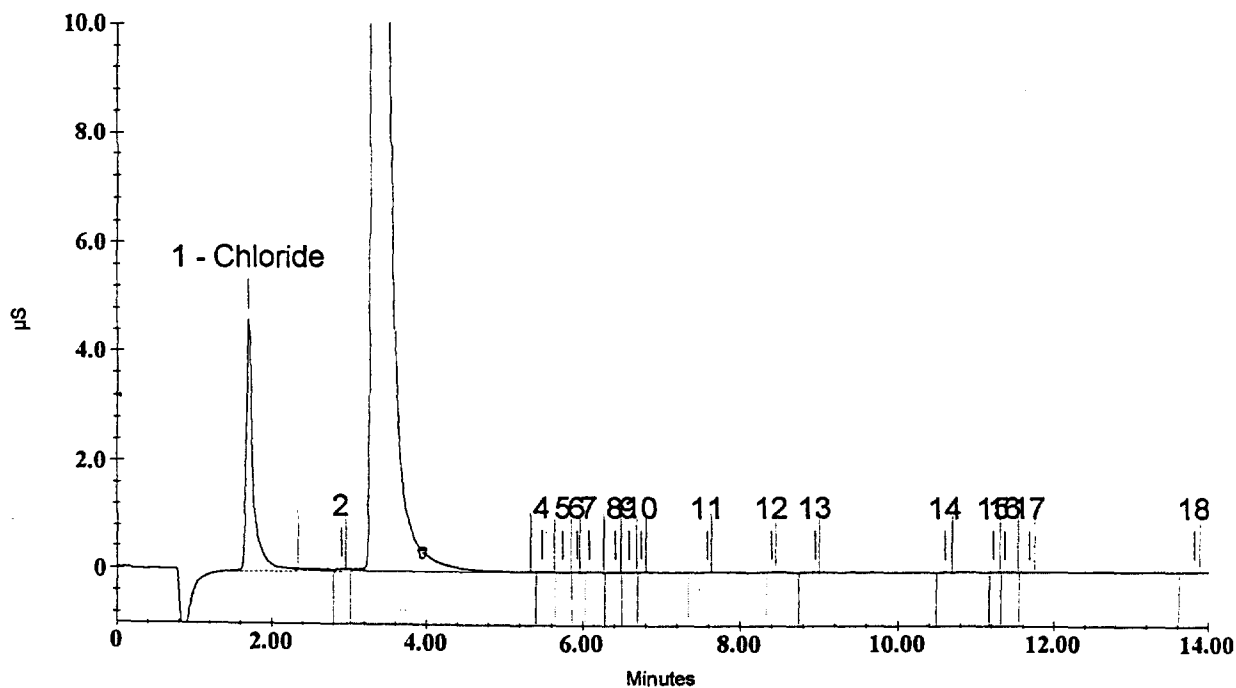
Collected : 7/7/99 11:40:40 AM
Updated : 7/8/99 5:16:55 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	1.325	295144	45978

REFERENCE
DATA

C-3820x10



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06/17/99

Data File : ...3820_018.DXD
Sample Name : C-3820x10
Inject # : 18
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

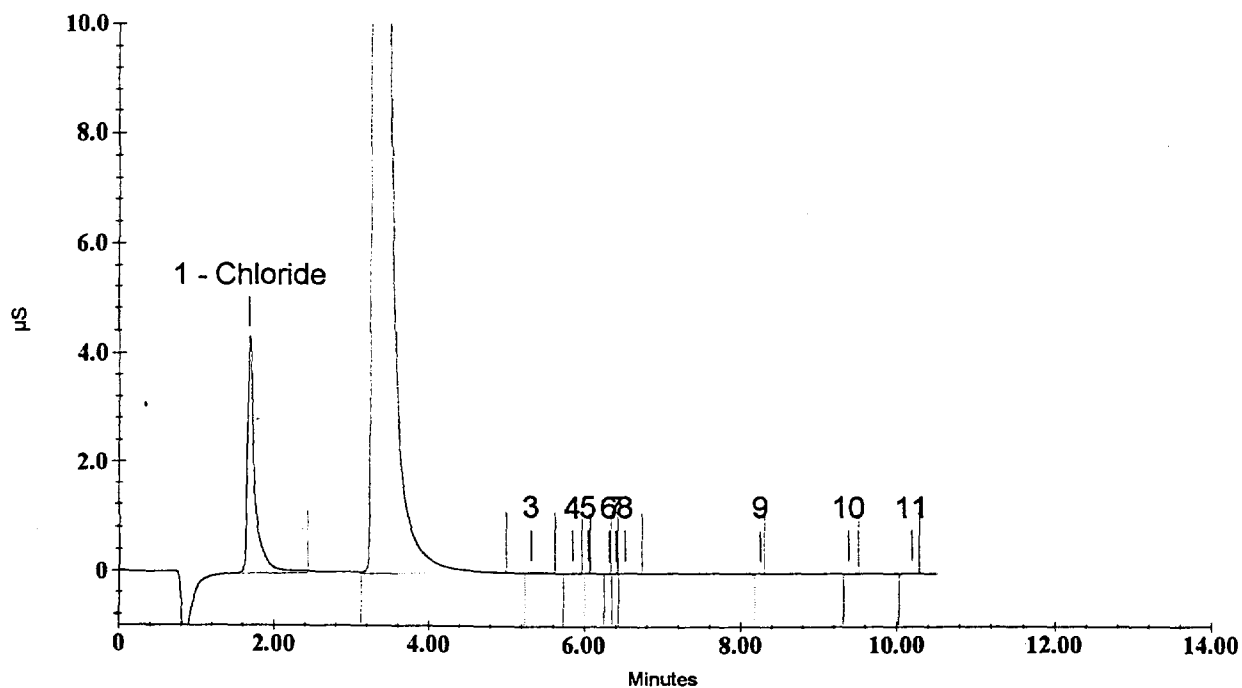
Collected : 7/7/99 12:06:19 PM
Updated : 7/7/99 12:06:20 PM
Calibrated : 7/7/99 9:13:54 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.336	295131	42869

REPROCESS

C-3820x10



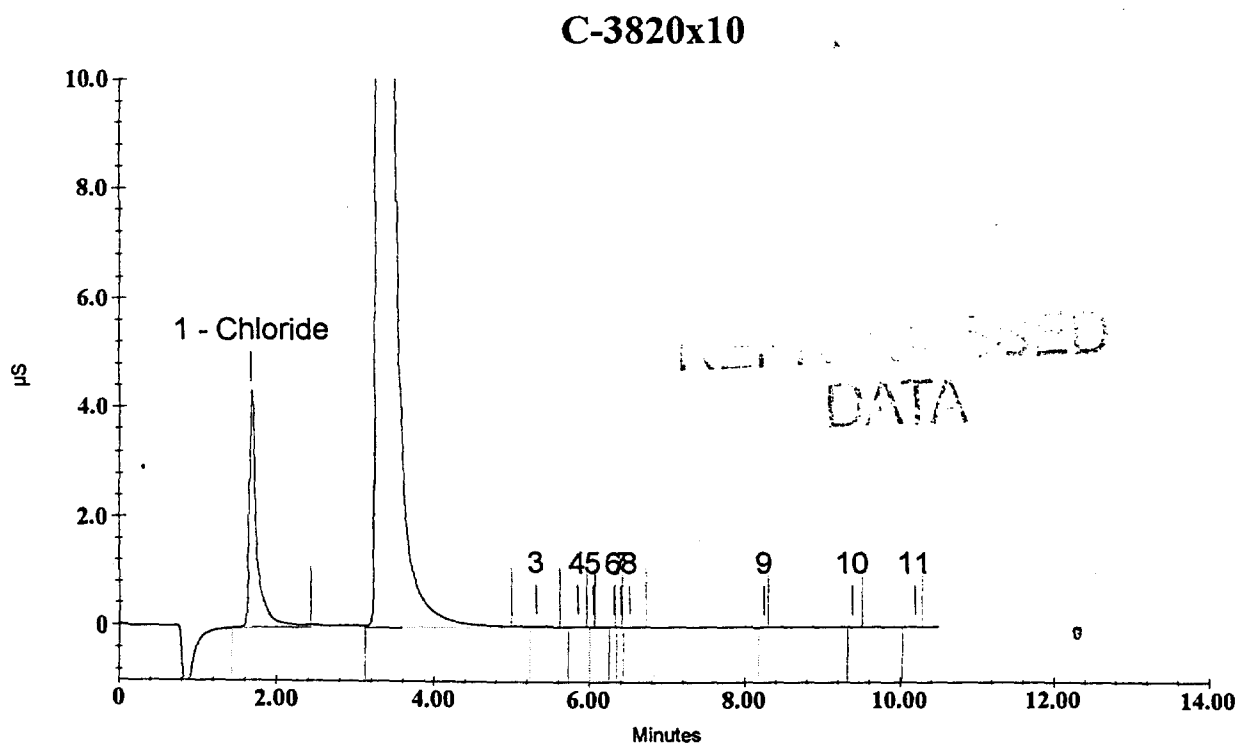
ac7h2p
EXACT COPY OF
RAW DATA

Data File : ...3820_018.DXD
Sample Name : C-3820x10
Inject # : 18
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 12:06:19 PM
Updated : 7/8/99 5:17:17 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.325	295131	42869



EXACT COPY OF
RAW DATA

7/15/99
INSPECTED
ST 7/14/99
C3809-20
(3801, 12, 13, 18, 20)
Arz/ha/ky

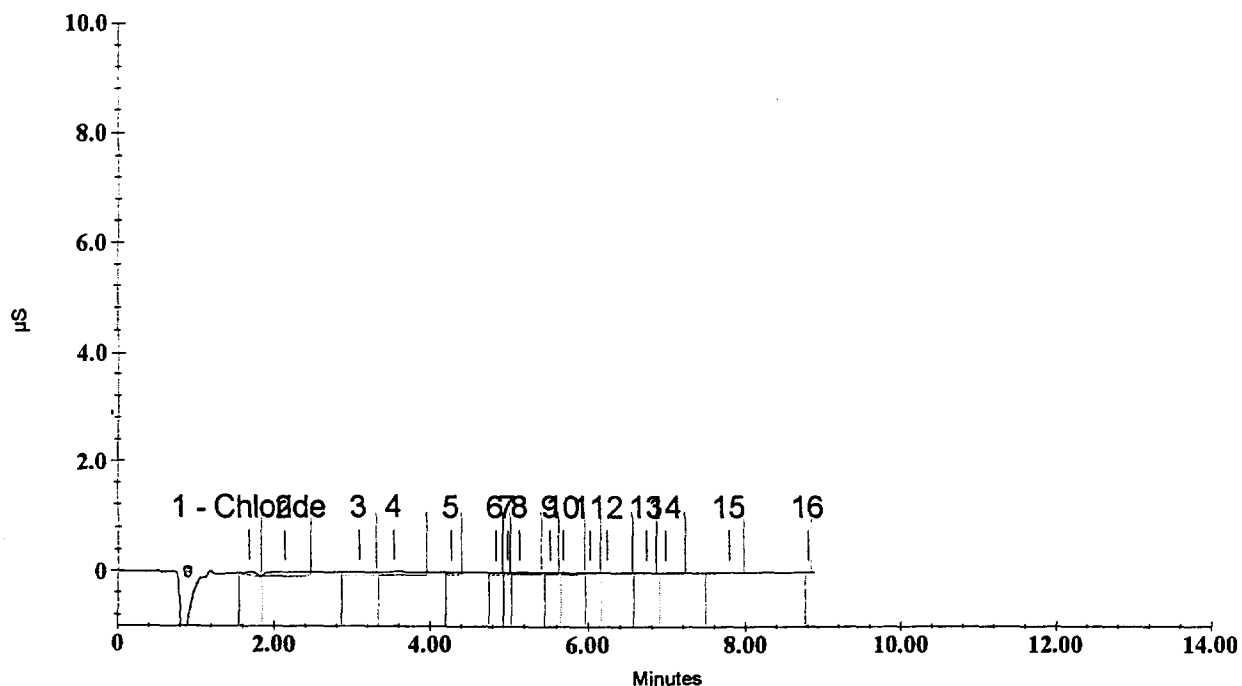
Data File : ...\\blk_019.DXD
Sample Name : a-0000
Inject # : 19
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 12:20:31 PM
Updated : 7/7/99 12:20:33 PM
Calibrated : 7/7/99 9:13:54 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	0.222	6086	587

REPROCESS

a-0000



EXACT COPY OF
RAW DATA

07/19/99

Data File : ...blk_020.DXD

Sample Name : a-0000

Inject # : 20

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 12:22:20 PM

Updated : 7/7/99 12:36:27 PM

Calibrated : 7/7/99 9:13:54 AM

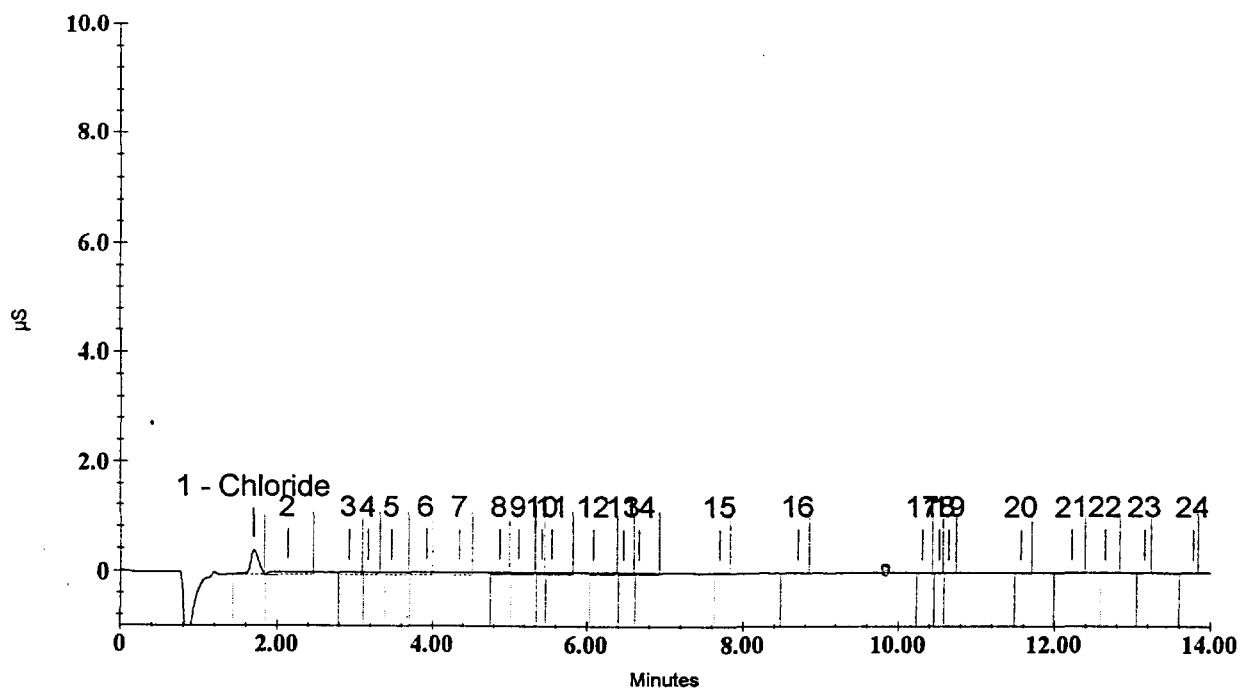
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.310	28858	4250

REPROCESS

a-0000



EXACT COPY OF
RAW DATA

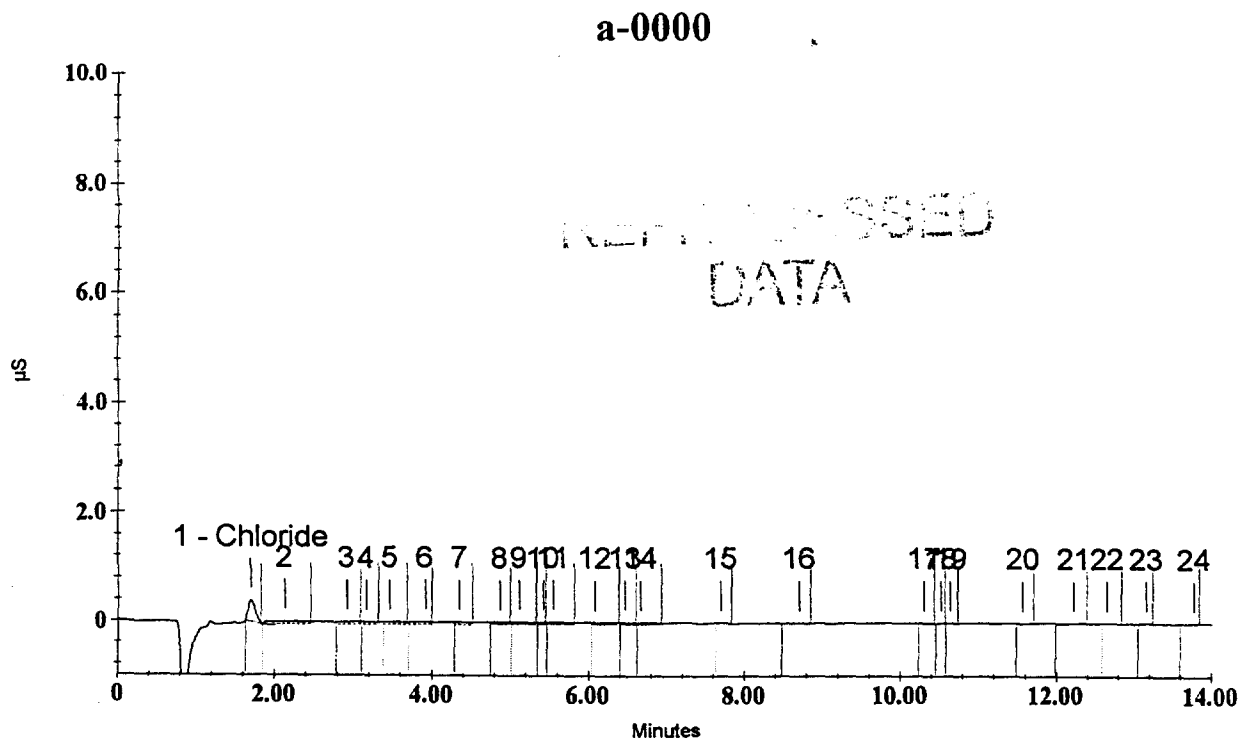
Handwritten signature/initials

Data File : ...\\BLK_020.DXD
Sample Name : a-0000
Inject # : 20
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 12:22:20 PM
Updated : 7/8/99 5:20:18 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.70	Chloride	0.268	23933	3859



Arp
EXACT COPY OF
RAW DATA

Data File : ...ics_021.DXD

Sample Name : ics

Inject # : 21

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 12:37:26 PM

Updated : 7/7/99 12:51:32 PM

Calibrated : 7/7/99 9:13:54 AM

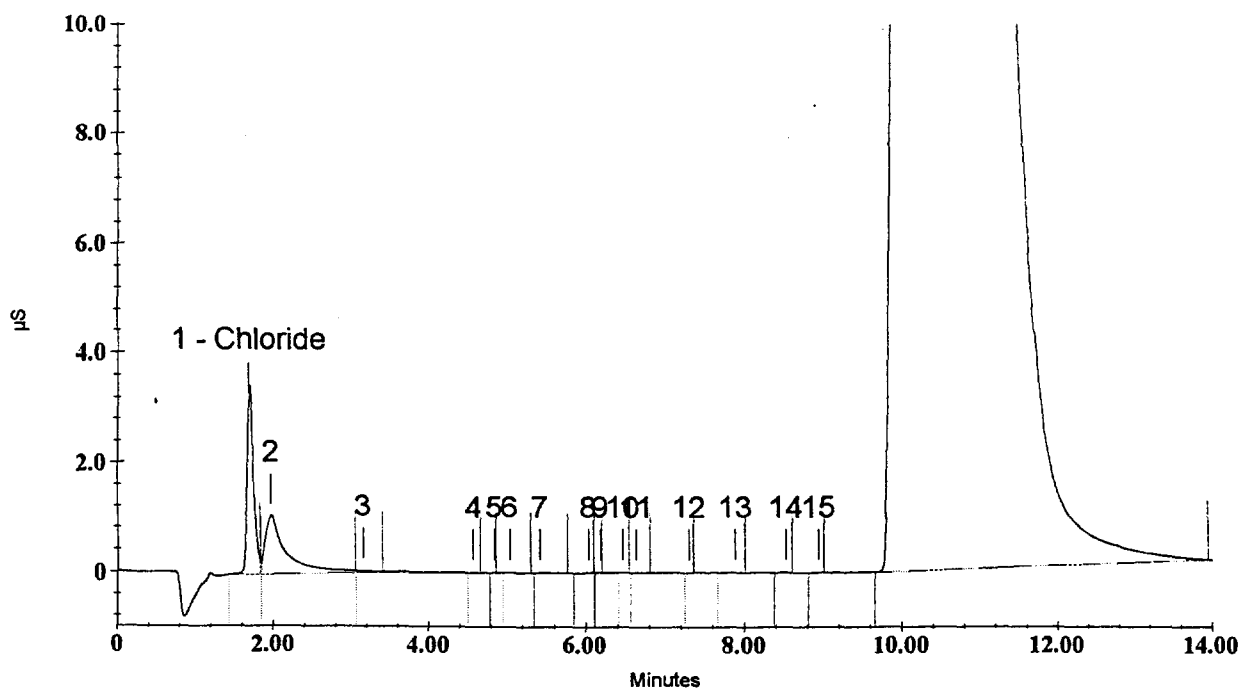
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	0.968	199647	31051

REPROCESS

ics



EXACT COPY OF
RAW DATA

Data File : ...ics_021.DXD
Sample Name : ics
Inject # : 21
Method File : M26h2so4.met
System Name : Instr. 830 DX500

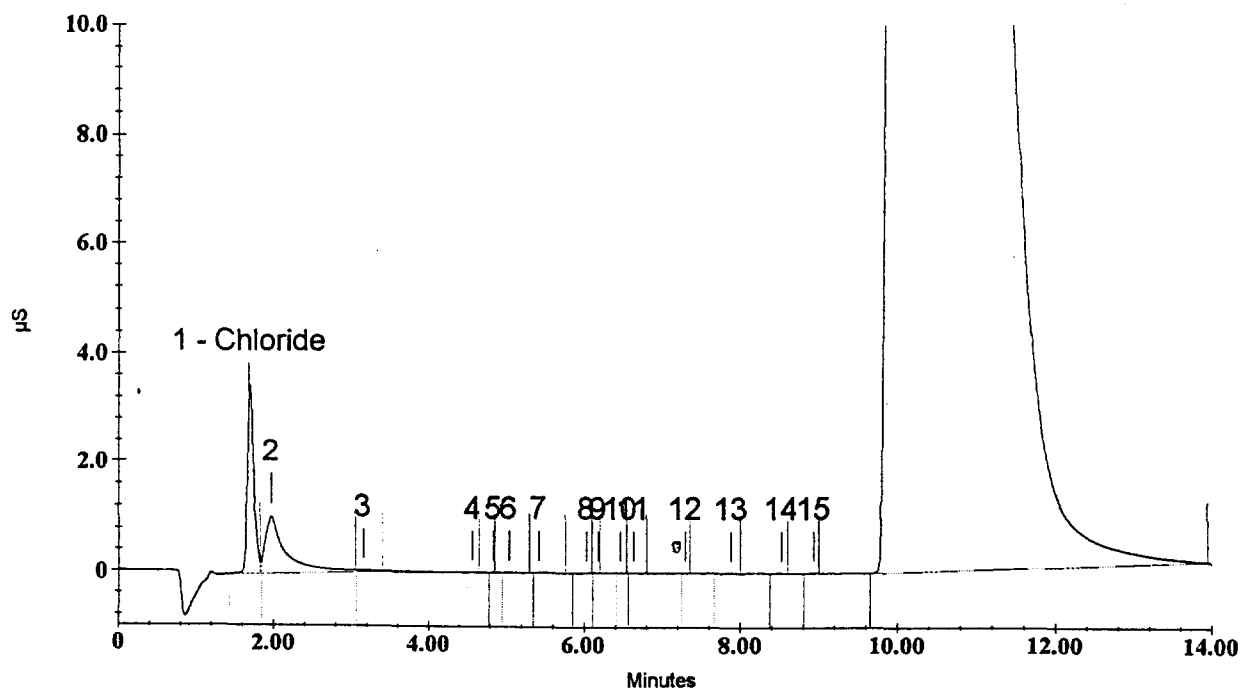
Collected : 7/7/99 12:37:26 PM
Updated : 7/8/99 5:18:23 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	0.953	199647	31051

REPRODUCED
DATA

ics



EXACT COPY OF
RAW DATA
06/29/99

Data File : ...ics_022.DXD

Sample Name : ics

Inject # : 22

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 12:52:31 PM

Updated : 7/7/99 1:06:33 PM

Calibrated : 7/7/99 9:13:54 AM

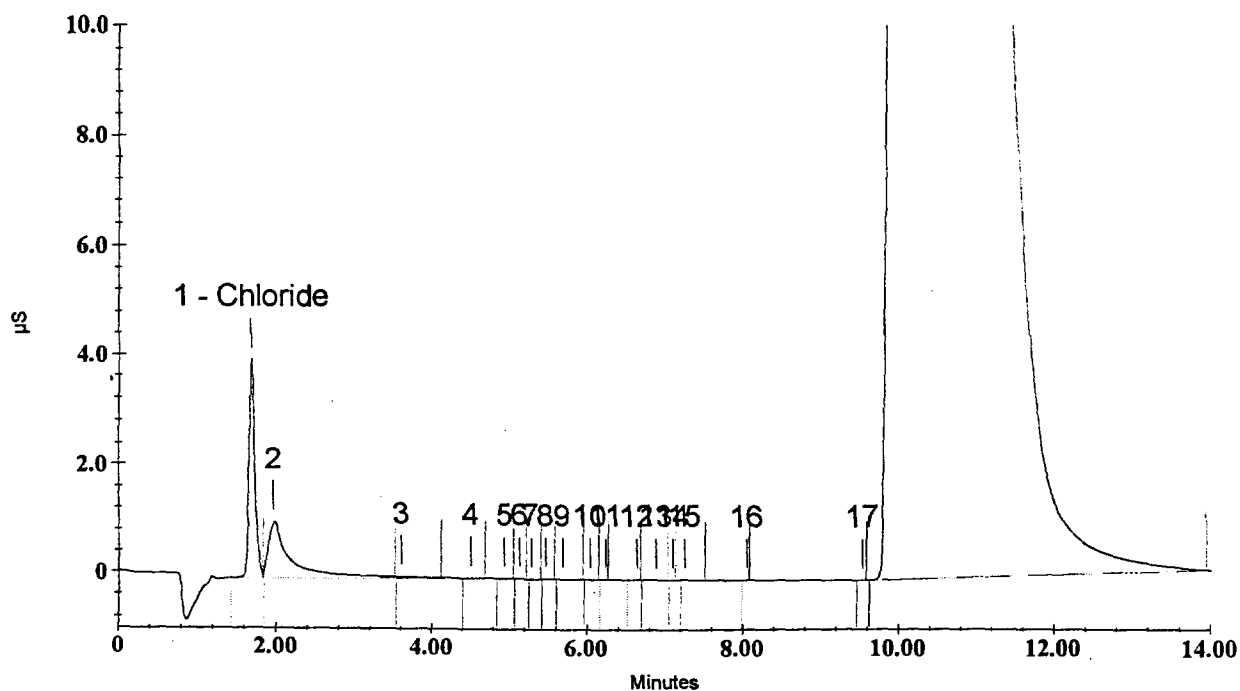
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	1.011	210773	40083

REPROCESS

ics



EXACT COPY OF
RAW DATA

Data File : ...ics_022.DXD
Sample Name : ics
Inject # : 22
Method File : M26h2so4.met
System Name : Instr. 830 DX500

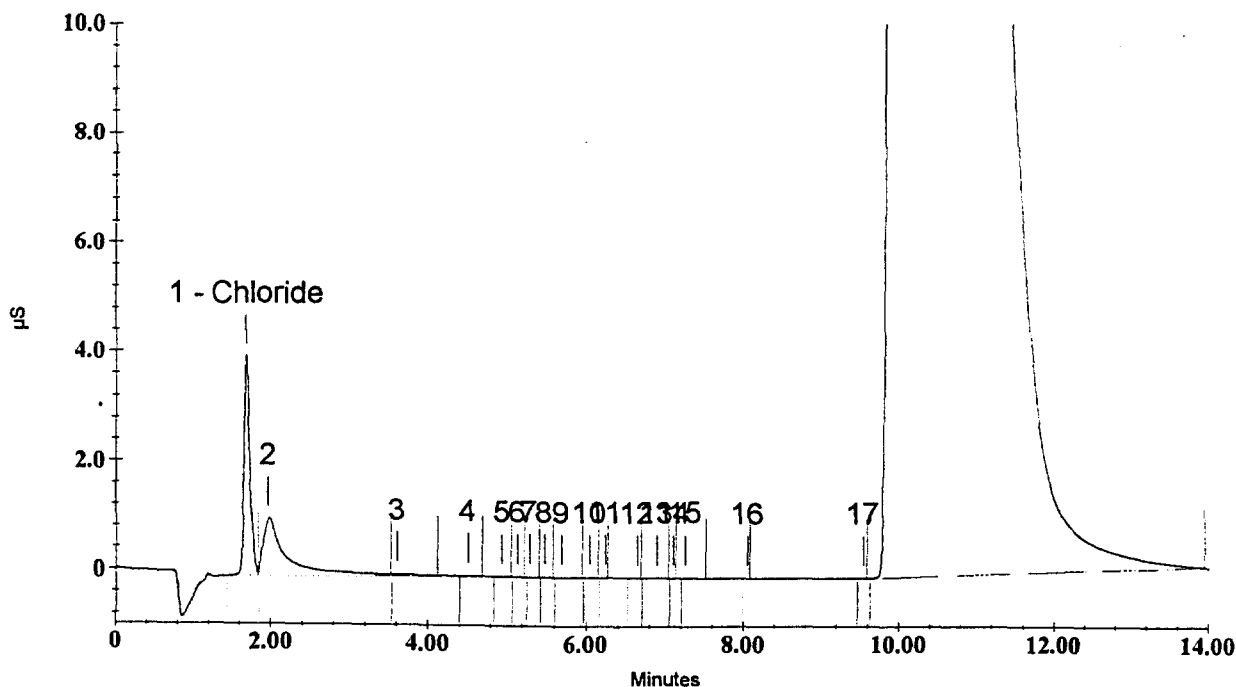
Collected : 7/7/99 12:52:31 PM
Updated : 7/8/99 5:18:43 AM
Calibrated : 7/8/99 5:10:16 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.68	Chloride	0.996	210773	40083

NEPTUNUS
DATA

ics



Arphaka
EXACT COPY OF
RAW DATA

Method 26, 421, 9057

run date: 7/8/99

WML

enter date: 7/9/99

matrix: H₂SO₄

analyst: RP

inst. # 830

pg: 011

method/std: I/C

7/12/99

run # std.conc. area 1 area 2 avg.

33	0.5ppm	43873	43490	43682
34	1.0ppm	82800	83424	82712
35	2.0ppm	179795	178643	179219
36	5.0ppm	468810	487009	477909

ICS Recovery: 94.322, 93.822

Spike Recovery:

$$[C] = [A] \times [B]$$

$$[E] = [C] \times [D] \times 1.0284$$

	Spl #	area	avg.	dilution [B]	volume [D]	µg/ml Cl [A]	µg HCl per spl [E]	Total µg HCl [C]
37	A-0000			—	—	.179	—	<.5
38	P-1711	823559		—	—	.943	—	94.322
39	P-1711	↓		—	—	.938	—	93.822
40	C-3803			(25)	106	2.157	5878	53.925
41	C-3803			(25)	↓	2.125	5791	53.125
42	C-3804			(25)	88	2.441	5523	61.025
43	C-3804			(25)	↓	2.431	5500	60.775
44	C-3805			(100)	92	1.851	17513	185.1
45	C-3805			(100)	↓	1.947	18421	194.7
46	C-3806	RECHECK ^(b)		(100)	78	1.469	11784	146.9
47	C-3806	RECHECK ^(b)		(100)	↓	1.301	10436	130.1
48	C-3807	RECHECK ^(b)		(250)	113	1.643	47733	410.75
49	C-3807	RECHECK ^(b)		(250)	↓	1.363	34598	340.75
	C-3808							

print end
11/7/99

(b) Doesn't meet client duplicate spec 11/1/99

EXACT COPY OF

RAW DATA

11/15/99
INSPECTED
31-7/14/99
C3803-19

@wml 7/14/99

OK 7/14/99

run date: 7/8/99

matrix: H₂O₄
inst. # 830
method/std: FE

WML

7/12/99

Method 26, 421, 9057

enter date: 7/19/99
analyst: RP

2 of 3

pg: 012

run # std.conc. area 1 area 2 avg.

ICS Recovery:

Spike Recovery: 7/11/99
107.72%
108.84%
@

#50: 105.02%

#51: 106.12%

	Spl #	area	avg.	dilution	volume	µg/ml Cl	µg HCl per spl	total µg/ml Ce
				(B)	(D)	(A)	(E)	(C)
50	C-3807	spike.		(25)	113	3.657	-	107.72%
51	C-3807	L		(25)	↓	3.678	-	108.84%
52	C-3808			(25)	94	3.949	76350	789.8
53	C-3808			(25)	↓	3.912	75634	782.4
54	C-3810			(100)	84	3.501	30244	350.1
55	C-3810			(100)	↓	3.408	29440	340.8
64	C-3811			(2)	70	.291	<72	<1.0
67	C-3811			(2)	↓	.320	<72	<1.0
56	C-3814			(25)	290	2.604	6030	65.15
57	C-3814			(25)	L	2.688	6220	67.20
58	C-3815			(25)	92	3.591	8494	89.775
59	C-3815			(25)	↓	3.652	8638	91.30
60	C-3816			(25)	70	3.32	6004	83.40
61	C-3816			(25)	↓	3.319	5973	82.975

EXACT COPY OF
RAW DATA
7/19/99

@ spike: 1ml of sample and 50µl of 100ppm Ce³⁺ (C55559) were put into a 250ml volumetric and made to volume with di water
RP 7/19/99

Heavy 2ppm

(b) recalc'd spike with average of all four results per ml

Method 26, 421, 9057

run date: 7/8/99

WML

enter date: 7/9/99

analyst: *ns*

matrix: H_2SO_4

inst. # 830

method/std: I/G

pg: 013

run #	std.conc.	area 1	area 2	avg.

ICS Recovery: 97.7% R

89.12.R

Spike Recovery:

[illegible]

① print error KP 7/4/99

EXACT COPY OF
RAW DATA

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
1	di	Sample		anions as4.met	di_001.dxd	1	1
2	0.5ppm	Calibration St	1	anions as4.met	05ppm_002.dxd	1	1
3	2ppm	Calibration St	2	anions as4.met	2ppm_003.dxd	1	1
4	5ppm	Calibration St	3	anions as4.met	5ppm_004.dxd	1	1
5	di	Sample		anions as4.met	di_005.dxd	1	1
6	ics	Sample		anions as4.met	ics_006.dxd	1	1
7	a-0002	Sample		anions as4.met	brblk_007.dxd	1	1
8	a-3502x100	Sample		anions as4.met	brstd_008.dxd	1	1
9	C-3984x2	Sample		anions as4.met	3984_009.dxd	1	1
10	a-3502x100(new dil.)	Sample		anions as4.met	brstd_010.dxd	1	1
11	C-3984x2spk	Sample		anions as4.met	3984_011.dxd	1	1
12	a-3502x100(3rd dil.)	Sample		anions as4.met	brstd_012.dxd	1	1
13	C-3894x5	Sample		anions as4.met	3894_013.dxd	1	1
14	C-3894x5spike	Sample		anions as4.met	3894s_014.dxd	1	1
15	C-2954x500	Sample		anions as4.met	2954_015.dxd	1	1
16	di	Sample		anions as4.met	di_016.dxd	1	1
17	di	Sample		anions as4.met	di_017.dxd	1	1
18	di	Sample		anions as4.met	di_018.dxd	1	1
19	di	Sample		anions as4.met	di_019.dxd	1	1
20	ics	Sample		anions as4.met	ics_020.dxd	1	1
21	ics	Sample		anions as4.met	ics_021.dxd	1	1
22	peakid	Sample		m26h2so4.met	peakid_022.dxd	1	1
23	peakid	Sample		m26h2so4.met	peakid_023.dxd	1	1
24	di	Sample		m26h2so4.met	di	1	1
25	0.5ppm	Calibration St	1	m26h2so4.met	05ppm_025.dxd	1	1
26	1ppm	Calibration St	2	m26h2so4.met	1ppm_026.dxd	1	1
27	2ppm	Calibration St	3	m26h2so4.met	2ppm_027.dxd	1	1
28	5ppm	Calibration St	4	m26h2so4.met	5ppm_028.dxd	1	1
29	a-0000	Sample		m26h2so4.met	blk_029.dxd	1	1
30	ics	Sample		m26h2so4.met	ics_030.dxd	1	1
31	ics	Sample		m26h2so4.met	ics_031.dxd	1	1
32	di	Sample		m26h2so4.met	di_032.dxd	1	1
33	0.5ppm	Calibration St	1	m26h2so4.met	05ppm_033.dxd	1	1
34	1ppm	Calibration St	2	m26h2so4.met	1ppm_034.dxd	1	1
35	2ppm	Calibration St	3	m26h2so4.met	2ppm_035.dxd	1	1
36	5ppm	Calibration St	4	m26h2so4.met	5ppm_036.dxd	1	1
37	a-0000	Sample		m26h2so4.met	blk_037.dxd	1	1
38	ics	Sample		m26h2so4.met	ics_038.dxd	1	1
39	ics	Sample		m26h2so4.met	ics_039.dxd	1	1
40	C-3803x25	Sample		m26h2so4.met	3803_040.dxd	1	1
41	C-3803x25	Sample		m26h2so4.met	3803_041.dxd	1	1
42	C-3804x25	Sample		m26h2so4.met	3804_042.dxd	1	1
43	C-3804x25	Sample		m26h2so4.met	3804_043.dxd	1	1
44	C-3805x100	Sample		m26h2so4.met	3805_044.dxd	1	1
45	C-3805x100	Sample		m26h2so4.met	3805_045.dxd	1	1
46	C-3806x100	Sample		m26h2so4.met	3806_046.dxd	1	1
47	C-3806x100	Sample		m26h2so4.met	3806_047.dxd	1	1
48	C-3807x250	Sample		m26h2so4.met	3807_048.dxd	1	1
49	C-3807x250	Sample		m26h2so4.met	3807_049.dxd	1	1
50	C-3807x250spike	Sample		m26h2so4.met	3807s_050.dxd	1	1
51	C-3807x250spike	Sample		m26h2so4.met	3807s_051.dxd	1	1
52	C-3808x200	Sample		m26h2so4.met	3808_052.dxd	1	1
53	C-3808x200	Sample		m26h2so4.met	3808_053.dxd	1	1
54	C-3810x100	Sample		m26h2so4.met	3810_054.dxd	1	1
55	C-3810x100	Sample		m26h2so4.met	3810_055.dxd	1	1
56	C-3814x25	Sample		m26h2so4.met	3814_056.dxd	1	1
57	C-3814x25	Sample		m26h2so4.met	3815_057.dxd	1	1
58	C-3815x25	Sample		m26h2so4.met	3815_058.dxd	1	1
59	C-3815x25	Sample		m26h2so4.met	3816_059.dxd	1	1
60	C-3816x25	Sample		m26h2so4.met	3817_060.dxd	1	1

PC
#230
7/8/99

7/9/99

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
61	C-3816x25	Sample		m26h2so4.met	3819_061.dxd	1	1
62	C-3817x100	Sample		m26h2so4.met	3819_062.dxd	1	1
63	C-3817x100	Sample		m26h2so4.met	3811_063.dxd	1	1
64	C-3819x10	Sample		m26h2so4.met	3811_064.dxd	1	1
65	C-3819x10	Sample		m26h2so4.met	3811_065.dxd	1	1
66	C-3811x2(neut.)	Sample		m26h2so4.met	3811_066.dxd	1	1
67	C-3811x2(neut.)	Sample		m26h2so4.met	3811_067.dxd	1	1
68	a-0000	Sample		m26h2so4.met	blk_068.dxd	1	1
69	ics	Sample		m26h2so4.met	ics_069.dxd	1	1
70	ics	Sample		m26h2so4.met	ics_070.dxd	1	1
71	0.5ppm	Sample		m26h2so4.met	05ppm_071.dxd	1	1
72	1ppm	Sample		m26h2so4.met	1ppm_072.dxd	1	1
73	2ppm	Sample		m26h2so4.met	2ppm_073.dxd	1	1
74	5ppm	Sample		m26h2so4.met	5ppm_074.dxd	1	1
75	C-3811x2(neut.)spike	Sample		m26h2so4.met	3811_075.dxd	1	1

Data File : ...\\05ppm_033.DXD

Sample Name : 0.5ppm

Inject # : 33

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/8/99 4:27:02 PM

Updated : 7/8/99 4:40:08 PM

Calibrated : 7/8/99 4:40:07 PM

Operator : rp

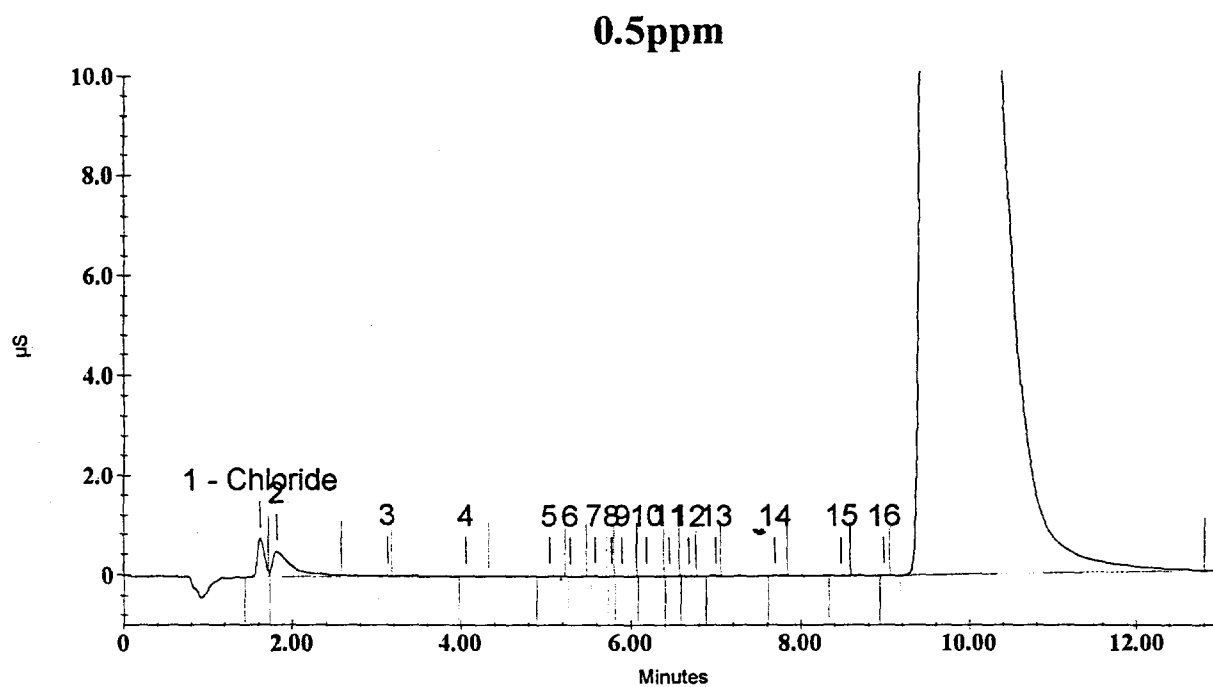
Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.500	42965	7498
2	1.82		0.000	87685	4913
3	3.13		0.000	1644	183
4	4.07		0.000	2154	122
5	5.05		0.000	936	62
6	5.30		0.000	551	54
7	5.58		0.000	438	57
8	5.78		0.000	132	34
9	5.90		0.000	546	46
10	6.18		0.000	543	32
11	6.45		0.000	291	45
12	6.68		0.000	431	52
13	7.00		0.000	523	61
14	7.70		0.000	485	45
15	8.48		0.000	246	22
16	8.98		0.000	72	18
17	9.57		0.000	19372555	452613

Recalibrated
RP 7/9/99

Inject 33-36
REPROCESS
for peak separation
RP 7/9/99

07/19/99
EXACT COPY OF
RAW DATA



06/27/99
EXACT COPY OF
RAW DATA

Data File : ...05PPM_~3.DXD
Sample Name : 0.5ppm
Inject # : 33
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 4:27:02 PM
Updated : 7/9/99 6:57:09 AM
Calibrated : 7/9/99 6:53:34 AM
Operator : rp

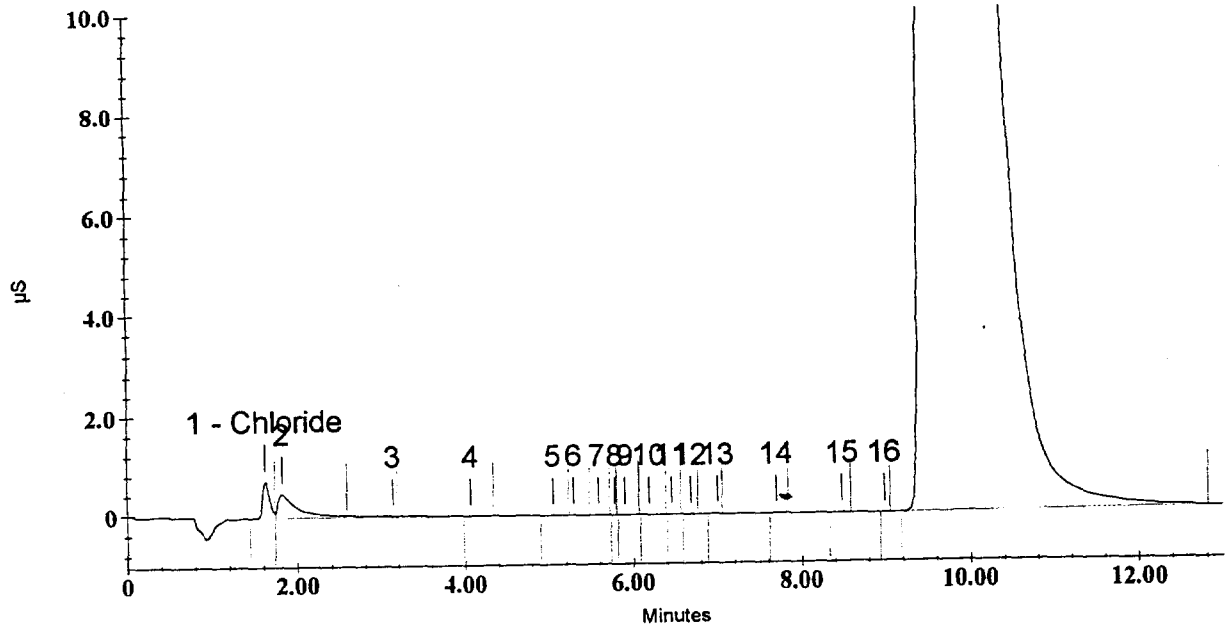
Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.500	43873	7498
2	1.82		0.000	87685	4913
3	3.13		0.000	1644	183
4	4.07		0.000	2154	122
5	5.05		0.000	936	62
6	5.30		0.000	551	54
7	5.58		0.000	438	57
8	5.78		0.000	132	34
9	5.90		0.000	546	46
10	6.18		0.000	543	32
11	6.45		0.000	291	45
12	6.68		0.000	431	52
13	7.00		0.000	523	61
14	7.70		0.000	485	45
15	8.48		0.000	246	22
16	8.98		0.000	72	18
17	9.57		0.000	19372555	452613

NOT FOR RELEASE
DATA

06/19/99
EXACT COPY OF
RAW DATA

0.5ppm



EXACT COPY OF
RAW DATA

Handwritten signature/initials

Data File : ...\\lppm_034.DXD

Sample Name : lppm

Inject # : 34

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/8/99 4:41:24 PM

Updated : 7/8/99 4:54:26 PM

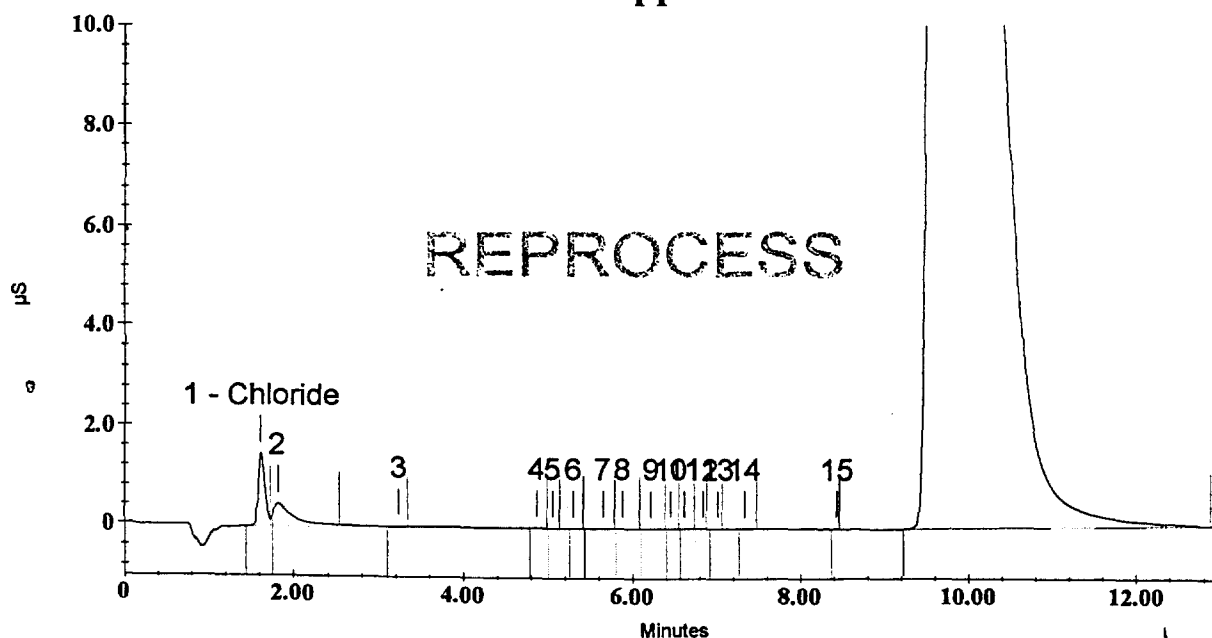
Calibrated : 7/8/99 4:54:24 PM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	1.000	80968	14734
2	1.82		0.000	77706	4710
3	3.23		0.000	2629	210
4	4.87		0.000	944	89
5	5.05		0.000	567	77
6	5.30		0.000	476	53
7	5.65		0.000	826	63
8	5.88		0.000	663	63
9	6.22		0.000	720	69
10	6.45		0.000	229	37
11	6.62		0.000	134	27
12	6.83		0.000	150	34
13	7.02		0.000	384	49
14	7.33		0.000	261	31
15	8.43		0.000	64	20
16	9.65		0.000	17441339	420242

1ppm



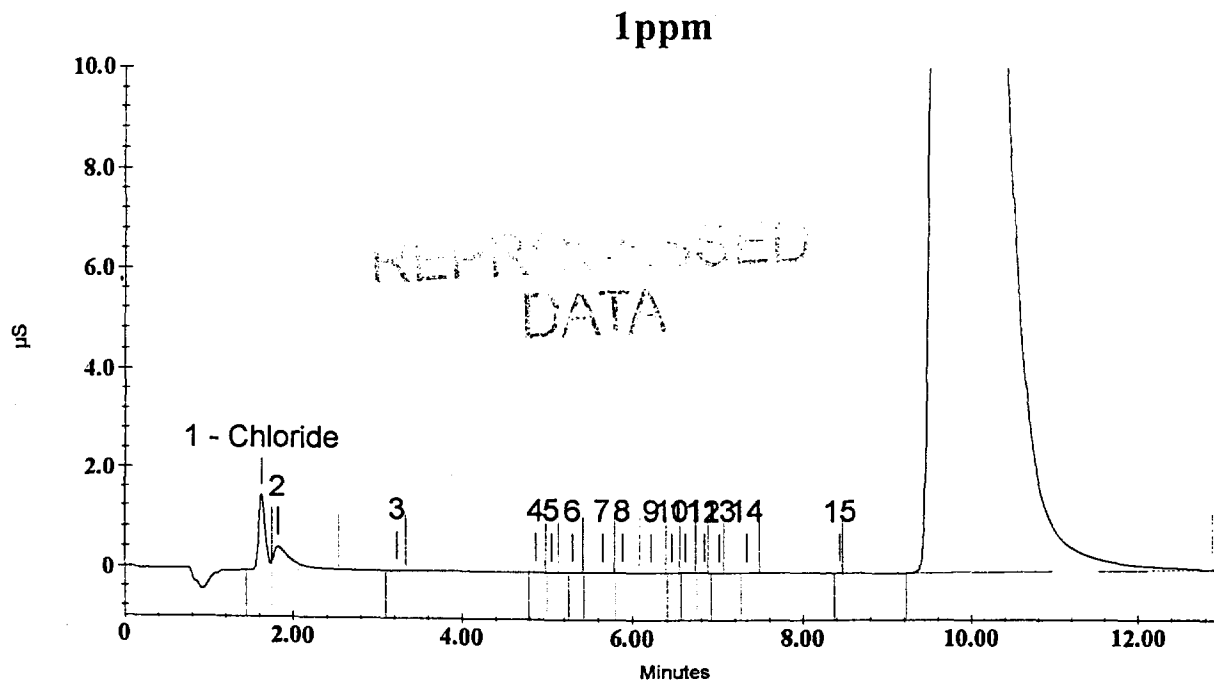
Chloride
EXACT COPY OF
RAW DATA

Data File : ...\\1PPM_034.DXD
Sample Name : 1ppm
Inject # : 34
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 4:41:24 PM
Updated : 7/9/99 6:58:48 AM
Calibrated : 7/9/99 6:57:18 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	1.000	82000	14734
2	1.82		0.000	78024	4710
3	3.23		0.000	2629	210
4	4.87		0.000	944	89
5	5.05		0.000	567	77
6	5.30		0.000	476	53
7	5.65		0.000	826	63
8	5.88		0.000	663	63
9	6.22		0.000	720	69
10	6.45		0.000	229	37
11	6.62		0.000	134	27
12	6.83		0.000	150	34
13	7.02		0.000	384	49
14	7.33		0.000	261	31
15	8.43		0.000	64	20
16	9.65		0.000	17441339	420242



07/19/99
EXACT COPY OF
RAW DATA

Data File : ...\\2ppm_035.DXD
Sample Name : 2ppm
Inject # : 35
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

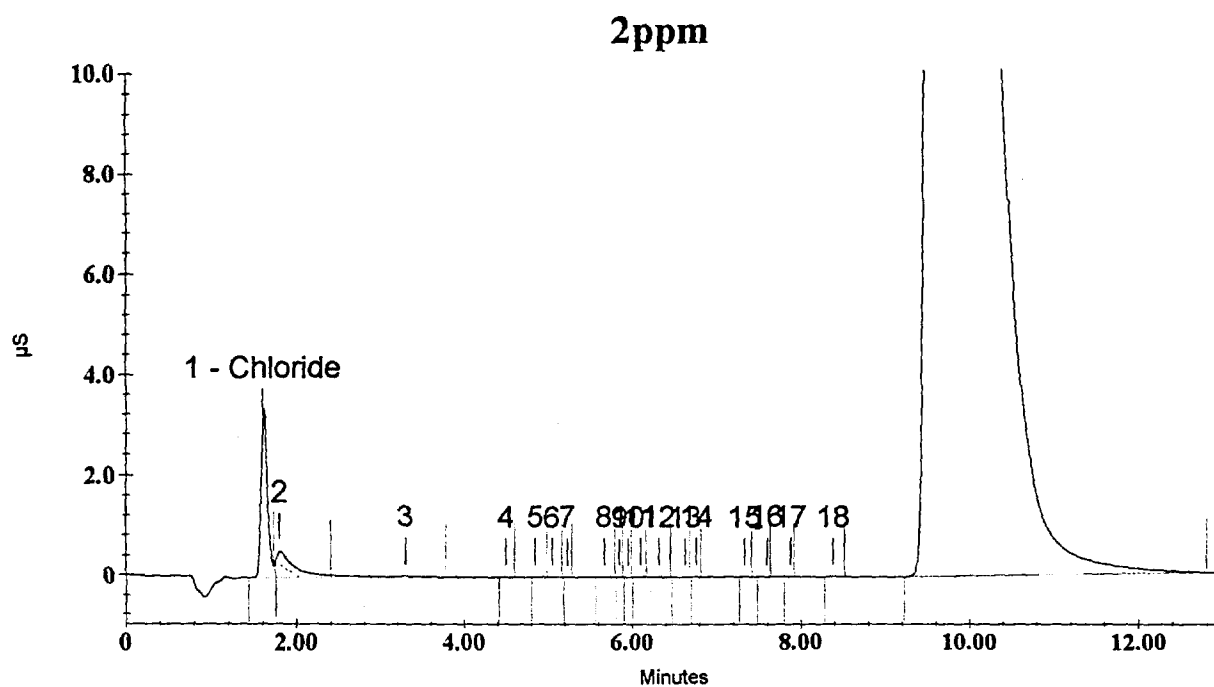
Collected : 7/8/99 4:55:47 PM
Updated : 7/8/99 5:08:53 PM
Calibrated : 7/8/99 5:08:51 PM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.000	178388	29843
2	1.80		0.000	69762	4483
3	3.30		0.000	6941	257
4	4.50		0.000	1175	125
5	4.85		0.000	739	78
6	5.05		0.000	497	54
7	5.23		0.000	347	62
8	5.67		0.000	628	59
9	5.85		0.000	132	30
10	5.95		0.000	204	46
11	6.10		0.000	463	60
12	6.32		0.000	693	59
13	6.63		0.000	462	47
14	6.77		0.000	444	74
15	7.33		0.000	407	51
16	7.60		0.000	494	67
17	7.88		0.000	224	42
18	8.38		0.000	288	31
19	9.62		0.000	17421790	420793

REPROCESS

ae7/9/99
EXACT COPY OF
RAW DATA



06/29/99
EXACT COPY OF
RAW DATA

Data File : ...2PPM_035.DXD
Sample Name : 2ppm
Inject # : 35
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 4:55:47 PM
Updated : 7/9/99 7:00:01 AM
Calibrated : 7/9/99 6:58:56 AM
Operator : rp

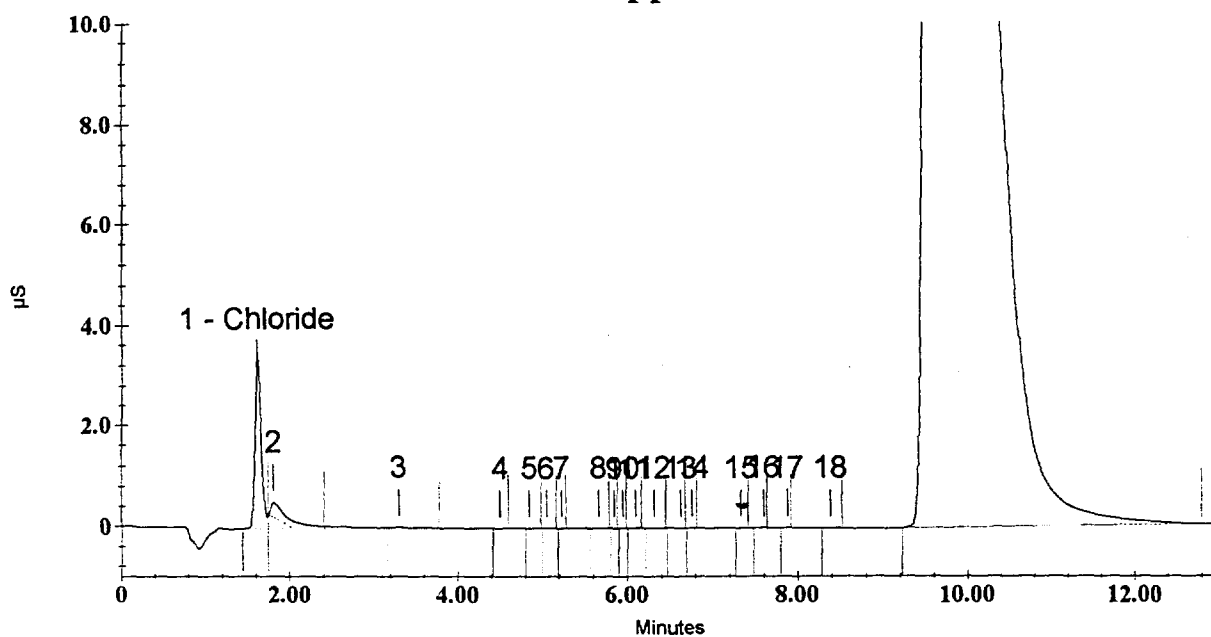
Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.000	179795	29843
2	1.80		0.000	70481	4524
3	3.30		0.000	6941	257
4	4.50		0.000	1175	125
5	4.85		0.000	739	78
6	5.05		0.000	497	54
7	5.23		0.000	347	62
8	5.67		0.000	628	59
9	5.85		0.000	132	30
10	5.95		0.000	204	46
11	6.10		0.000	463	60
12	6.32		0.000	693	59
13	6.63		0.000	462	47
14	6.77		0.000	444	74
15	7.33		0.000	407	51
16	7.60		0.000	494	67
17	7.88		0.000	224	42
18	8.38		0.000	288	31
19	9.62		0.000	17421790	420793

REF ID:
DATA

08/19/99
EXACT COPY OF
RAW DATA

2ppm



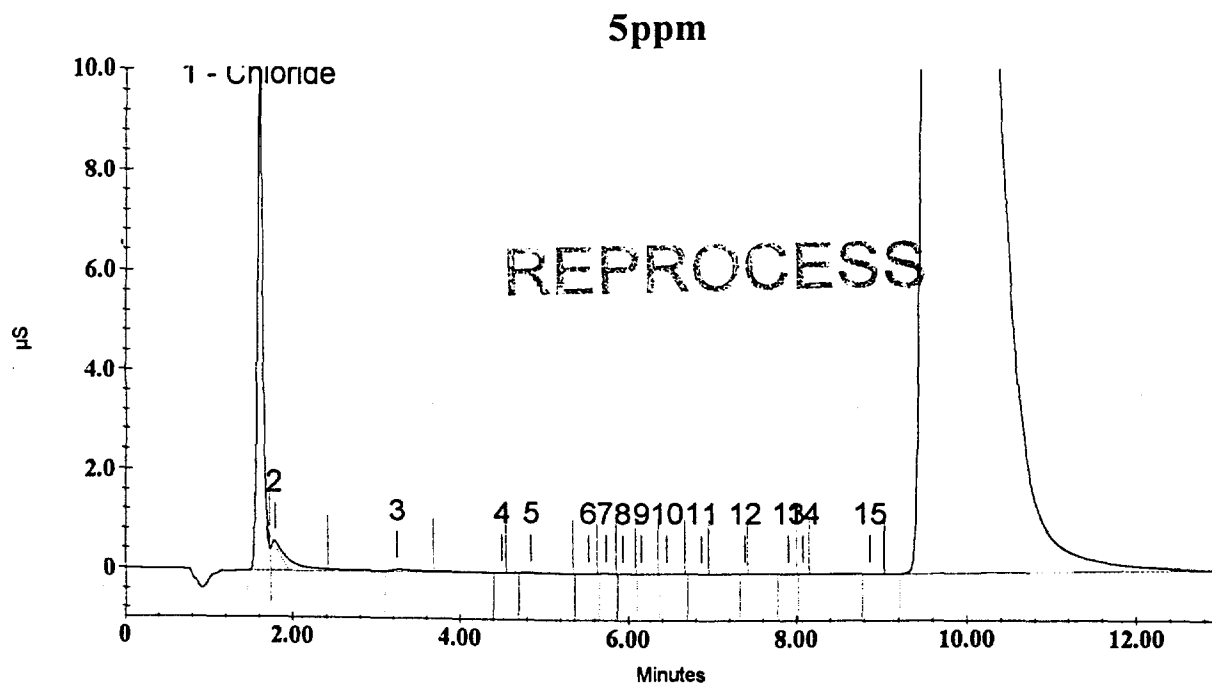
EXACT COPY OF
RAW DATA

Data File : ...5ppm_036.DXD
 Sample Name : 5ppm
 Inject # : 36
 Method File : c:\peaknet\method\m26h2so4.met
 System Name : Instr. 830 DX500

Collected : 7/8/99 5:10:10 PM
 Updated : 7/8/99 5:23:15 PM
 Calibrated : 7/8/99 5:23:14 PM
 Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	5.000	465914	87392
2	1.78		0.000	71386	4717
3	3.25		0.000	10215	483
4	4.50		0.000	561	68
5	4.85		0.000	2913	88
6	5.53		0.000	1037	78
7	5.73		0.000	856	87
8	5.93		0.000	950	92
9	6.15		0.000	707	58
10	6.45		0.000	892	73
11	6.87		0.000	687	61
12	7.38		0.000	204	45
13	7.90		0.000	326	26
14	8.08		0.000	258	41
15	8.87		0.000	377	45
16	9.60		0.000	17235676	417231



acphal9
 EXACT COPY OF
 RAW DATA

Data File : ...\\5PPM_036.DXD
 Sample Name : 5ppm
 Inject # : 36
 Method File : M26h2so4.met
 System Name : Instr. 830 DX500

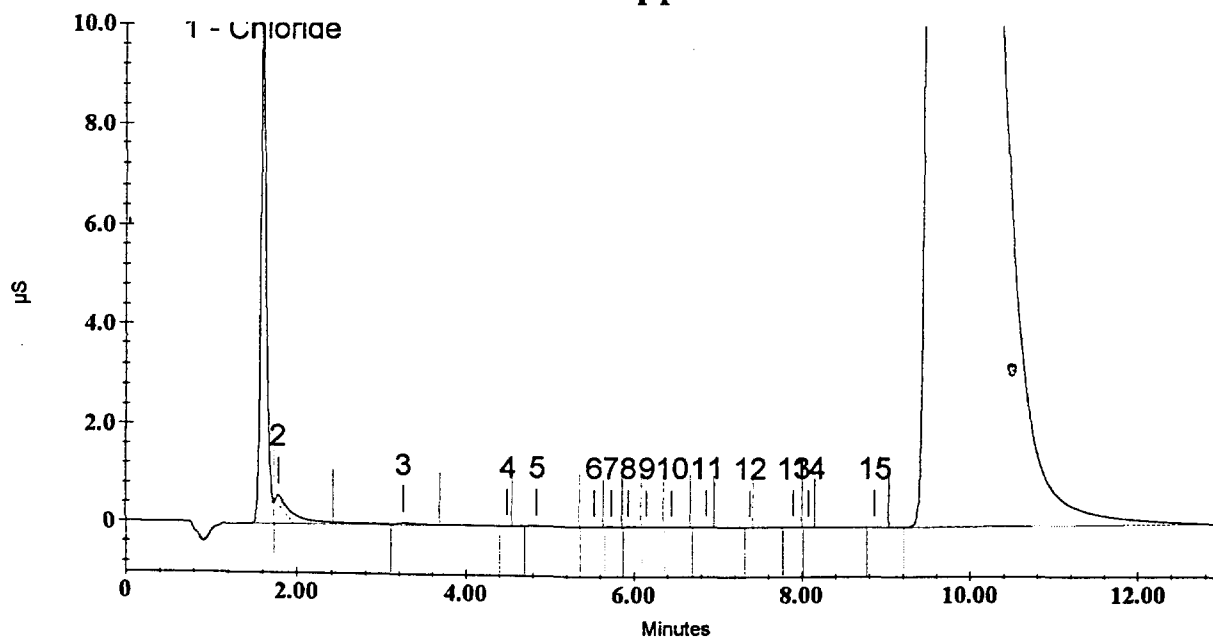
Collected : 7/8/99 5:10:10 PM
 Updated : 7/9/99 7:14:18 AM
 Calibrated : 7/9/99 7:00:09 AM
 Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	5.000	468810	87392
2	1.78		0.000	72522	4838
3	3.25		0.000	10215	483
4	4.50		0.000	561	68
5	4.85		0.000	2913	88
6	5.53		0.000	1037	78
7	5.73		0.000	856	87
8	5.93		0.000	950	92
9	6.15		0.000	707	58
10	6.45		0.000	892	73
11	6.87		0.000	687	61
12	7.38		0.000	204	45
13	7.90		0.000	326	26
14	8.08		0.000	258	41
15	8.87		0.000	377	45
16	9.60		0.000	17235676	417231

REPRO
DATA

5ppm



EXACT COPY OF
RAW DATA

Genha/199

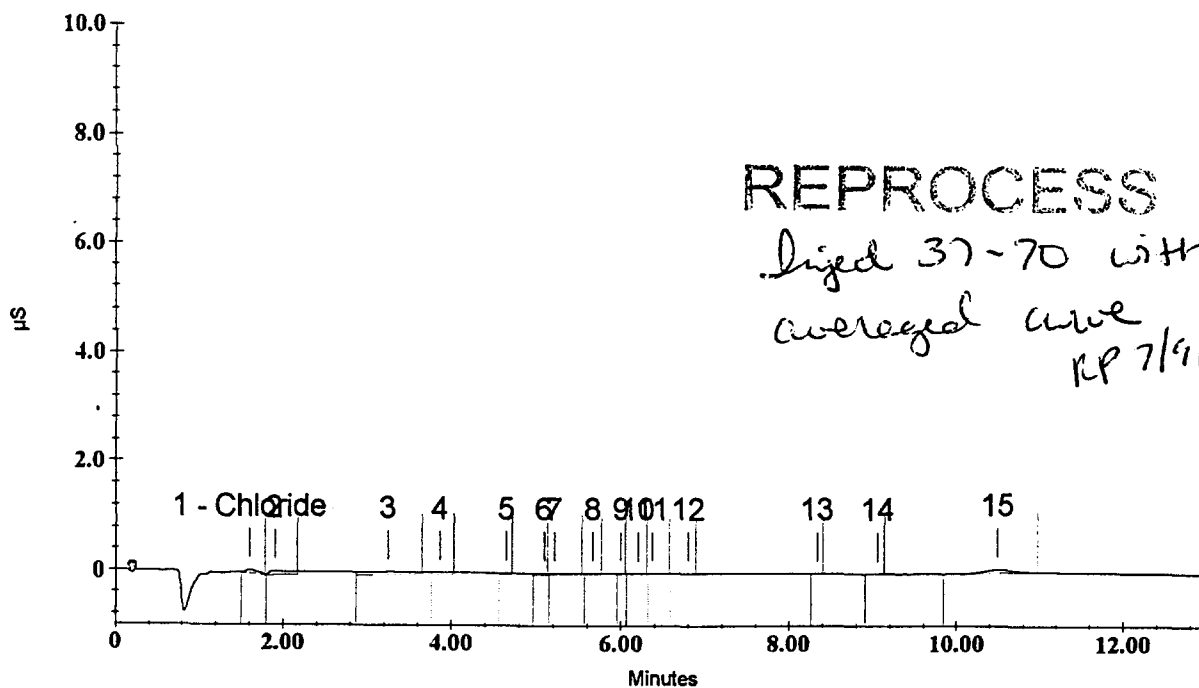
Data File : ...blk_037.DXD
Sample Name : a-0000
Inject # : 37
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 5:24:32 PM
Updated : 7/8/99 5:37:37 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.166	6131	665

a-0000



REPROCESS

*Diged 37-70 with
averaged curve
RP 7/9/99*

RP 7/9/99
EXACT COPY OF
RAW DATA

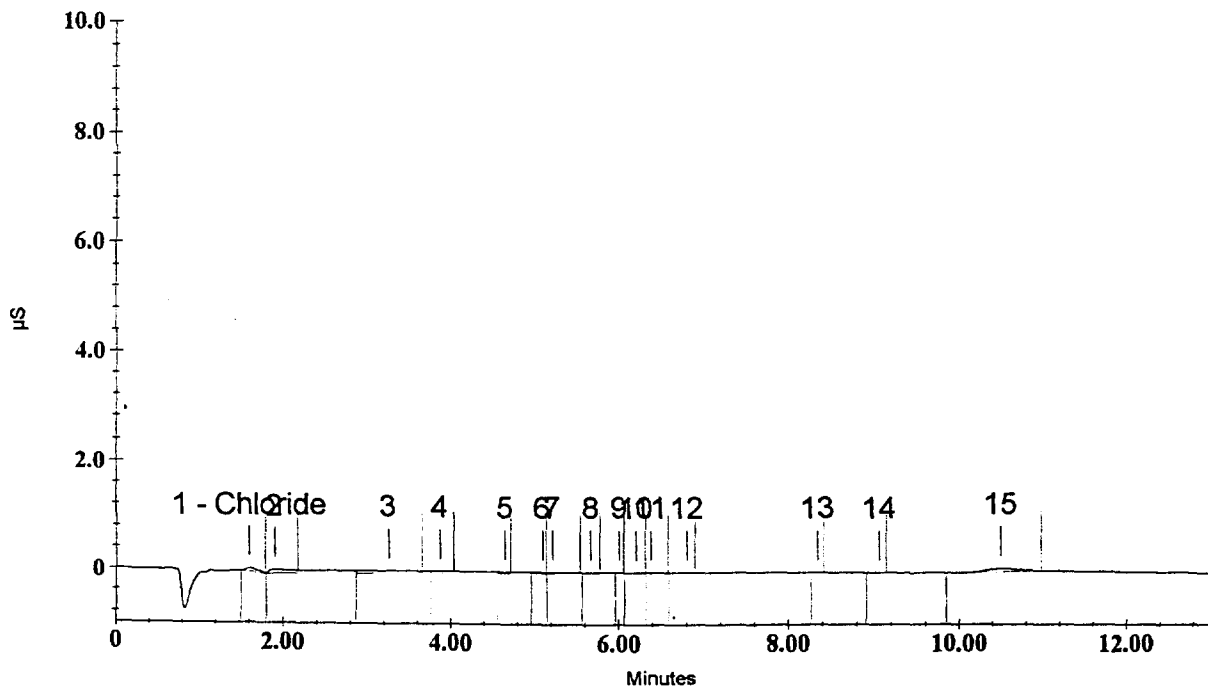
Data File : ...\\blk_037.DXD
Sample Name : a-0000
Inject # : 37
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 5:24:32 PM
Updated : 7/9/99 7:39:19 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.179	6131	665

REPRODUCTION
DATA

a-0000



07/19/99
EXACT COPY OF
RAW DATA

Data File : ...ics_038.DXD

Sample Name : ics

Inject # : 38

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/8/99 5:38:55 PM

Updated : 7/8/99 5:51:58 PM

Calibrated : 7/8/99 5:23:14 PM

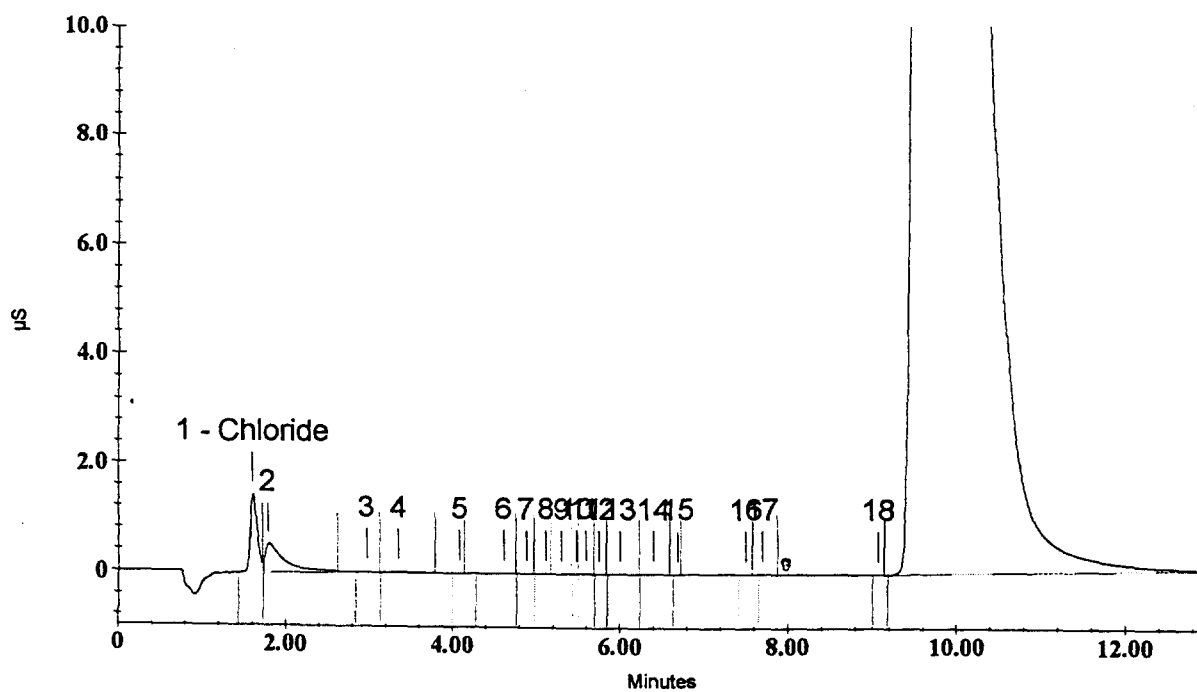
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.948	80335	14233

REPROCESS

ics



EXACT COPY OF
RAW DATA

07/24/99

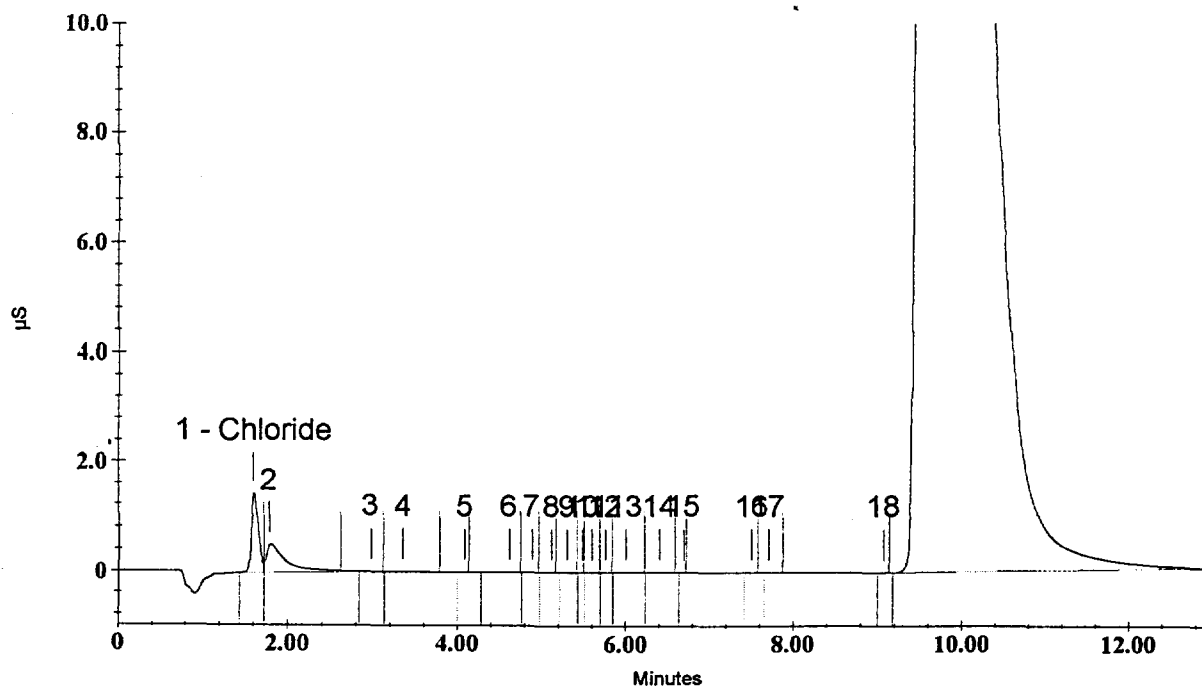
Data File : ...ICS_038.DXD
Sample Name : ics
Inject # : 38
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 5:38:55 PM
Updated : 7/9/99 7:41:43 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.943	80600	14233

REPROCESSED
DATA
ics



EXACT COPY OF
RAW DATA
De 7/29/99

Data File : ...ics_039.DXD
Sample Name : ics
Inject # : 39
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

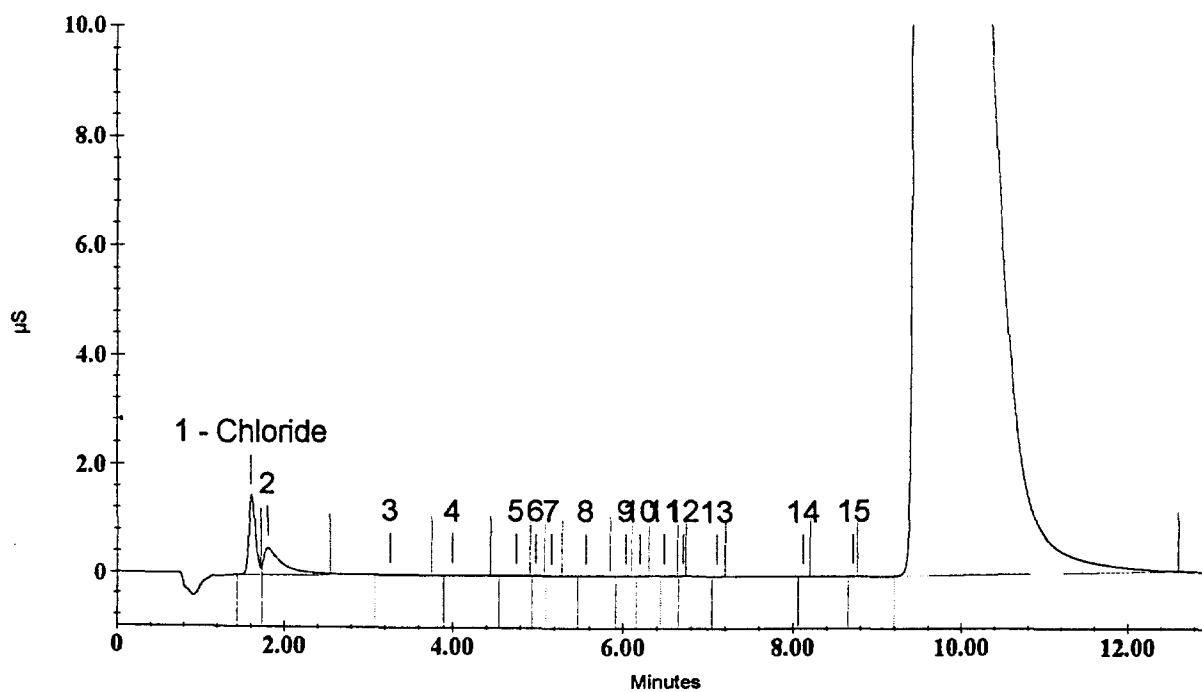
Collected : 7/8/99 5:53:17 PM
Updated : 7/8/99 6:06:23 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.932	78791	14363

REPROCESS

ics



EXACT COPY OF
RAW DATA

07/29/99

Data File : ...ICS_039.DXD
Sample Name : ics
Inject # : 39
Method File : M26h2so4.met
System Name : Instr. 830 DX500

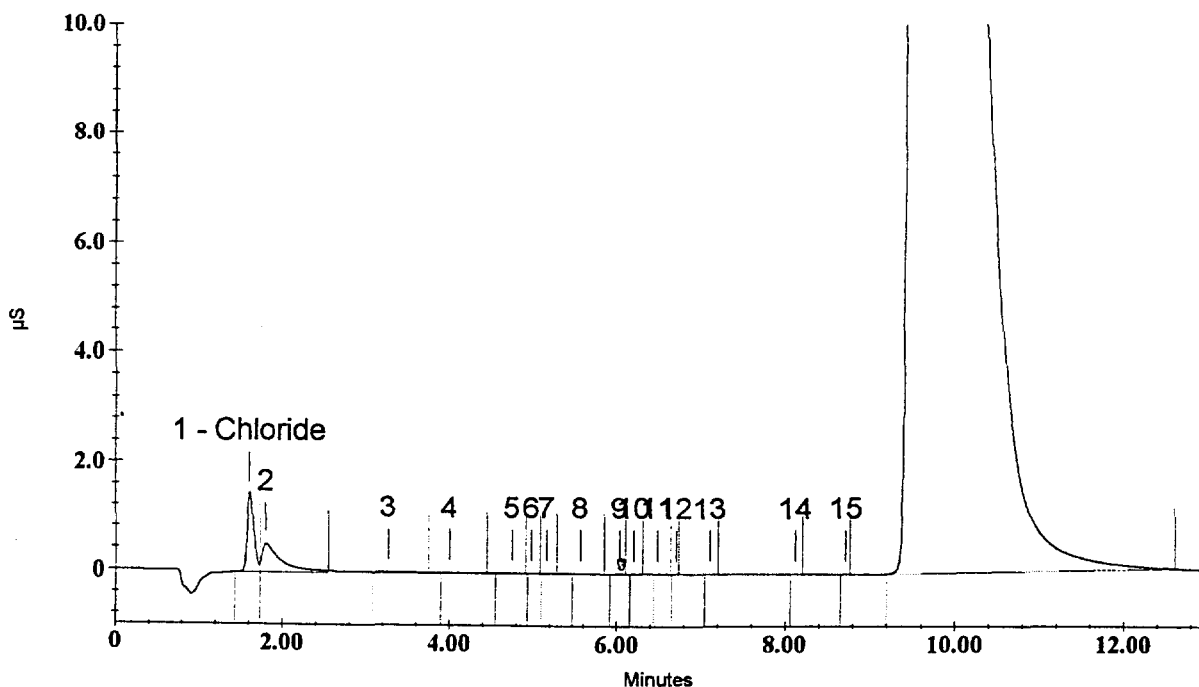
Collected : 7/8/99 5:53:17 PM
Updated : 7/9/99 7:43:33 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.938	80150	14366

REPROCESSED
DATA

ics



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EXACT COPY OF
RAW DATA

Data File : ...3803_040.DXD
Sample Name : C-3803x25
Inject # : 40
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

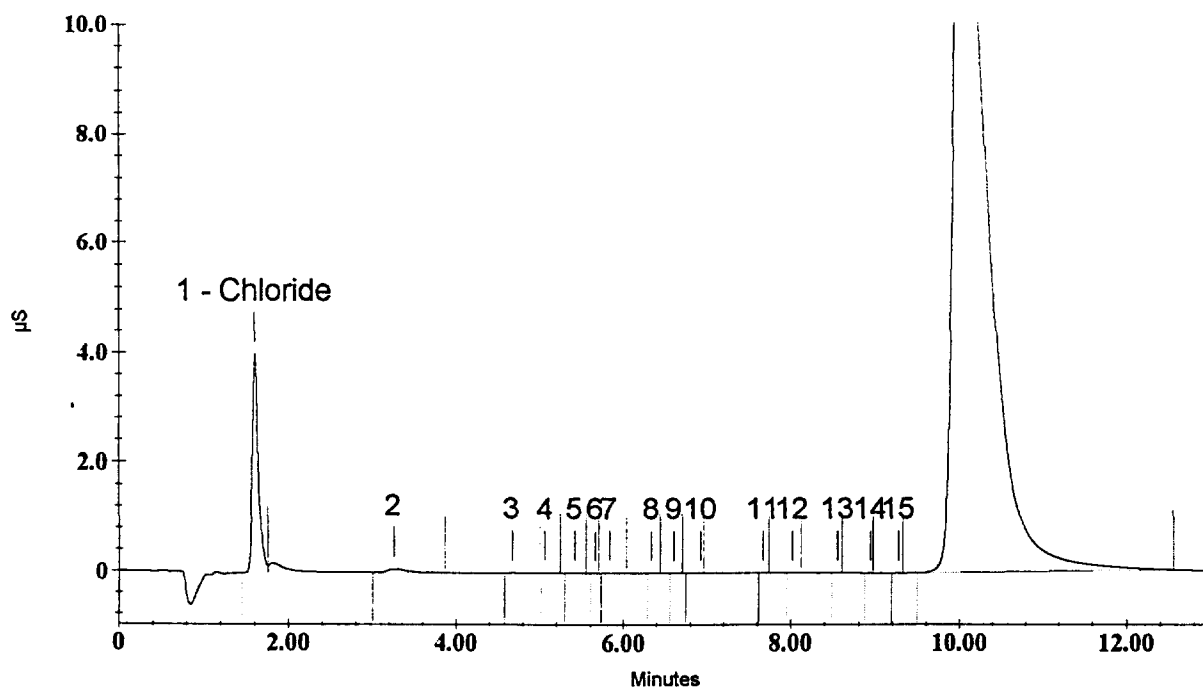
Collected : 7/8/99 6:07:39 PM
Updated : 7/8/99 6:20:44 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.198	198996	39964

REPROCESS

C-3803x25



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EXACT COPY OF
RAW DATA

Data File : ...3803_040.DXD
Sample Name : C-3803x25
Inject # : 40
Method File : M26h2so4.met
System Name : Instr. 830 DX500

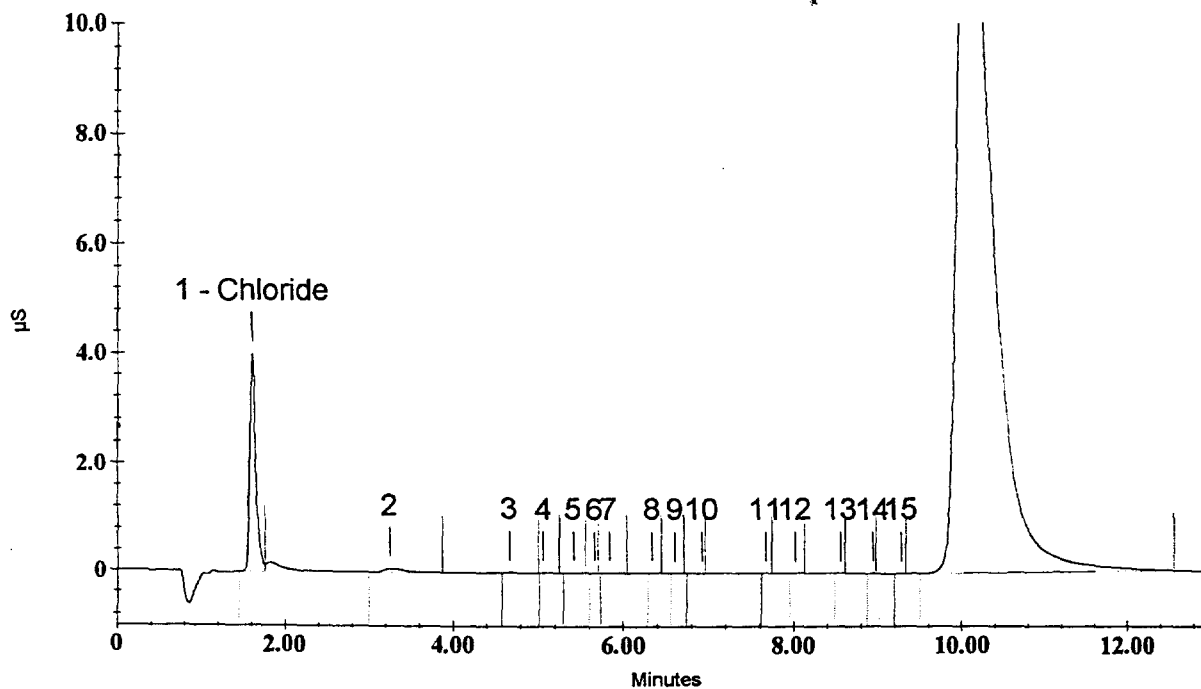
Collected : 7/8/99 6:07:39 PM
Updated : 7/9/99 7:44:50 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.157	198996	39964

REF. PROCESSED
DATA

C-3803x25



EXACT COPY OF
RAW DATA

Data File : ...3803_041.DXD
Sample Name : C-3803x25
Inject # : 41
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

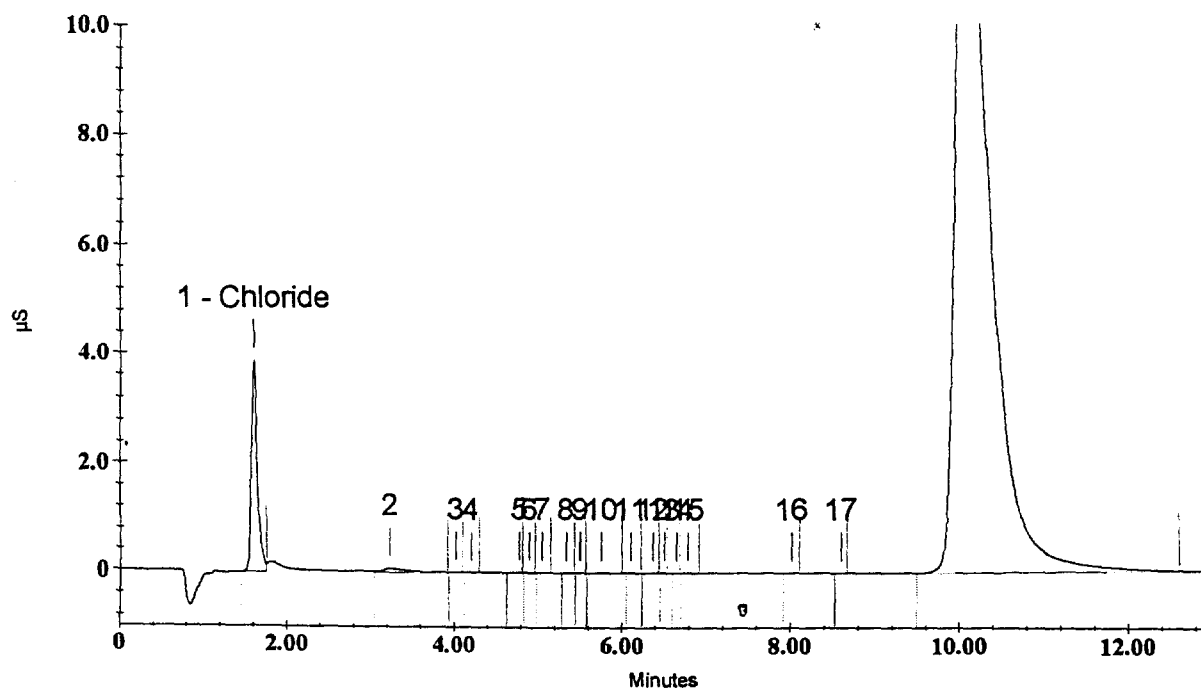
Collected : 7/8/99 6:22:03 PM
Updated : 7/8/99 6:35:08 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.165	195846	38780

REPROCESS

C-3803x25



6/17/99
EXACT COPY OF
RAW DATA

Data File : ...3803_041.DXD
Sample Name : C-3803x25
Inject # : 41
Method File : M26h2so4.met
System Name : Instr. 830 DX500

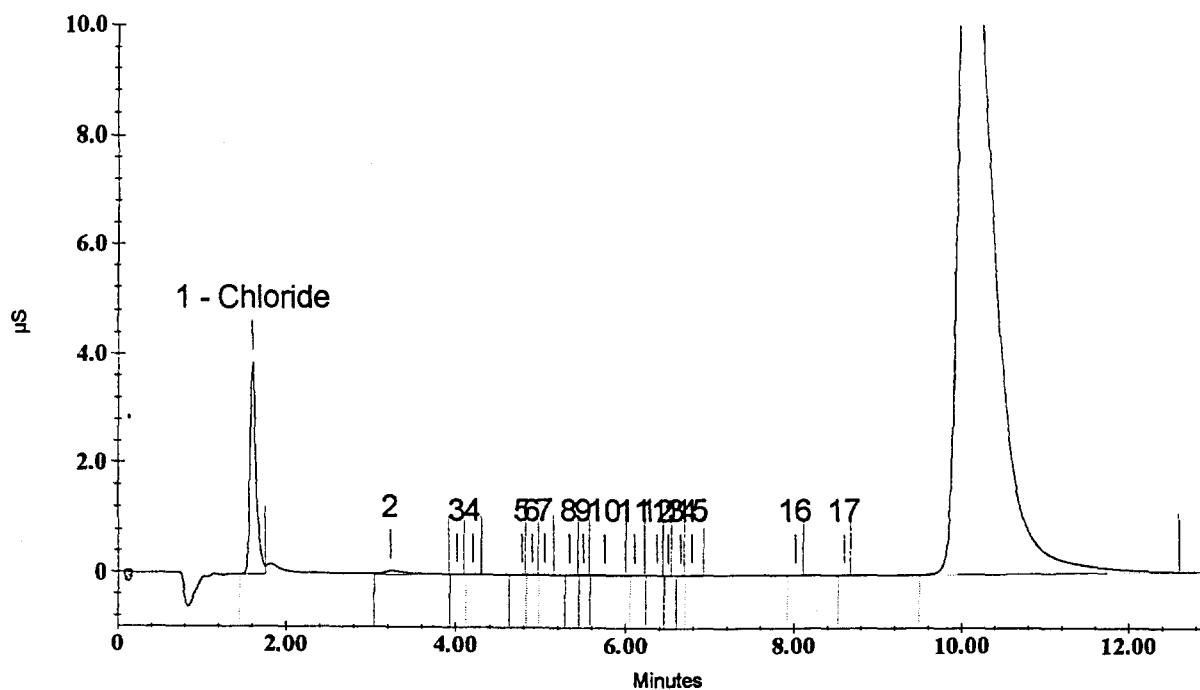
Collected : 7/8/99 6:22:03 PM
Updated : 7/9/99 7:45:04 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.125	195846	38780

REFR INDEX
DATA

C-3803x25



07/14/99
EXACT COPY OF
RAW DATA

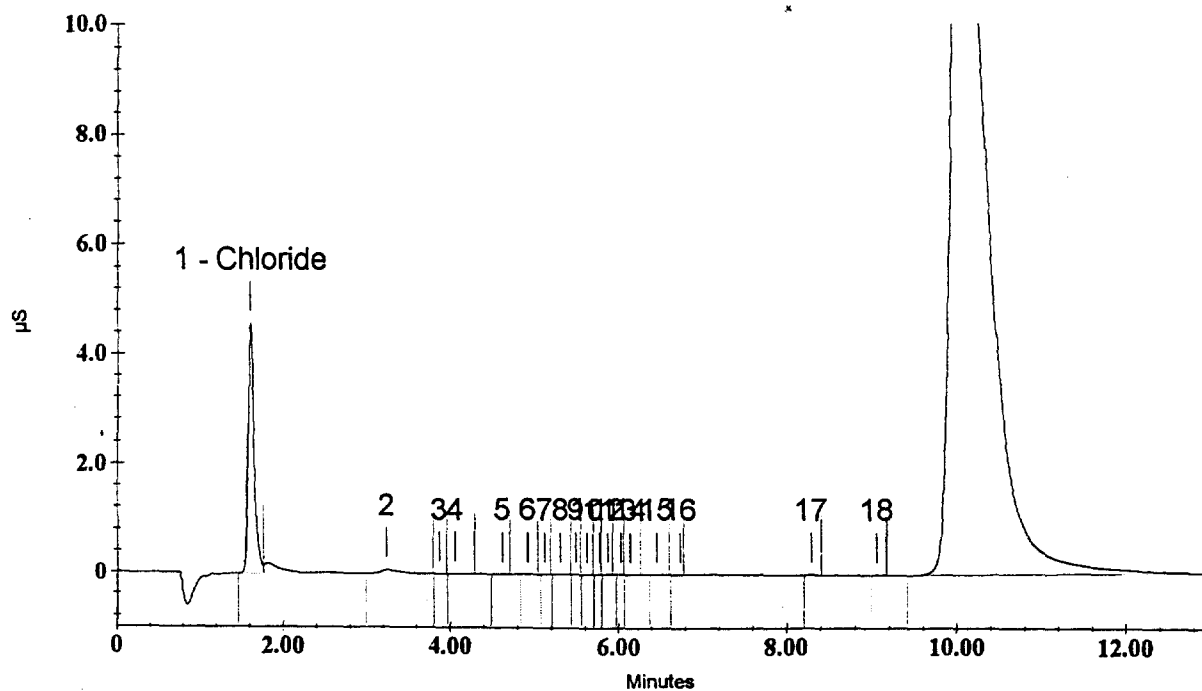
Data File : ...3804_042.DXD
Sample Name : C-3804x25
Inject # : 42
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 6:36:25 PM
Updated : 7/8/99 6:49:32 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.490	226720	45824

-REPROCESS

C-3804x25



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EXACT COPY OF
RAW DATA

Data File : ...3804_042.DXD
Sample Name : C-3804x25
Inject # : 42
Method File : M26h2so4.met
System Name : Instr. 830 DX500

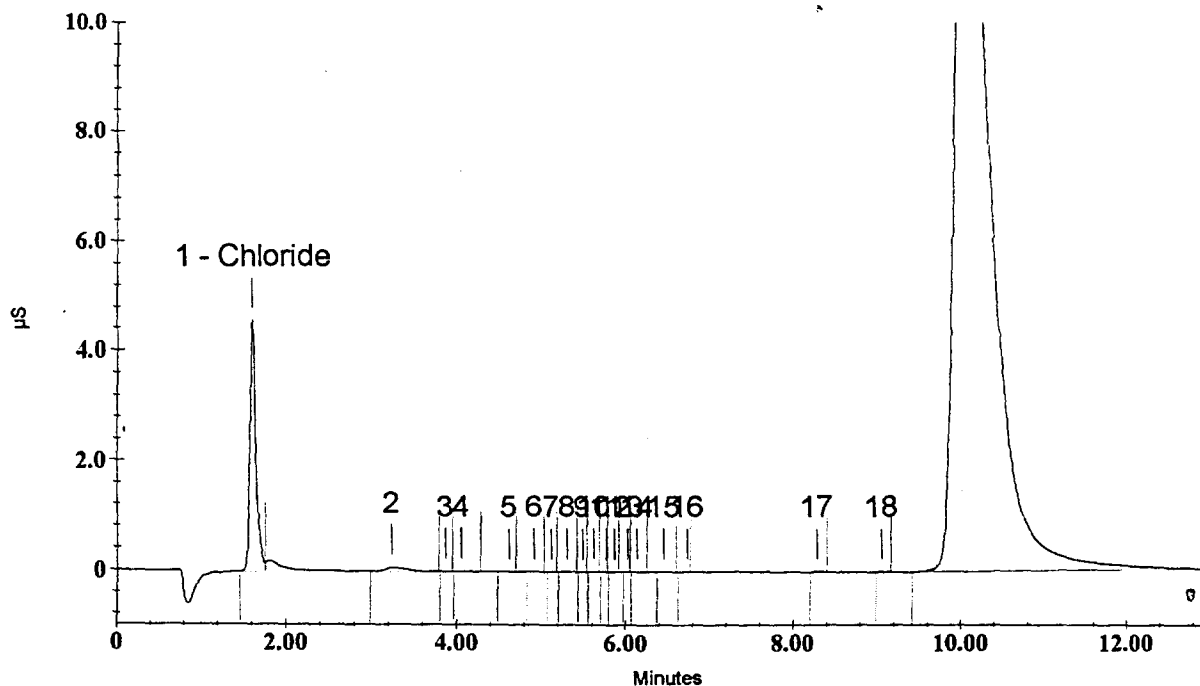
Collected : 7/8/99 6:36:25 PM
Updated : 7/9/99 7:45:24 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.441	226720	45824

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DATA

C-3804x25



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EXACT COPY OF
RAW DATA

Data File : ...3804_043.DXD
Sample Name : C-3804x25
Inject # : 43
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

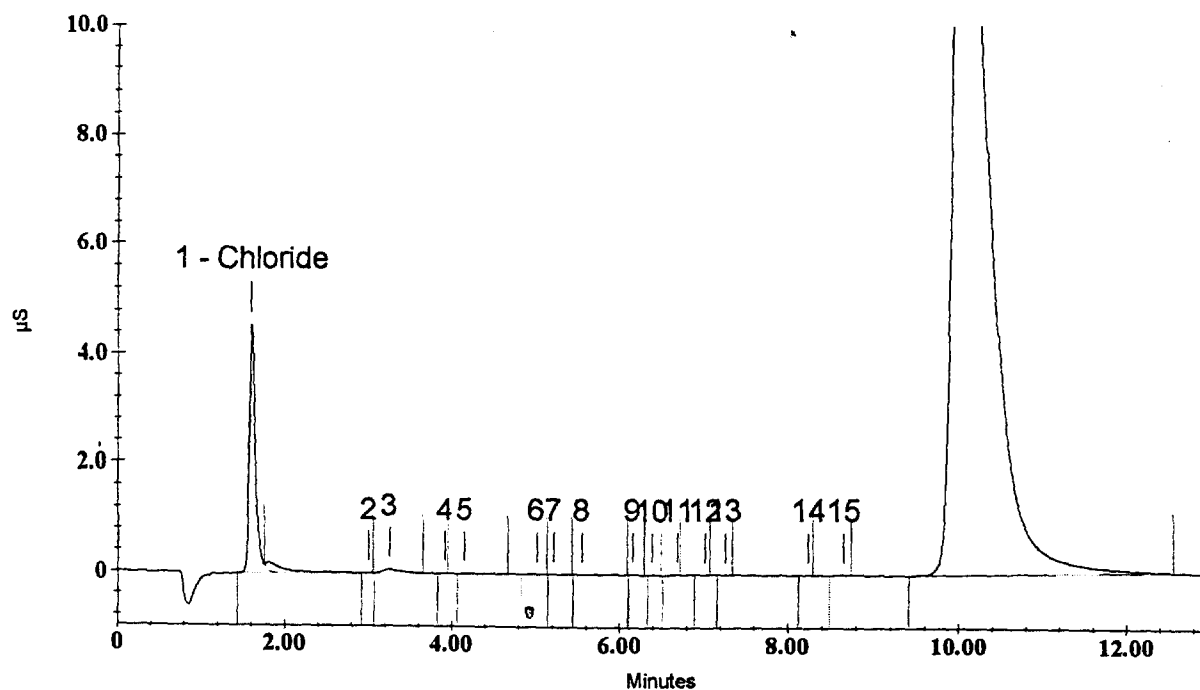
Collected : 7/8/99 5:00:17 PM
Updated : 7/8/99 7:03:50 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.479	225684	45639

REPROCESS

C-3804x25

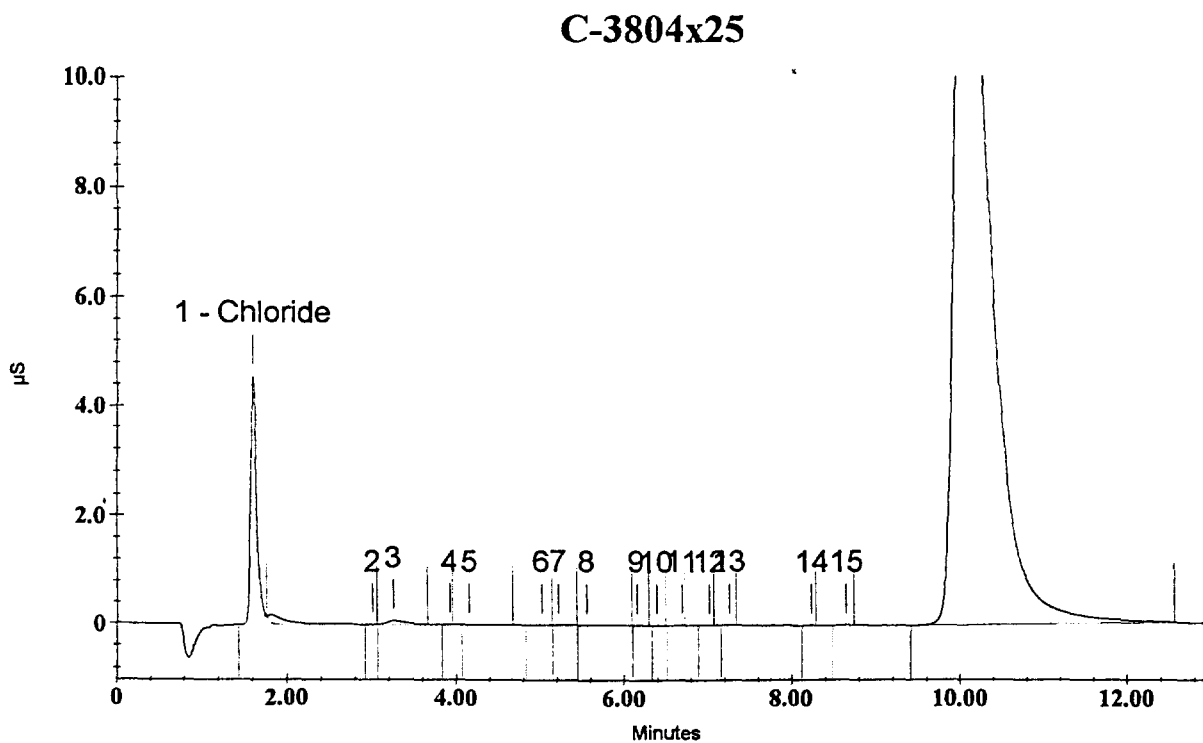


Gen/29/99
EXACT COPY OF
RAW DATA

Data File : ...3804_043.DXD
Sample Name : C-3804x25
Inject # : 43
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 6:50:47 PM
Updated : 7/9/99 7:45:46 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.431	225684	45639



07/29/99
EXACT COPY OF
RAW DATA

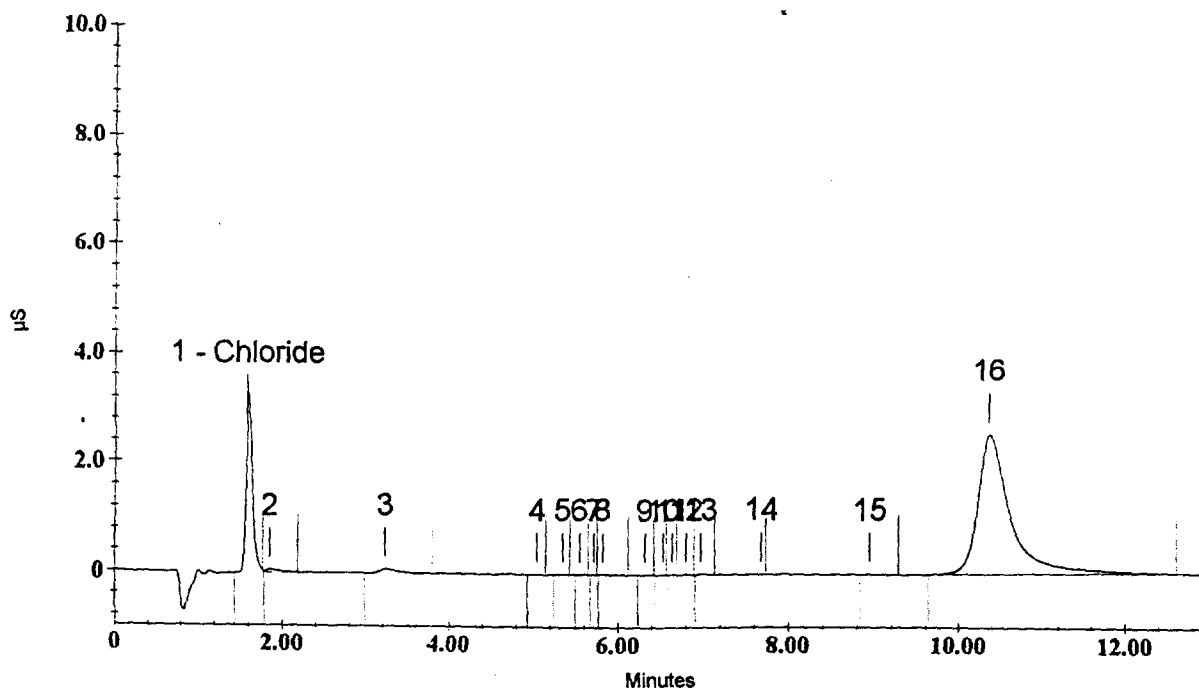
Data File : ...3805_044.DXD
Sample Name : C-3805x100
Inject # : 44
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:05:10 PM
Updated : 7/8/99 7:18:16 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	1.883	169126	28633

REPROCESS

C-3805x100



Gen/29/99
EXACT COPY OF
RAW DATA

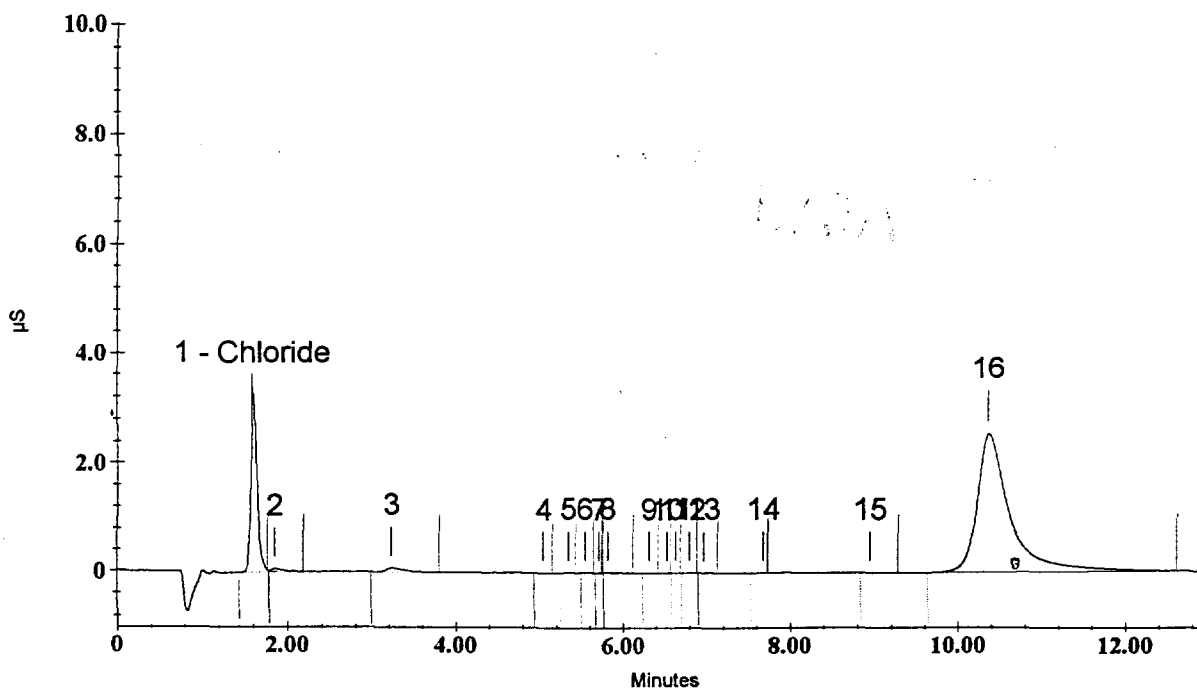
Data File : ...3805_044.DXD
Sample Name : C-3805x100
Inject # : 44
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:05:10 PM
Updated : 7/9/99 7:46:05 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	1.851	169126	28633

C-3805x100



EXACT COPY OF
RAW DATA

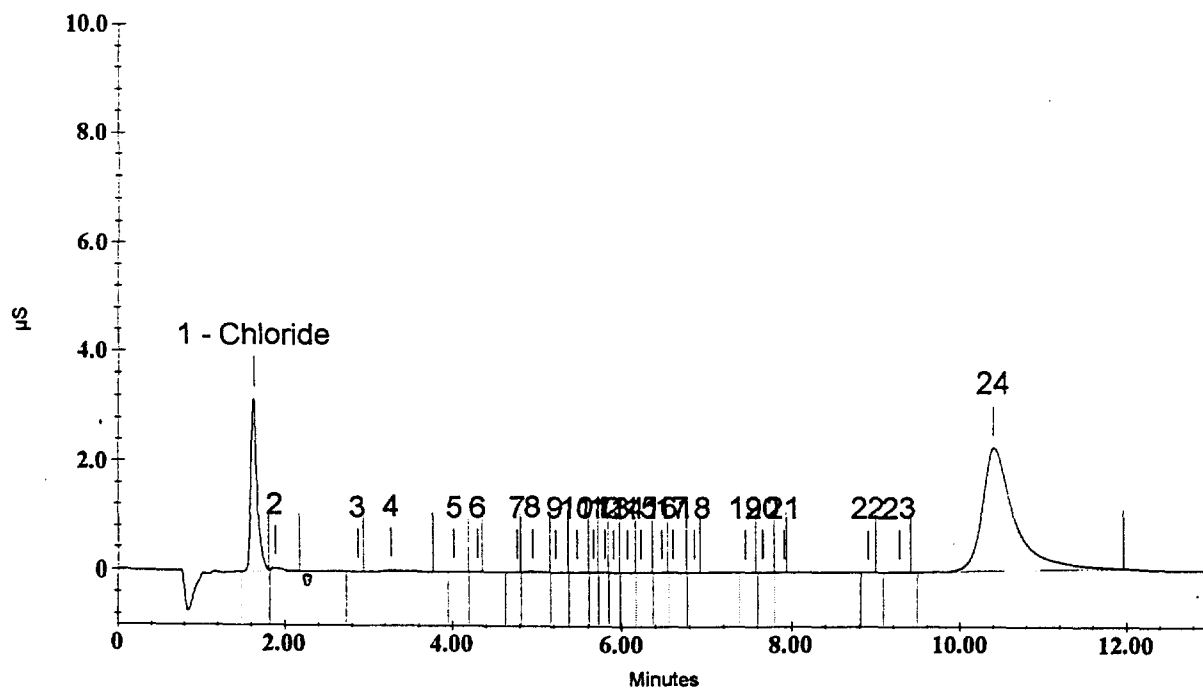
Data File : ...3805_045.DXD
Sample Name : C-3805x100
Inject # : 45
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:19:33 PM
Updated : 7/8/99 7:32:35 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	1.982	178501	31542

REPROCESS

C-3805x100



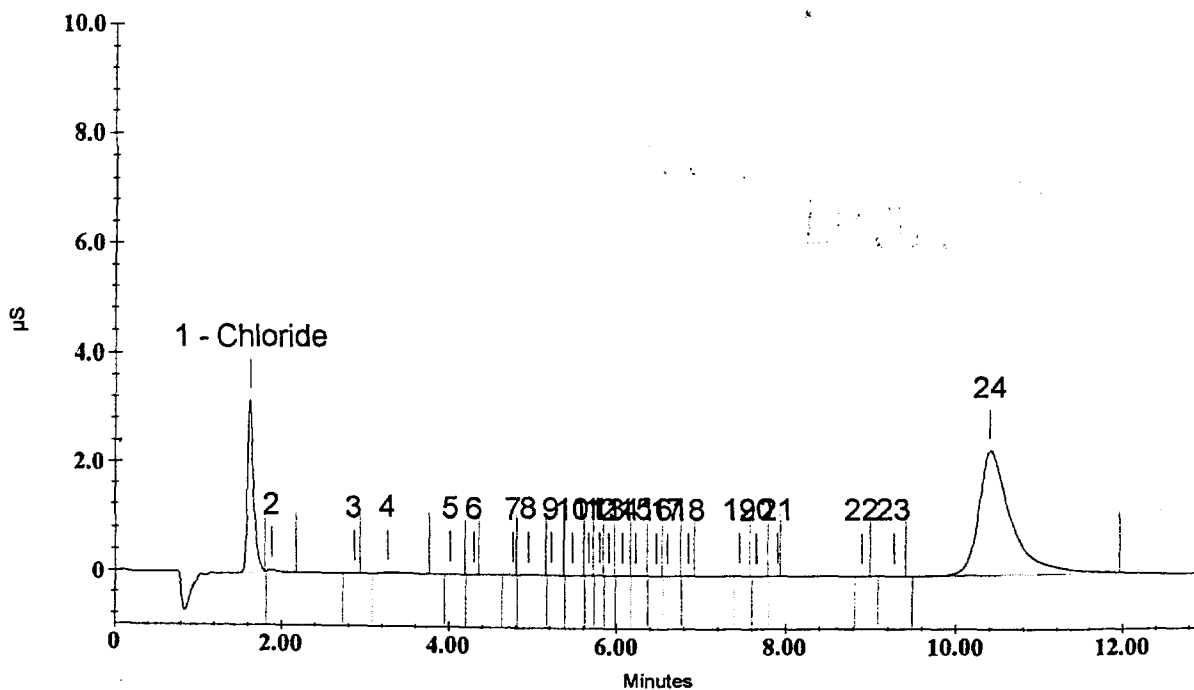
07/19/99
EXACT COPY OF
RAW DATA

Data File : ...3805_045.DXD
Sample Name : C-3805x100
Inject # : 45
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:19:33 PM
Updated : 7/9/99 7:46:26 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	1.947	178501	31542

C-3805x100



Ar 7/9/99
EXACT COPY OF
RAW DATA

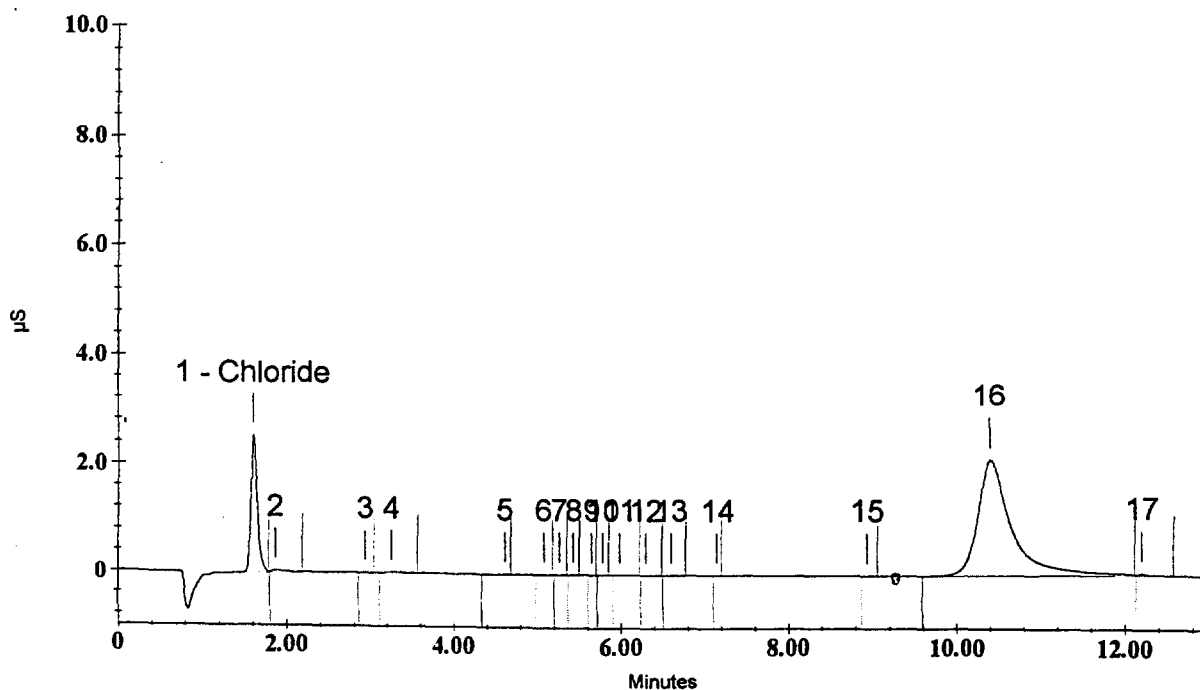
Data File : ...3806_046.DXD
Sample Name : C-3806x100
Inject # : 46
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:33:55 PM
Updated : 7/8/99 7:47:01 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.491	131903	25090

REPROCESS

C-3806x100



Genpal 99
EXACT COPY OF
RAW DATA

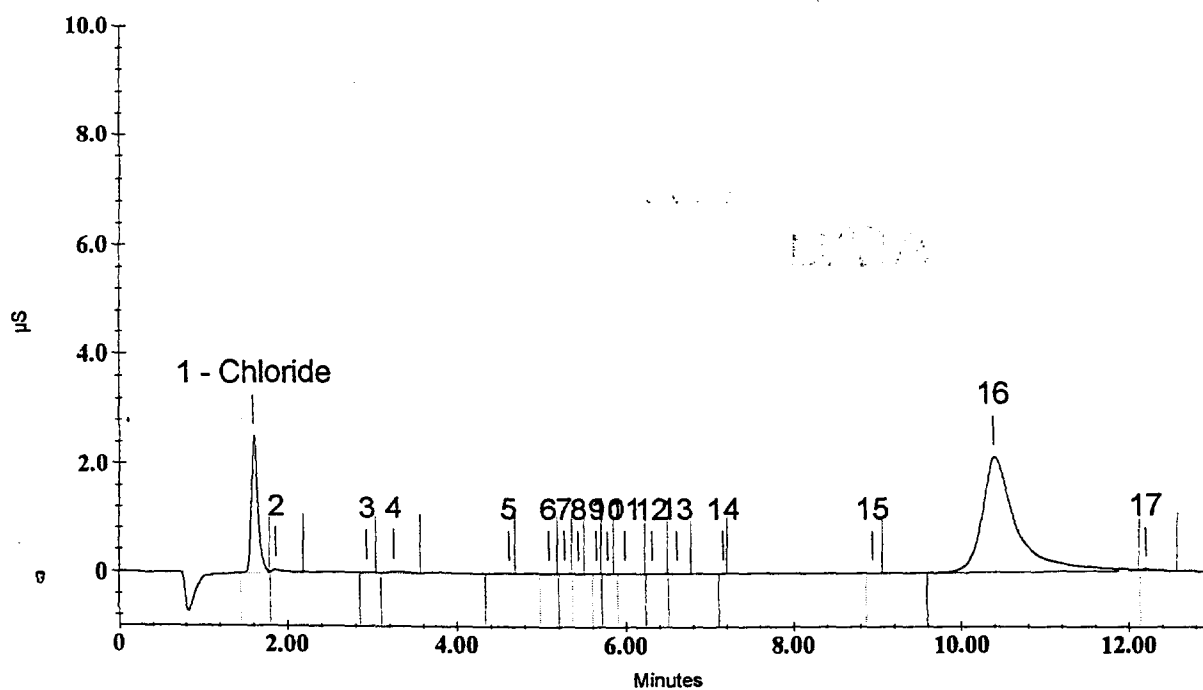
Data File : ...3806_046.DXD
Sample Name : C-3806x100
Inject # : 46
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:33:55 PM
Updated : 7/9/99 7:46:49 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.469	131903	25090

C-3806x100



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EXACT COPY OF
RAW DATA

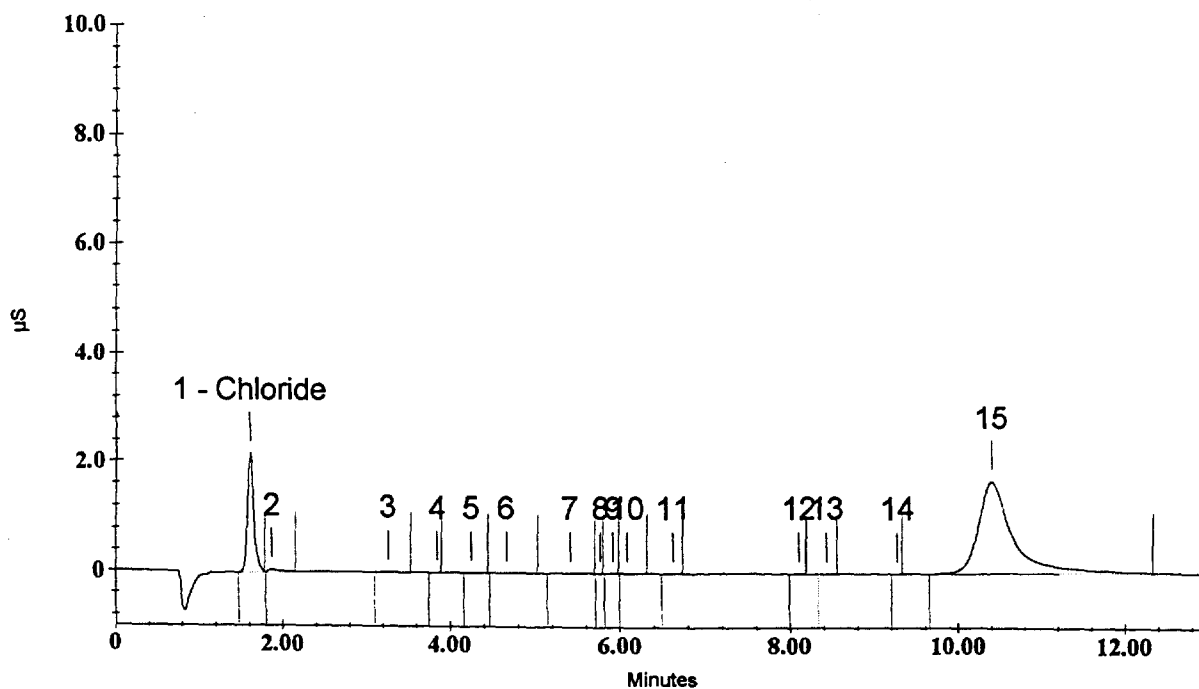
Data File : ...3806_047.DXD
Sample Name : C-3806x100
Inject # : 47
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:48:19 PM
Updated : 7/8/99 8:01:25 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.318	115502	21673

REPROCESS

C-3806x100

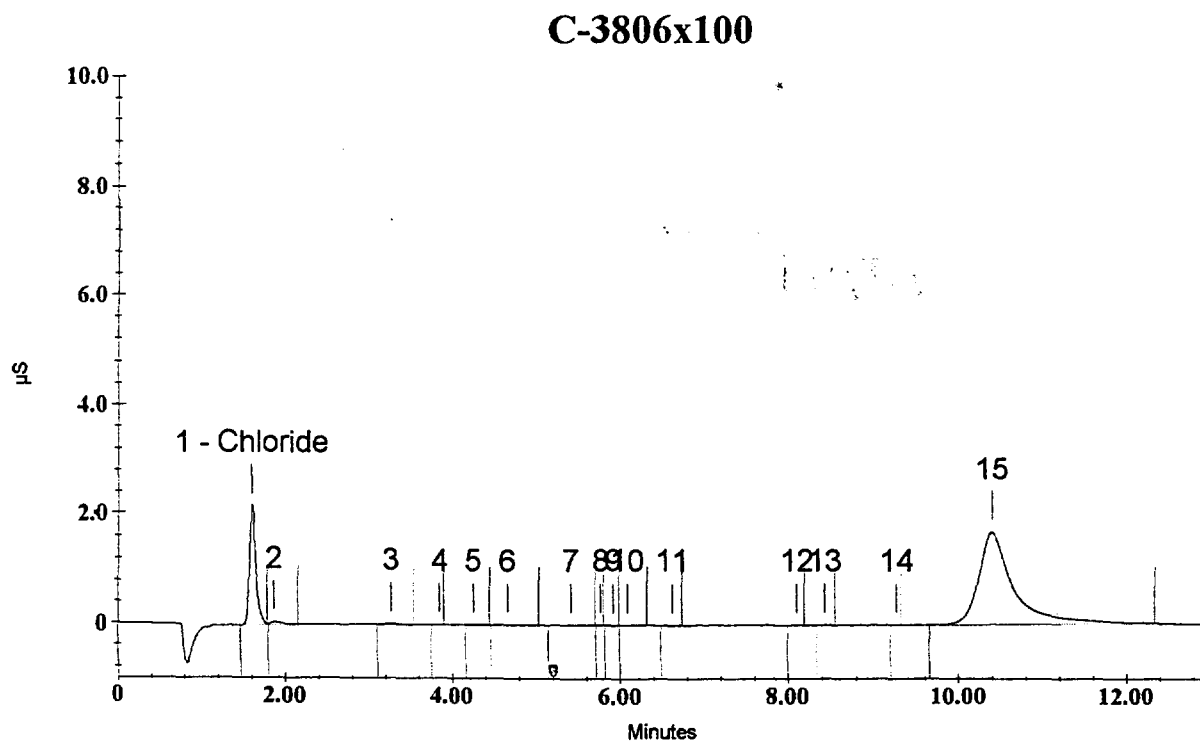


Genpal99
EXACT COPY OF
RAW DATA

Data File : ...3806_047.DXD
Sample Name : C-3806x100
Inject # : 47
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:48:19 PM
Updated : 7/9/99 7:47:05 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.301	115502	21673



Ch 7/29/99
**EXACT COPY OF
RAW DATA**

Data File : ...3807_048.DXD
Sample Name : C-3807x250
Inject # : 48
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

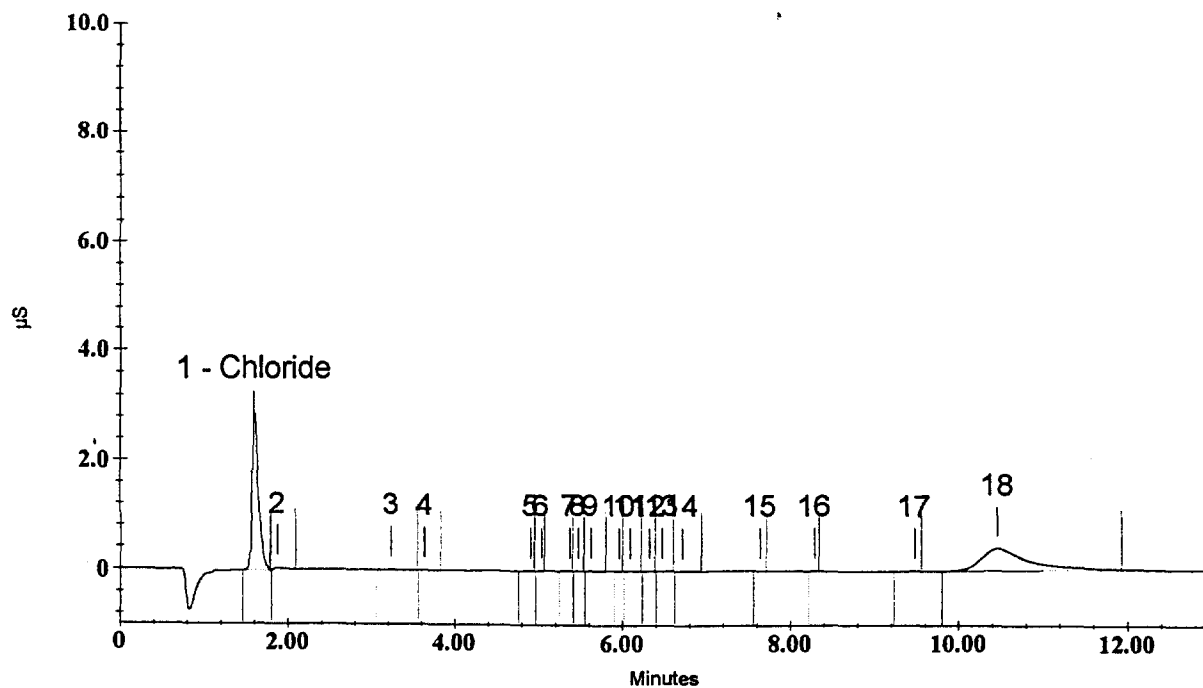
Collected : 7/8/99 8:02:42 PM
Updated : 7/8/99 8:15:57 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	1.670	148885	25168

REPROCESS

C-3807x250



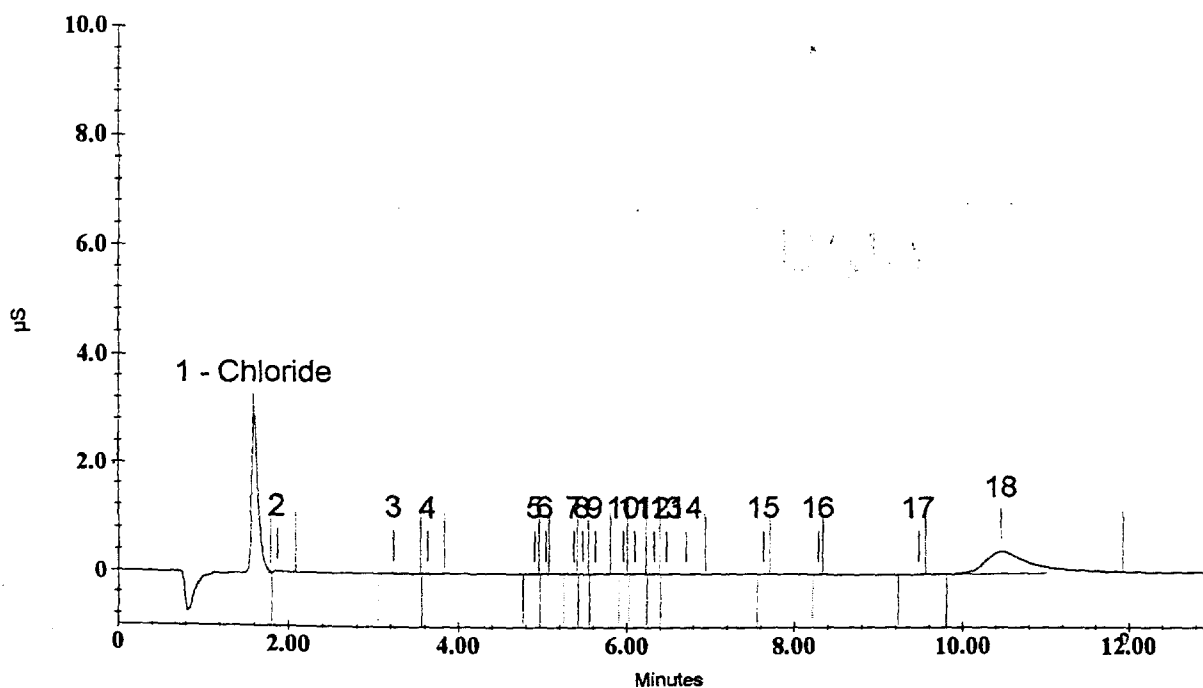
anbake
EXACT COPY OF
RAW DATA

Data File : ...3807_048.D\\
Sample Name : C-3807x250
Inject # : 48
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Updated : 7/9/99 7:47:24 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.58	Chloride	1.643	148885	25168

C-3807x250



06/19/99
EXACT COPY OF
RAW DATA

Data File : ...3807_049.DXD
Sample Name : C-3807x250
Inject # : 49
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

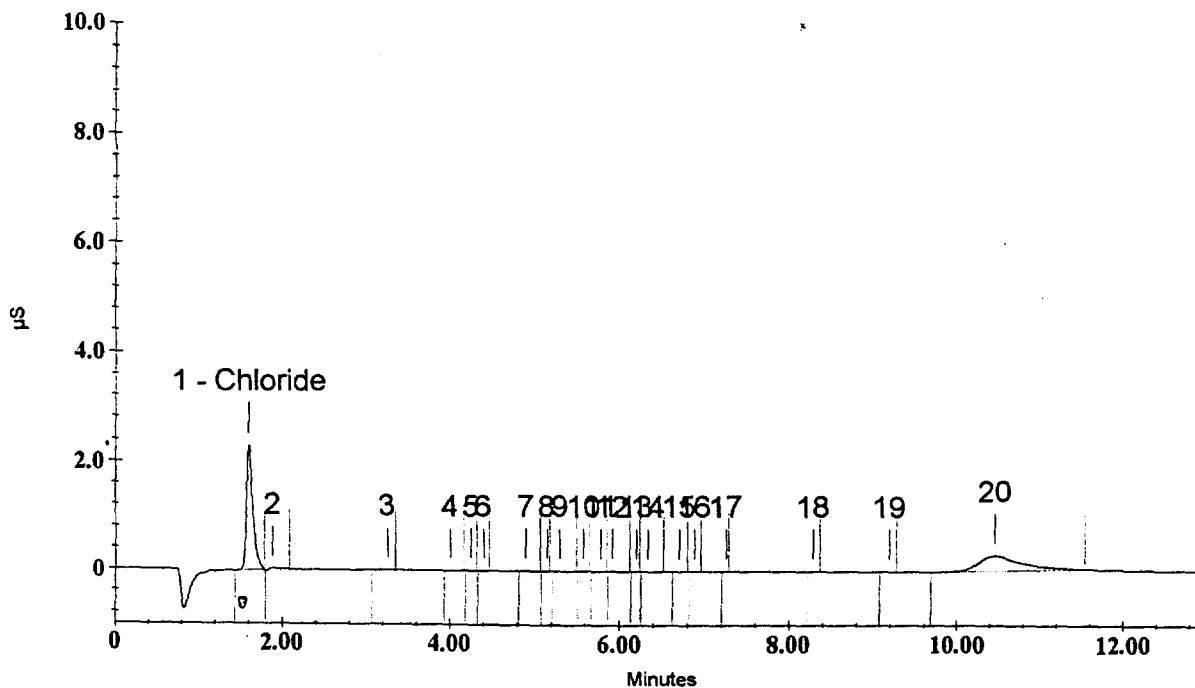
Collected : 7/8/99 8:17:04 PM
Updated : 7/8/99 8:30:07 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.383	121625	22961

REPROCESS

C-3807x250



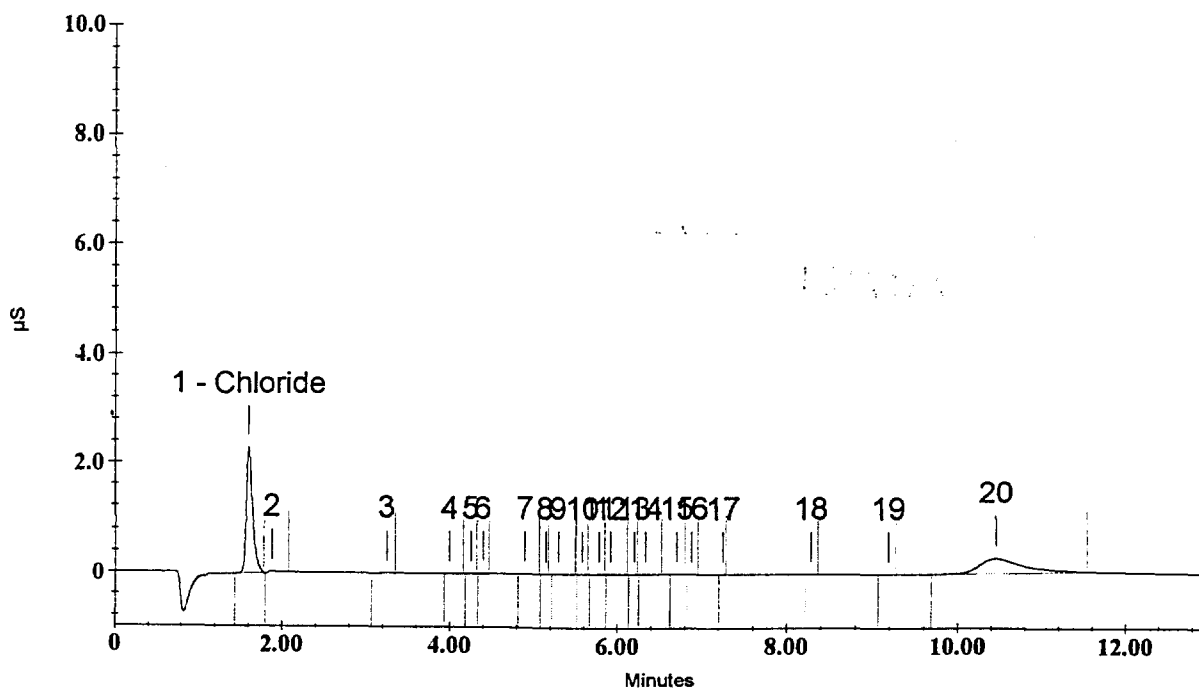
7/29/99
EXACT COPY OF
RAW DATA

Data File : ...3807_049.DXD
Sample Name : C-3807x250
Inject # : 49
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 8:17:04 PM
Updated : 7/9/99 7:47:44 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.363	121625	22961

C-3807x250



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EXACT COPY OF
RAW DATA

Data File : ...\\3807s_050.DXD
Sample Name : C-3807x250spike
Inject # : 50
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

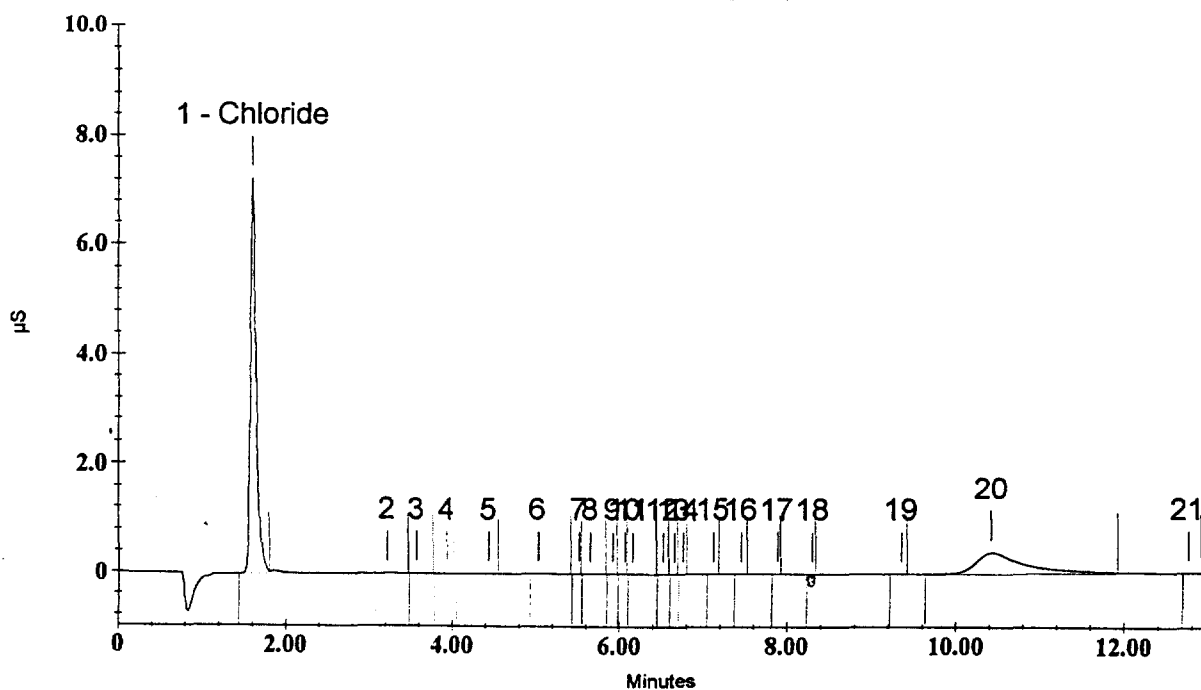
Collected : 7/8/99 8:31:27 PM
Updated : 7/8/99 8:44:31 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.739	345245	72292

REPROCESS

C-3807x250spike



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EXACT COPY OF
RAW DATA

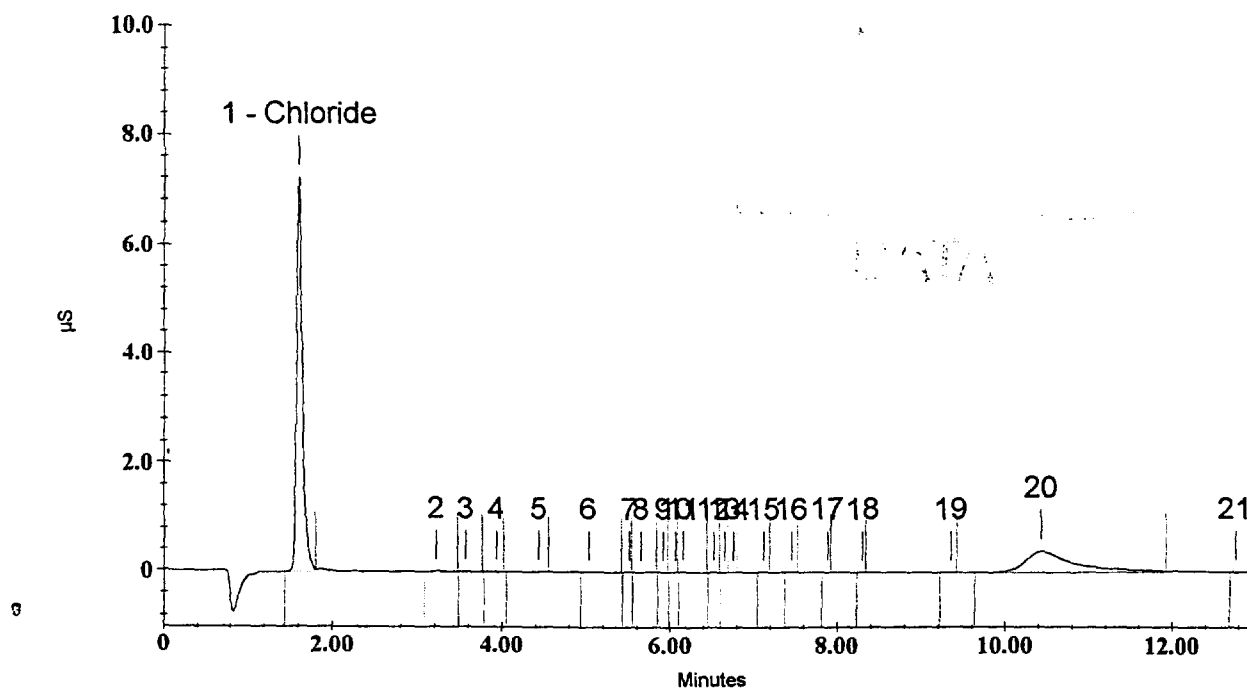
Data File : ...3807s_050.DXD
Sample Name : C-3807x250spike
Inject # : 50
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 8:31:27 PM
Updated : 7/9/99 7:48:04 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.657	345245	72292

C-3807x250spike



EXACT COPY OF
RAW DATA

Data File : ...3807s_051.DXD
Sample Name : C-3807x250spike
Inject # : 51
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

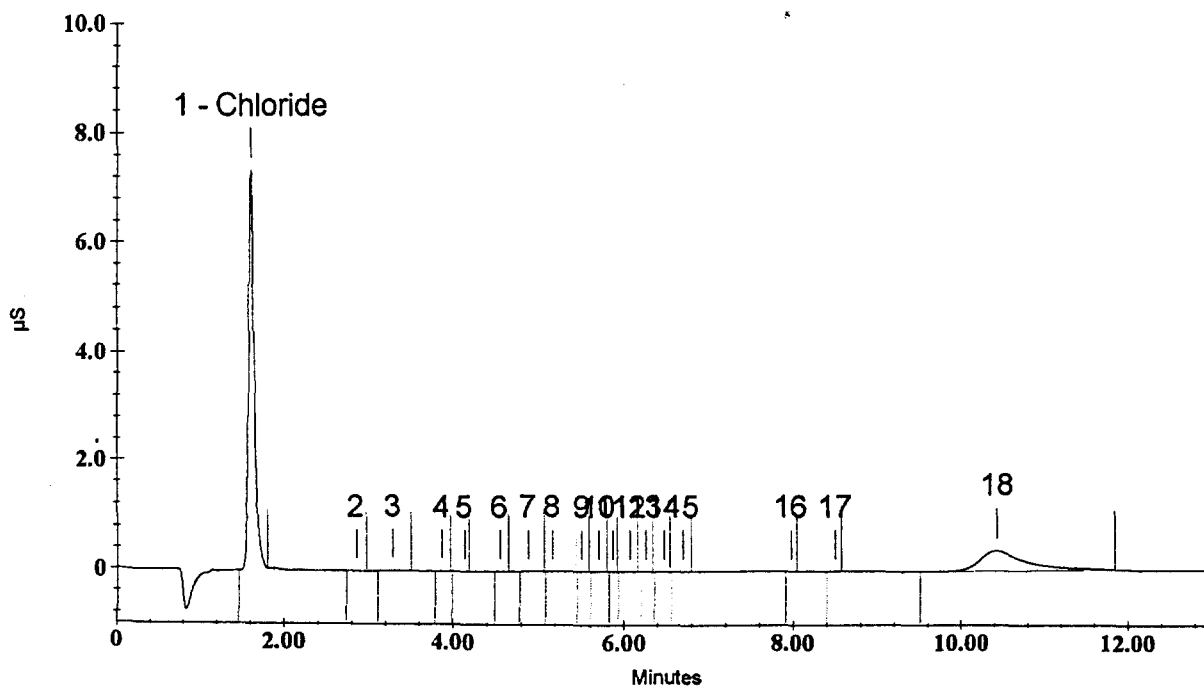
Collected : 7/8/99 8:45:51 PM
Updated : 7/8/99 8:58:52 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.761	347302	73478

REPROCESS

C-3807x250spike



07/09/99
EXACT COPY OF
RAW DATA

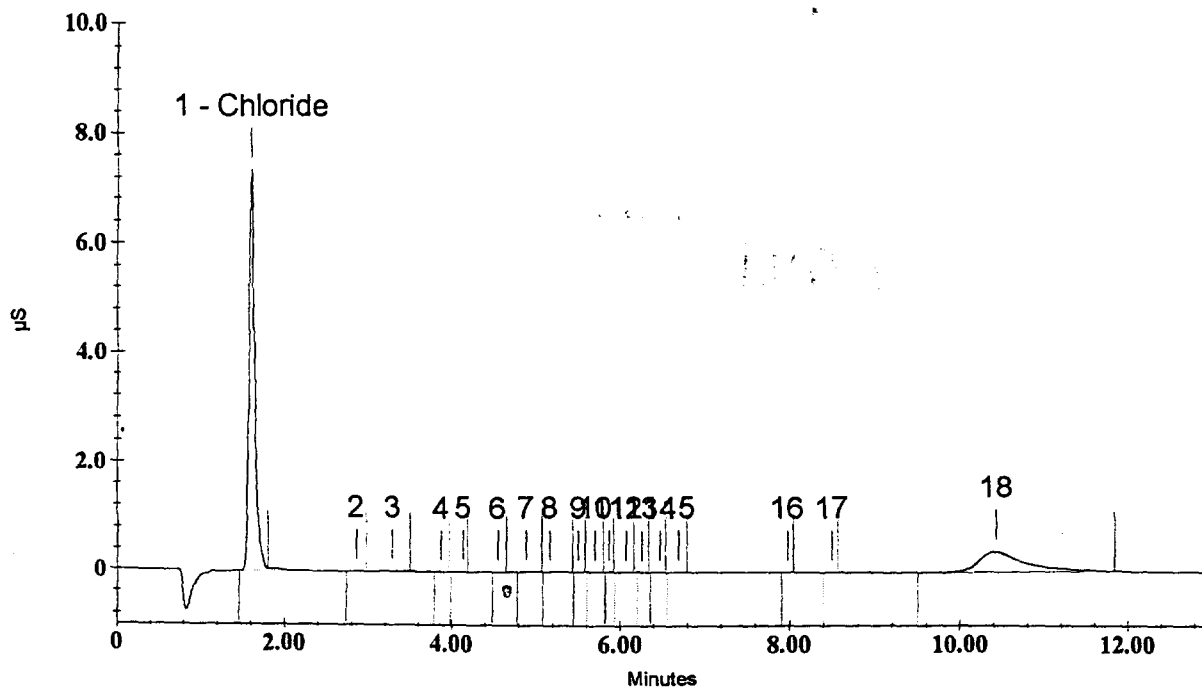
Data File : ...3807s_051.DXD
Sample Name : C-3807x250spike
Inject # : 51
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 8:45:51 PM
Updated : 7/9/99 7:48:26 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.678	347302	73478

C-3807x250spike



07/29/99
EXACT COPY OF
RAW DATA

Sample Name : C-3808x200

Inject # : 52

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Updated : 11/8/99 9:13:10 PM

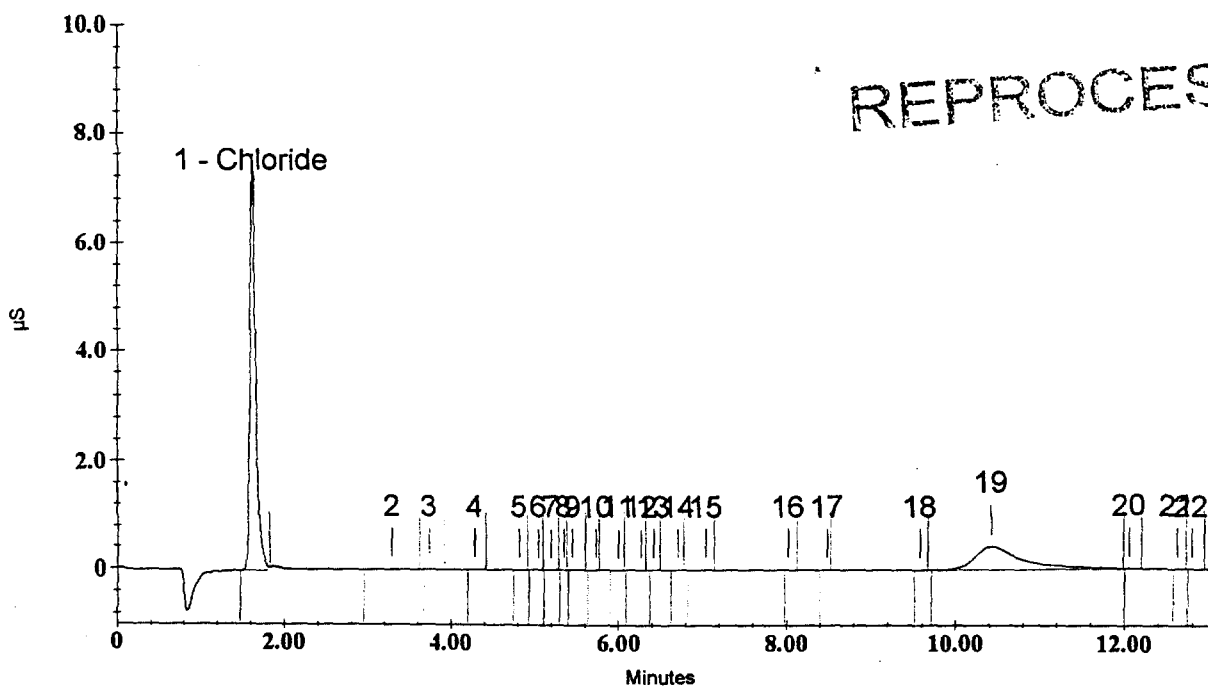
Calibrated : 7/8/99 5:23:14 PM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	4.039	373691	63433

C-3808x200



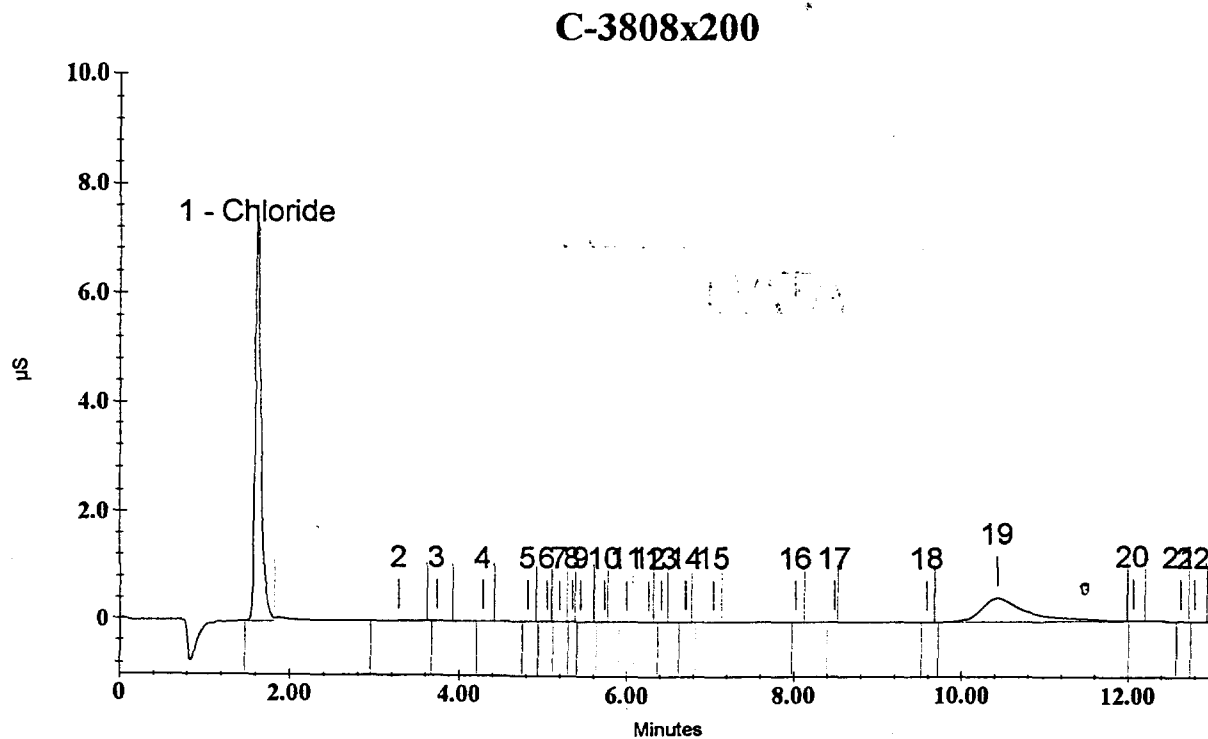
02/19/99

EXACT COPY OF
RAW DATA

Data File : ...\\3808_052.DXD
Sample Name : C-3808x200
Inject # : 52
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 9:00:13 PM
Updated : 7/9/99 7:48:46 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.949	373691	63433



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EXACT COPY OF
RAW DATA

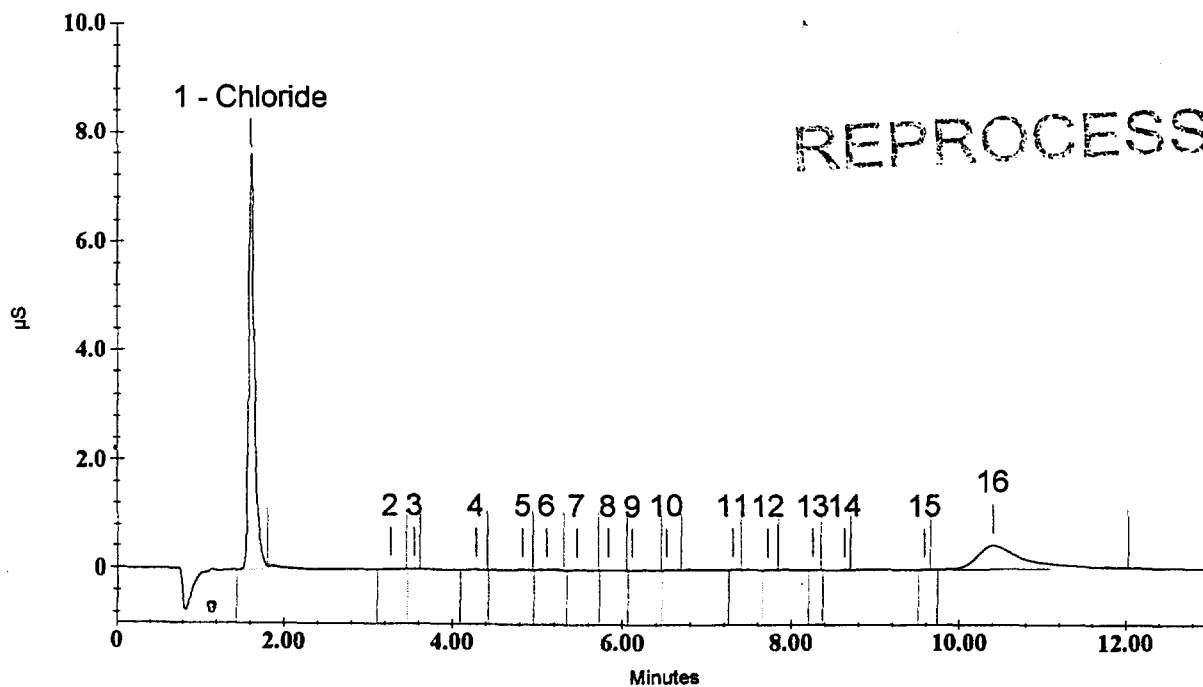
Data File : ...3808_053.DXD
Sample Name : C-3808x200
Inject # : 53
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 9:14:36 PM
Updated : 7/8/99 9:27:39 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	4.001	370151	74909

C-3808x200



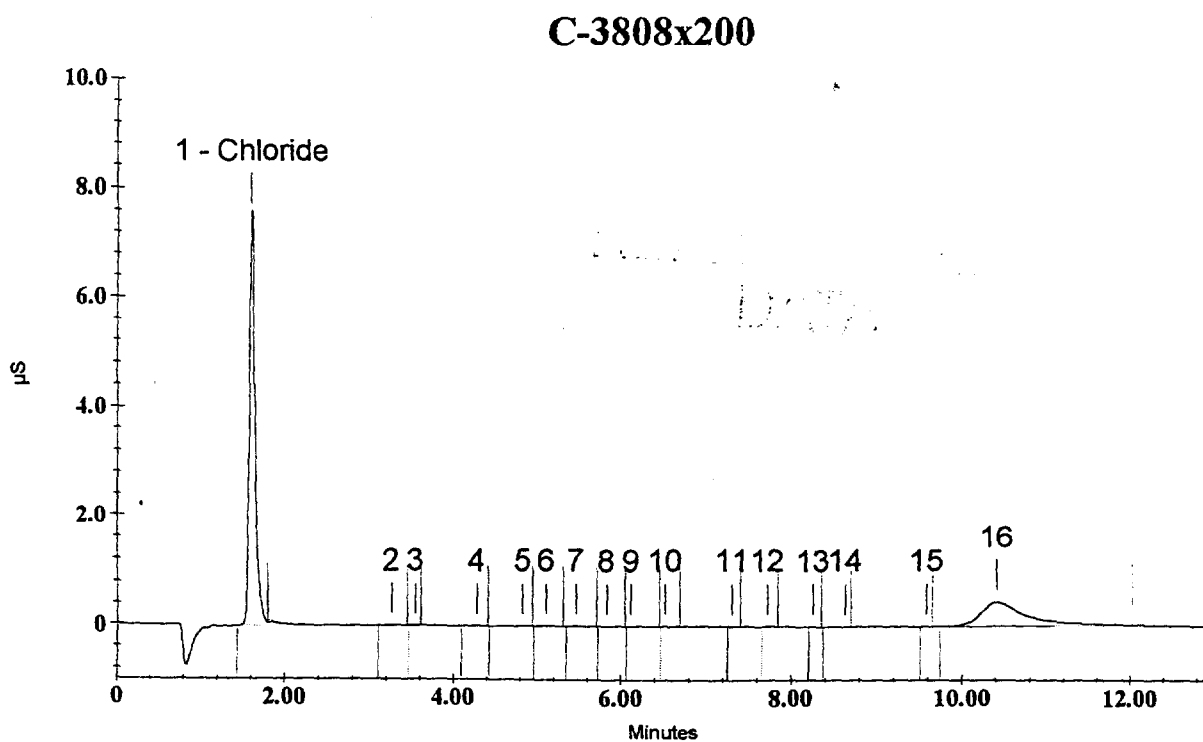
07/29/99
EXACT COPY OF
RAW DATA

Data File : ...3808_053.DXD
Sample Name : C-3808x200
Inject # : 53
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 7:14:50 PM
Updated : 7/9/99 7:49:08 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.912	370151	74909



07/19/99
EXACT COPY OF
RAW DATA

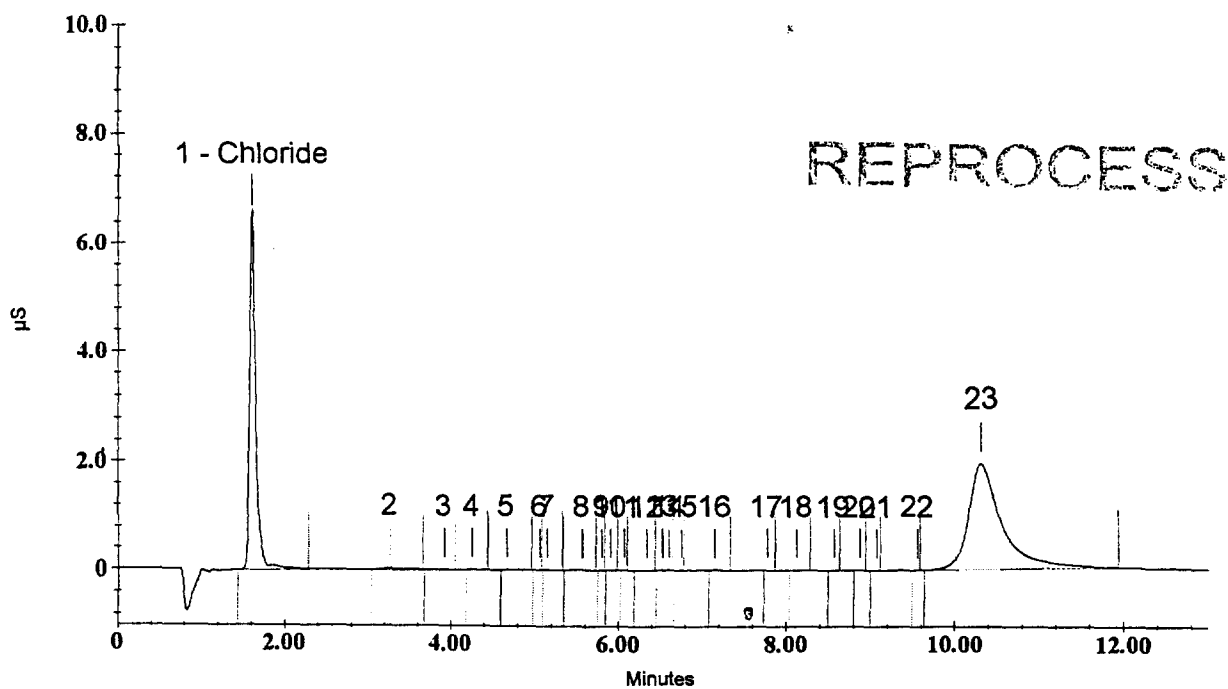
Data File : ...3810_054.DXD
Sample Name : C-3810x100
Inject # : 54
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 9:29:00 PM
Updated : 7/8/99 9:42:02 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.579	330066	64600

C-3810x100



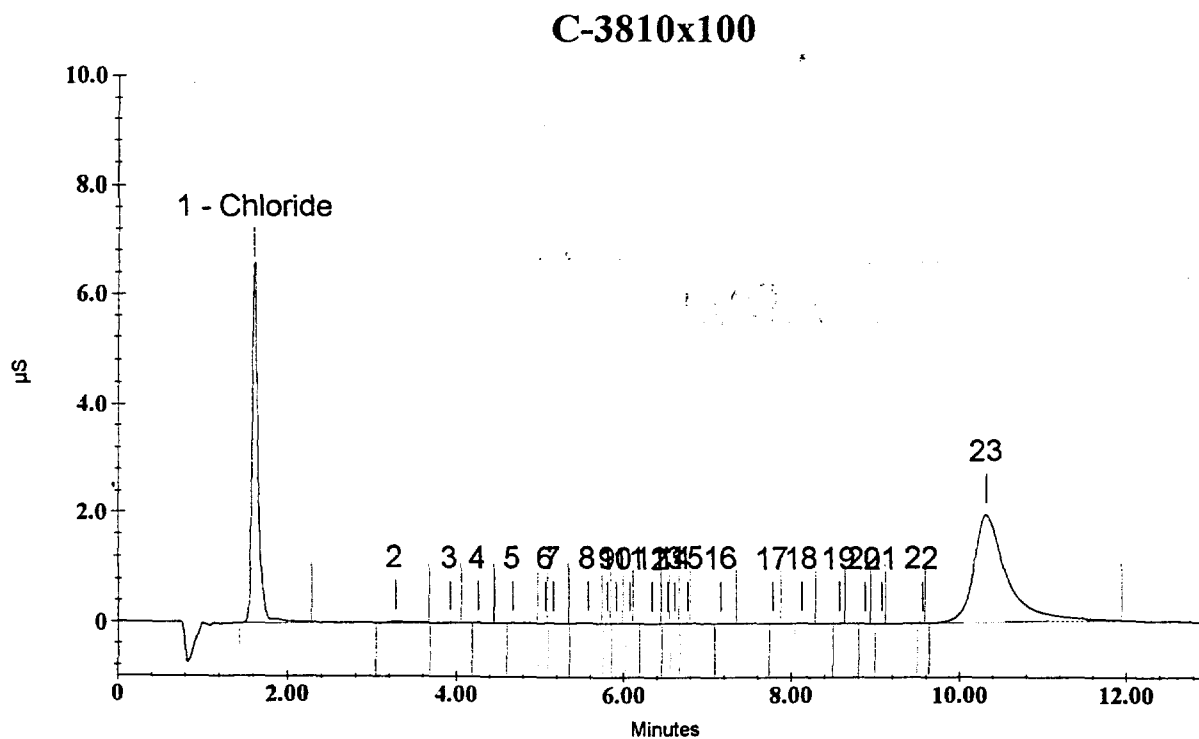
EXACT COPY OF
RAW DATA

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Data File : ...3810_054.DXD
Sample Name : C-3810x100
Inject # : 54
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 9:29:00 PM
Updated : 7/9/99 7:49:32 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.501	330066	64600



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**EXACT COPY OF
RAW DATA**

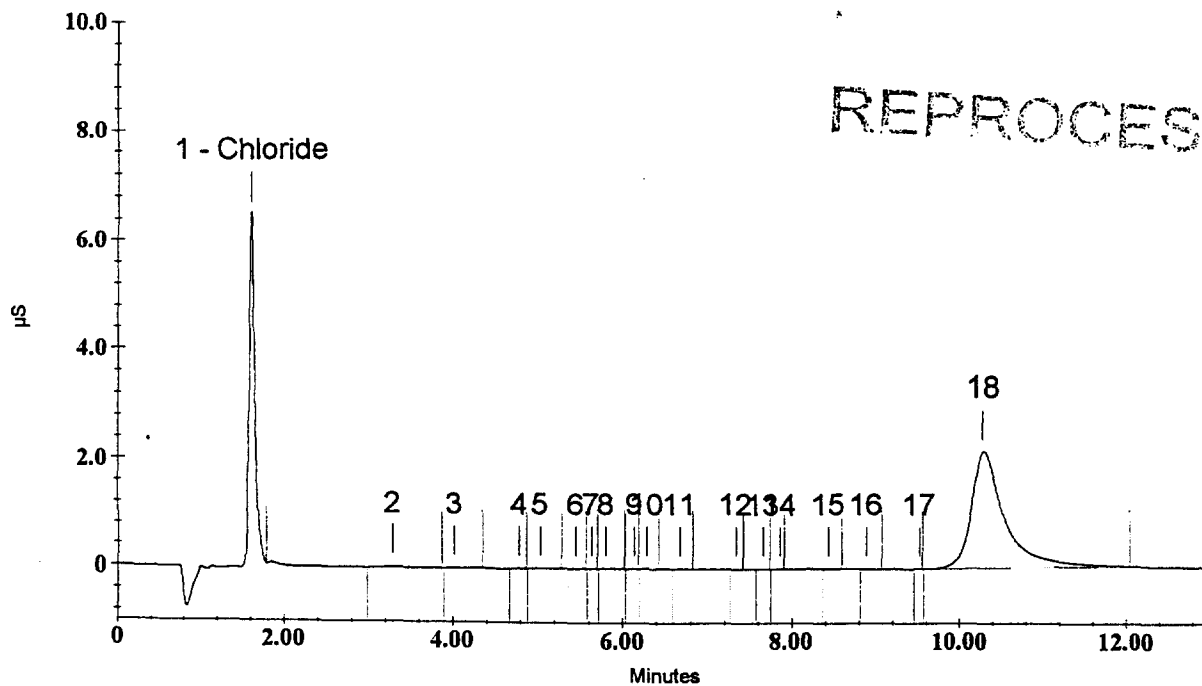
Data File : ...3810_055.DXD
Sample Name : C-3810x100
Inject # : 55
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 9:43:23 PM
Updated : 7/8/99 9:56:24 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.483	320981	64873

C-3810x100

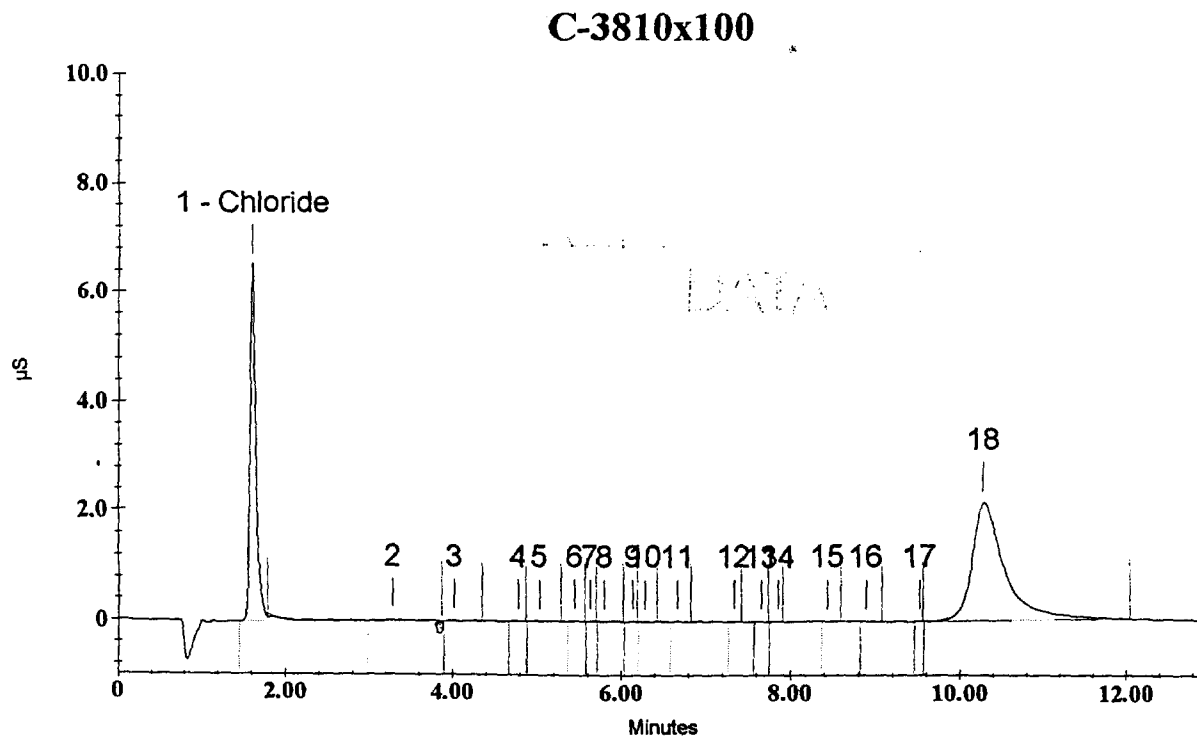


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EXACT COPY OF
RAW DATA

Data File : ...3810_055.DXD
Sample Name : C-3810x100
Inject # : 55
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 9:43:23 PM
Updated : 7/9/99 7:49:59 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.408	320981	64873



06/29/99
**EXACT COPY OF
RAW DATA**

Data File : ...\\3814_056.DXD
Sample Name : C-3814x25
Inject # : 56
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

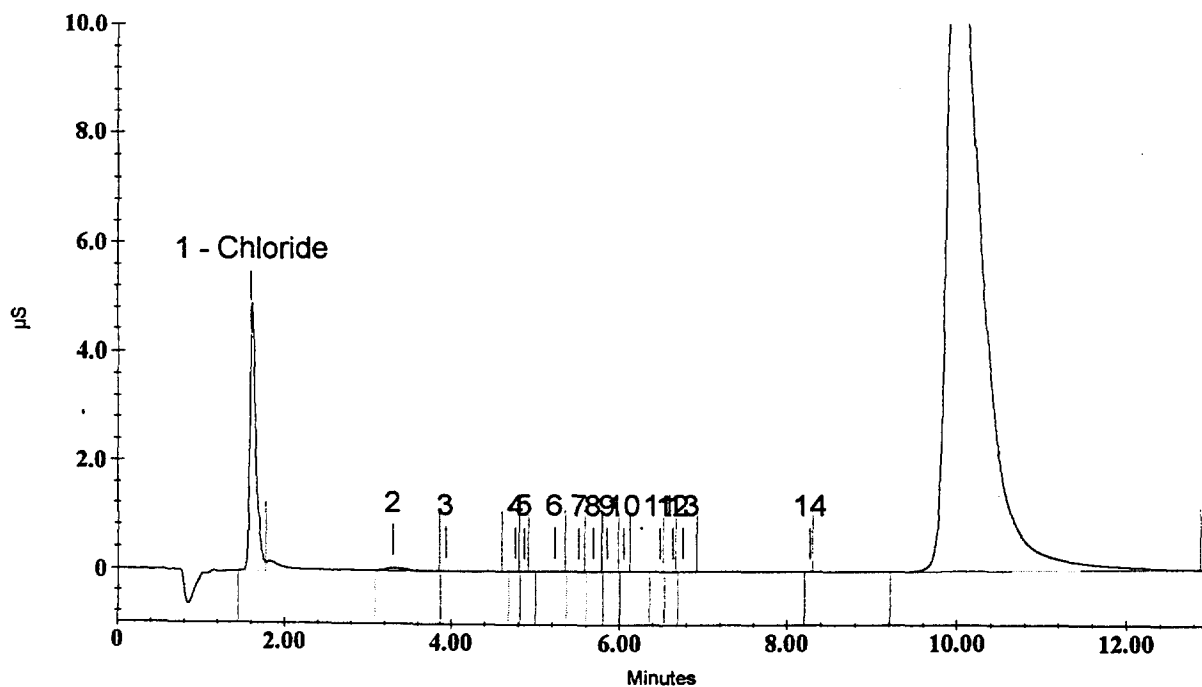
Collected : 7/8/99 9:57:45 PM
Updated : 7/8/99 10:10:51 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.659	242755	47243

REPROCESS

C-3814x25 .



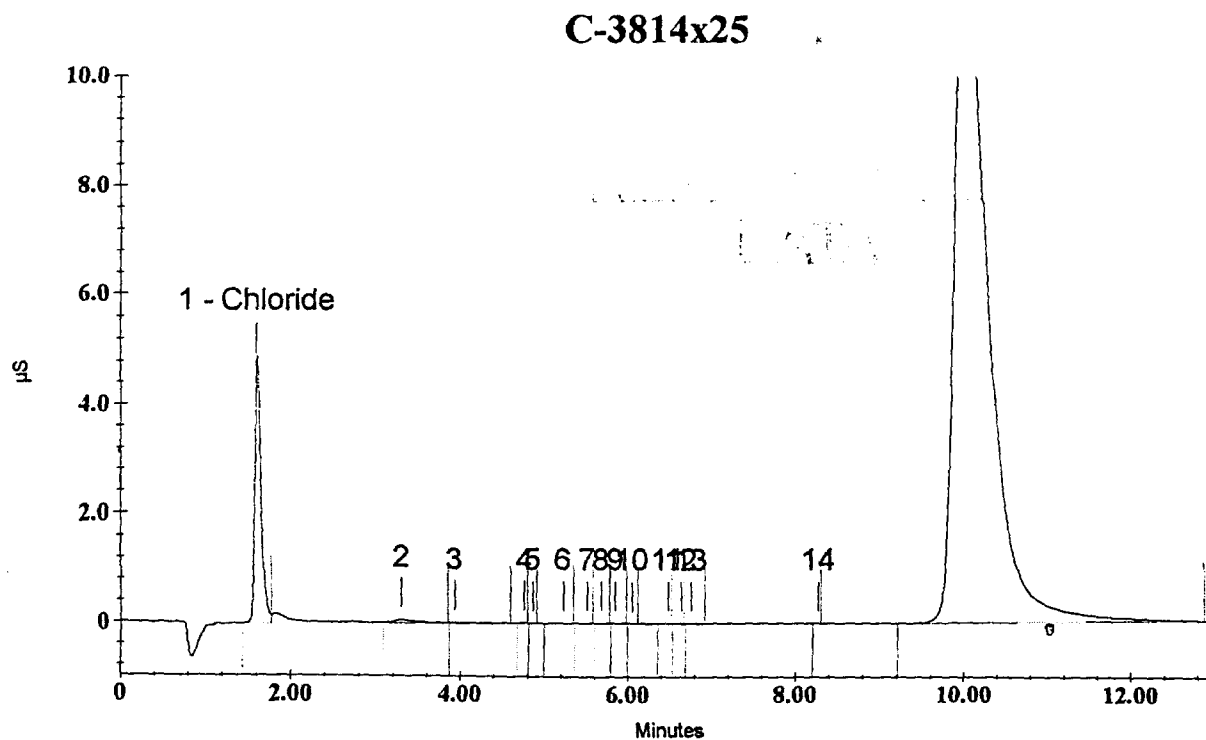
ac7h4kg
EXACT COPY OF
RAW DATA

Data File : ...3814_056.DXD
Sample Name : C-3814x25
Inject # : 56
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 9:57:45 PM
Updated : 7/9/99 7:50:27 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.606	242755	47243



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EXACT COPY OF
RAW DATA

Data File : ...\\3815_057.DXD

Sample Name : C-3814x25

Inject # : 57

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/8/99 10:12:09 PM

Updated : 7/8/99 10:25:13 PM

Calibrated : 7/8/99 5:23:14 PM

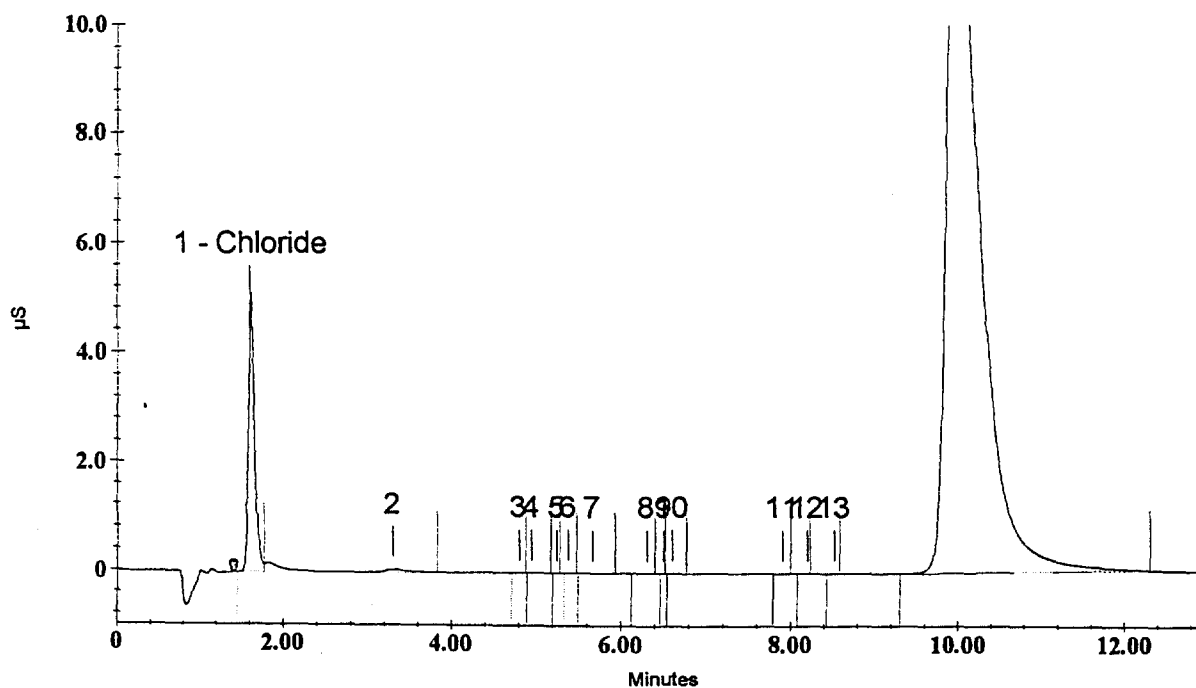
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.744	250785	48459

REPROCESS

C-3814x25



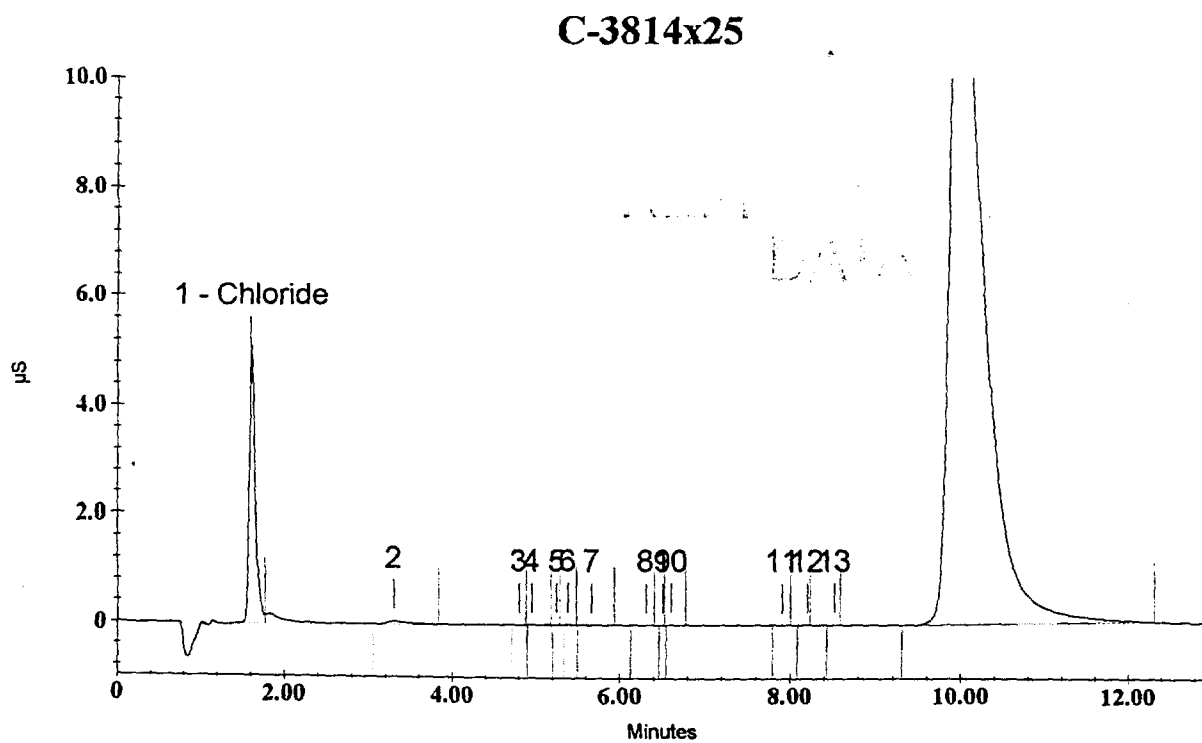
at 7/24/99

EXACT COPY OF
RAW DATA

Data File : ...3815_057.DXD
Sample Name : C-3814x25
Inject # : 57
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 10:12:09 PM
Updated : 7/9/99 7:50:50 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.688	250785	48459



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EXACT COPY OF
RAW DATA

Data File : ...\\3815_058.DXD

Sample Name : C-3815x25

Inject # : 58

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/8/99 10:26:33 PM

Updated : 7/8/99 10:39:39 PM

Calibrated : 7/8/99 5:23:14 PM

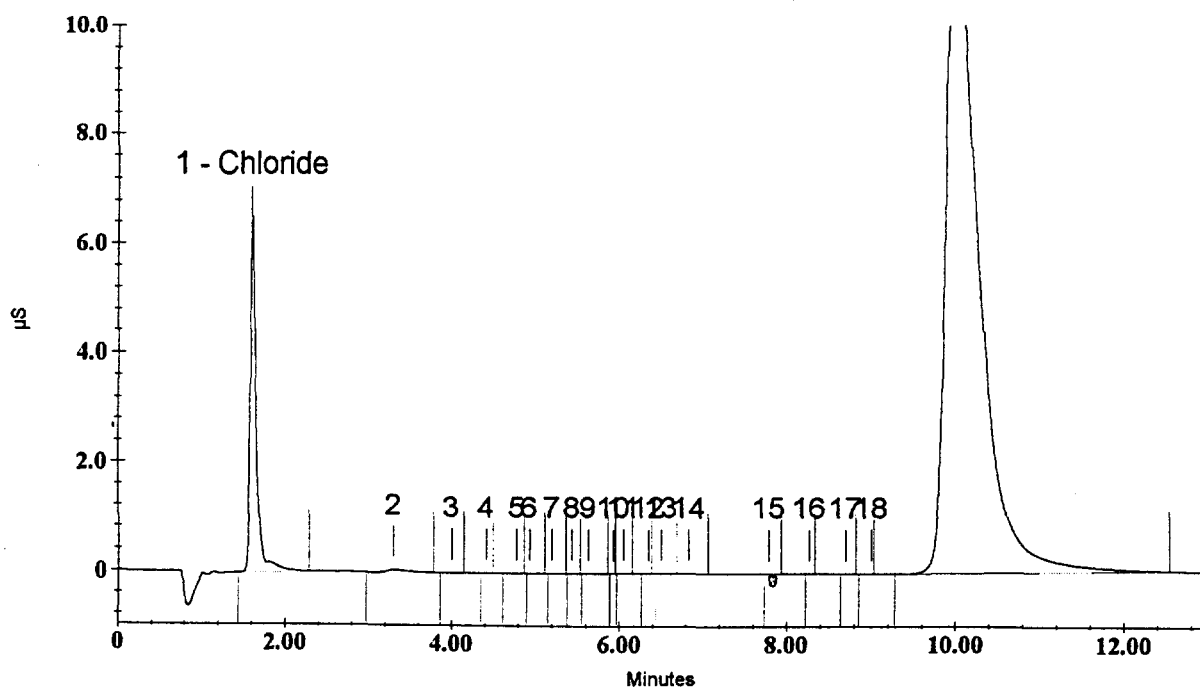
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.671	338790	62958

REPROCESS

C-3815x25

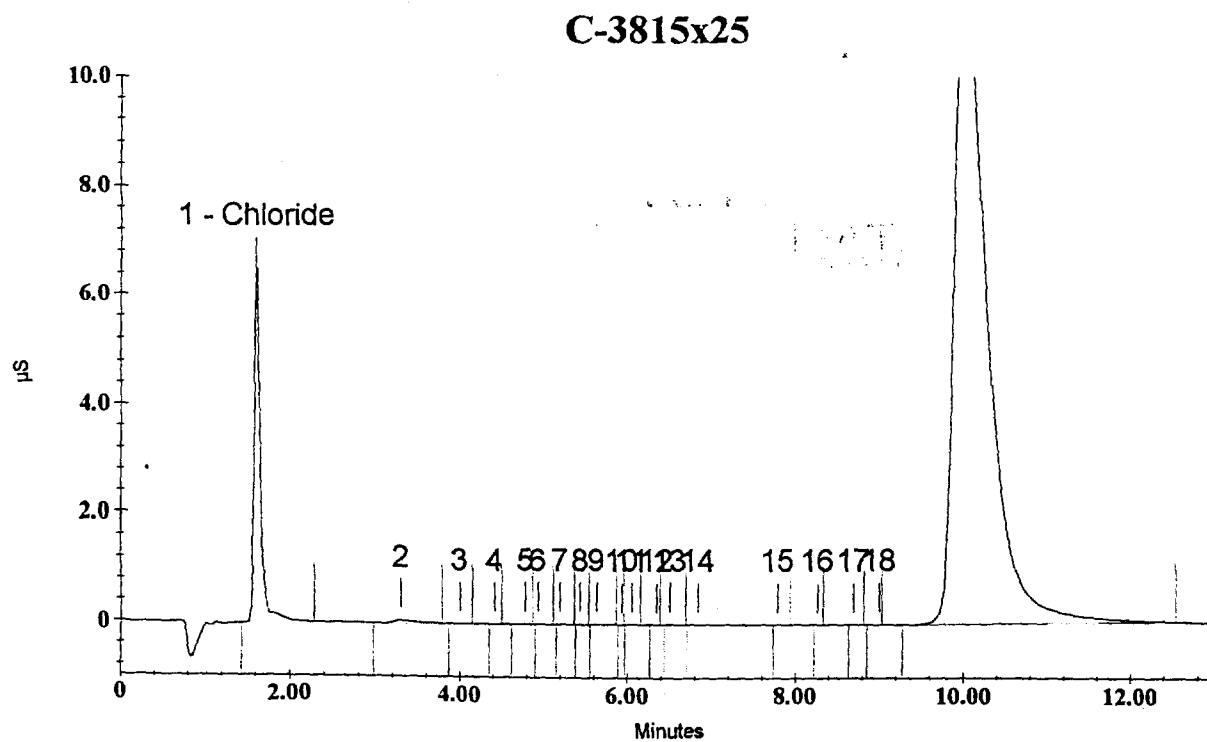


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EXACT COPY OF
RAW DATA

Data File : ...3815_058.DXD
Sample Name : C-3815x25
Inject # : 58
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 10:26:33 PM
Updated : 7/9/99 7:51:09 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.591	338790	62958



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**EXACT COPY OF
RAW DATA**

Data File : ...\\3816_059.DXD
Sample Name : C-3815x25
Inject # : 59
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

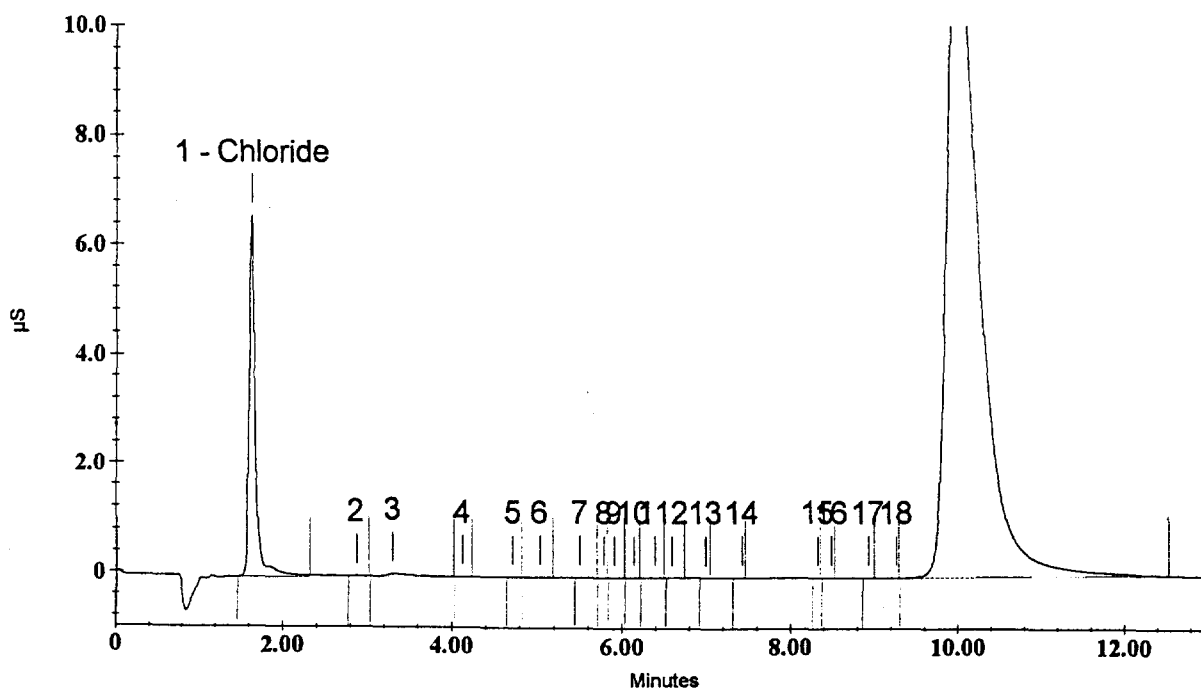
Collected : 7/8/99 10:40:56 PM
Updated : 7/8/99 10:53:58 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	3.734	344792	65993

-REPROCESS

C-3815x25

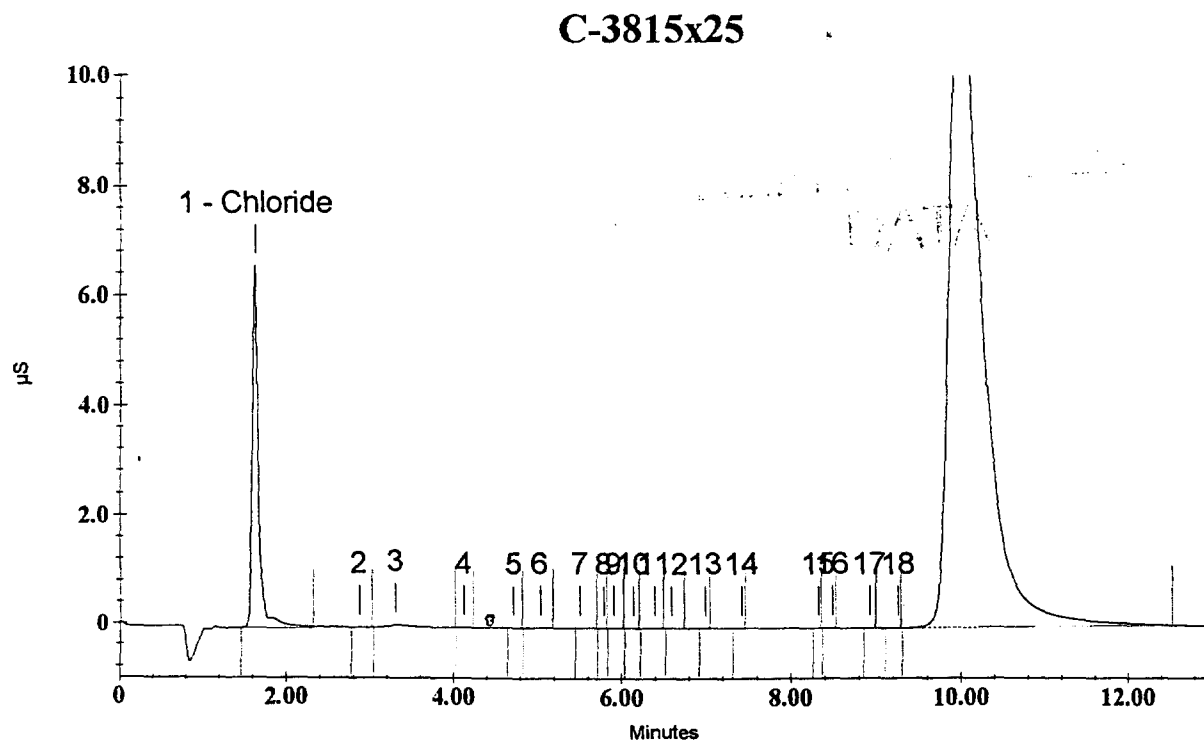


EXACT COPY OF
RAW DATA

Data File : ...3816_059.DXD
Sample Name : C-3815x25
Inject # : 59
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 10:40:56 PM
Updated : 7/9/99 7:51:29 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	3.652	344792	65993



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**EXACT COPY OF
RAW DATA**

Data File : ...3817_060.DXD
Sample Name : C-3816x25
Inject # : 60
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

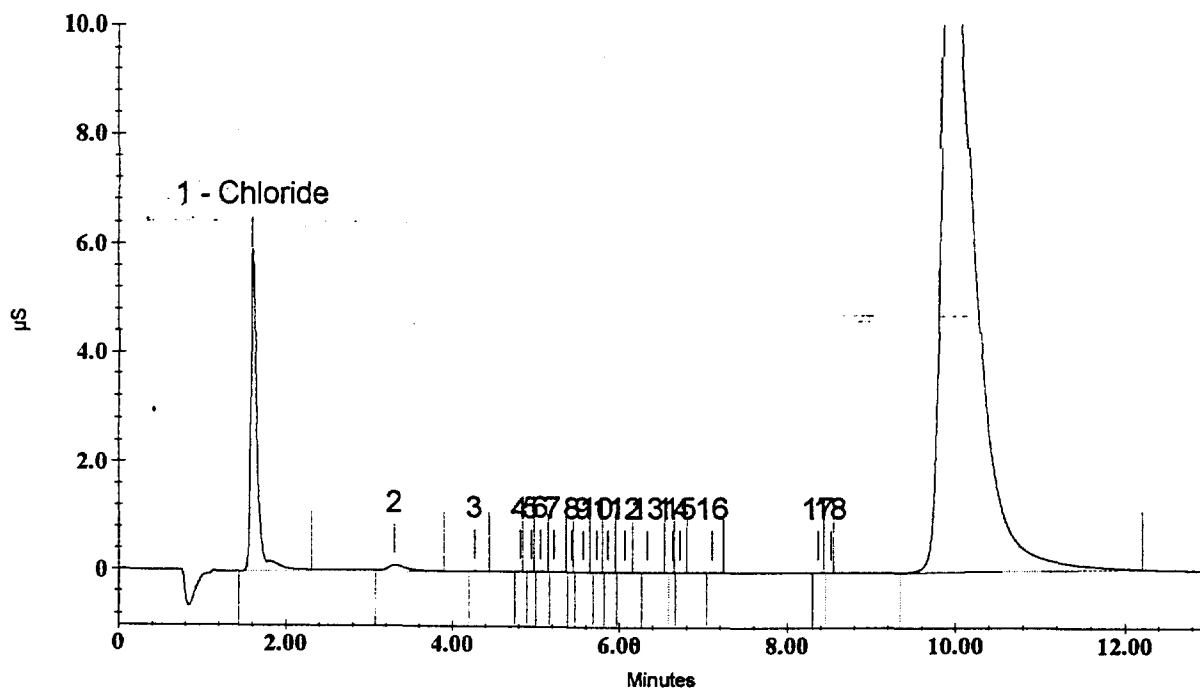
Collected : 7/8/99 10:55:20 PM
Updated : 7/8/99 11:08:22 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.409	313978	57328

REPROCESS

C-3816x25



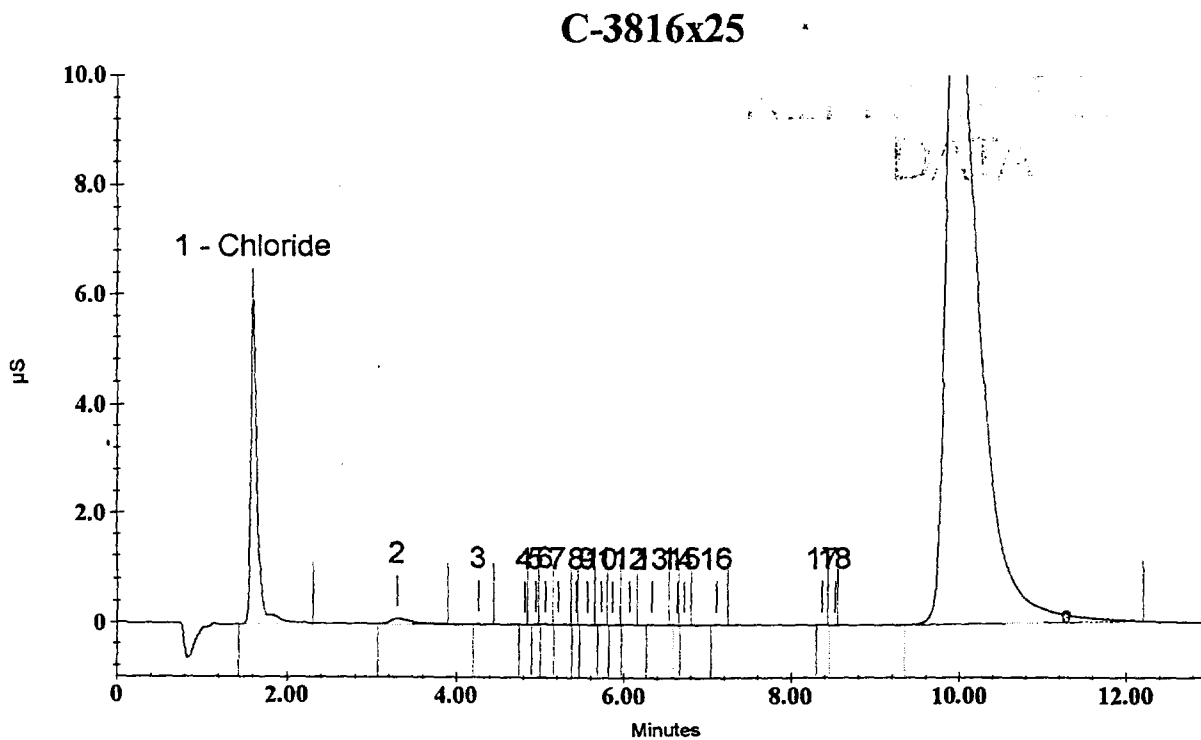
EXACT COPY OF
RAW DATA

Data File : ...3817_060.DXD
Sample Name : C-3816x25
Inject # : 60
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 10:55:20 PM
Updated : 7/9/99 7:51:50 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.336	313978	57328



EXACT COPY OF
RAW DATA

07/19/99

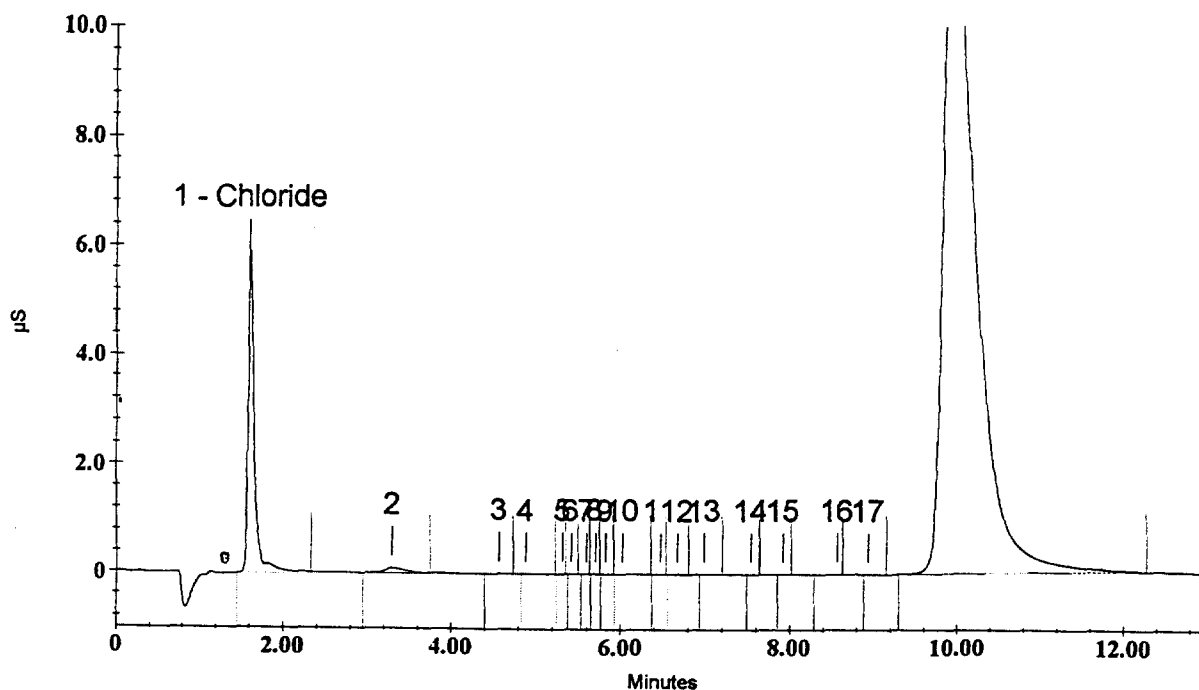
Data File : ...3819_061.DXD
Sample Name : C-3816x25
Inject # : 61
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 11:09:43 PM
Updated : 7/8/99 11:22:50 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.391	312256	57030

REPROCESS

C-3816x25



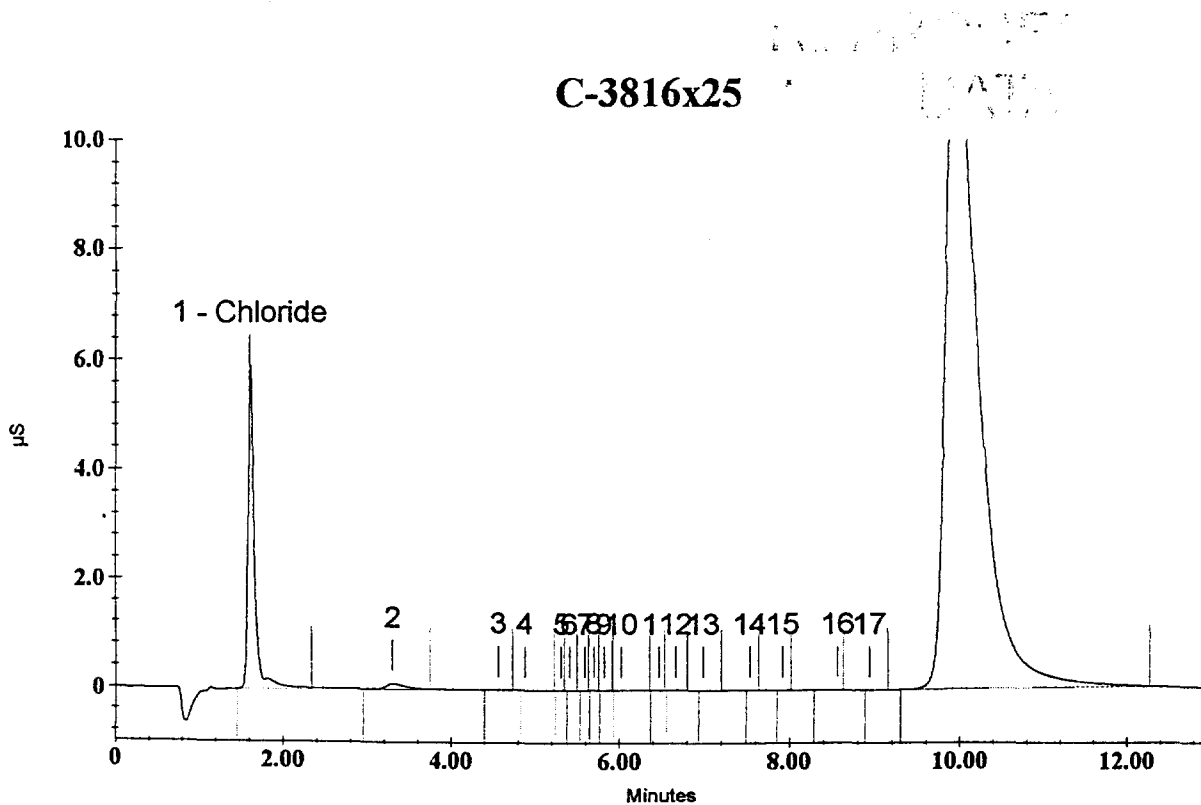
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EXACT COPY OF
RAW DATA

Data File : ...3819_061.DXD
Sample Name : C-3816x25
Inject # : 61
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 11:09:43 PM
Updated : 7/9/99 7:52:12 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	3.319	312256	57030



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EXACT COPY OF
RAW DATA

Data File : ...3819_062.DXD
Sample Name : C-3817x100
Inject # : 62
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

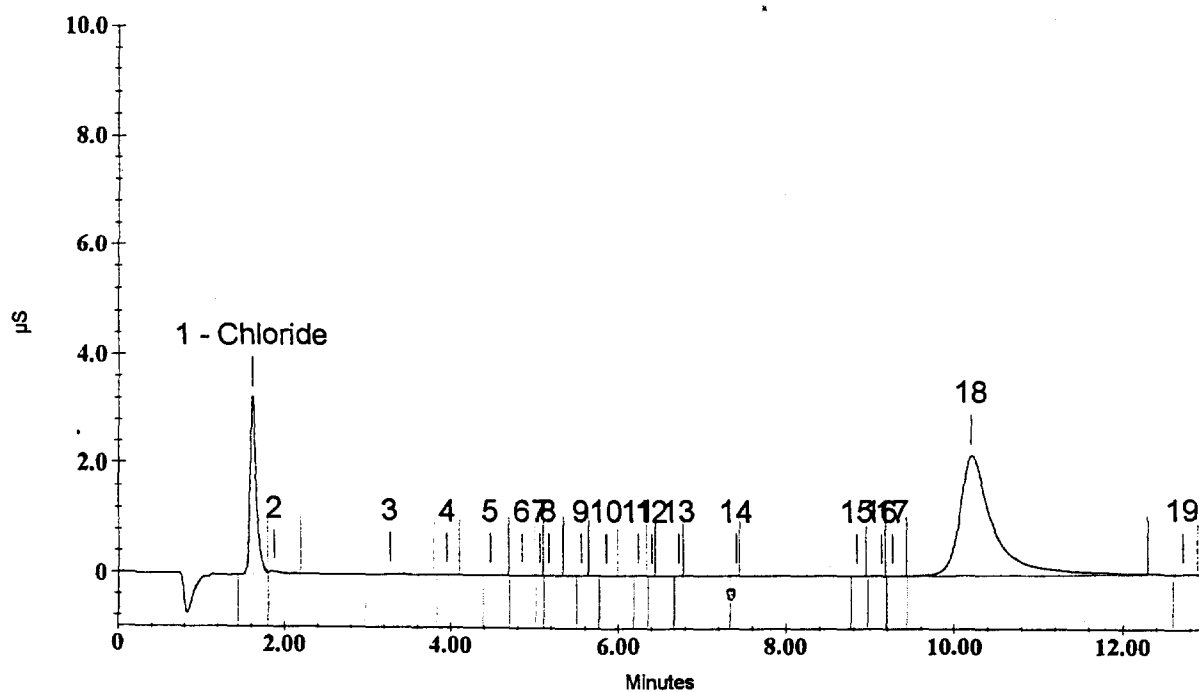
Collected : 7/8/99 11:24:07 PM
Updated : 7/8/99 11:37:12 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.969	177289	32178

REPROCESS

C-3817x100



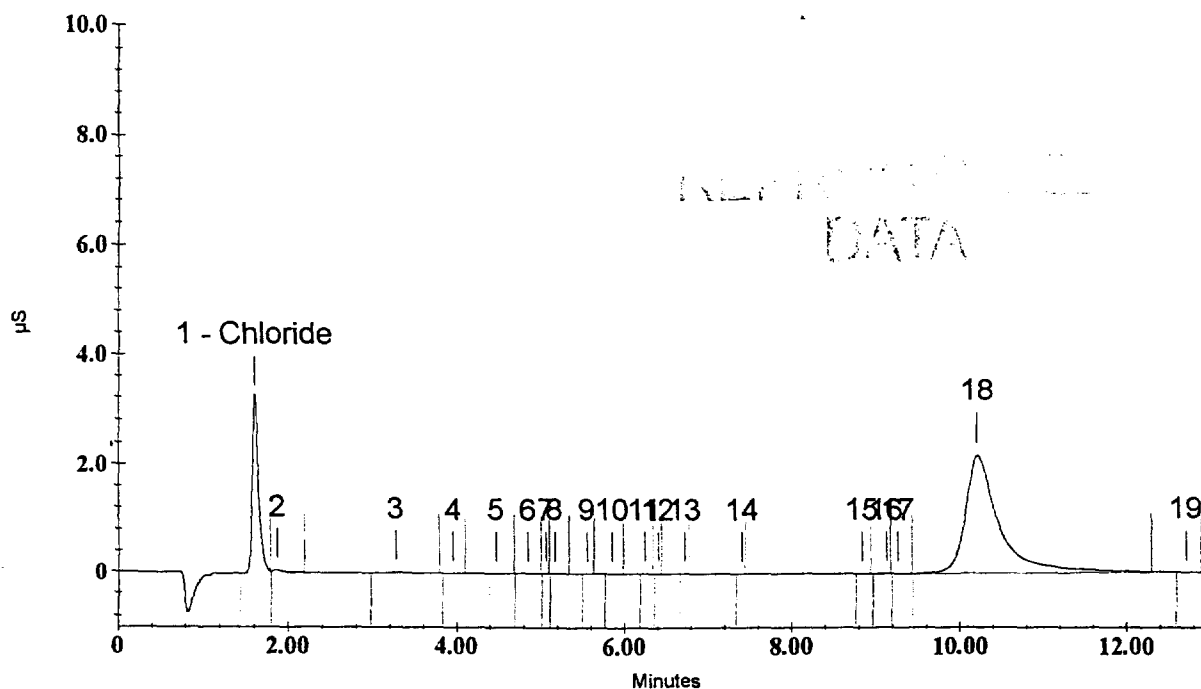
De 7/14/99
EXACT COPY OF
RAW DATA

Data File : ...3819_062.DXD
Sample Name : C-3817x100
Inject # : 62
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 11:24:07 PM
Updated : 7/9/99 7:52:32 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.934	177289	32178

C-3817x100



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EXACT COPY OF
RAW DATA

Data File : ...3811_063.DXD
Sample Name : C-3817x100
Inject # : 63
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

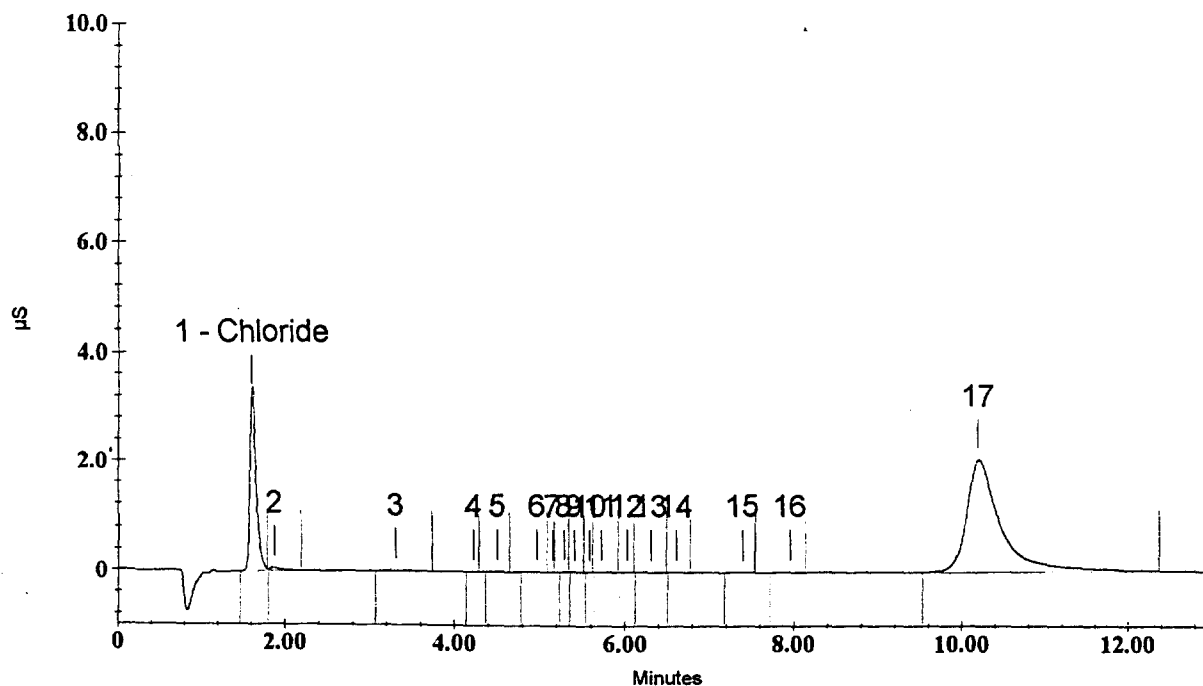
Collected : 7/8/99 11:38:30 PM
Updated : 7/8/99 11:51:37 PM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.088	188576	32128

REPROCESS

C-3817x100



ae 7/9/99
EXACT COPY OF
RAW DATA

Data File : ...\\3811_063.DXD
Sample Name : C-3817x100
Inject # : 63
Method File : M26h2so4.met
System Name : Instr. 830 DX500

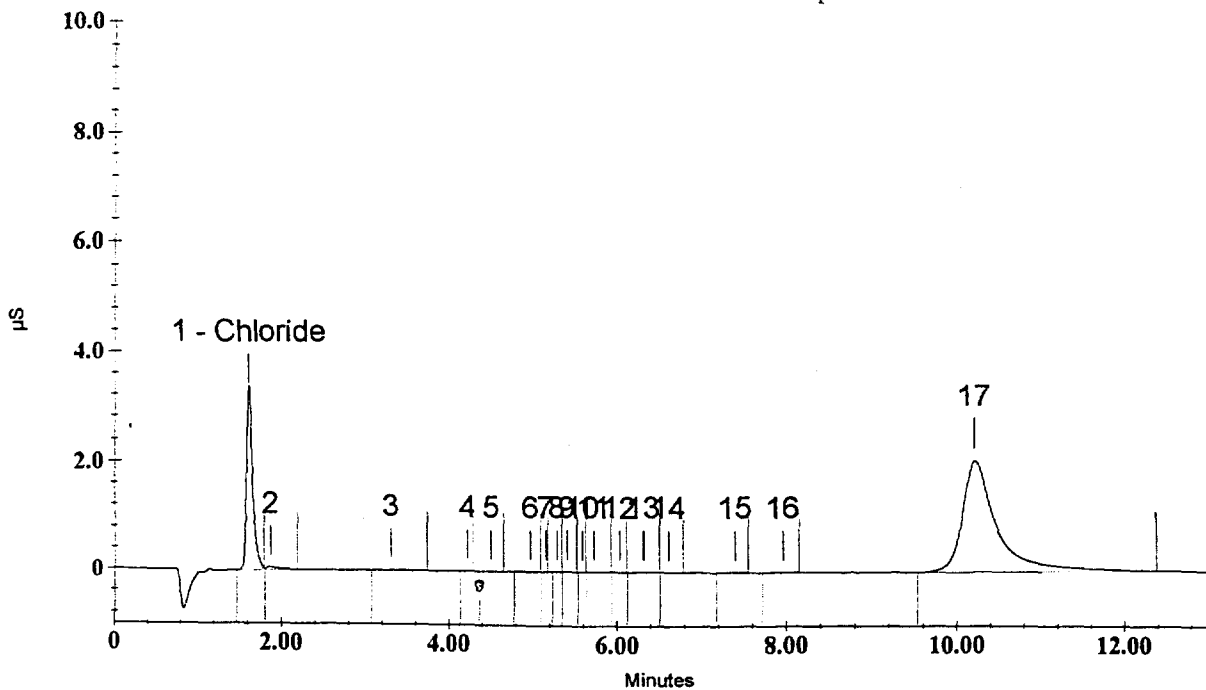
Collected : 7/8/99 11:38:30 PM
Updated : 7/9/99 7:52:56 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.050	188576	32128

DATA

C-3817x100



Qentaka
EXACT COPY OF
RAW DATA

Data File : ...3811_064.DXD
Sample Name : C-3819x10
Inject # : 64
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

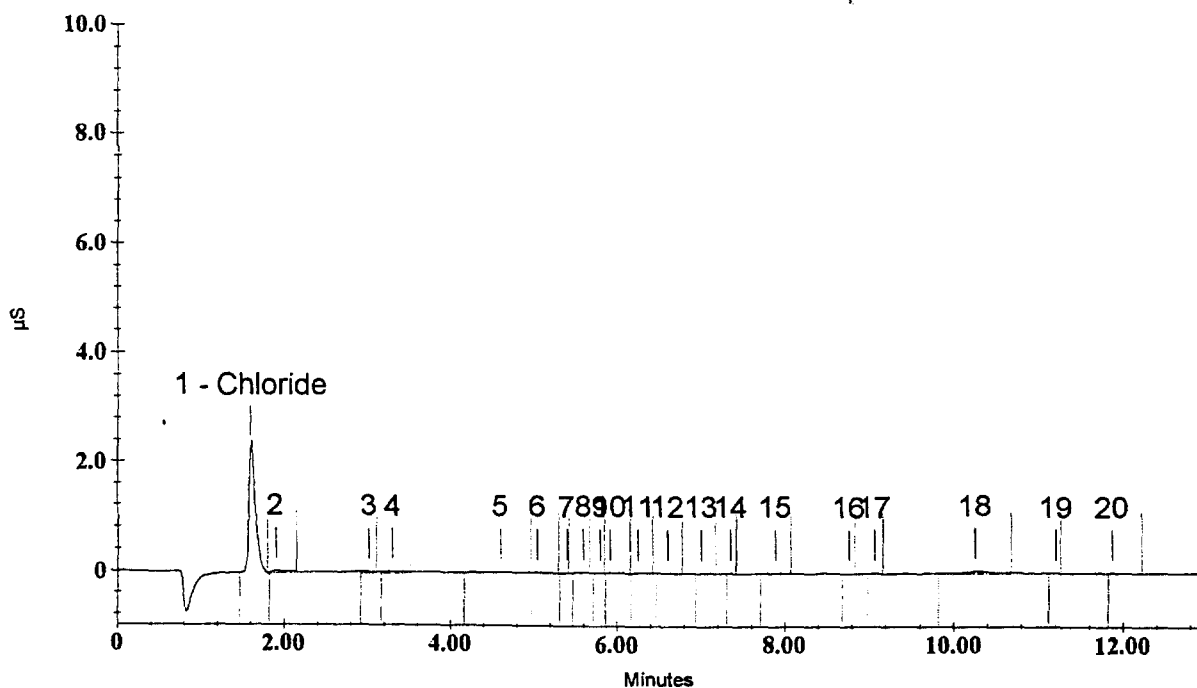
Collected : 7/8/99 11:52:53 PM
Updated : 7/9/99 12:05:58 AM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.439	126970	22628

REPROCESS

C-3819x10



07/24/99
EXACT COPY OF
RAW DATA

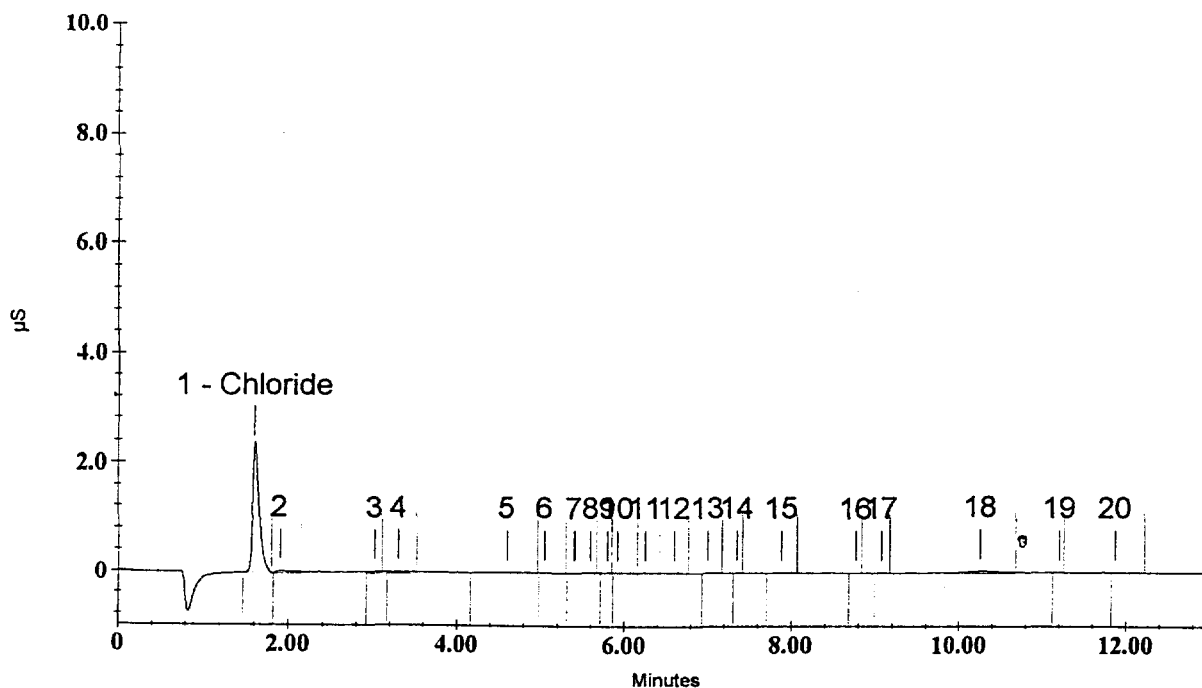
Data File : ...3811_064.DXD
Sample Name : C-3819x10
Inject # : 64
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 11:52:53 PM
Updated : 7/9/99 7:53:17 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.418	126970	22628

C-3819x10



07/29/99
EXACT COPY OF
RAW DATA

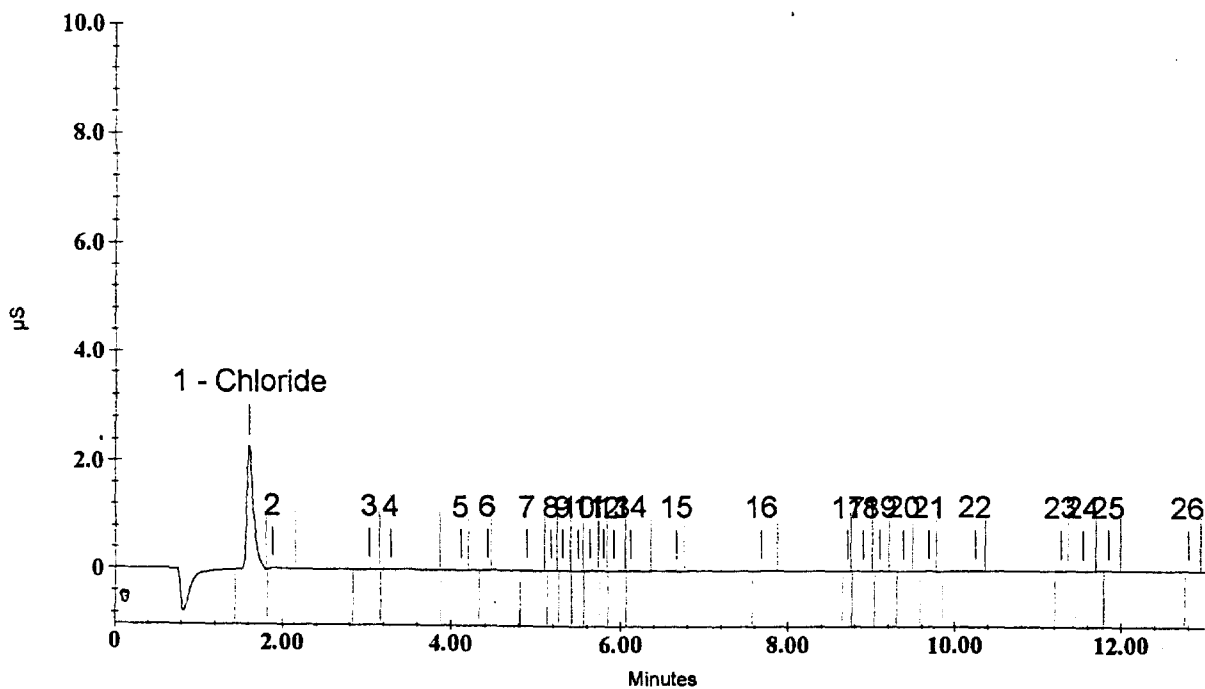
Data File : ...3811_065.DXD
Sample Name : C-3819x10
Inject # : 65
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/9/99 12:07:18 AM
Updated : 7/9/99 12:20:22 AM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.435	126601	22764

REPROCESS

C-3819x10

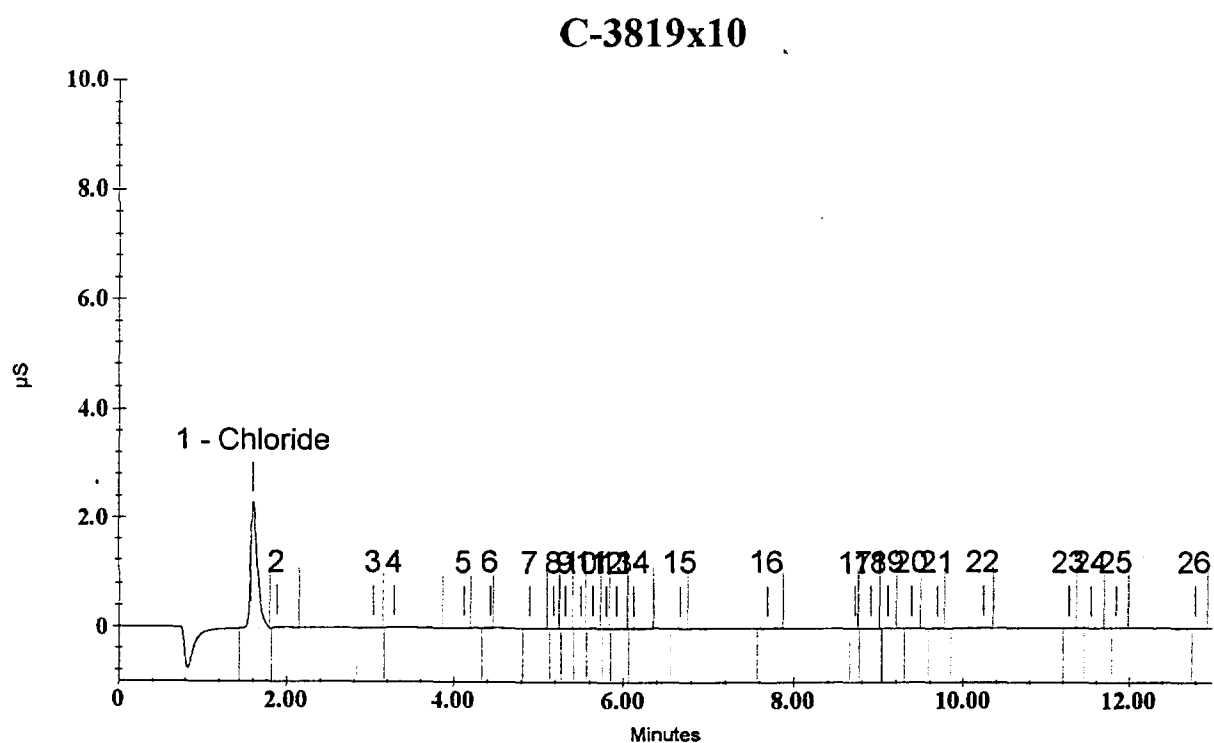


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EXACT COPY OF
RAW DATA

Data File : ...\\3811_065.DXD
Sample Name : C-3819x10
Inject # : 65
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/9/99 12:07:18 AM
Updated : 7/9/99 7:53:41 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	1.414	126601	22764



07/19/99
EXACT COPY OF
RAW DATA

Data File : ...3811_067.DXD
Sample Name : C-3811x2(neut.)
Inject # : 67
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

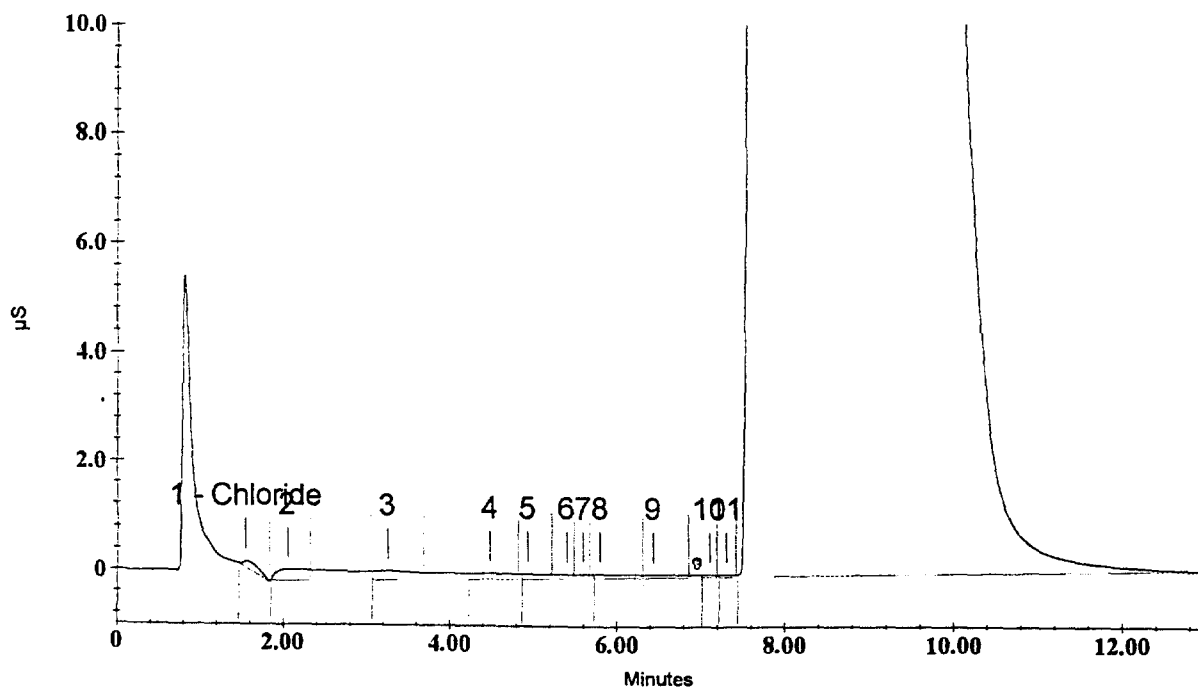
Collected : 7/9/99 12:36:05 AM
Updated : 7/9/99 12:49:10 AM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.311	19908	1207

REPROCESS

C-3811x2(neut.)



EXACT COPY OF
RAW DATA
7/29/99

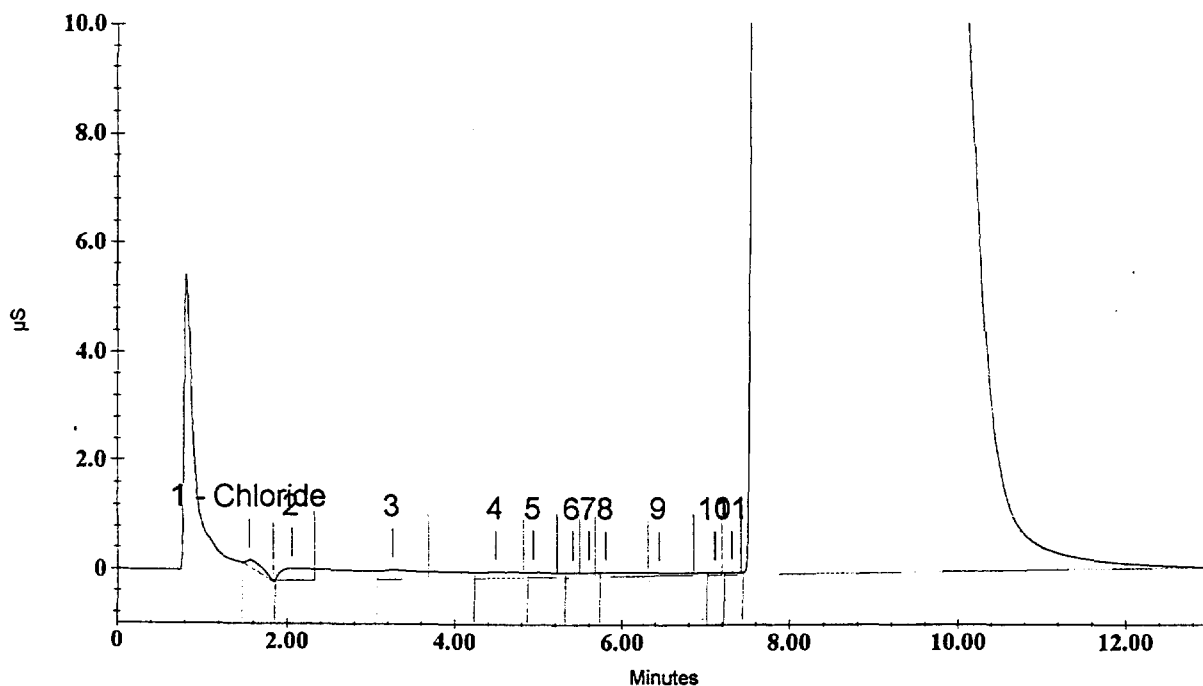
Data File : ...3811_067.DXD
 Sample Name : C-3811x2(neut.)
 Inject # : 67
 Method File : M26h2so4.met
 System Name : Instr. 830 DX500

Collected : 7/9/99 12:36:05 AM
 Updated : 7/9/99 7:54:23 AM
 Calibrated : 7/9/99 7:26:39 AM
 Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
1	1.55	Chloride	0.320	19908	1207

REPORT FILED
 DATA

C-3811x2(neut.)



EXACT COPY OF
 RAW DATA

7/29/99
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 C3803-19
 (C3803-1)
 (C3803-1)
 3810-1
 3819)

Data File : ...blk_068.DXD
Sample Name : a-0000
Inject # : 68
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

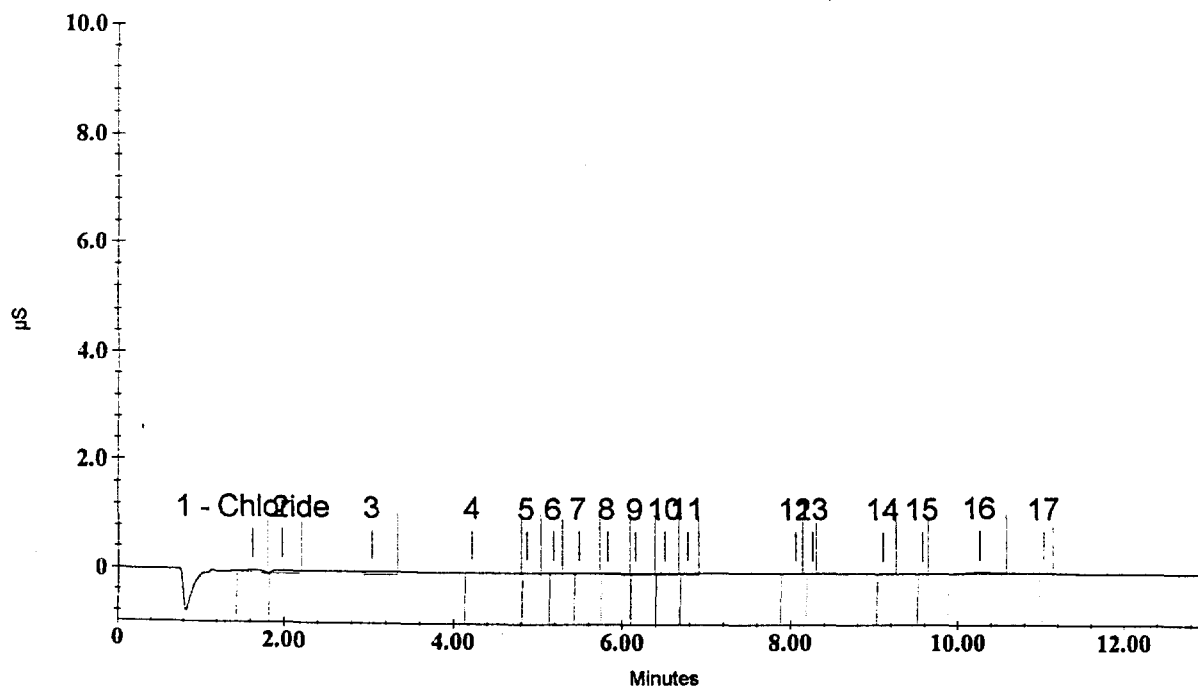
Collected : 7/9/99 12:50:30 AM
Updated : 7/9/99 1:03:32 AM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.166	6102	425

REPROCESS

a-0000



6/7/99
EXACT COPY OF
RAW DATA

Sample Name : a-0000
Inject # : 68
Method File : M26h2so4.met
System Name : Instr. 830 DX500

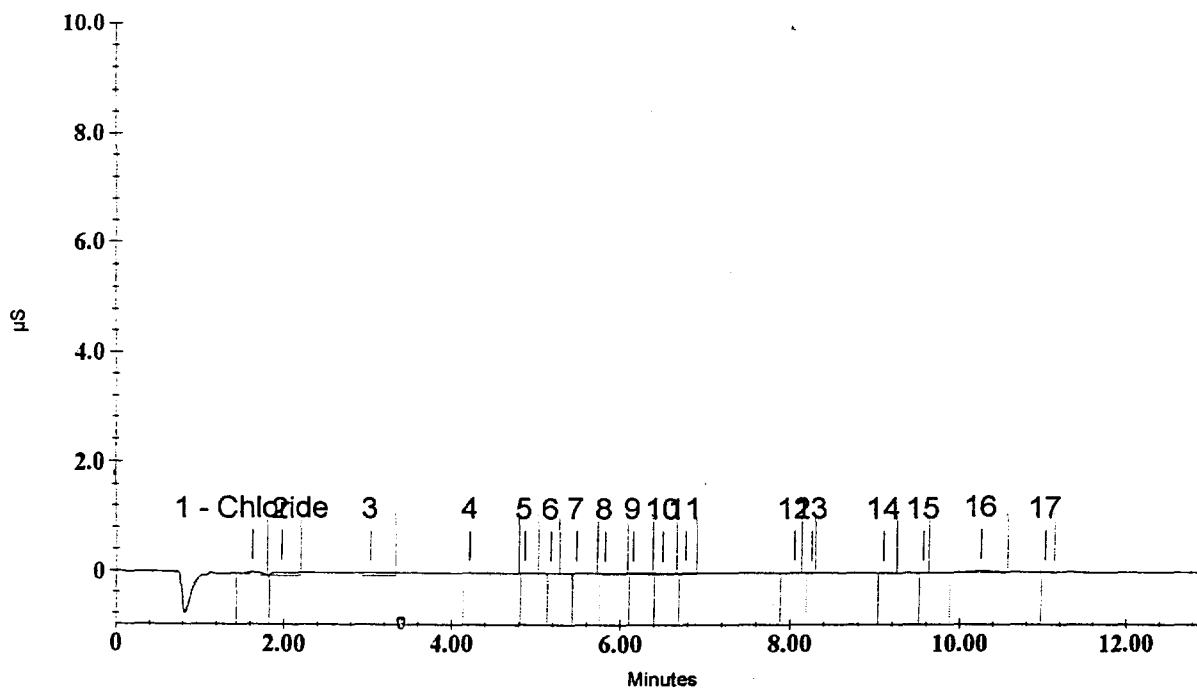
Collected : 7/9/99 12:50:30 AM
Updated : 7/9/99 7:54:42 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.179	6102	425

DATA

a-0000



EXACT COPY OF
RAW DATA

Data File : ...ics_069.DXD

Sample Name : ics

Inject # : 69

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/9/99 1:04:53 AM

Updated : 7/9/99 1:17:56 AM

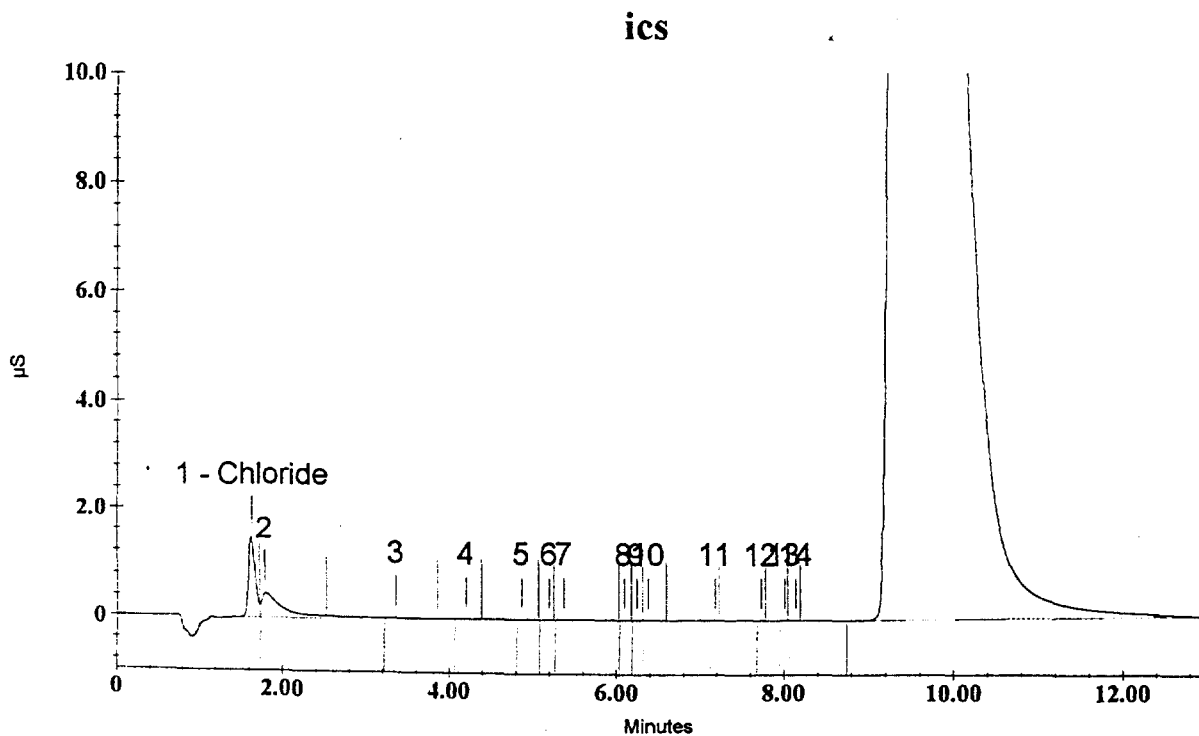
Calibrated : 7/8/99 5:23:14 PM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.967	82164	14664

-REPROCESS



De 7/10/99
EXACT COPY OF
RAW DATA

Data File : ...ICS_069.DXD
Sample Name : ics
Inject # : 69
Method File : M26h2so4.met
System Name : Instr. 830 DX500

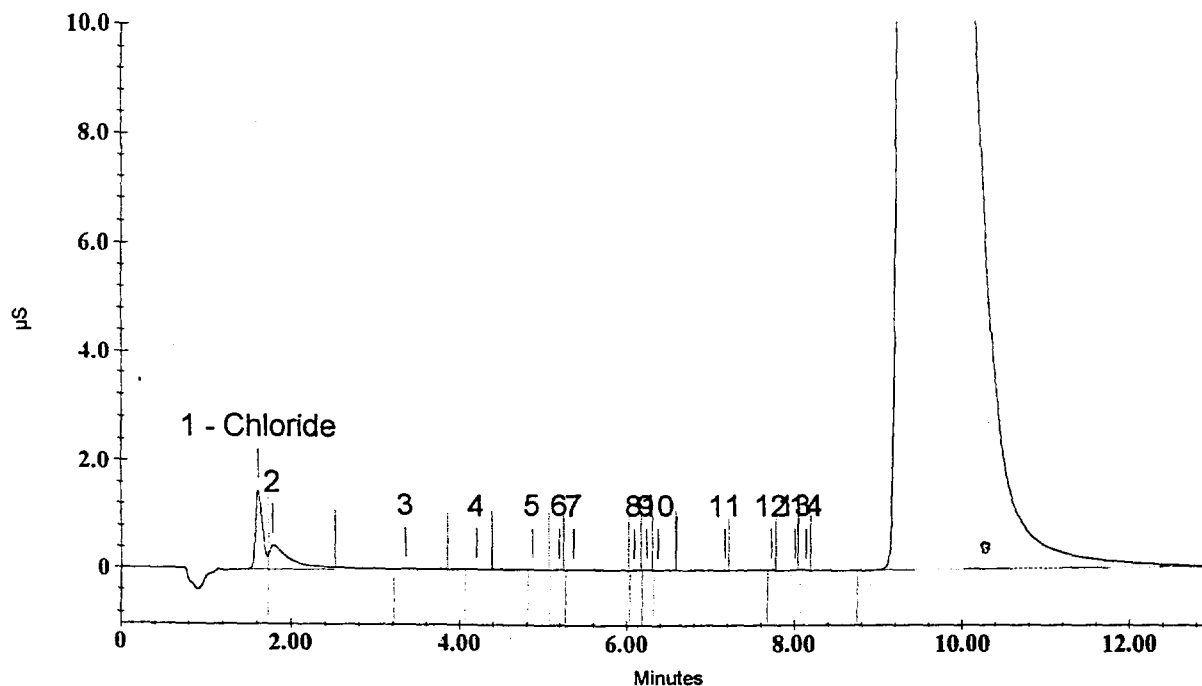
Collected : 7/9/99 1:04:53 AM
Updated : 7/9/99 7:56:25 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.977	83951	14664

RAW DATA

ics



EXACT COPY OF
RAW DATA

Data File : ...ics_070.DXD

Sample Name : ics

Inject # : 70

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/9/99 1:19:18 AM

Updated : 7/9/99 1:32:20 AM

Calibrated : 7/8/99 5:23:14 PM

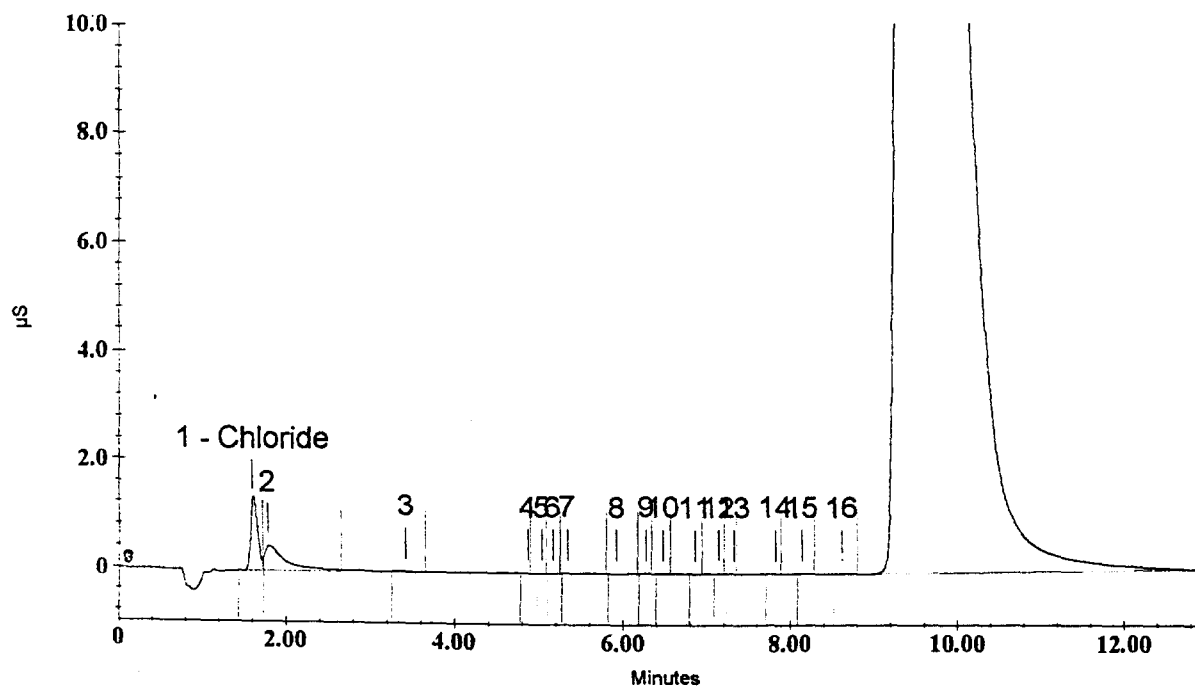
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.882	74071	12536

REPROCESS

ics



Ge 7/19/99
EXACT COPY OF
RAW DATA

Data File : ...ICS_070.DXD
Sample Name : ics
Inject # : 70
Method File : M26h2so4.met
System Name : Instr. 830 DX500

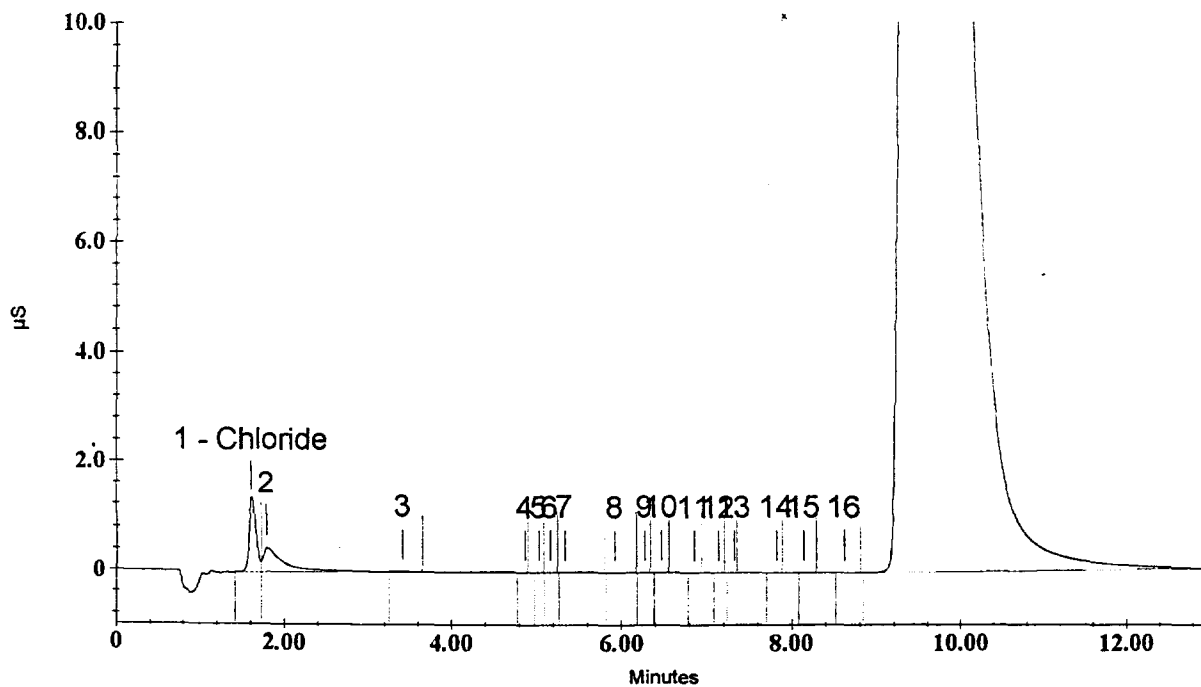
Collected : 7/9/99 1:19:18 AM
Updated : 7/9/99 7:57:11 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.891	75566	12555

REPR
DATA

ics



6/2/99
EXACT COPY OF
RAW DATA

WML

Method 26, 421, 9057

run date: 7/9/99

WML

enter date: 7/11/99

matrix: H₂SO₄

7/12/99

analyst: RP

inst. # 802

pg: 014

method/std: I/G

run # std. conc. area 1 area 2 avg.

19	33	0.5 ppm	2556264	55504	55884
20	34	1.0 ppm	106735	107004	106870
21	35	2.0 ppm	216023	217445	216734
22	36	5.0 ppm	585897	596241	591069

@petersen
RP 7/11/99

ICS Recovery:

100.32%

102.12%

99.22% @ 100.62%

Spike Recovery: N/A

$$C = A \times B$$

$$E = C \times D \times 1.0294$$

	Spl #	area	avg.	dilution	volume	µg/ml cl	µg HCl per spl	total µg
				B	D	A	E	C
23	a-0000			-	-	.148	-	<.5
24	p-1711	CN33331		-	-	1.003	-	100.32%
25	p-1711	I		-	-	.992	-	99.22%
26	C-3806			100	78	1.524	12225	152.4
27	C-3806			100	78	1.250	10027	125.0
28	C-3807			250	113	1.686	48982	421.5
29	C-3807			250	113	1.533	44537	383.25
30	a-0000			-	-	.183	-	<.5
31	p-1711	CN33331		-	-	1.021	-	102.12%
32	p-1711	I		-	-	1.006	-	100.62%

EXACT COPY OF
RAW DATAan 7/15/99
INSPECTED
ST 7/13/99
C3806-7

an 7/19/99

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
1	di	Sample		dx120.met	di_001.dxd	1	1
2	0.5ppm	Calibration St	1	dx120.met	05ppm_002.dxd	1	1
3	2ppm	Calibration St	2	dx120.met	2ppm_003.dxd	1	1
4	5ppm	Calibration St	3	dx120.met	5ppm_004.dxd	1	1
5	a-0000	Sample		dx120.met	blk_005.dxd	1	1
6	ics	Sample		dx120.met	ics_006.dxd	1	1
7	a-0002(br)	Sample		dx120.met	brblk_007.dxd	1	1
8	a-3502x100	Sample		dx120.met	brstd_008.dxd	1	1
9	C-3984x2	Sample		dx120.met	3984_009.dxd	1	1
10	C-3984x2spike	Sample		dx120.met	3984s_010.dxd	1	1
11	C-2954x500	Sample		dx120.met	2954_011.dxd	1	1
12	di	Sample		dx120.met	di_012.dxd	1	1
13	ics	Sample		dx120.met	ics_013.dxd	1	1
14	peakid	Sample		dx120.met	peakid_014.dxd	1	1
15	peakid	Sample		dx120.met	peakid_a015.dxd	1	1
16	peakid	Sample		dx120.met	peakid_b016.dxd	1	1
17	peakid	Sample		dx120.met	peakid_017.dxd	1	1
18	di	Sample		m26so4120.met	di_018.dxd	1	1
19	0.5ppm	Calibration St	1	m26so4120.met	05ppm	1	1
20	1ppm	Calibration St	2	m26so4120.met	1ppm	1	1
21	2ppm	Calibration St	3	m26so4120.met	2ppm	1	1
22	5ppm	Calibration St	4	m26so4120.met	5ppm	1	1
23	a-0000	Sample		m26so4120.met	blk	1	1
24	ics	Sample		m26so4120.met	ics	1	1
25	C-3806x100	Sample		m26so4120.met	3806	1	1
26	C-3806x100	Sample		m26so4120.met	3806	1	1
27	C-3807x100	Sample		m26so4120.met	3807	1	1
28	C-3807x100	Sample		m26so4120.met	3807	1	1
29	a-0000	Sample		m26so4120.met	blk	1	1
30	ics	Sample		m26so4120.met	ics	1	1
31	ics	Sample		m26so4120.met	ics	1	1
32	0.5ppm	Sample		m26so4120.met	05ppm	1	1
33	1ppm	Sample		m26so4120.met	1ppm	1	1
34	2ppm	Sample		m26so4120.met	2ppm	1	1
35	5ppm	Sample		m26so4120.met	5ppm	1	1

#802
7/9/99
RP

07/19/99

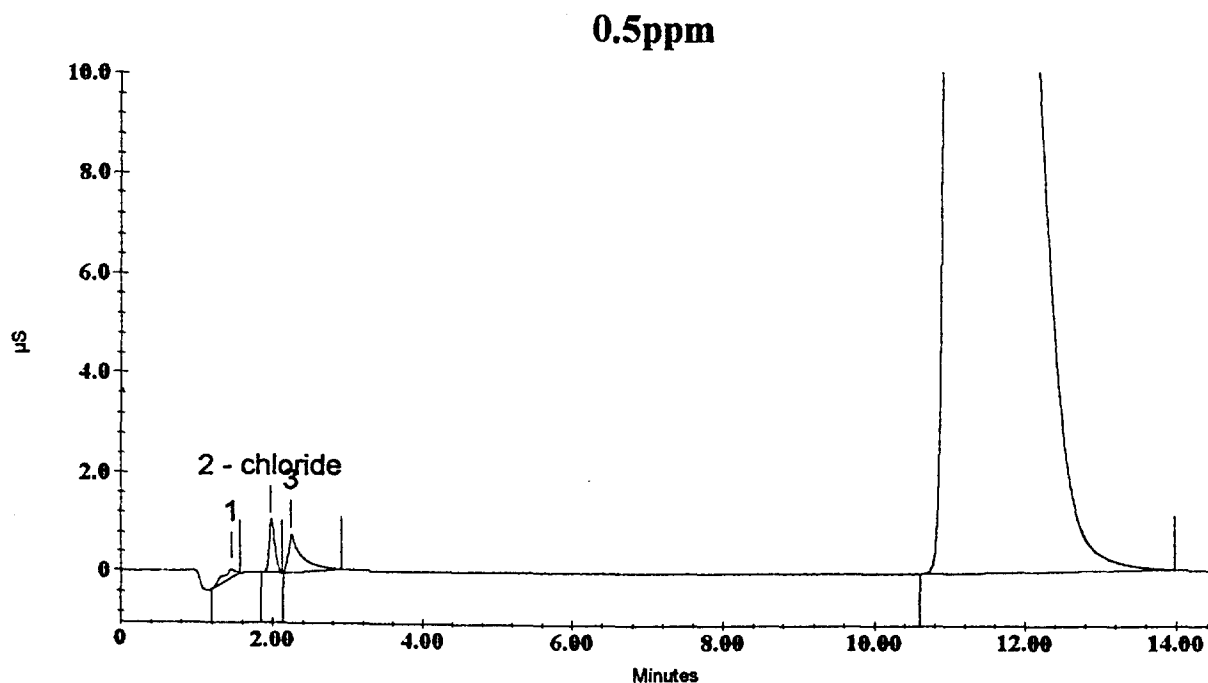
EXACT COPY OF
RAW DATA

Data File : ...\\05ppm_019.DXD
Sample Name : 0.5ppm
Inject # : 19
Method File : c:\\peaknet\\method\\m26so4120.met
System Name : DX-120

Collected : 7/9/99 3:11:07 PM
Updated : 7/9/99 3:25:39 PM
Calibrated : 7/9/99 3:25:38 PM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.450	chloride	0.000	20661	1704
2	1.967		0.500	56264	9976
3	2.233		0.000	97143	7151
4	11.027		0.000	27693367	555072



06/24/99
EXACT COPY OF
RAW DATA

Data File : ...\\1ppm_020.DXD

Sample Name : 1ppm

Inject # : 20

Method File : c:\\peaknet\\method\\m26so4120.met

System Name : DX-120

Collected : 7/9/99 3:27:01 PM

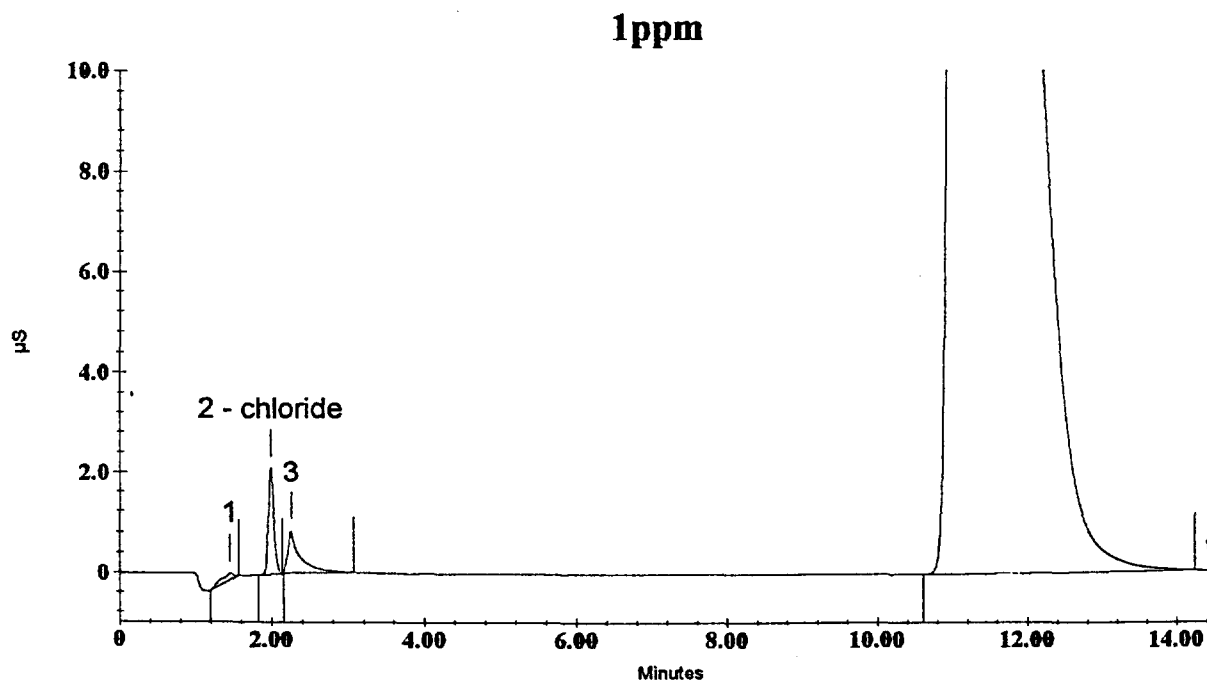
Updated : 7/9/99 3:41:37 PM

Calibrated : 7/9/99 3:41:36 PM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.450		0.000	17255	1424
2	1.983	chloride	1.000	106735	21205
3	2.250		0.000	93398	8144
4	11.047		0.000	27883945	555472



EXACT COPY OF
RAW DATA

Data File : ...2ppm_021.DXD

Sample Name : 2ppm

Inject # : 21

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 3:42:54 PM

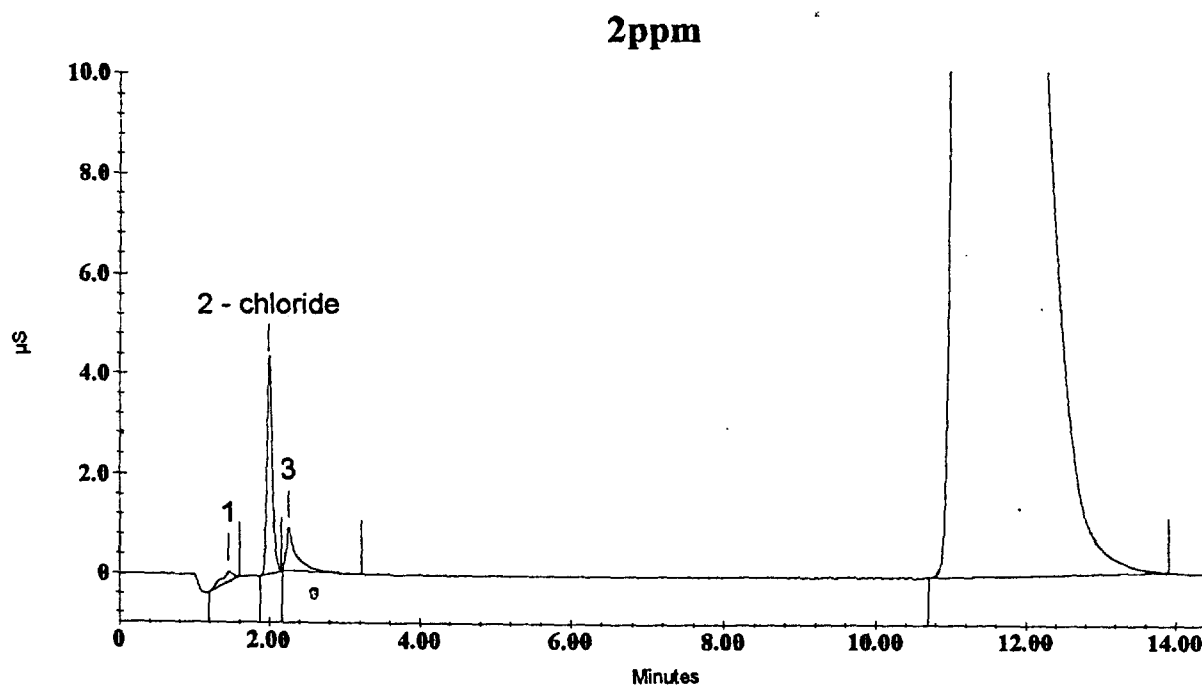
Updated : 7/9/99 3:57:28 PM

Calibrated : 7/9/99 3:57:27 PM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.450		0.000	22750	2057
2	1.983	chloride	2.000	216023	42141
3	2.250		0.000	78005	8350
4	11.107		0.000	27705585	551929



EXACT COPY OF
RAW DATA

07/29/99

Data File : ...5ppm_022.DXD

Sample Name : 5ppm

Inject # : 22

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 3:58:48 PM

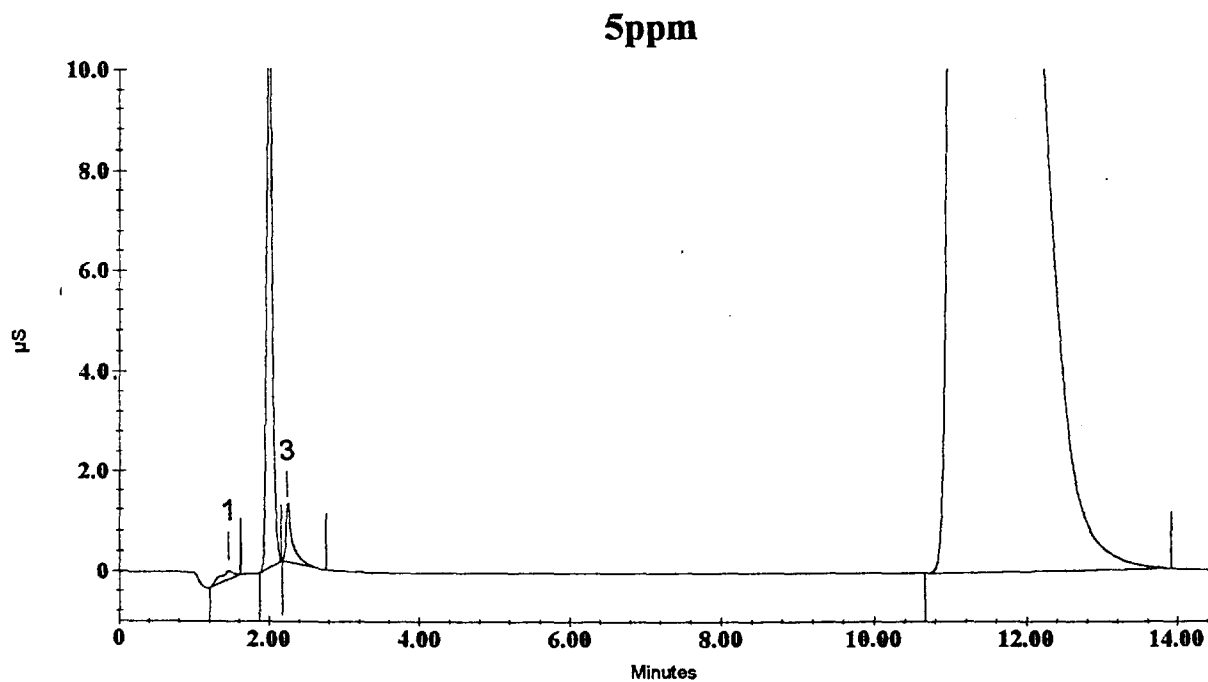
Updated : 7/9/99 4:13:23 PM

Calibrated : 7/9/99 4:13:22 PM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.450		0.000	23068	1802
2	1.983	chloride	5.000	585897	115347
3	2.233		0.000	64697	10256
4	11.087		0.000	27189609	546914



EXACT COPY OF
RAW DATA

6/1/99

Data File : ...blk_023.DXD

Sample Name : a-0000

Inject # : 23

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 4:14:43 PM

Updated : 7/9/99 4:29:15 PM

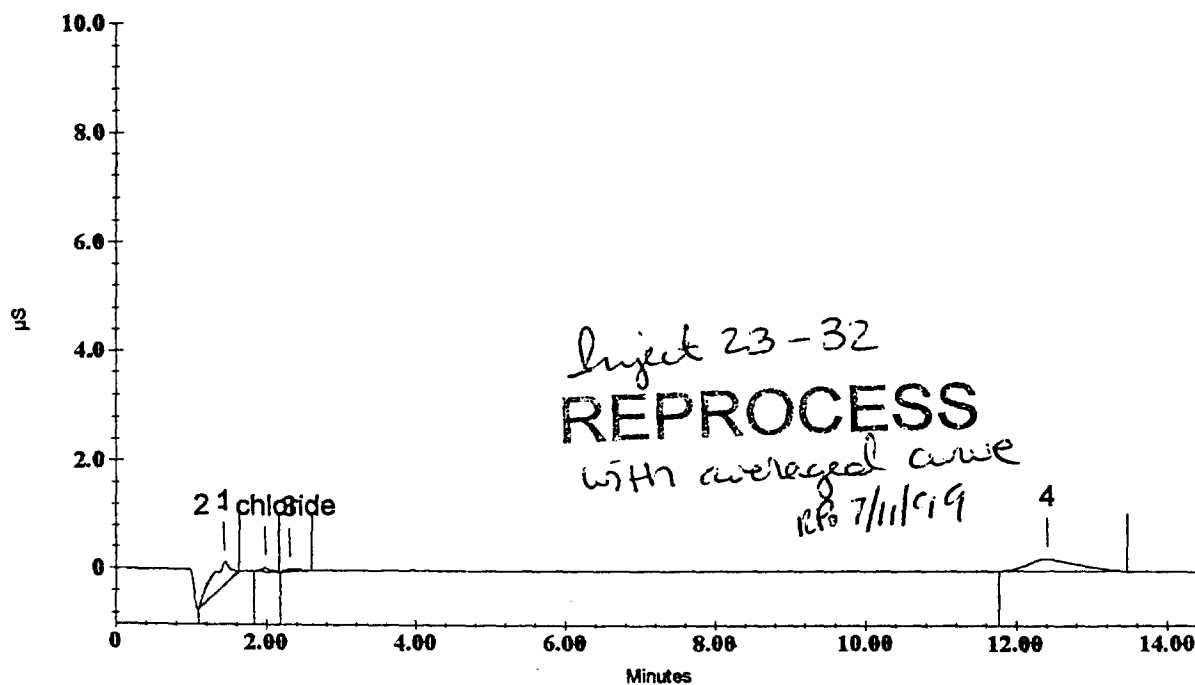
Calibrated : 7/9/99 4:13:22 PM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.98	chloride	0.139	5332	635

a-0000

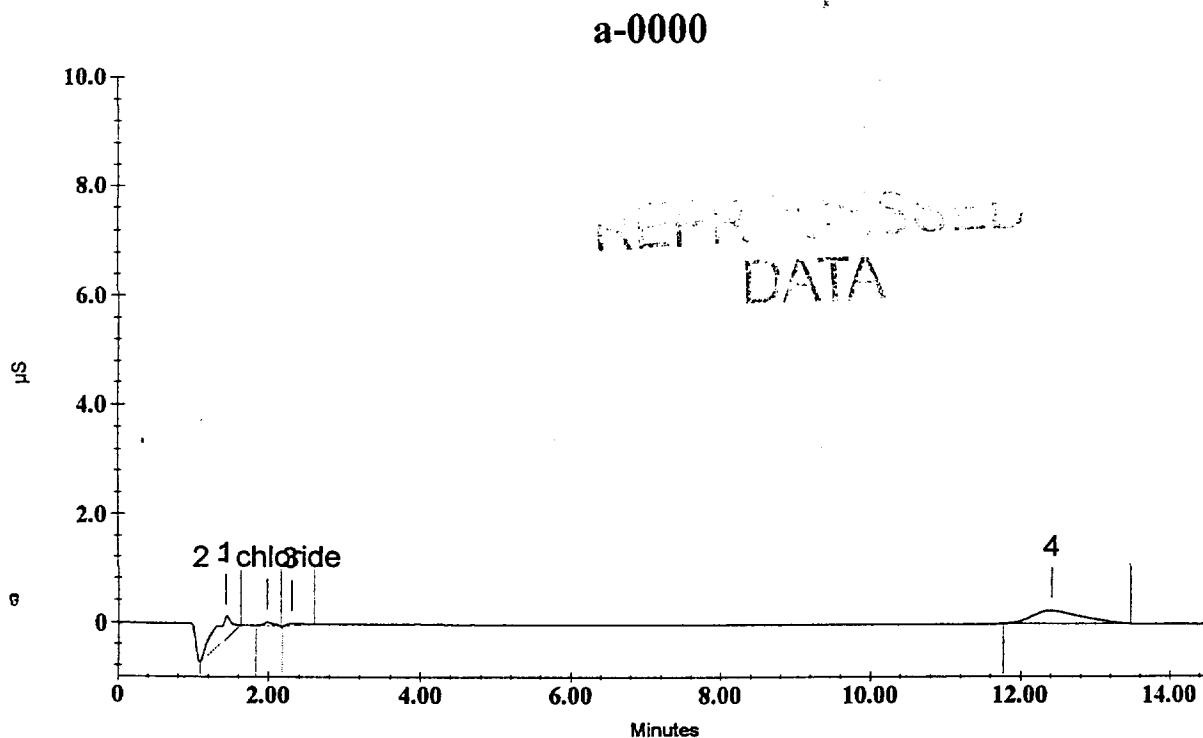


EXACT COPY OF
RAW DATA

Data File : ...\\BLK_023.DXD
Sample Name : a-0000
Inject # : 23
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 4:14:43 PM
Updated : 7/11/99 8:45:54 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
2	1.98	chloride	0.148	5332	635



De 7/12/99
EXACT COPY OF
RAW DATA

Data File : ...ics_024.DXD

Sample Name : ics

Inject # : 24

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 4:30:37 PM

Updated : 7/9/99 4:45:15 PM

Calibrated : 7/9/99 4:13:22 PM

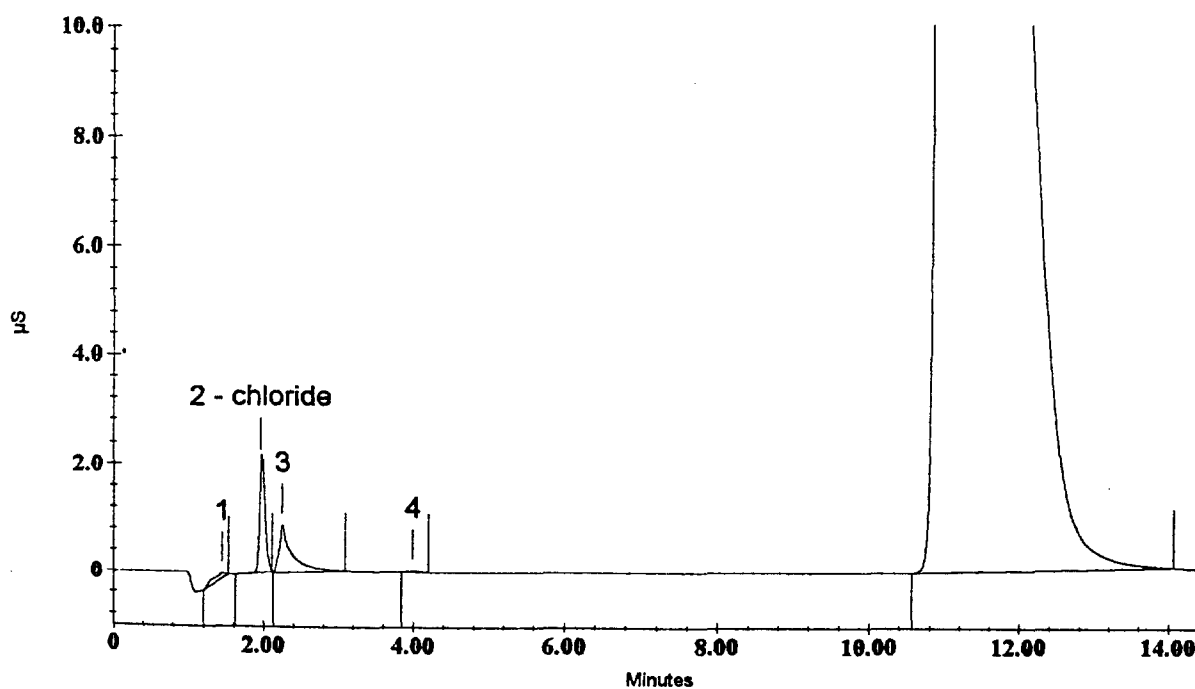
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.003	107994	20514

REPROCESS

ics



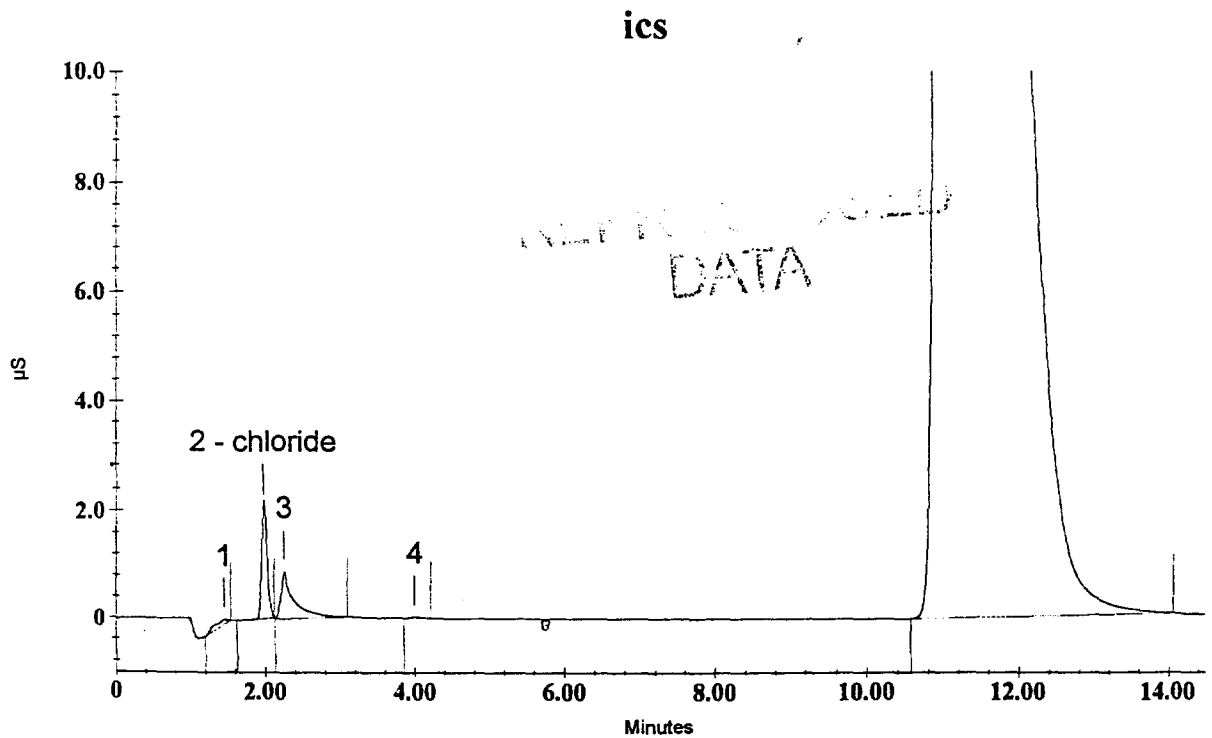
EXACT COPY OF
RAW DATA

ae 7/29/99

Data File : ...ICS_024.DXD
Sample Name : ics
Inject # : 24
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 4:30:37 PM
Updated : 7/11/99 8:46:18 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.003	107994	20514



At 7/29/99
EXACT COPY OF
RAW DATA

Data File : ...ics_025.DXD

Sample Name : ics

Inject # : 25

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 4:46:31 PM

Updated : 7/9/99 5:01:06 PM

Calibrated : 7/9/99 4:13:22 PM

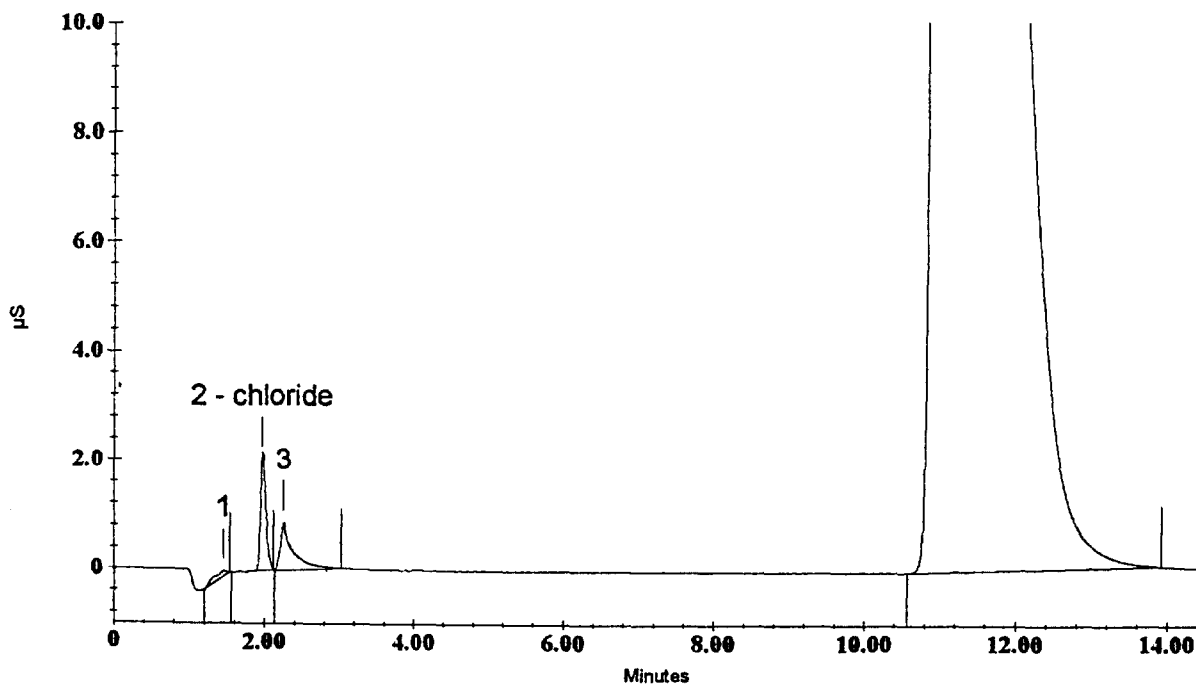
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	0.991	106591	20361

REPROCESS

ics



EXACT COPY OF
RAW DATA

Data File : ...ICS_025.DXD
Sample Name : ics
Inject # : 25
Method File : m26so4120.met
System Name : DX-120

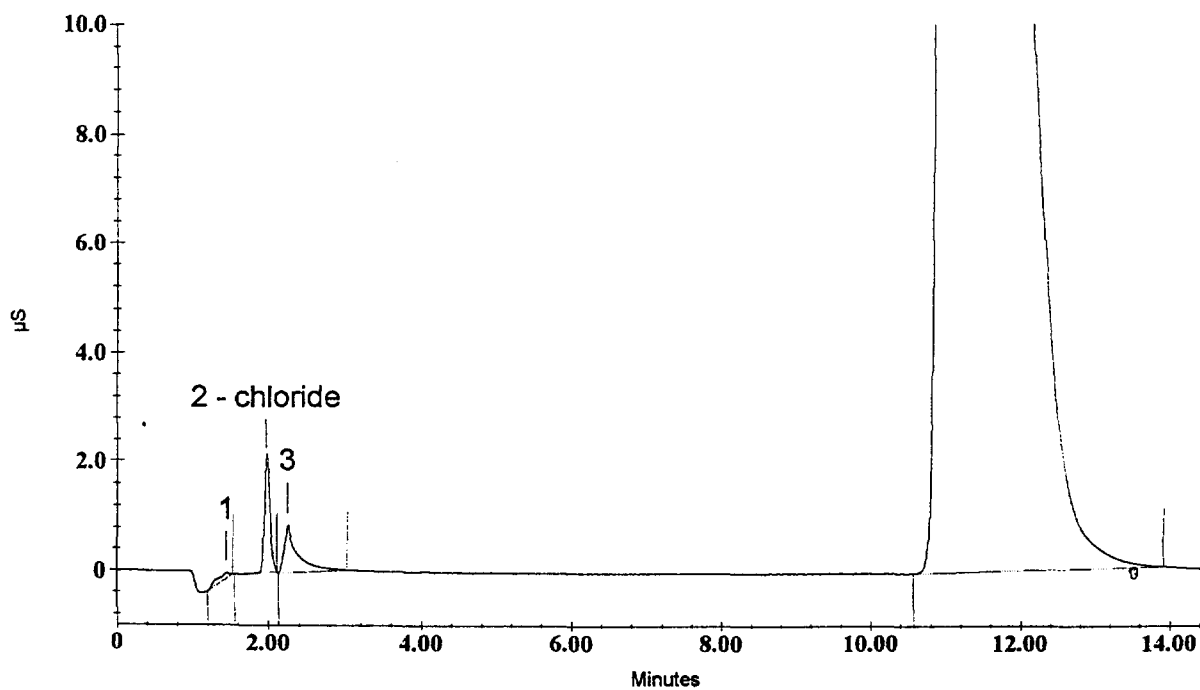
Collected : 7/9/99 4:46:31 PM
Updated : 7/11/99 8:46:31 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	0.992	106591	20361

REPROCESSED
DATA

ics



07/11/99
EXACT COPY OF
RAW DATA

Data File : ...3806_026.DXD

Sample Name : C-3806x100

Inject # : 26

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 5:02:27 PM

Updated : 7/9/99 5:16:59 PM

Calibrated : 7/9/99 4:13:22 PM

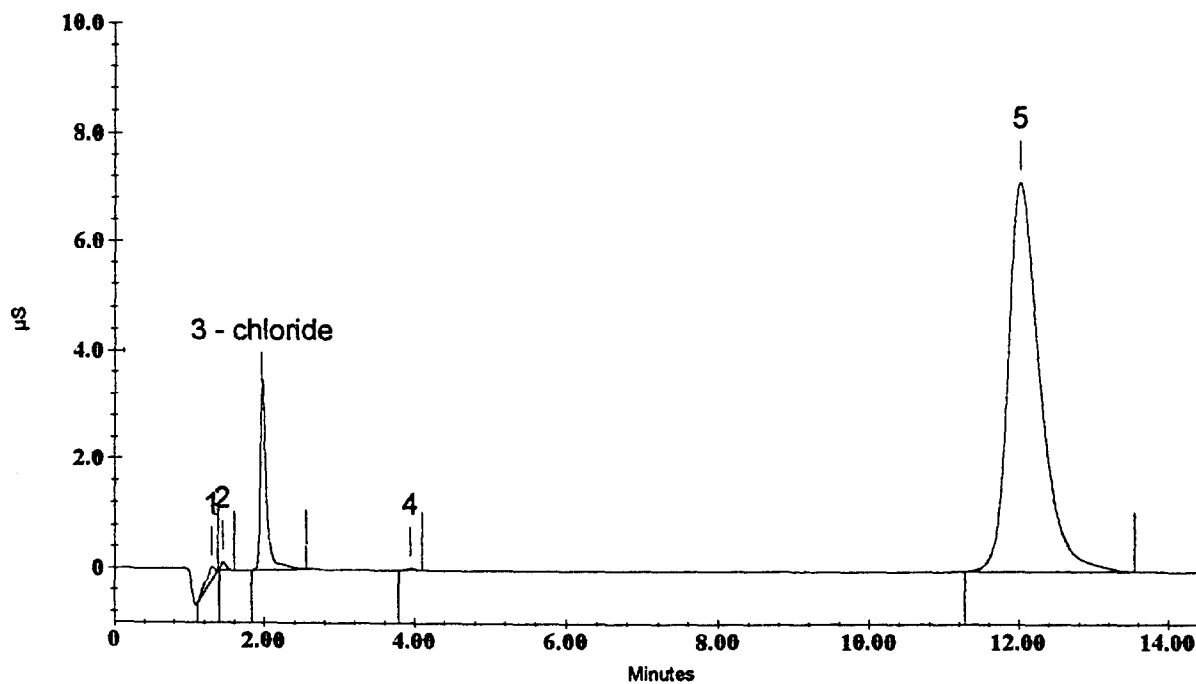
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
3	1.97	chloride	1.754	197186	32393

REPROCESS

C-3806x100



Ge7/9/99
EXACT COPY OF
RAW DATA

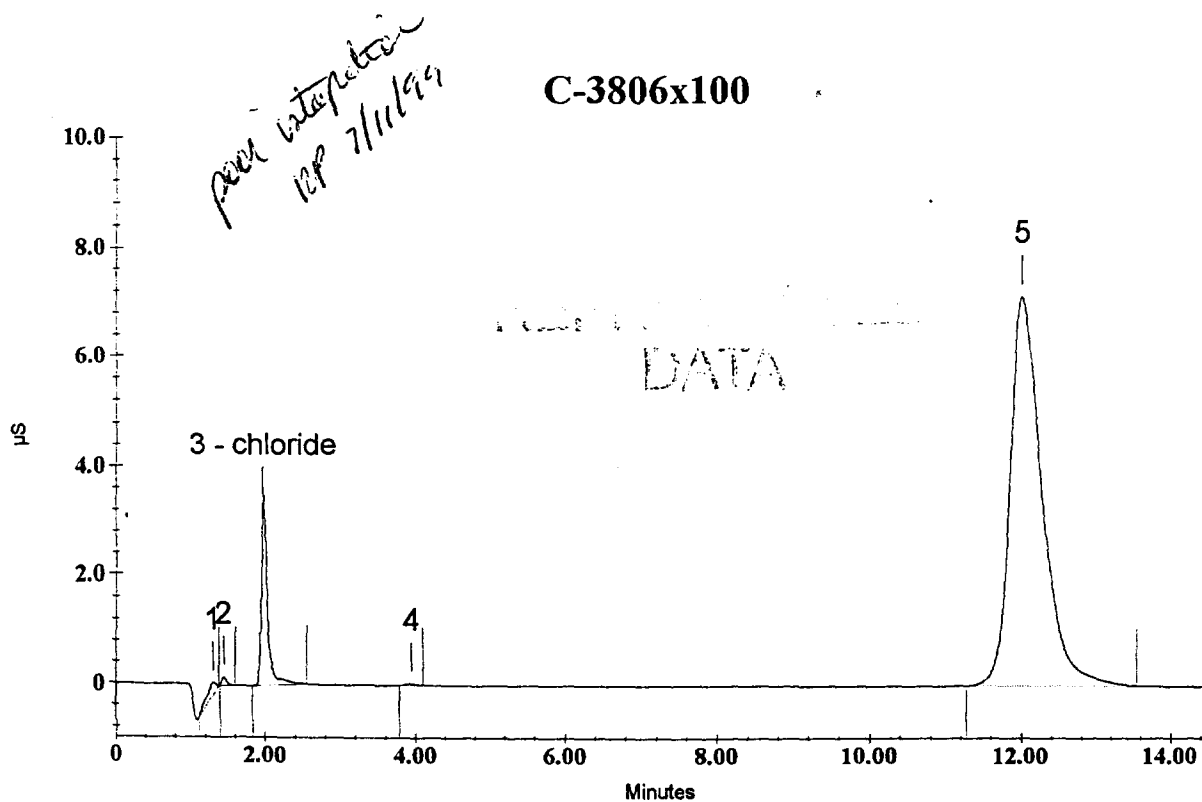
Data File : ...3806_026.DXD
Sample Name : C-3806x100
Inject # : 26
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 5:02:27 PM
Updated : 7/11/99 8:45:06 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
3	1.97	chloride	1.746	197186	32393

REPROCESS



07/29/99
EXACT COPY OF
RAW DATA

Data File : ...3806_026.DXD
Sample Name : C-3806x100
Inject # : 26
Method File : m26so4120.met
System Name : DX-120

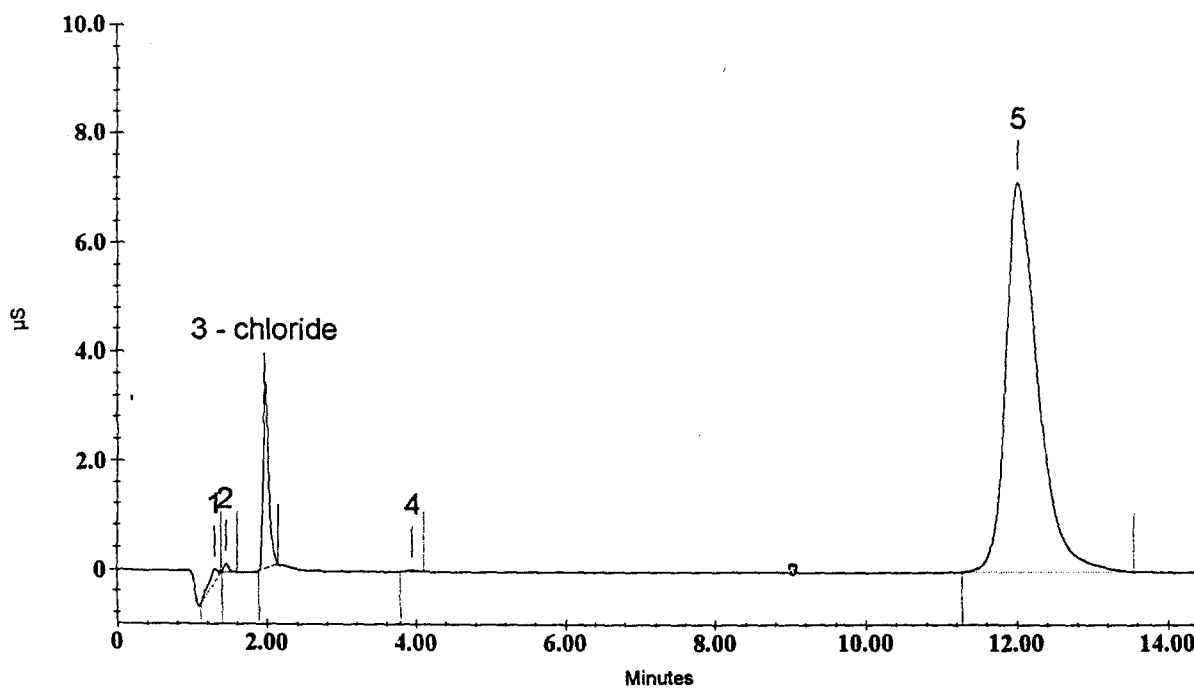
Collected : 7/9/99 5:02:27 PM
Updated : 7/11/99 8:52:13 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
3	1.97	chloride	1.524	170523	31797

UNPROCESSED
DATA

C-3806x100



06/19/99
EXACT COPY OF
RAW DATA

Data File : ...3806_027.DXD

Sample Name : C-3806x100

Inject # : 27

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 5:18:21 PM

Updated : 7/9/99 5:32:52 PM

Calibrated : 7/9/99 4:13:22 PM

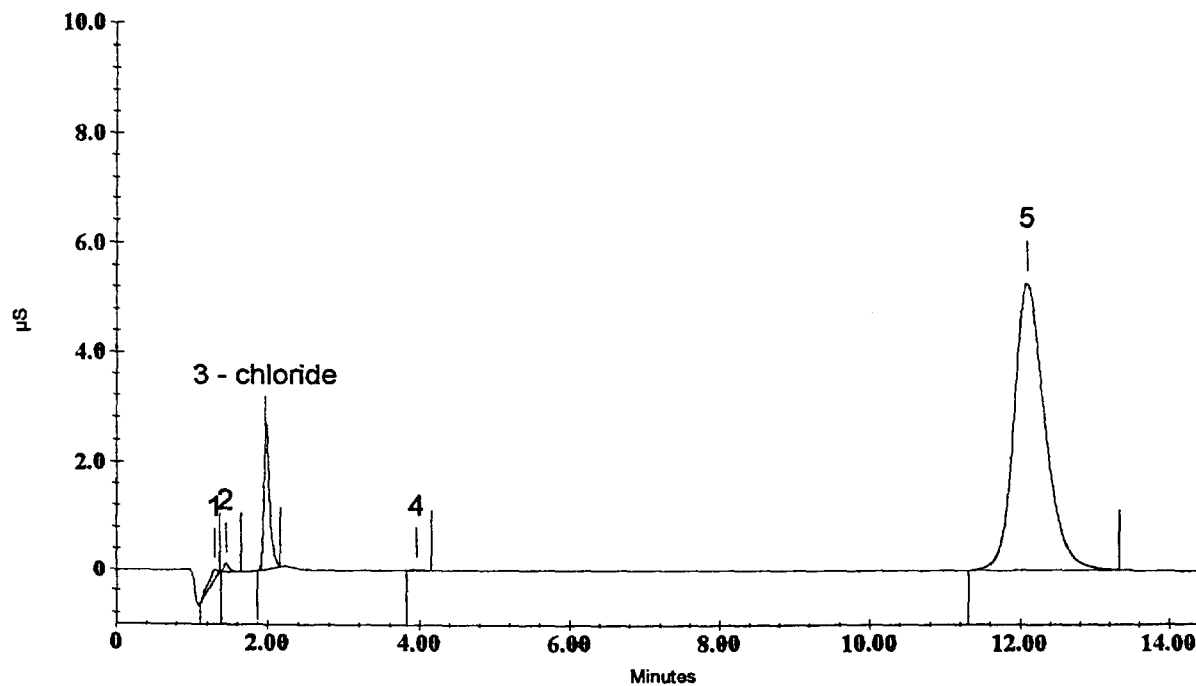
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
3	1.97	chloride	1.253	137611	23960

C-3806x100

REPROCESS



6/7/29/99
EXACT COPY OF
RAW DATA

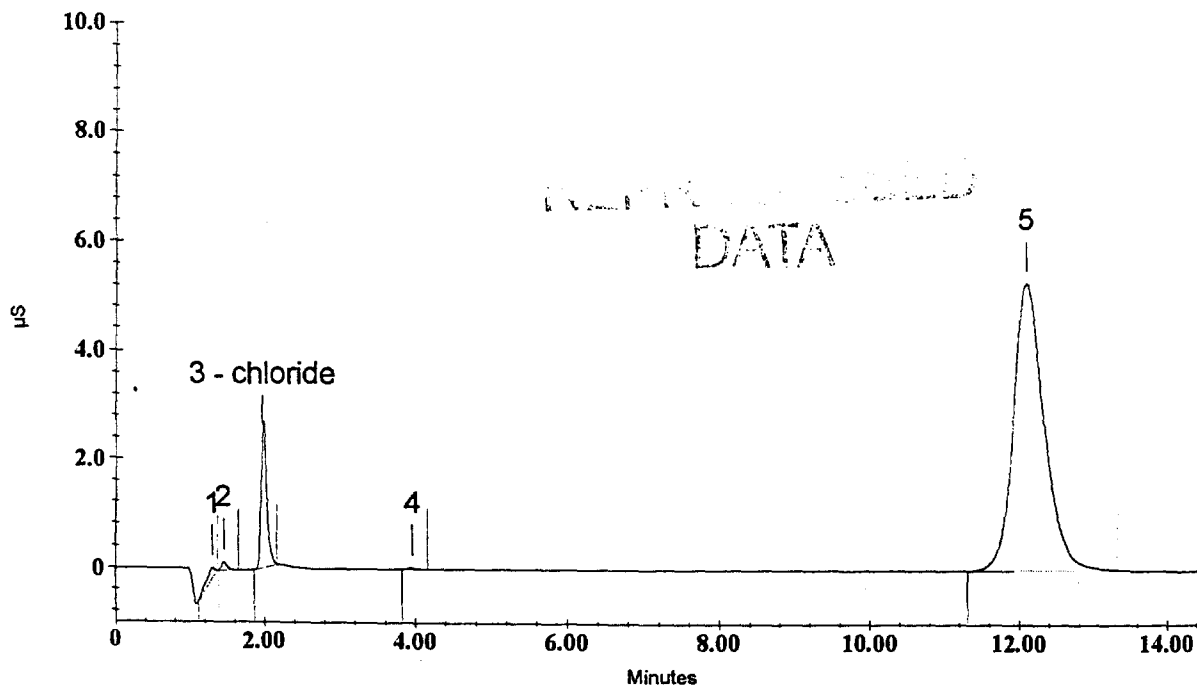
Data File : ...3806_027.DXD
Sample Name : C-3806x100
Inject # : 27
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 5:18:21 PM
Updated : 7/11/99 8:45:18 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
3	1.97	chloride	1.250	137611	23960

C-3806x100



06/29/99
EXACT COPY OF
RAW DATA

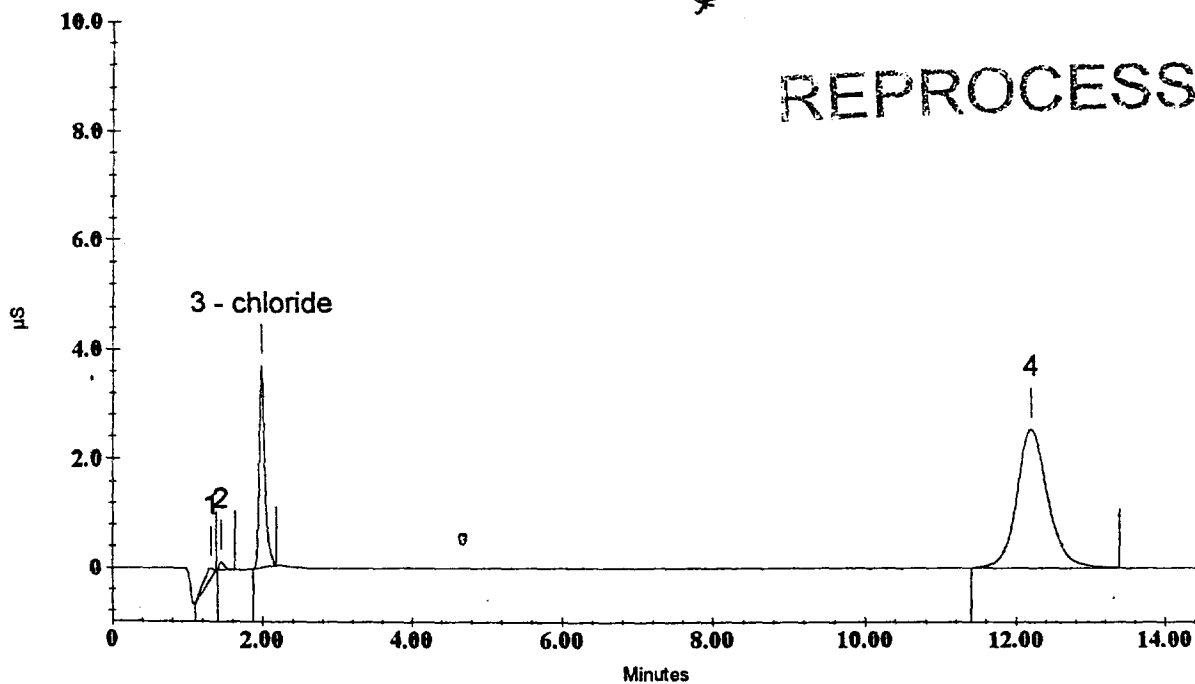
Data File : ...3807_028.DXD
Sample Name : C-3807x100*
Inject # : 28
Method File : c:\peaknet\method\m26so4120.met
System Name : DX-120

Collected : 7/9/99 5:34:15 PM
Updated : 7/9/99 5:48:50 PM
Calibrated : 7/9/99 4:13:22 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
3	1.98	chloride	1.693	189971	36809

C-3807x100*
x250
wrong dil
rp 7/11/99



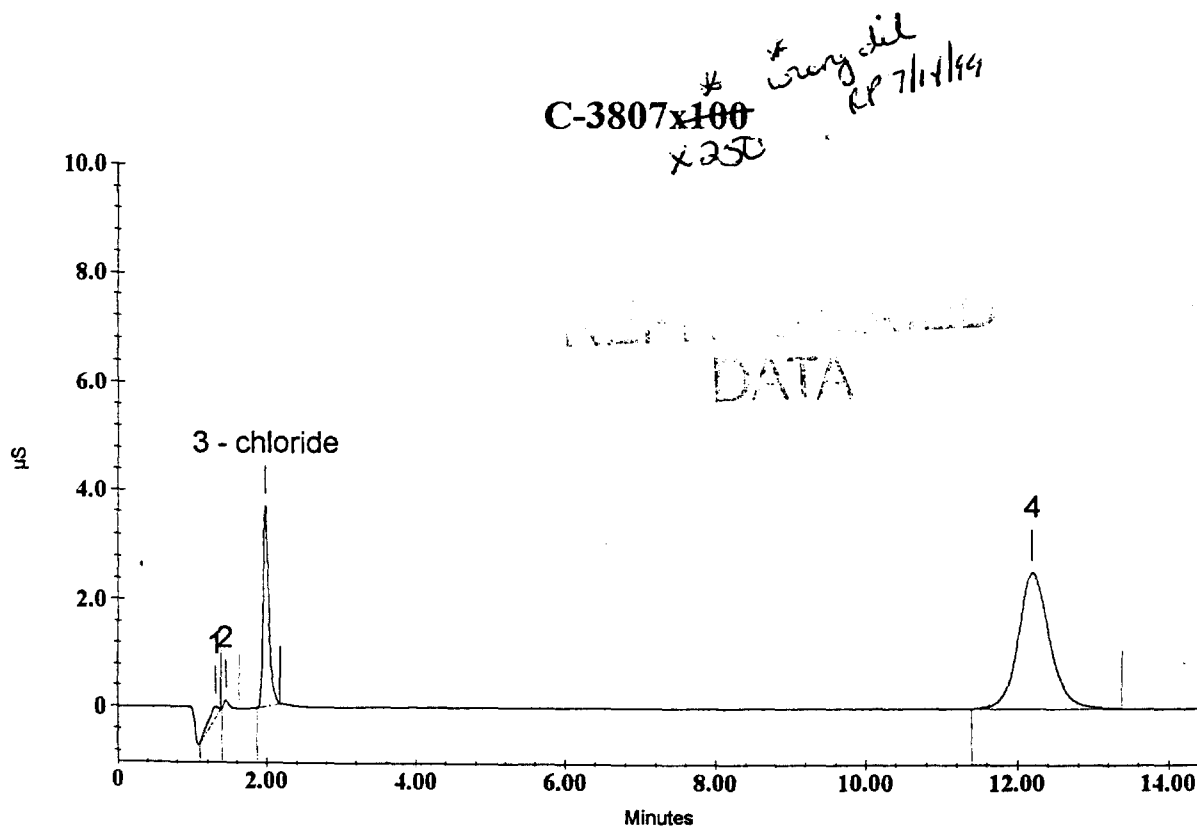
06/19/99
EXACT COPY OF
RAW DATA

Data File : ...3807_028.DXD
Sample Name : C-3807x100*
Inject # : 28
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 5:34:15 PM
Updated : 7/11/99 8:45:31 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
3	1.98	chloride	1.686	189971	36809



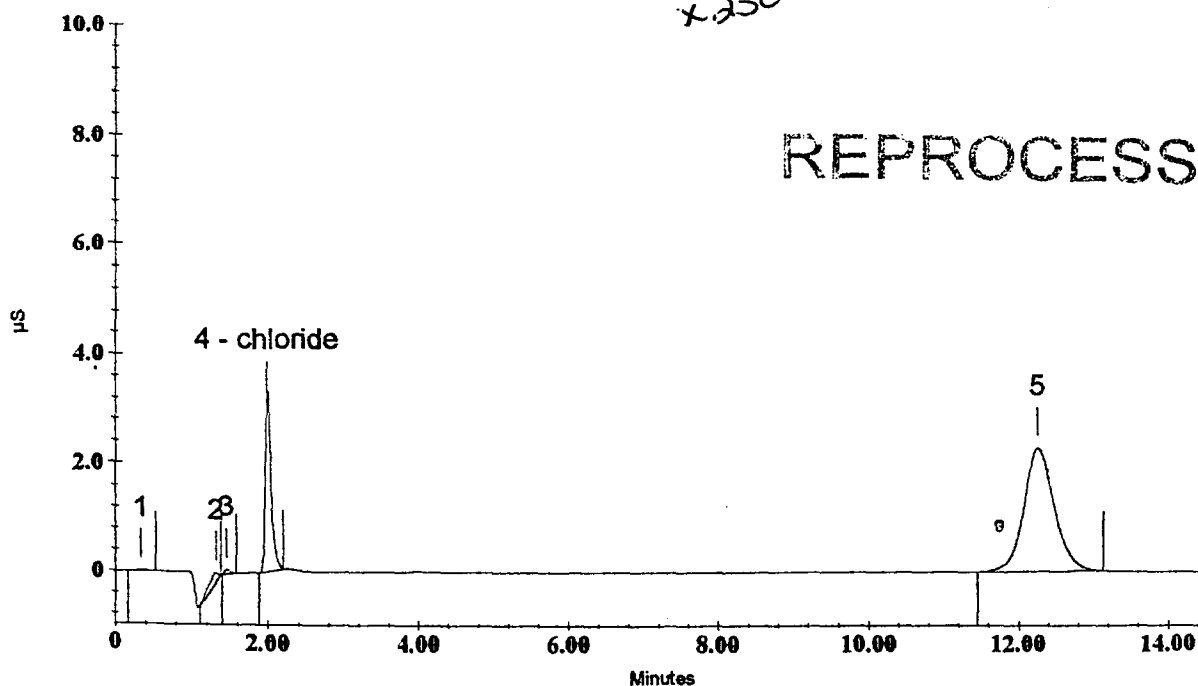
EXACT COPY OF
RAW DATA

Data File : ...\\3807_029.DXD
Sample Name : C-3807x100-
Inject # : 29
Method File : c:\\peaknet\\method\\m26so4120.met
System Name : DX-120

Collected : 7/9/99 5:50:10 PM
Updated : 7/9/99 6:04:41 PM
Calibrated : 7/9/99 4:13:22 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
4	1.98	chloride	1.538	171548	30769



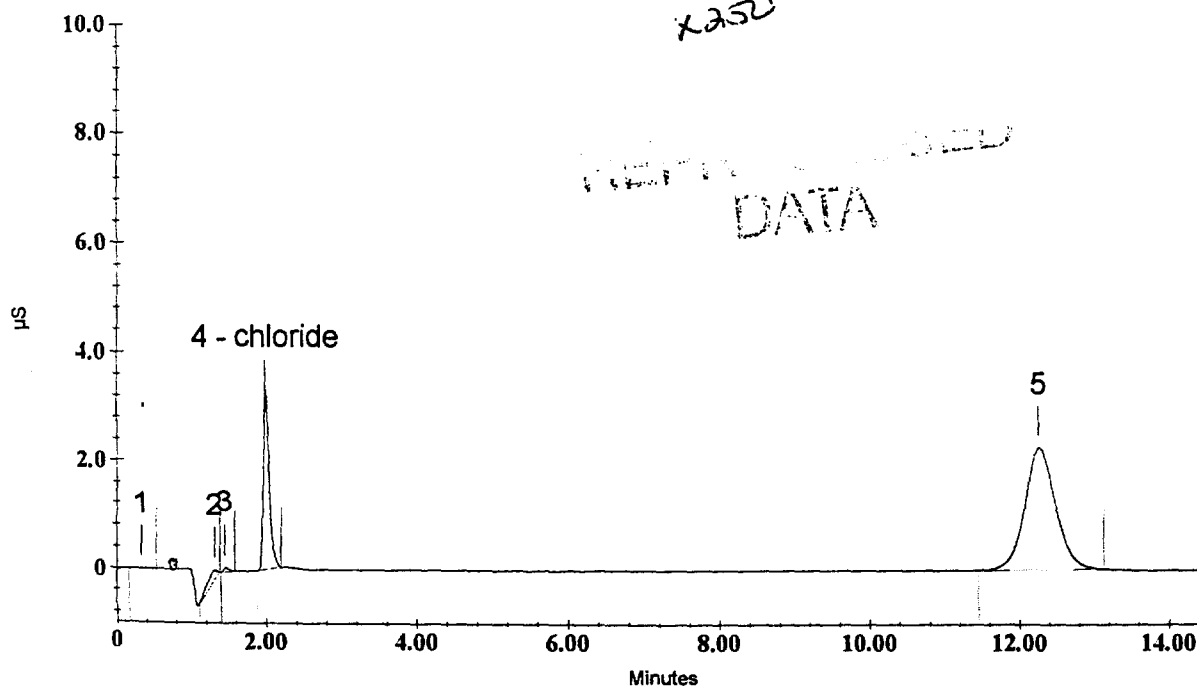
EXACT COPY OF
RAW DATA

Data File : ...3807_029.DXD
Sample Name : C-3807x100 *x250* *RP* *7/14/99*
Inject # : 29
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 5:50:10 PM
Updated : 7/11/99 8:45:42 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
4	1.98	chloride	1.533	171548	30769



INSPECTED
57 7/13/99
C3806-7
DE 7/19/99

EXACT COPY OF
RAW DATA

Data File : ...\\blk_030.DXD

Sample Name : a-0000

Inject # : 30

Method File : c:\\peaknet\\method\\m26so4120.met

System Name : DX-120

Collected : 7/9/99 6:06:03 PM

Updated : 7/9/99 6:20:38 PM

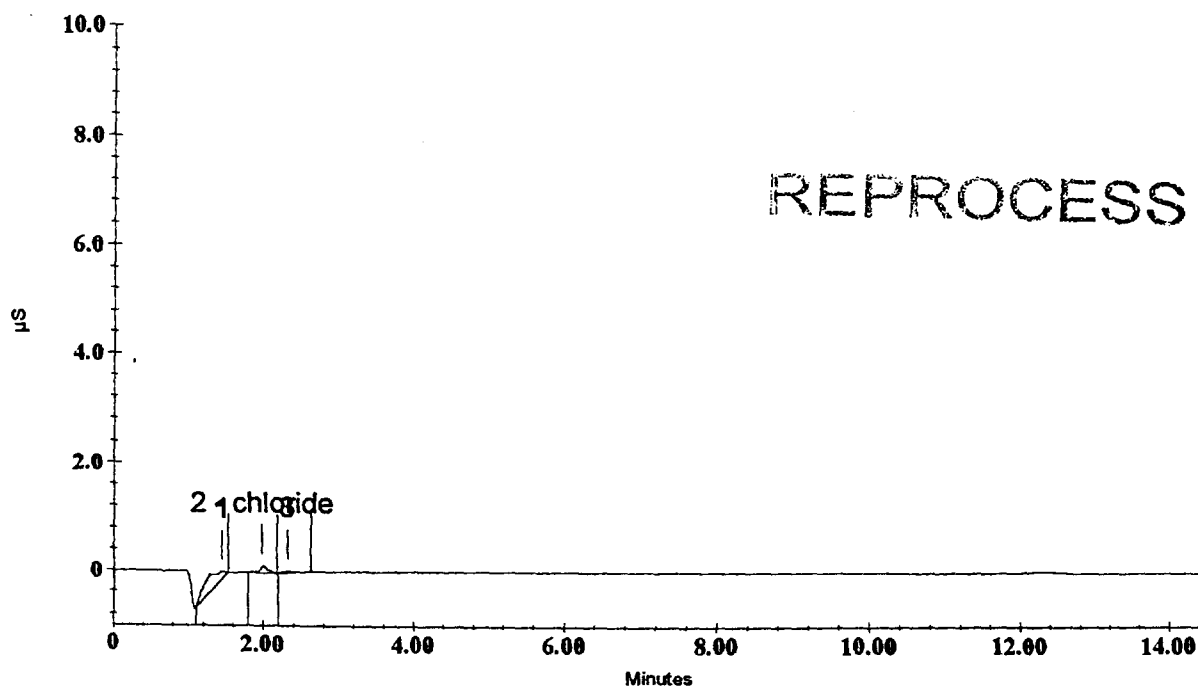
Calibrated : 7/9/99 4:13:22 PM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.98	chloride	0.174	9511	1238

a-0000

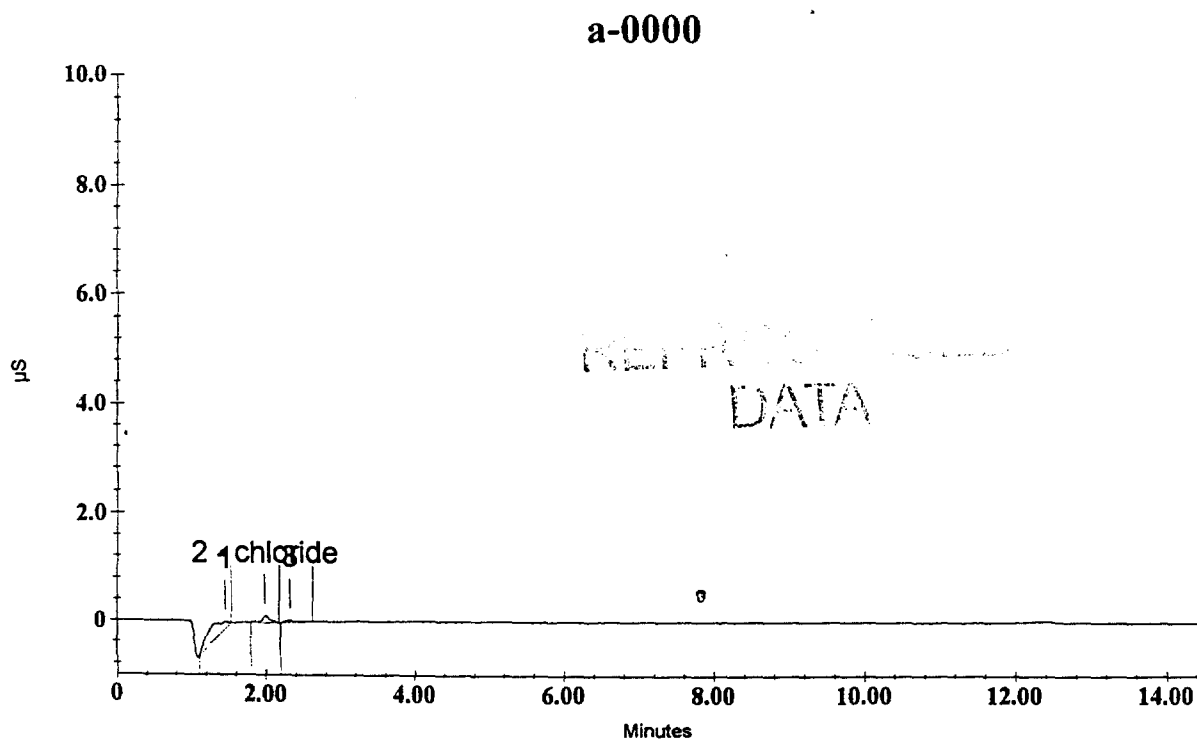


EXACT COPY OF
RAW DATA

Data File : ...BLK_030.DXD
Sample Name : a-0000
Inject # : 30
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 6:06:03 PM
Updated : 7/11/99 8:46:06 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
2	1.98	chloride	0.183	9511	1238



6/17/99
EXACT COPY OF
RAW DATA

Data File : ...ics_031.DXD

Sample Name : ics

Inject # : 31

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 6:21:57 PM

Updated : 7/9/99 6:36:32 PM

Calibrated : 7/9/99 4:13:22 PM

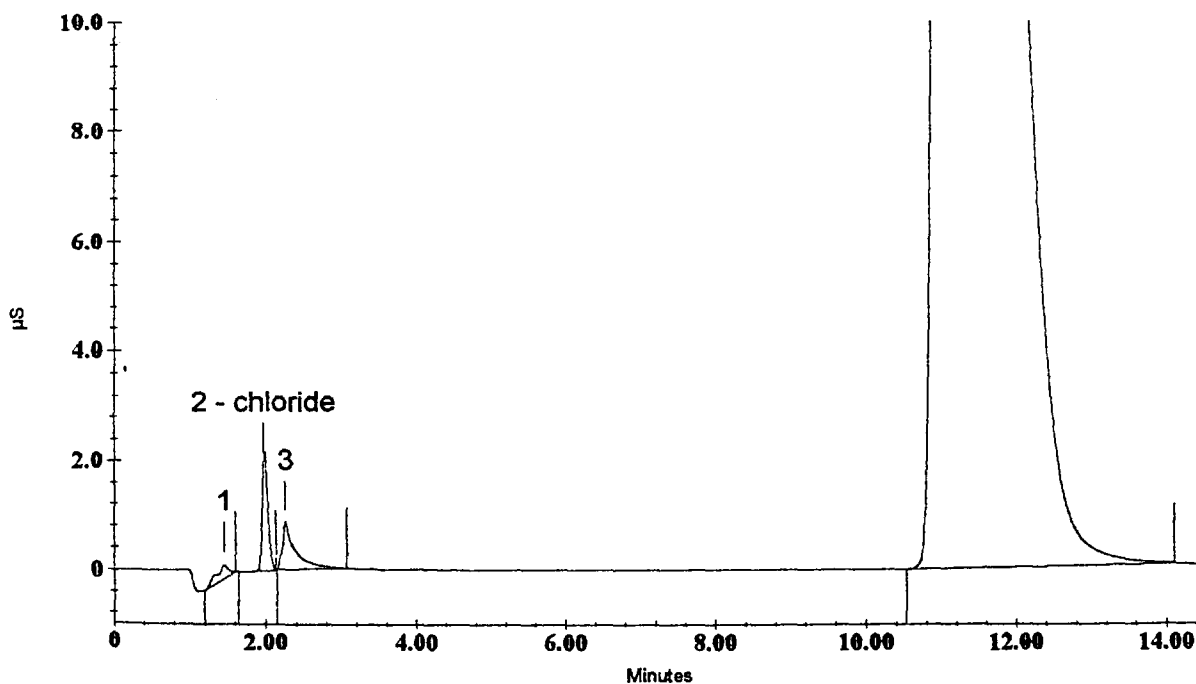
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.021	110084	19240

REPROCESS

ics



06/19/99
EXACT COPY OF
RAW DATA

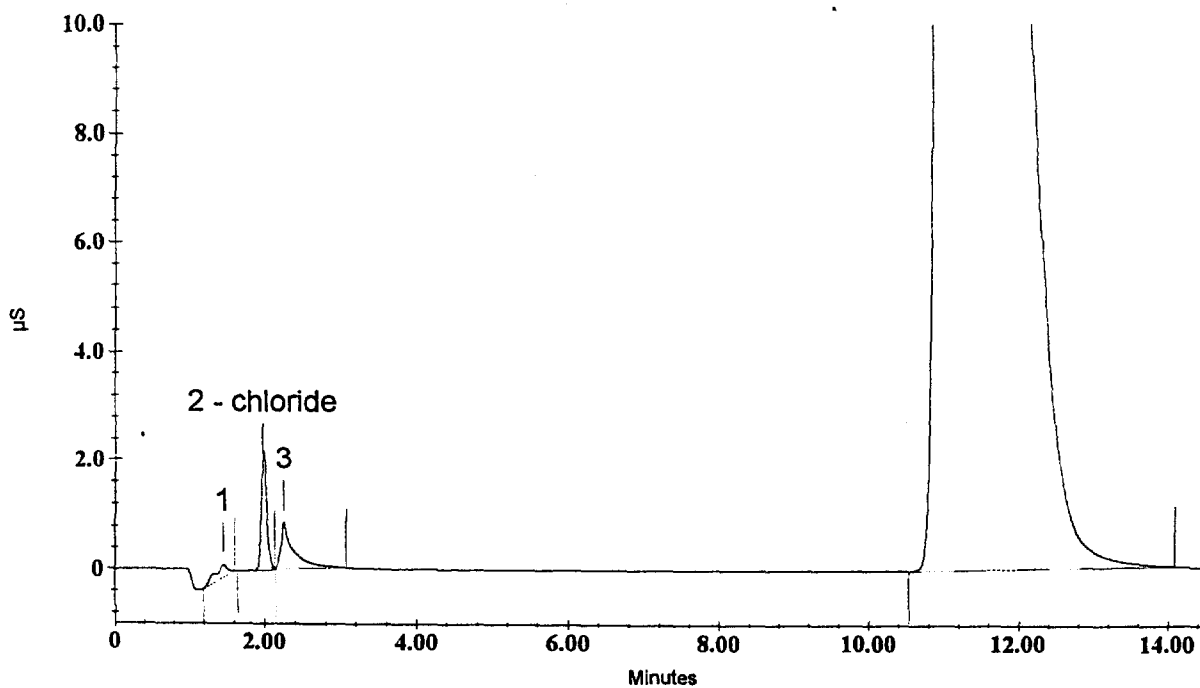
Data File : ...ICS_031.DXD
Sample Name : ics
Inject # : 31
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 6:21:57 PM
Updated : 7/11/99 8:46:43 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.021	110084	19240

ics
SCED
DATA



6/27/99
EXACT COPY OF
RAW DATA

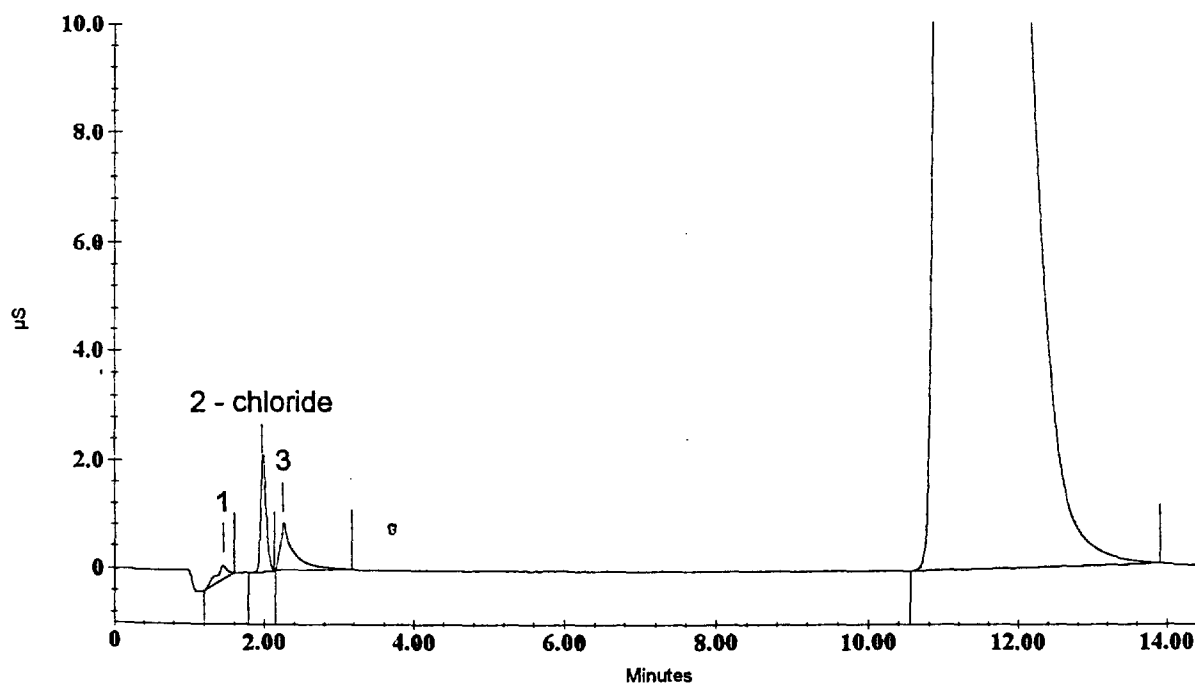
Data File : ...ics_032.DXD
Sample Name : ics
Inject # : 32
Method File : c:\peaknet\method\m26so4120.met
System Name : DX-120

Collected : 7/9/99 6:37:52 PM
Updated : 7/9/99 6:52:25 PM
Calibrated : 7/9/99 4:13:22 PM
Operator : rp

Peak Information : All Components					
Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.006	108328	19473

REPROCESS

ics



06/11/99
EXACT COPY OF
RAW DATA

Data File : ...ICS_032.DXD
Sample Name : ics
Inject # : 32
Method File : m26so4120.met
System Name : DX-120

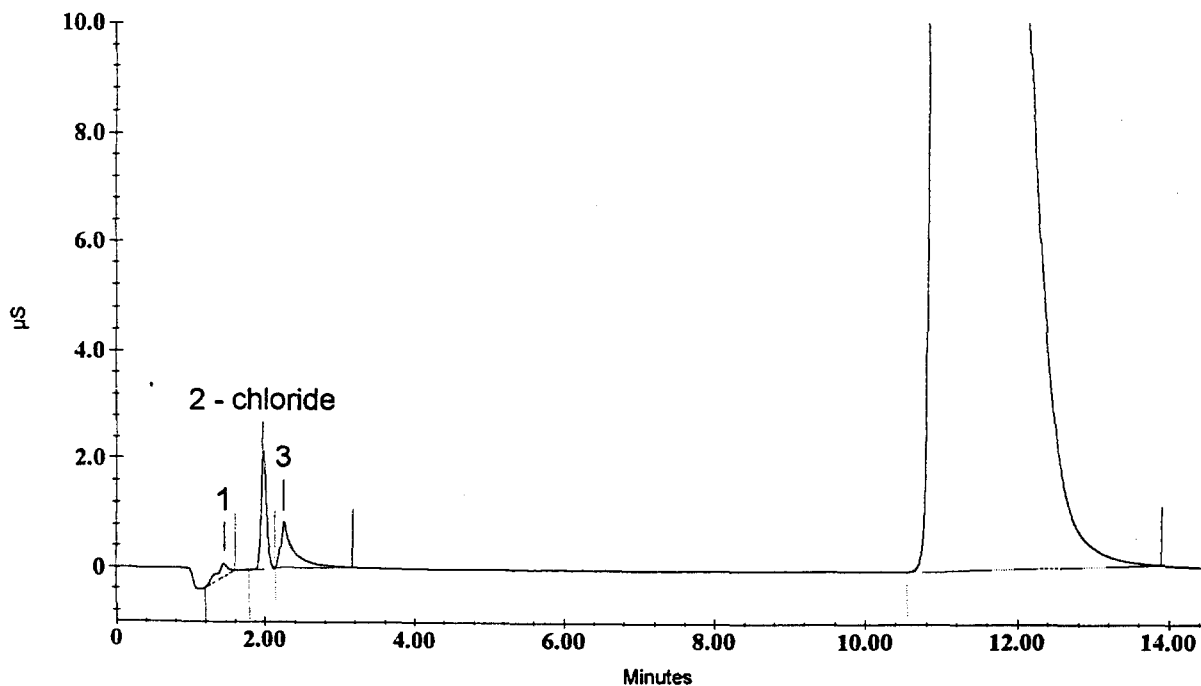
Collected : 7/9/99 6:37:52 PM
Updated : 7/11/99 8:46:55 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.006	108328	19473

REFRIGERATED
DATA

ics



6/7/99
EXACT COPY OF
RAW DATA

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
1	di	Sample		dx120.met	di_001.dxd	1	1
2	0.5ppm	Calibration St	1	dx120.met	05ppm_002.dxd	1	1
3	2ppm	Calibration St	2	dx120.met	2ppm_003.dxd	1	1
4	5ppm	Calibration St	3	dx120.met	5ppm_004.dxd	1	1
5	a-0000	Sample		dx120.met	blk_005.dxd	1	1
6	ics	Sample		dx120.met	ics_006.dxd	1	1
7	a-0002(br)	Sample		dx120.met	brblk_007.dxd	1	1
8	a-3502x100	Sample		dx120.met	brstd_008.dxd	1	1
9	C-3984x2	Sample		dx120.met	3984_009.dxd	1	1
10	C-3984x2spike	Sample		dx120.met	3984s_010.dxd	1	1
11	C-2954x500	Sample		dx120.met	2954_011.dxd	1	1
12	di	Sample		dx120.met	di_012.dxd	1	1
13	ics	Sample		dx120.met	ics_013.dxd	1	1
14	peakid	Sample		dx120.met	peakid_014.dxd	1	1
15	peakid	Sample		dx120.met	peakid_a015.dxd	1	1
16	peakid	Sample		dx120.met	peakid_b016.dxd	1	1
17	peakid	Sample		dx120.met	peakid_017.dxd	1	1
18	di	Sample		m26so4120.met	di_018.dxd	1	1
19	0.5ppm	Calibration St	1	m26so4120.met	05ppm	1	1
20	1ppm	Calibration St	2	m26so4120.met	1ppm	1	1
21	2ppm	Calibration St	3	m26so4120.met	2ppm	1	1
22	5ppm	Calibration St	4	m26so4120.met	5ppm	1	1
23	a-0000	Sample		m26so4120.met	blk	1	1
24	ics	Sample		m26so4120.met	ics	1	1
25	C-3806x100	Sample		m26so4120.met	3806	1	1
26	C-3806x100	Sample		m26so4120.met	3806	1	1
27	C-3807x100	Sample		m26so4120.met	3807	1	1
28	C-3807x100	Sample		m26so4120.met	3807	1	1
29	a-0000	Sample		m26so4120.met	blk	1	1
30	ics	Sample		m26so4120.met	ics	1	1
31	ics	Sample		m26so4120.met	ics	1	1
32	0.5ppm	Sample		m26so4120.met	05ppm	1	1
33	1ppm	Sample		m26so4120.met	1ppm	1	1
34	2ppm	Sample		m26so4120.met	2ppm	1	1
35	5ppm	Sample		m26so4120.met	5ppm	1	1

#802
7/9/99
RP

EXACT COPY OF
RAW DATA

08/15/99

Data File : ...ics_032.DXD

Sample Name : ics

Inject # : 32

Method File : c:\peaknet\method\m26so4120.met

System Name : DX-120

Collected : 7/9/99 6:37:52 PM

Updated : 7/9/99 6:52:25 PM

Calibrated : 7/9/99 4:13:22 PM

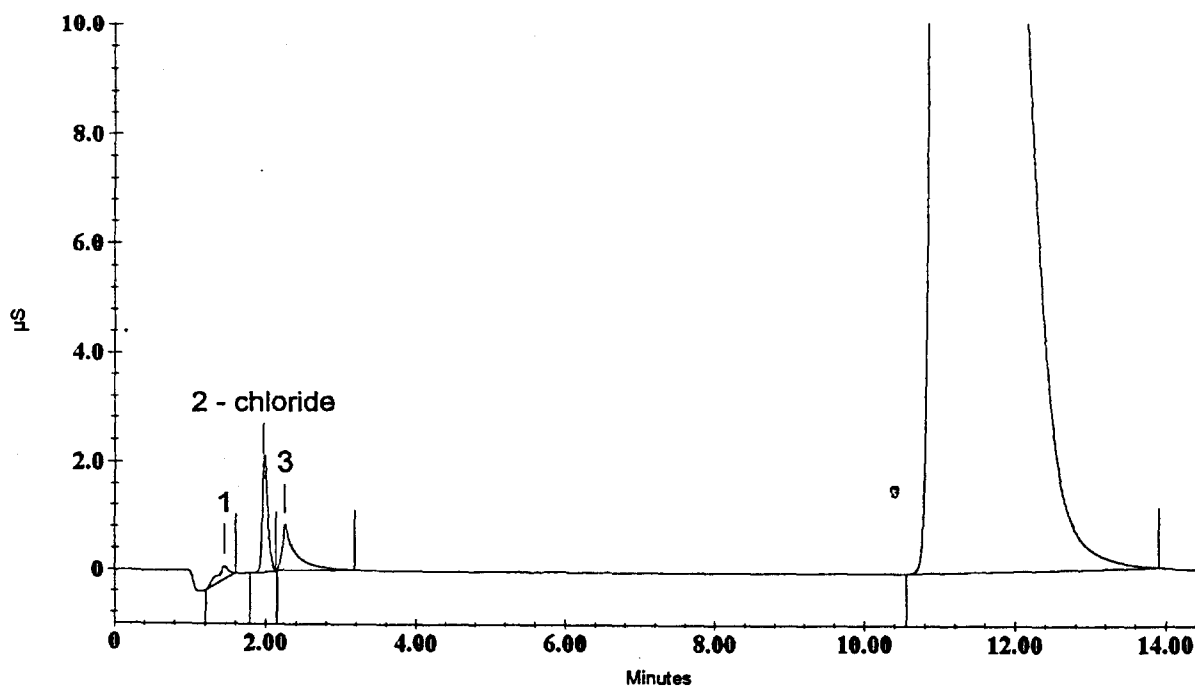
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.006	108328	19473

REPROCESS

ics



EXACT COPY OF
RAW DATA

Q28/S49

Data File : ...ICS_032.DXD
Sample Name : ics
Inject # : 32
Method File : m26so4120.met
System Name : DX-120

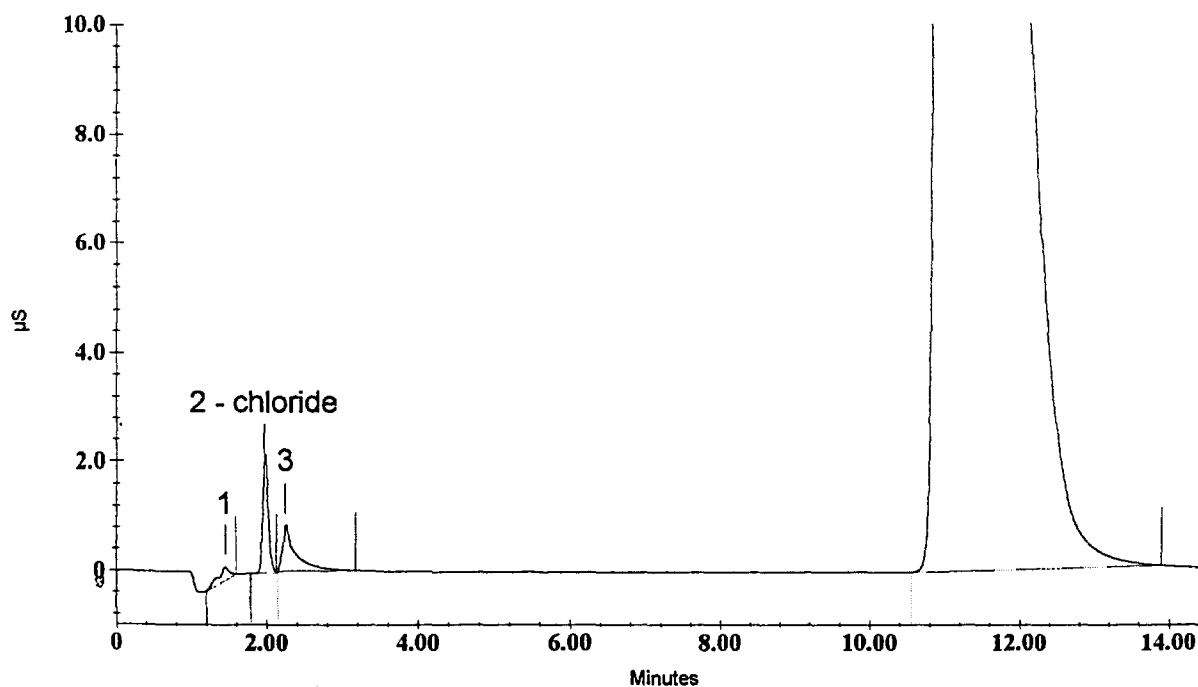
Collected : 7/9/99 6:37:52 PM
Updated : 7/11/99 8:46:55 AM
Calibrated : 7/11/99 8:43:40 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	1.006	108328	19473

REPORT OF RESULTS
DATA

ics



EXACT COPY OF
RAW DATA

07/11/99

Data File : ...\\05ppm_033.DXD

Sample Name : 0.5ppm

Inject # : 33

Method File : c:\\peaknet\\method\\m26so4120.met

System Name : DX-120

Collected : 7/9/99 6:53:46 PM

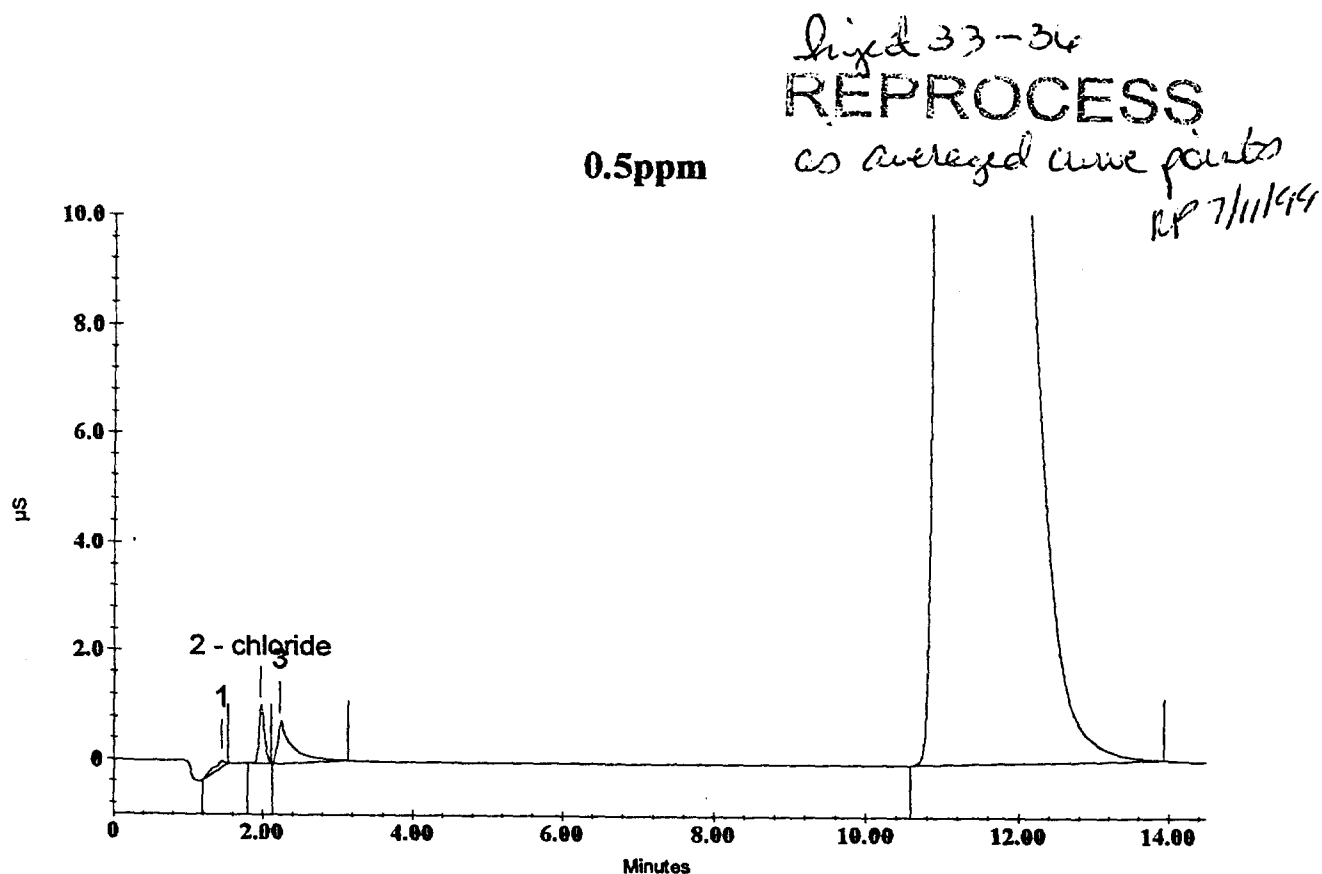
Updated : 7/9/99 7:08:22 PM

Calibrated : 7/9/99 4:13:22 PM

Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	0.561	55504	9751



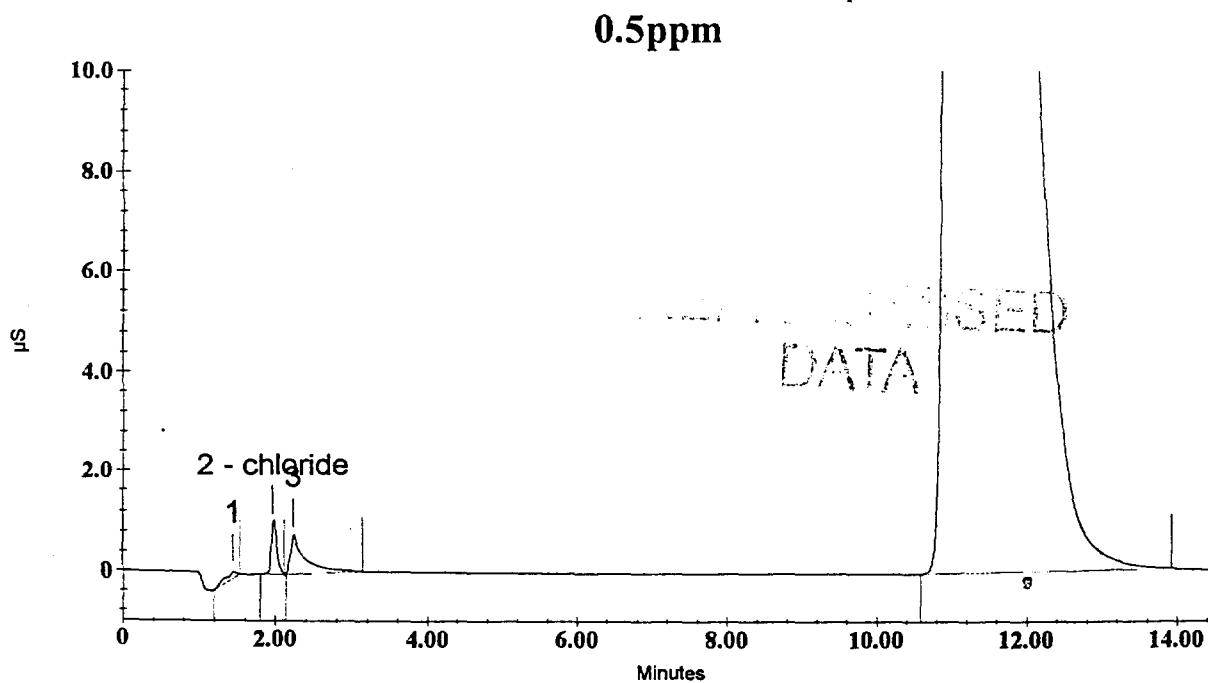
EXACT COPY OF
RAW DATA
AKS/99

Data File : ...05PPM_~3.DXD
Sample Name : 0.5ppm
Inject # : 33
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 6:53:46 PM
Updated : 7/11/99 8:42:57 AM
Calibrated : 7/11/99 8:40:22 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.450		0.000	14242	1222
2	1.967	chloride	0.500	55504	9751
3	2.233		0.000	107805	7270
4	10.997		0.000	27750779	556480



EXACT COPY OF
RAW DATA
8/5/99

Data File : ...\\ppm_034.DXD

Sample Name : 1ppm

Inject # : 34

Method File : c:\\peaknet\\method\\m26so4120.met

System Name : DX-120

Collected : 7/9/99 7:09:42 PM

Updated : 7/9/99 7:24:15 PM

Calibrated : 7/9/99 4:13:22 PM

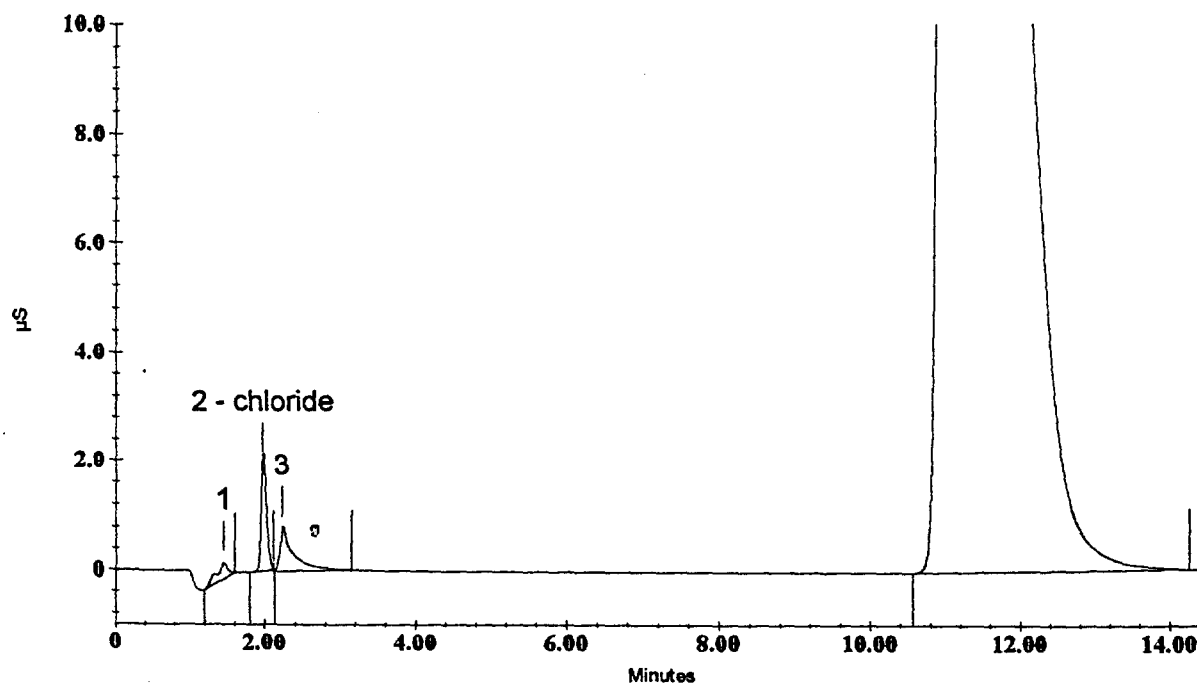
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	1.97	chloride	0.995	107004	19519

REPROCESS

1ppm



EXACT COPY OF
RAW DATA

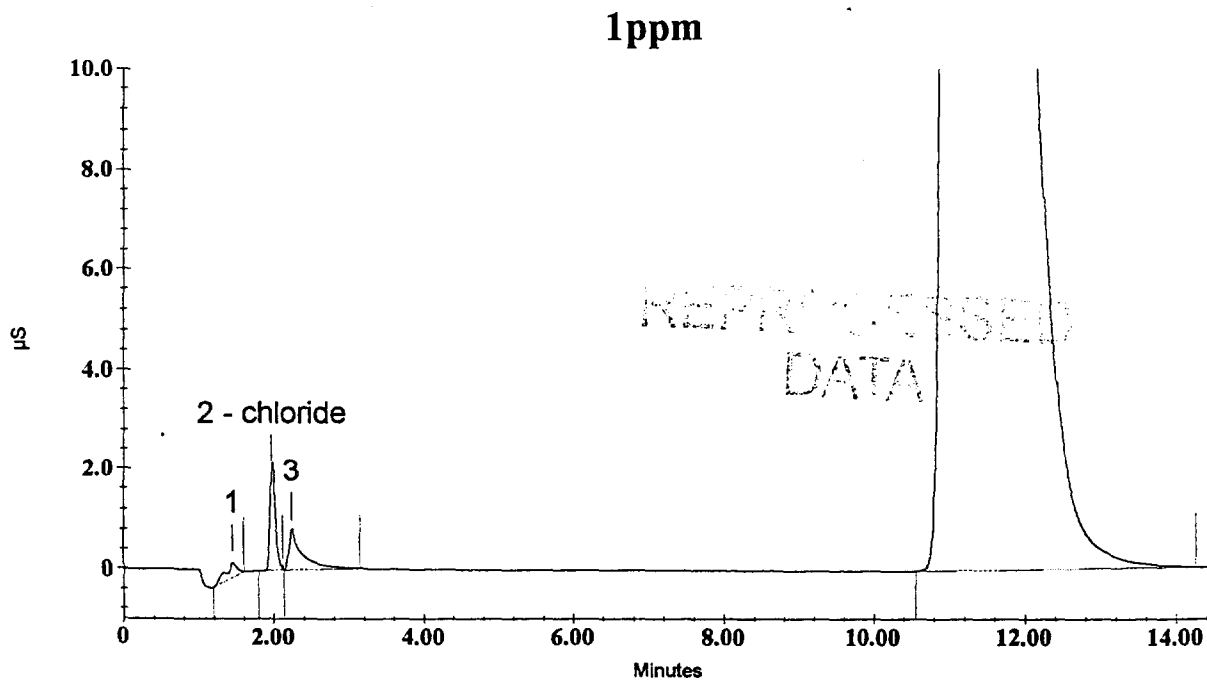
CR 8/5/99

Data File : ...\\1PPM_034.DXD
Sample Name : 1ppm
Inject # : 34
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 7:09:42 PM
Updated : 7/11/99 8:43:10 AM
Calibrated : 7/11/99 8:43:05 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.450		0.000	31053	2972
2	1.967	chloride	1.000	107004	19519
3	2.233		0.000	101506	7693
4	10.997		0.000	27764246	555361



EXACT COPY OF
RAW DATA
8/5/99

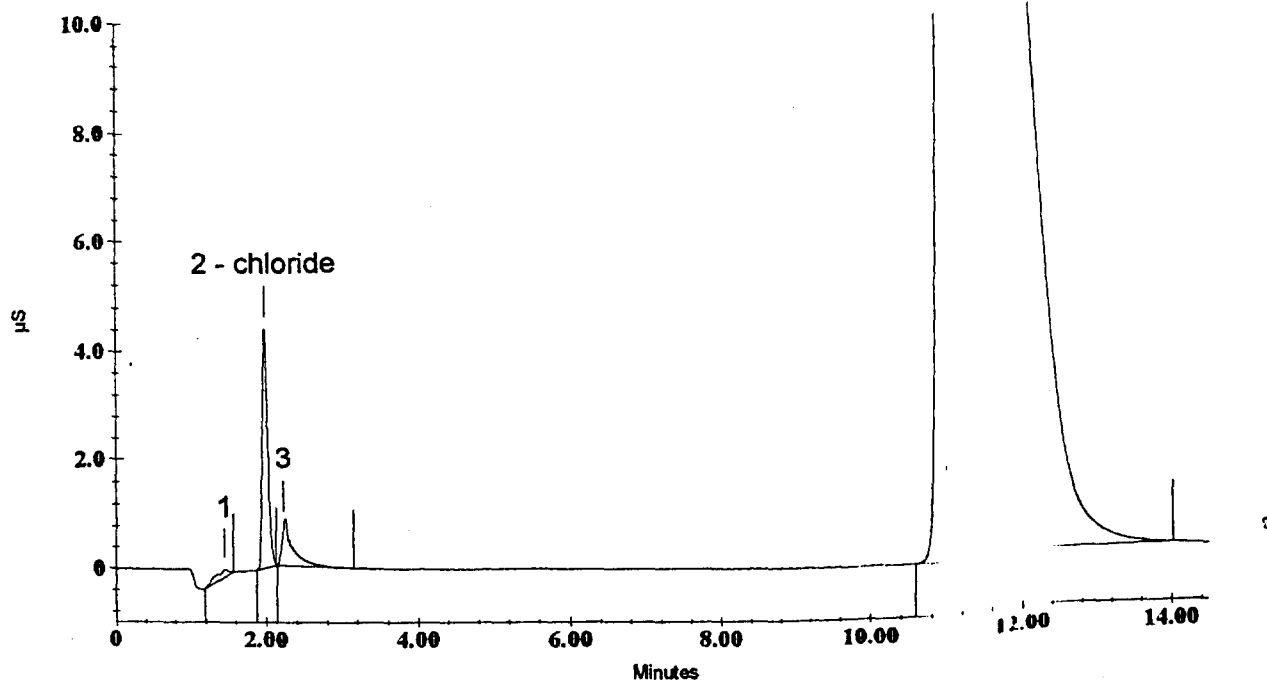
Data File : ...2ppm_035.DXD
Sample Name : 2ppm
Inject # : 35
Method File : c:\peaknet\method\m26so4120.met
System Name : DX-120

Collected : 7/9/99 7:25:36 PM
Updated : 7/9/99 7:40:12 PM
Calibrated : 7/9/99 4:13:22 PM
Operator : rp

Peak Information : All Components					Area	Height
Peak #	RT	Component	Concentration			
2	1.98	chloride	1.925		217445	43958

REPROCESS

2ppm



EXACT COPY OF
RAW DATA

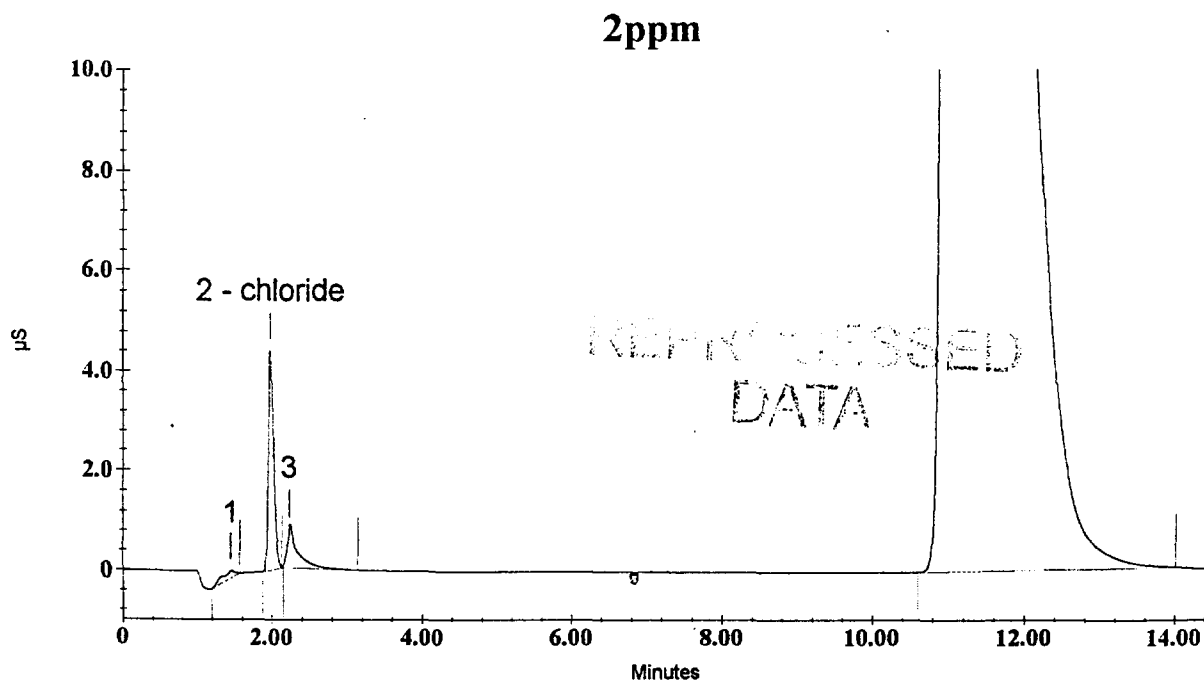
08/15/99

Data File : ...2PPM_035.DXD
Sample Name : 2ppm
Inject # : 35
Method File : m26so4120.met
System Name : DX-120

Collected : 7/9/99 7:25:36 PM
Updated : 7/11/99 8:43:22 AM
Calibrated : 7/11/99 8:43:17 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.450		0.000	18544	1390
2	1.983	chloride	2.000	217445	43958
3	2.233		0.000	82824	7904
4	11.027		0.000	27649251	554560



EXACT COPY OF
RAW DATA

8/15/99

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
1	di	Sample		anions as4.met	di_001.dxd	1	1
2	0.5ppm	Calibration St	1	anions as4.met	05ppm_002.dxd	1	1
3	2ppm	Calibration St	2	anions as4.met	2ppm_003.dxd	1	1
4	5ppm	Calibration St	3	anions as4.met	5ppm_004.dxd	1	1
5	di	Sample		anions as4.met	di_005.dxd	1	1
6	ics	Sample		anions as4.met	ics_006.dxd	1	1
7	a-0002	Sample		anions as4.met	brblk_007.dxd	1	1
8	a-3502x100	Sample		anions as4.met	brstd_008.dxd	1	1
9	C-3984x2	Sample		anions as4.met	3984_009.dxd	1	1
10	a-3502x100(new dil.)	Sample		anions as4.met	brstd_010.dxd	1	1
11	C-3984x2spk	Sample		anions as4.met	3984_011.dxd	1	1
12	a-3502x100(3rd dil.)	Sample		anions as4.met	brstd_012.dxd	1	1
13	C-3894x5	Sample		anions as4.met	3894_013.dxd	1	1
14	C-3894x5spike	Sample		anions as4.met	3894s_014.dxd	1	1
15	C-2954x500	Sample		anions as4.met	2954_015.dxd	1	1
16	di	Sample		anions as4.met	di_016.dxd	1	1
17	di	Sample		anions as4.met	di_017.dxd	1	1
18	di	Sample		anions as4.met	di_018.dxd	1	1
19	di	Sample		anions as4.met	di_019.dxd	1	1
20	ics	Sample		anions as4.met	ics_020.dxd	1	1
21	ics	Sample		anions as4.met	ics_021.dxd	1	1
22	peakid	Sample		m26h2so4.met	peakid_022.dxd	1	1
23	peakid	Sample		m26h2so4.met	peakid_023.dxd	1	1
24	di	Sample		m26h2so4.met	di_024.dxd	1	1
25	0.5ppm	Calibration St	1	m26h2so4.met	05ppm_025.dxd	1	1
26	1ppm	Calibration St	2	m26h2so4.met	1ppm_026.dxd	1	1
27	2ppm	Calibration St	3	m26h2so4.met	2ppm_027.dxd	1	1
28	5ppm	Calibration St	4	m26h2so4.met	5ppm_028.dxd	1	1
29	a-0000	Sample		m26h2so4.met	blk_029.dxd	1	1
30	ics	Sample		m26h2so4.met	ics_030.dxd	1	1
31	ics	Sample		m26h2so4.met	ics_031.dxd	1	1
32	di	Sample		m26h2so4.met	di_032.dxd	1	1
33	0.5ppm	Calibration St	1	m26h2so4.met	05ppm_033.dxd	1	1
34	1ppm	Calibration St	2	m26h2so4.met	1ppm_034.dxd	1	1
35	2ppm	Calibration St	3	m26h2so4.met	2ppm_035.dxd	1	1
36	5ppm	Calibration St	4	m26h2so4.met	5ppm_036.dxd	1	1
37	a-0000	Sample		m26h2so4.met	blk_037.dxd	1	1
38	ics	Sample		m26h2so4.met	ics_038.dxd	1	1
39	ics	Sample		m26h2so4.met	ics_039.dxd	1	1
40	C-3803x25	Sample		m26h2so4.met	3803_040.dxd	1	1
41	C-3803x25	Sample		m26h2so4.met	3803_041.dxd	1	1
42	C-3804x25	Sample		m26h2so4.met	3804_042.dxd	1	1
43	C-3804x25	Sample		m26h2so4.met	3804_043.dxd	1	1
44	C-3805x100	Sample		m26h2so4.met	3805_044.dxd	1	1
45	C-3805x100	Sample		m26h2so4.met	3805_045.dxd	1	1
46	C-3806x100	Sample		m26h2so4.met	3806_046.dxd	1	1
47	C-3806x100	Sample		m26h2so4.met	3806_047.dxd	1	1
48	C-3807x250	Sample		m26h2so4.met	3807_048.dxd	1	1
49	C-3807x250	Sample		m26h2so4.met	3807_049.dxd	1	1
50	C-3807x250spike	Sample		m26h2so4.met	3807s_050.dxd	1	1
51	C-3807x250spike	Sample		m26h2so4.met	3807s_051.dxd	1	1
52	C-3808x200	Sample		m26h2so4.met	3808_052.dxd	1	1
53	C-3808x200	Sample		m26h2so4.met	3808_053.dxd	1	1
54	C-3810x100	Sample		m26h2so4.met	3810_054.dxd	1	1
55	C-3810x100	Sample		m26h2so4.met	3810_055.dxd	1	1
56	C-3814x25	Sample		m26h2so4.met	3814_056.dxd	1	1
57	C-3814x25	Sample		m26h2so4.met	3815_057.dxd	1	1
58	C-3815x25	Sample		m26h2so4.met	3815_058.dxd	1	1
59	C-3815x25	Sample		m26h2so4.met	3816_059.dxd	1	1
60	C-3816x25	Sample		m26h2so4.met	3817_060.dxd	1	1

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
61	C-3816x25	Sample		m26h2so4.met	3819_061.dxd	1	1
62	C-3817x100	Sample		m26h2so4.met	3819_062.dxd	1	1
63	C-3817x100	Sample		m26h2so4.met	3811_063.dxd	1	1
64	C-3819x10	Sample		m26h2so4.met	3811_064.dxd	1	1
65	C-3819x10	Sample		m26h2so4.met	3811_065.dxd	1	1
66	C-3811x2(neut.)	Sample		m26h2so4.met	3811_066.dxd	1	1
67	C-3811x2(neut.)	Sample		m26h2so4.met	3811_067.dxd	1	1
68	a-0000	Sample		m26h2so4.met	blk_068.dxd	1	1
69	ics	Sample		m26h2so4.met	ics_069.dxd	1	1
70	ics	Sample		m26h2so4.met	ics_070.dxd	1	1
71	0.5ppm	Sample		m26h2so4.met	05ppm_071.dxd	1	1
72	1ppm	Sample		m26h2so4.met	1ppm_072.dxd	1	1
73	2ppm	Sample		m26h2so4.met	2ppm_073.dxd	1	1
74	5ppm	Sample		m26h2so4.met	5ppm_074.dxd	1	1
75	C-3811x2(neut.)spike	Sample		m26h2so4.met	3811_075.dxd	1	1

Data File : ...3811_066.DXD
Sample Name : C-3811x2(neut.)
Inject # : 66
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

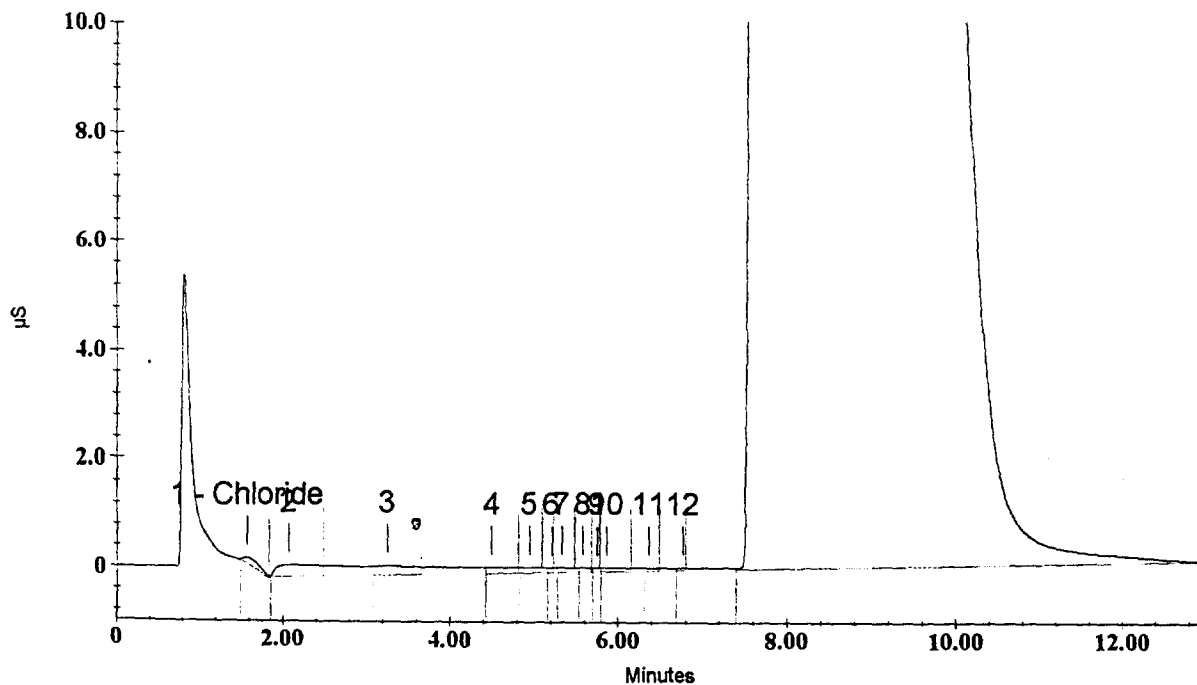
Collected : 7/9/99 12:21:41 AM
Updated : 7/9/99 12:34:45 AM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	0.281	17025	1148

REPROCESS

C-3811x2(neut.)



EXACT COPY OF
RAW DATA

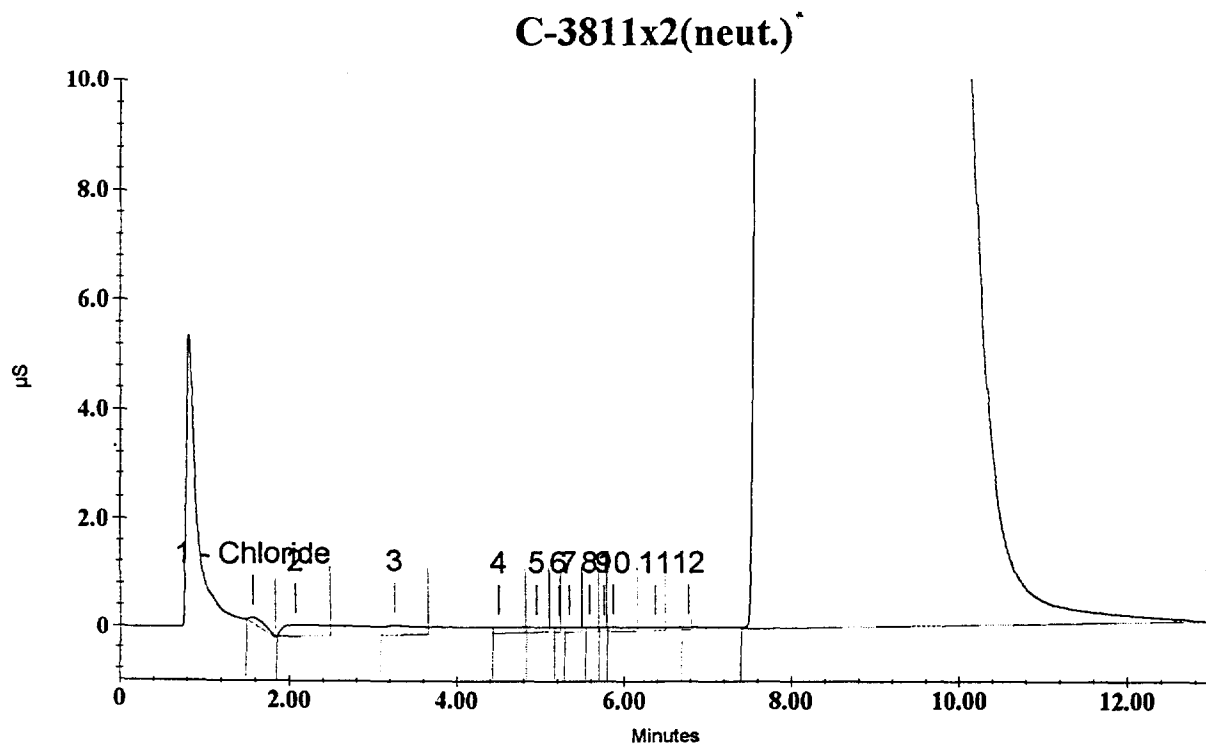
08/15/99

Data File : ...3811_066.DXD
Sample Name : C-3811x2(neut.)
Inject # : 66
Method File : M26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/9/99 12:21:41 AM
Updated : 7/9/99 7:54:03 AM
Calibrated : 7/9/99 7:26:39 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.57	Chloride	0.291	17025	1148



07/15/99
EXACT COPY OF
RAW DATA

Data File : ...05ppm_071.DXD

Sample Name : 0.5ppm

Inject # : 71

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/9/99 1:33:41 AM

Updated : 7/9/99 1:46:42 AM

Calibrated : 7/8/99 5:23:14 PM

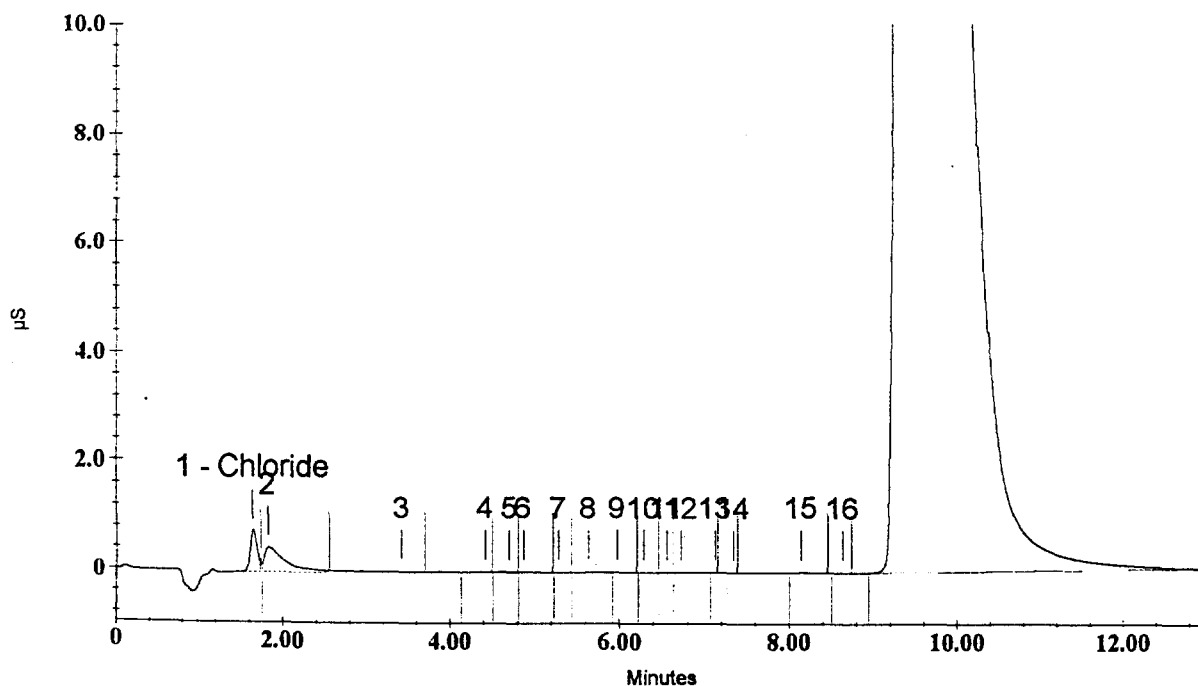
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.63	Chloride	0.552	42705	7467

Inject 71-74
REPROCESS
with averaged curve
RP 7/9/99

0.5ppm



07/15/99
EXACT COPY OF
RAW DATA

Data File : ...\\05PPM_~4.DXD
Sample Name : 0.5ppm
Inject # : 71
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

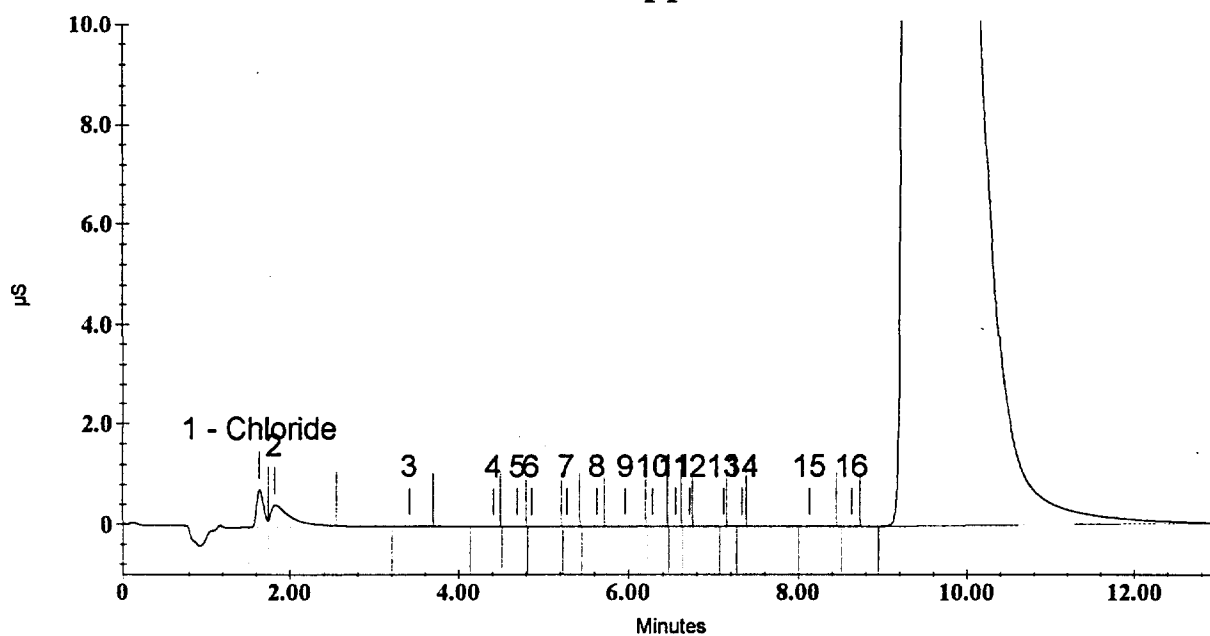
Collected : 7/9/99 1:33:41 AM
Updated : 7/9/99 7:17:33 AM
Calibrated : 7/9/99 7:16:12 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.63	Chloride	0.500	43490	7467
2	1.82		0.000	82851	4377
3	3.42		0.000	4807	184
4	4.42		0.000	1896	104
5	4.70		0.000	1731	119
6	4.87		0.000	1911	104
7	5.28		0.000	547	63
8	5.63		0.000	827	67
9	5.97		0.000	934	59
10	6.28		0.000	874	80
11	6.55		0.000	563	75
12	6.72		0.000	444	67
13	7.12		0.000	190	48
14	7.33		0.000	312	52
15	8.13		0.000	1339	90
16	8.63		0.000	230	25
17	9.40		0.000	18675293	455819

9/28/99
EXACT COPY OF
RAW DATA

0.5ppm



EXACT COPY OF
RAW DATA

Handwritten signature/initials

Data File : ...\\1ppm_072.DXD
Sample Name : 1ppm
Inject # : 72
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

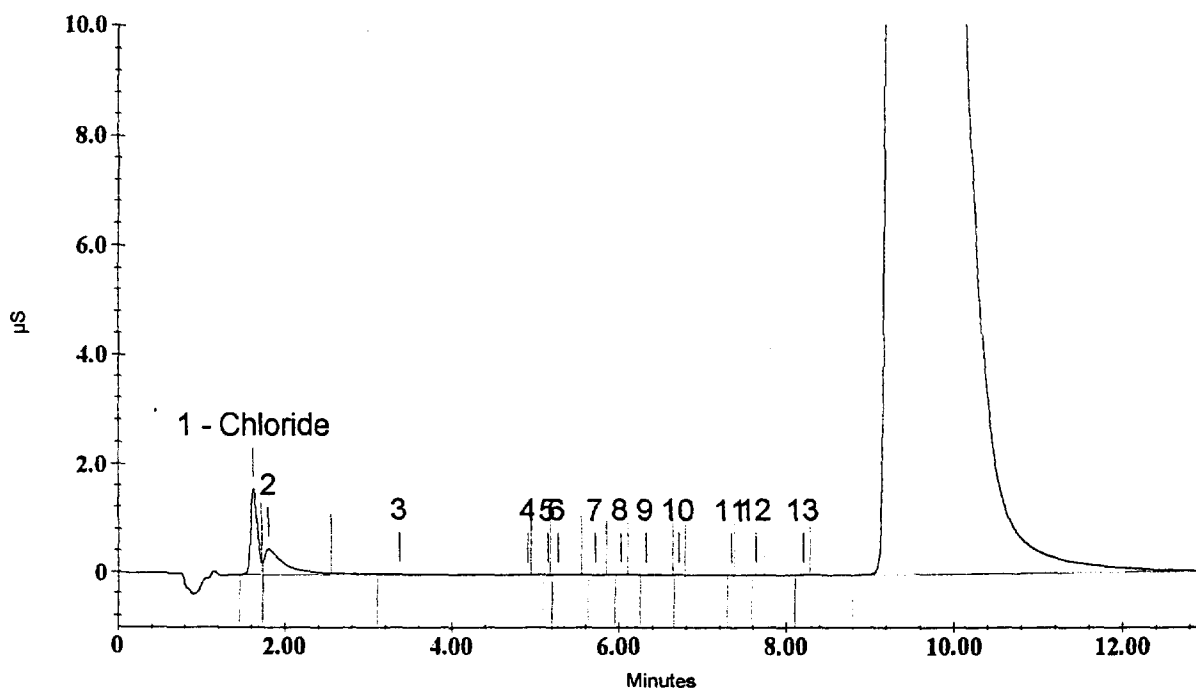
Collected : 7/9/99 1:48:05 AM
Updated : 7/9/99 2:01:10 AM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	0.994	84691	15641

REPROCESS

1ppm



04/8/99
EXACT COPY OF
RAW DATA

Data File : ...\\1PPM_072.DXD

Sample Name : 1ppm

Inject # : 72

Method File : c:\\peaknet\\method\\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/9/99 1:48:05 AM

Updated : 7/9/99 7:20:10 AM

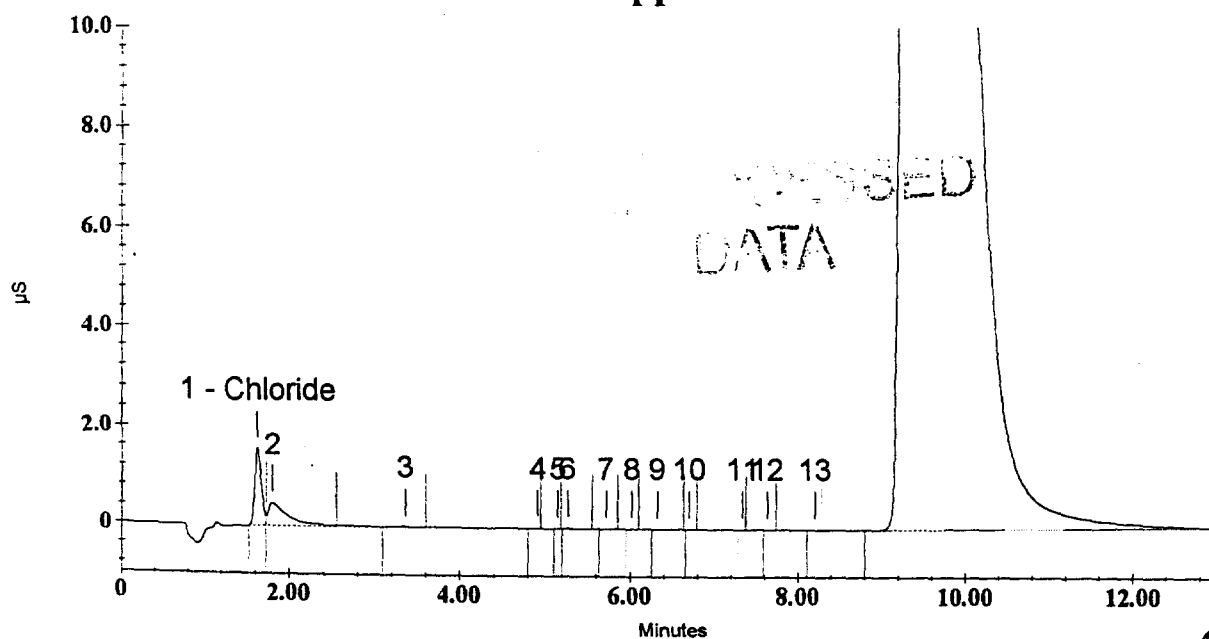
Calibrated : 7/9/99 7:17:43 AM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.62	Chloride	1.000	83424	15512
2	1.80		0.000	78156	4649
3	3.37		0.000	2411	117
4	4.92		0.000	92	23
5	5.15		0.000	73	21
6	5.27		0.000	447	42
7	5.72		0.000	304	26
8	6.02		0.000	297	51
9	6.32		0.000	534	42
10	6.70		0.000	157	33
11	7.33		0.000	59	24
12	7.63		0.000	57	26
13	8.20		0.000	114	18
14	9.35		0.000	18939103	460179

1ppm



EXACT COPY OF
RAW DATA

Data File : ...2ppm_073.DXD

Sample Name : 2ppm

Inject # : 73

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/9/99 2:02:30 AM

Updated : 7/9/99 2:15:32 AM

Calibrated : 7/8/99 5:23:14 PM

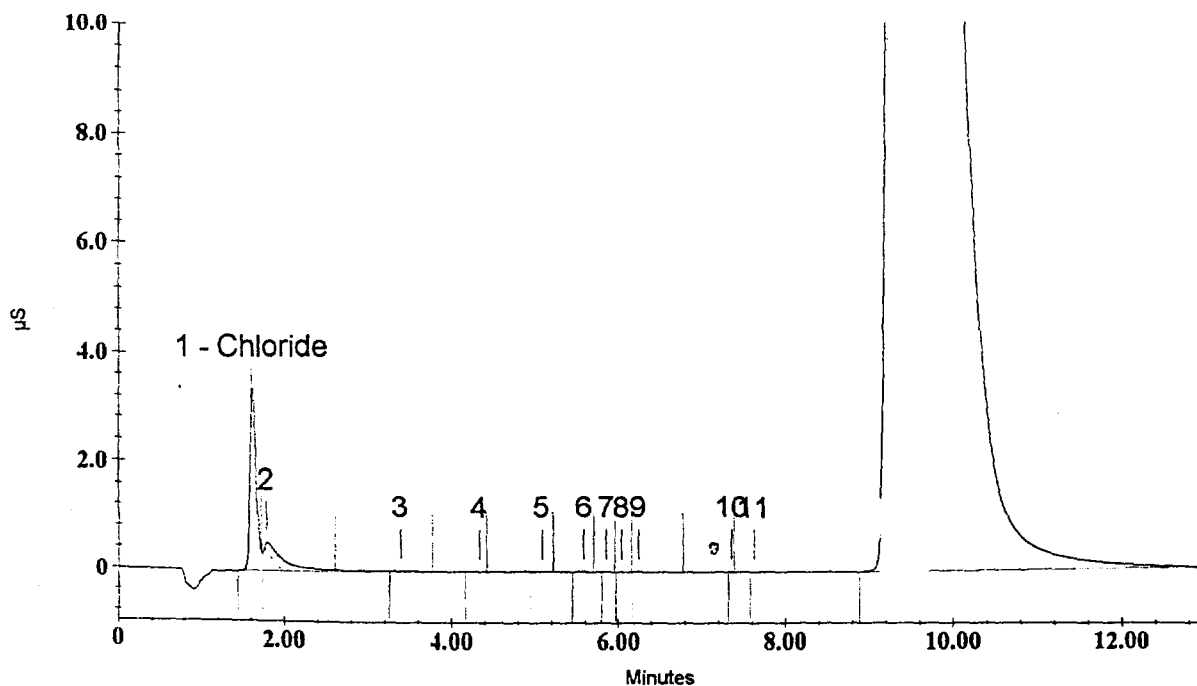
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.112	190812	29593

REPROCESS

2ppm



EXACT COPY OF
RAW DATA

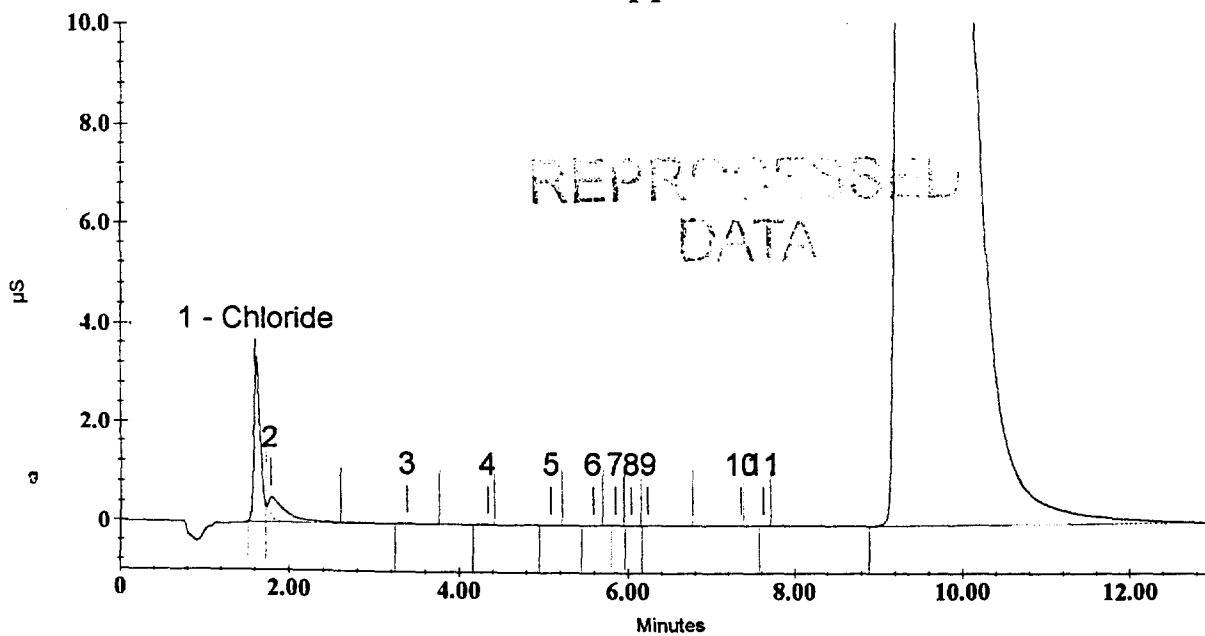
Data File : ...2PPM_073.DXD
 Sample Name : 2ppm
 Inject # : 73
 Method File : c:\peaknet\method\m26h2so4.met
 System Name : Instr. 830 DX500

Collected : 7/9/99 2:02:30 AM
 Updated : 7/9/99 7:22:15 AM
 Calibrated : 7/9/99 7:20:18 AM
 Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	2.000	178643	29369
2	1.78		0.000	70656	3936
3	3.38		0.000	2755	136
4	4.33		0.000	227	28
5	5.08		0.000	323	32
6	5.58		0.000	300	30
7	5.85		0.000	180	38
8	6.03		0.000	209	32
9	6.23		0.000	637	39
10	7.35		0.000	61	23
11	7.62		0.000	83	20
12	9.35		0.000	18569732	454863

2ppm



CH 8/15/99
 EXACT COPY OF
 RAW DATA

Data File 5ppm_074.DXD
Sample Name 5ppm
Inject # 74
Method File c:\peaknet\method\m26h2so4.met
System Name Instr 830 DX500

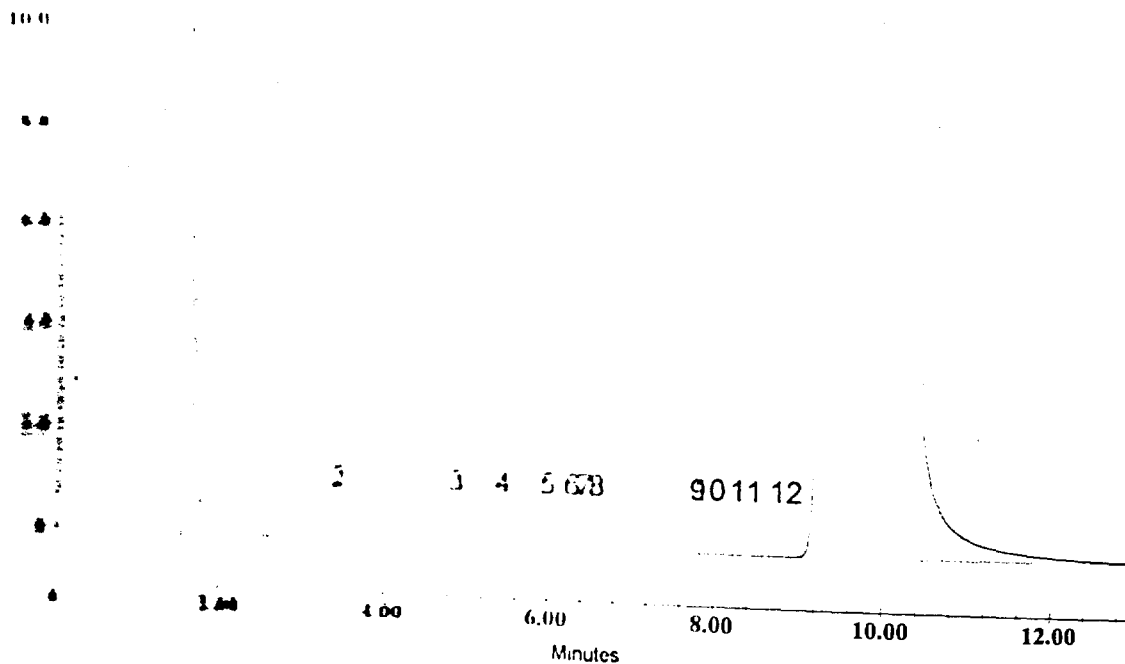
Collected : 7/9/99 2:16:54 AM
Updated : 7/9/99 2:29:55 AM
Calibrated : 7/8/99 5:23:14 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	6.089	568289	94808

REPROCESS

5ppm



08/13/99
EXACT COPY OF
RAW DATA

Data File : ...SPPM_074.DXD

Sample Name : 5ppm

Inject # : 74

Method File : c:\peaknet\method\m26h2so4.met

System Name : Instr. 830 DX500

Collected : 7/9/99 2:16:54 AM

Updated : 7/9/99 7:26:31 AM

Calibrated : 7/9/99 7:22:23 AM

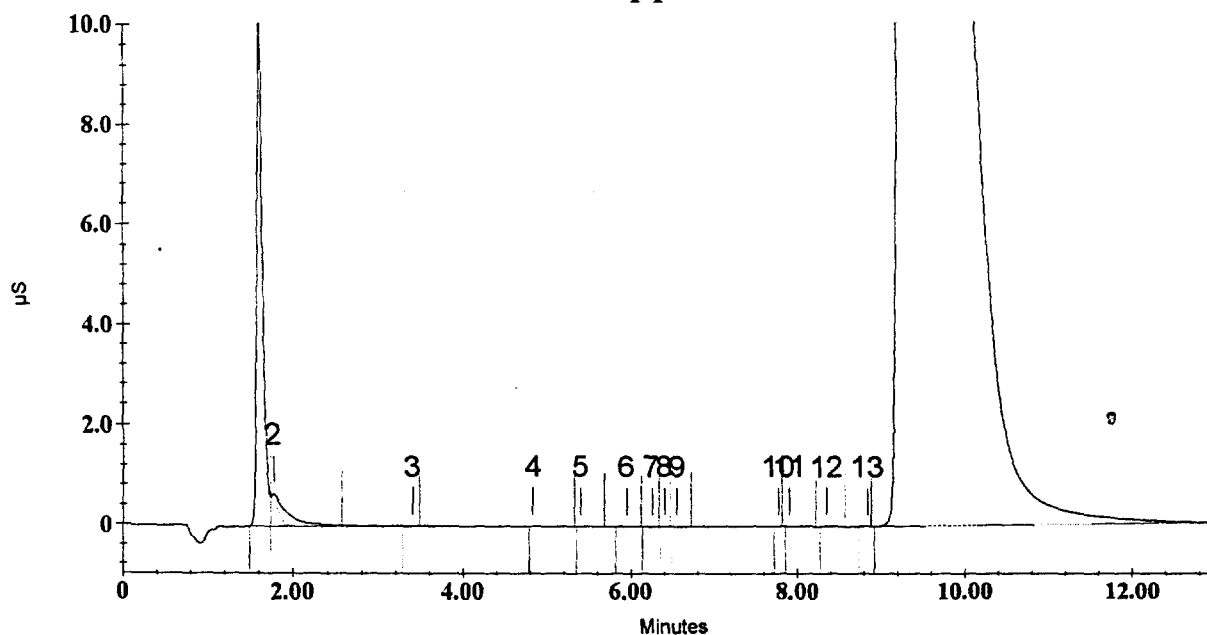
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	5.000	487009	94721
2	1.77		0.000	75790	4390
3	3.40		0.000	1663	143
4	4.83		0.000	1458	73
5	5.40		0.000	387	30
6	5.95		0.000	619	45
7	6.25		0.000	646	63
8	6.40		0.000	360	55
9	6.55		0.000	681	61
10	7.77		0.000	240	54
11	7.90		0.000	945	59
12	8.35		0.000	403	46
13	8.83		0.000	114	15
14	9.35		0.000	18216067	447992

USED
DATA

5ppm



EXACT COPY OF
RAW DATA

Line	Sample	Sample Type	Level	Method
1	peakid	Sample		m26h2so4.met
2	di	Sample		m26h2so4.met
3	0.5ppm	Calibration St	1	m26h2so4.met
4	1ppm	Calibration St	2	m26h2so4.met
5	2ppm	Calibration St	3	m26h2so4.met
6	5ppm	Calibration St	4	m26h2so4.met
7	a-0000	Sample		m26h2so4.met
8	ics	Sample		m26h2so4.met
9	C-3809x100	Sample		m26h2so4.met
10	C-3809x100	Sample		m26h2so4.met
11	C-3812x10	Sample		m26h2so4.met
12	C-3812x10	Sample		m26h2so4.met
13	C-3813x10	Sample		m26h2so4.met
14	C-3813x10	Sample		m26h2so4.met
15	C-3818x250	Sample		m26h2so4.met
16	C-3818x250	Sample		m26h2so4.met
17	C-3820x10	Sample		m26h2so4.met
18	C-3820x10	Sample		m26h2so4.met
19	a-0000	Sample		m26h2so4.met
20	a-0000	Sample		m26h2so4.met
21	ics	Sample		m26h2so4.met
22	ics	Sample		m26h2so4.met
23	0.5ppm	Calibration St	1	m26h2so4.met
24	1ppm	Calibration St	2	m26h2so4.met
25	2ppm	Calibration St	3	m26h2so4.met
26	5ppm	Calibration St	4	m26h2so4.met
27	peakid	Sample		anions as4.met
28	peakid	Sample		anions as4.met
29	di	Sample		anions as4.met
30	0.5ppm	Calibration St	1	anions as4.met
31	1ppm	Calibration St	2	anions as4.met
32	2ppm	Calibration St	3	anions as4.met
33	5ppm	Calibration St	4	anions as4.met
34	di	Sample		anions as4.met
35	ics	Sample		anions as4.met
36	ics	Sample		anions as4.met

RP/SP
#830
7/7/99

SP run # 27-36 only

EXACT COPY OF
RAW DATA
7/8/99 5:36:11 AM

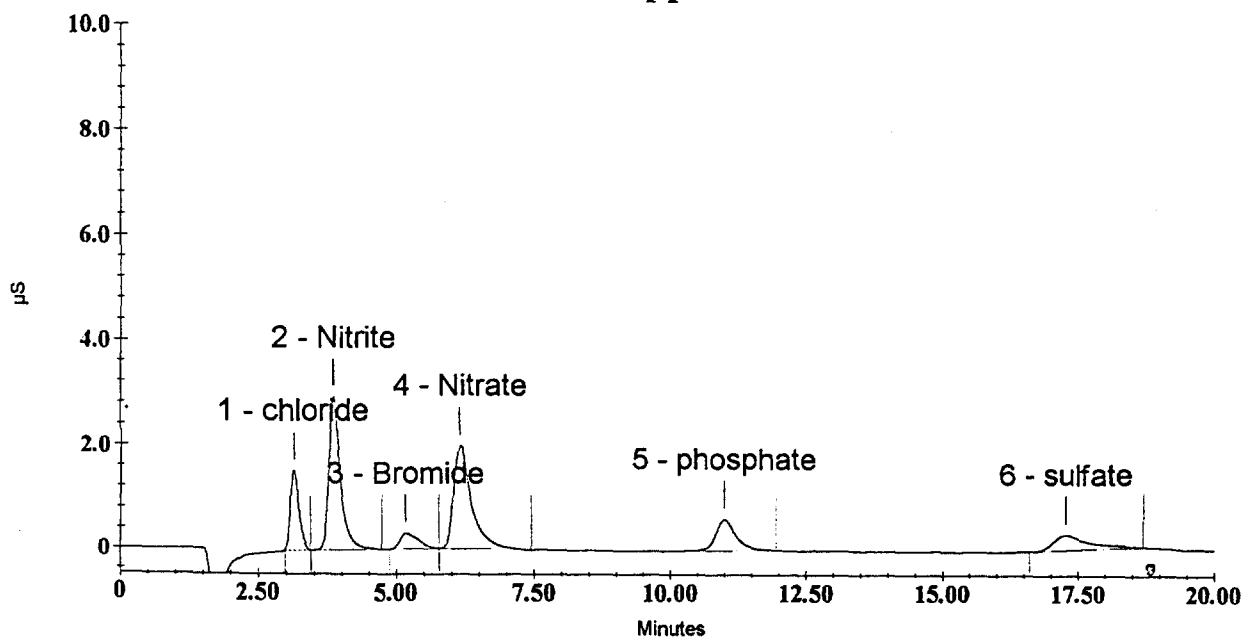
Data File : ...05ppm_030.DXD
Sample Name : 0.5ppm
Inject # : 30
Method File : c:\peaknet\method\anions as4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 4:33:34 PM
Updated : 7/7/99 4:54:02 PM
Calibrated : 7/7/99 4:54:01 PM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	3.13	chloride	0.500	166268	15220
2	3.85	Nitrite	0.500	420903	29057
3	5.16	Bromide	0.500	69482	3011
4	6.14	Nitrate	0.500	449844	19587
5	10.99	phosphate	0.500	153146	5906
6	17.27	sulfate	0.500	135261	2841

0.5ppm



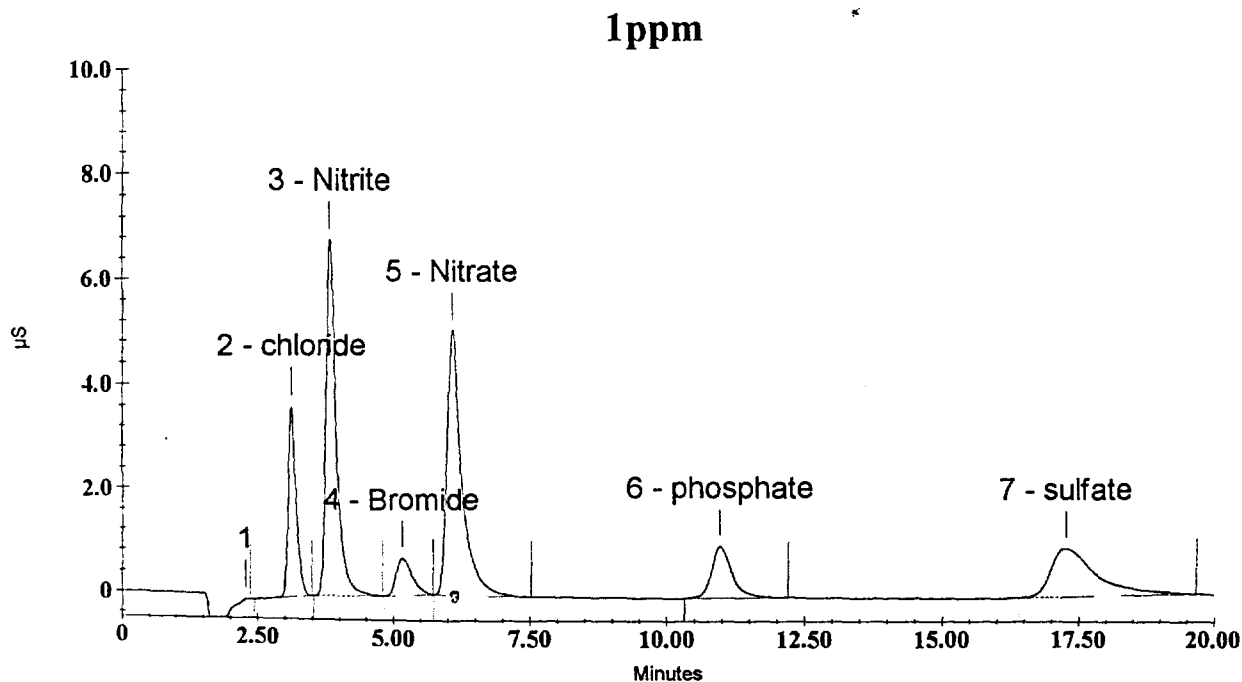
EXACT COPY OF
RAW DATA

Data File : ...\\1ppm_031.DXD
Sample Name : 1ppm
Inject # : 31
Method File : c:\\peaknet\\method\\anions as4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 4:54:40 PM
Updated : 7/7/99 5:14:47 PM
Calibrated : 7/7/99 5:14:46 PM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	2.28		0.000	232	68
2	3.12	chloride	1.000	359161	36404
3	3.82	Nitrite	1.000	876956	67695
4	5.14	Bromide	1.000	142674	6735
5	6.06	Nitrate	1.000	943835	50052
6	10.96	phosphate	1.000	246804	9458
7	17.26	sulfate	1.000	524957	8988



EXACT COPY OF
RAW DATA

Data File : ...2ppm_032.DXD

Sample Name : 2ppm

Inject # : 32

Method File : c:\peaknet\method\anions as4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 5:15:45 PM

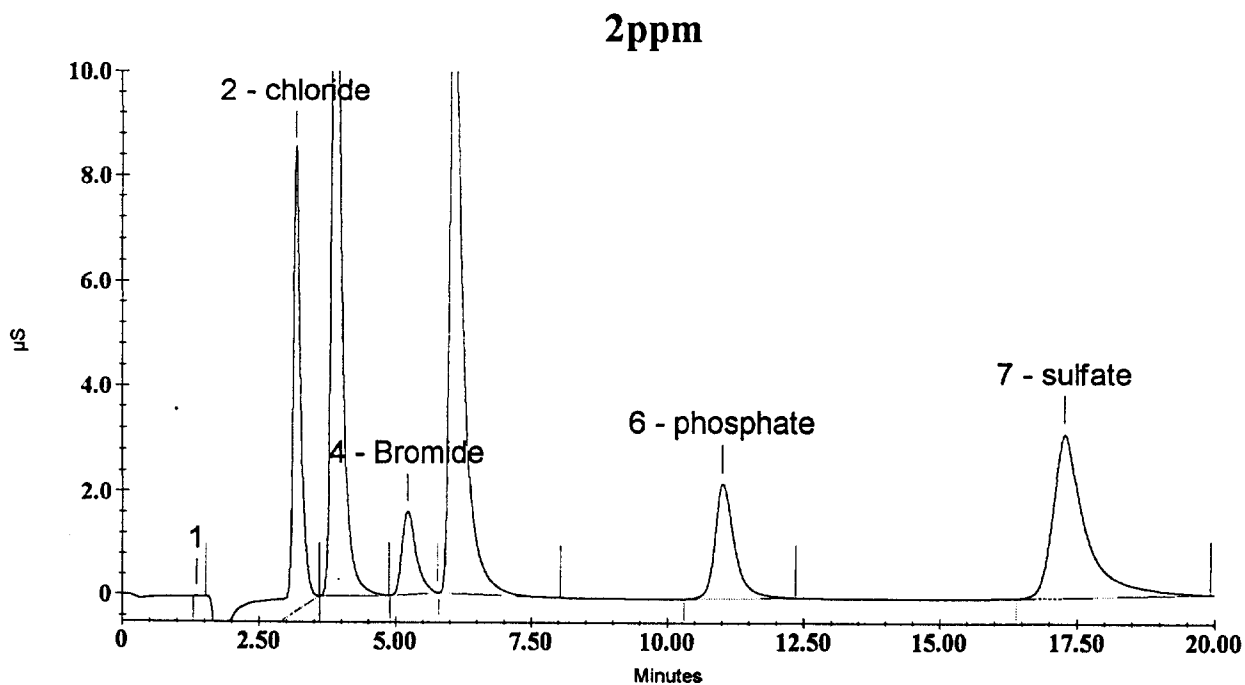
Updated : 7/7/99 5:36:08 PM

Calibrated : 7/7/99 5:36:06 PM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.35		0.000	174	28
2	3.17	chloride	2.000	1241488	88022
3	3.88	Nitrite	2.000	1870830	152190
4	5.21	Bromide	2.000	296469	16021
5	6.06	Nitrate	2.000	2045336	117269
6	11.01	phosphate	2.000	557778	22193
7	17.26	sulfate	2.000	1314013	31338



EXACT COPY OF
RAW DATA

Data File : ...5ppm_033.DXD

Sample Name : 5ppm

Inject # : 33

Method File : c:\peaknet\method\anions as4.met

System Name : Instr. 830 DX500

Collected : 7/7/99 5:36:51 PM

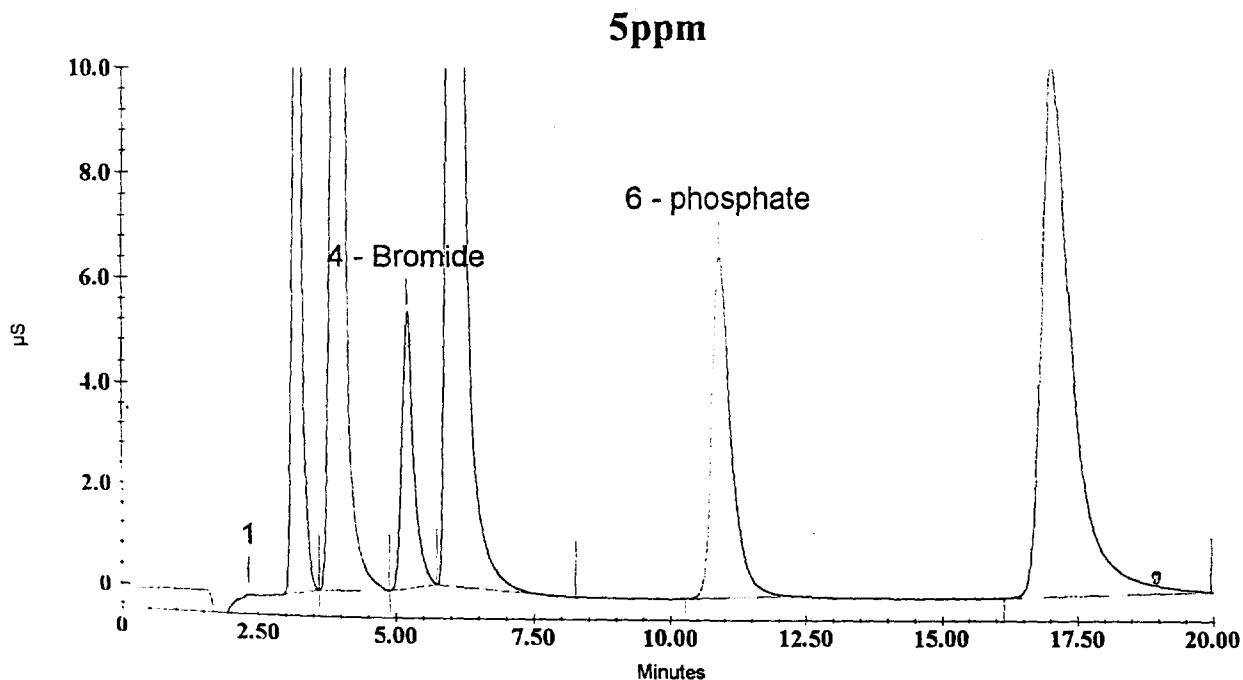
Updated : 7/7/99 5:56:55 PM

Calibrated : 7/7/99 5:56:54 PM

Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	2.33		0.000	1185	229
2	3.16	chloride	5.000	2203148	251526
3	3.90	Nitrite	5.000	4932818	382514
4	5.16	Bromide	5.000	777461	51845
5	5.96	Nitrate	5.000	5789010	331819
6	10.86	phosphate	5.000	1580864	64569
7	16.94	sulfate	5.000	3976365	101082



EXACT COPY OF
RAW DATA

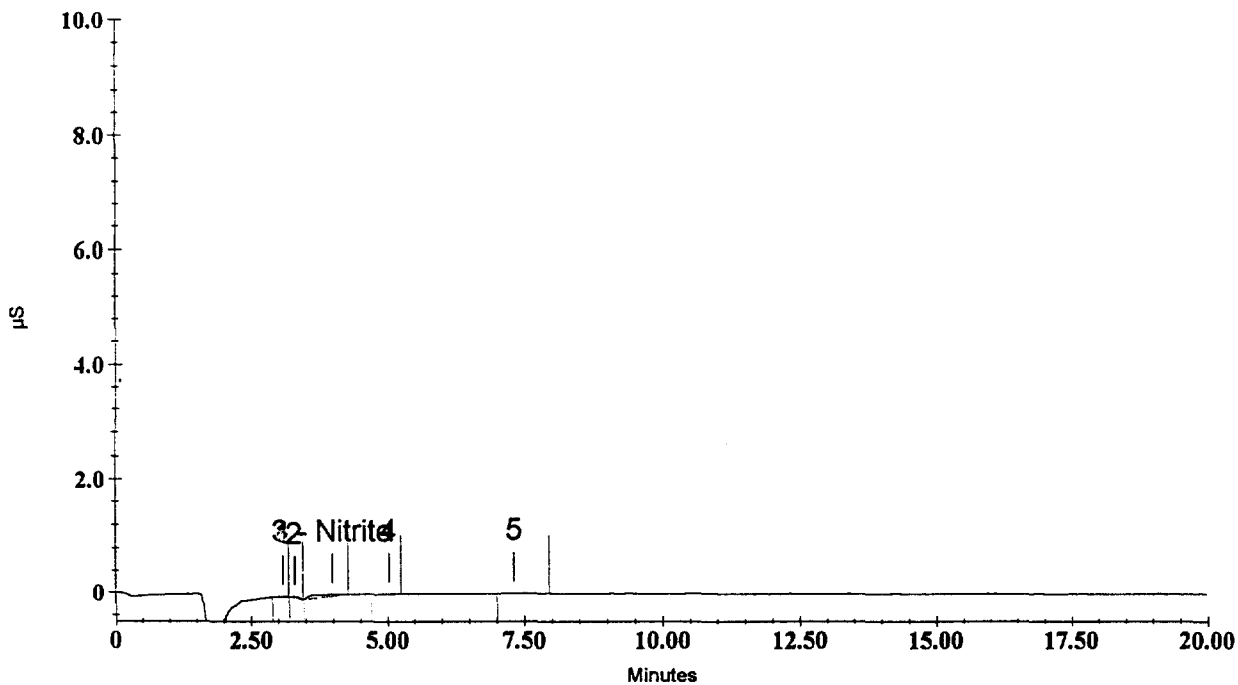
Data File : ...di_034.DXD
Sample Name : di
Inject # : 34
Method File : c:\peaknet\method\anions as4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 6:07:54 PM
Updated : 7/7/99 6:27:59 PM
Calibrated : 7/7/99 5:56:54 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	3.09		0.000	1766	165
3	3.99	Nitrite	0.131	16572	346
		Nitrite			
		Bromide			
		Nitrate			
		phosphate			

di



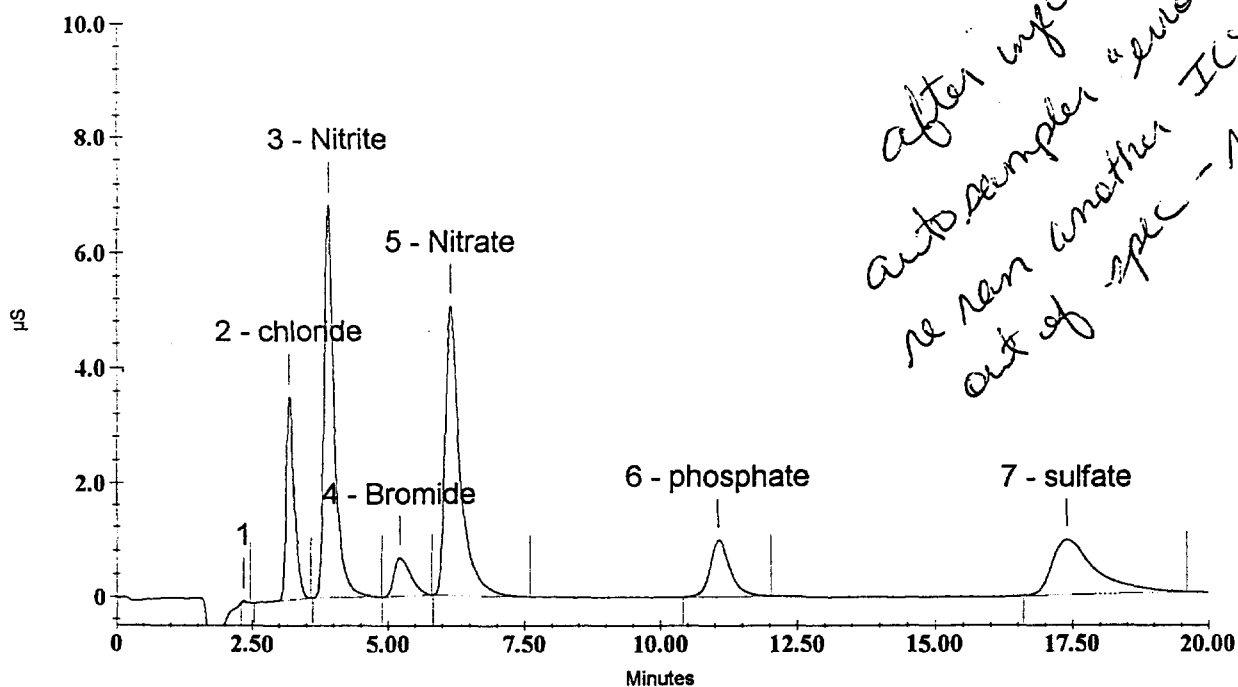
ASB/ES
EXACT COPY OF
RAW DATA

Data File : ...ics_035.DXD
Sample Name : ics
Inject # : 35
Method File : c:\peaknet\method\anions as4.met
System Name : Instr. 830 DX500

Collected : 7/7/99 6:29:00 PM
Updated : 7/7/99 6:49:03 PM
Calibrated : 7/7/99 5:56:54 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	3.18	chloride	0.798	363009	35339
3	3.89	Nitrite	0.996	888283	68402
4	5.21	Bromide	0.991	142408	6550
5	6.14	Nitrate	0.990	945888	50332
6	11.06	phosphate	0.932	246937	9617
7	17.39	sulfate	1.006	526660	9412



after inject 35
auto sampler "error"
re ran another ICS 7/8
out of spec - recalibrate
CP 7/8/99

ALB 7/8/99
EXACT COPY OF
RAW DATA

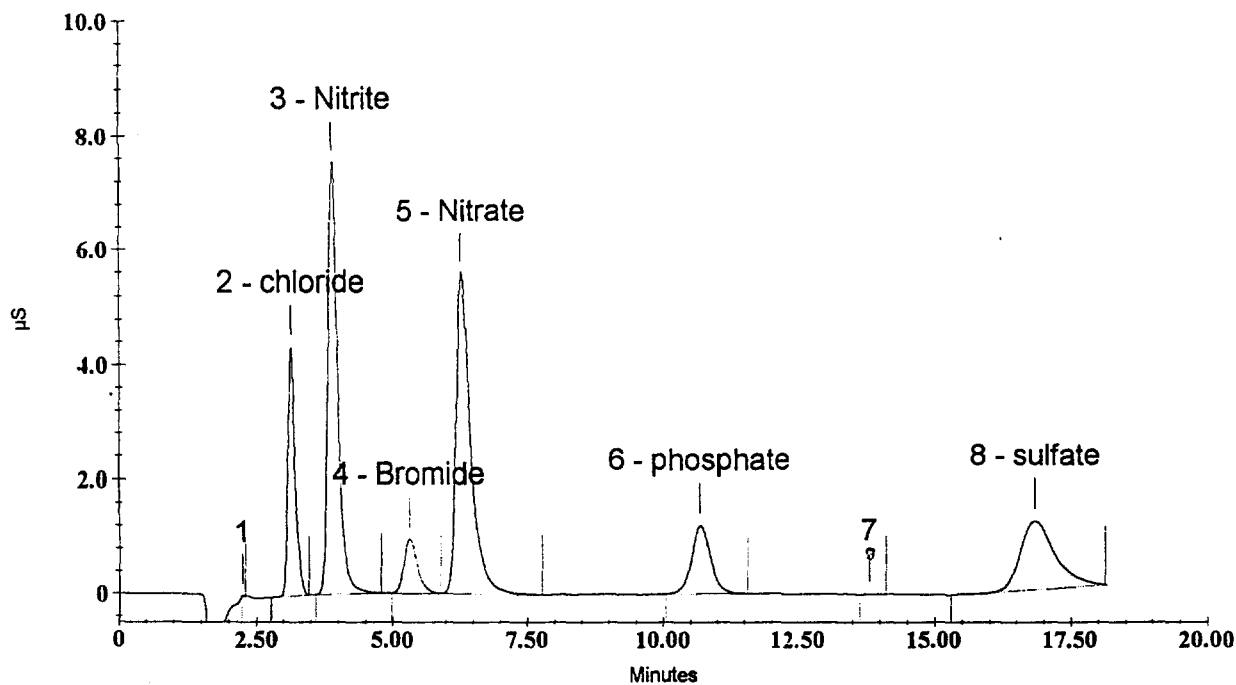
Data File : ...Vcs_036.DXD
Sample Name : ics
Inject # : 36
Method File : c:\peaknet\method\anions as4.met
System Name : Instr. 830 DX500

Collected : 7/8/99 5:21:17 AM
Updated : 7/8/99 5:21:18 AM
Calibrated : 7/7/99 5:56:54 PM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
2	3.13	chloride	0.870	396988	43468
3	3.88	Nitrite	1.068	960360	75240
4	5.31	Bromide	1.156	168531	9525
5	6.28	Nitrate	1.073	1045302	55550
6	10.68	phosphate	1.072	292517	11971
8	16.84	sulfate	1.017	536399	12061

ics



EXACT COPY OF
RAW DATA

08/8/99

Line	Sample	Sample Type	Level	Method
1	peakid	Sample		m26h2so4.met
2	peakid	Sample		m26h2so4.met
3	di	Sample		m26h2so4.met
4	0.25ppm	Sample		m26h2so4.met
5	0.5ppm	Calibration St	1	m26h2so4.met
6	1ppm	Calibration St	2	m26h2so4.met
7	2ppm	Calibration St	3	m26h2so4.met
8	5ppm	Calibration St	4	m26h2so4.met
9	a-0000	Sample		m26h2so4.met
10	ics	Sample		m26h2so4.met
11	C-3811x5	Sample		m26h2so4.met
12	C-3812x10	Sample		m26h2so4.met
13	C-3806x100	Sample		m26h2so4.met
14	C-3810x100	Sample		m26h2so4.met
15	C-3818x500	Sample		m26h2so4.met
16	C-3809spike	Sample		m26h2so4.met
17	di	Sample		m26h2so4.met
18	C-3811x10	Sample		m26h2so4.met
19	C-3809	Sample		m26h2so4.met
20	C-3804x25	Sample		m26h2so4.met
21	C-3804x25	Sample		m26h2so4.met
22	di	Sample		m26h2so4.met
23	C-3805x100	Sample		m26h2so4.met
24	C-3805x100	Sample		m26h2so4.met
25	C-3806x100	Sample		m26h2so4.met
26	C-3807x250	Sample		m26h2so4.met
27	C-3807x250	Sample		m26h2so4.met
28	C-3807x250spike	Sample		m26h2so4.met
29	C-3811(neut.)	Sample		m26h2so4.met
30	C-3811x2(neut.)	Sample		m26h2so4.met
31	C-3811x2(neut.)spike	Sample		m26h2so4.met
32	C-3808x200	Sample		m26h2so4.met
33	C-3808x200	Sample		m26h2so4.met
34	C-3810x100	Sample		m26h2so4.met
35	C-3817x100	Sample		m26h2so4.met
36	C-3817x100	Sample		m26h2so4.met
37	C-3818x250	Sample		m26h2so4.met
38	C-3818x250	Sample		m26h2so4.met
39	C-3803x25	Sample		m26h2so4.met
40	C-3803x25	Sample		m26h2so4.met
41	C-3814x25	Sample		m26h2so4.met
42	C-3814x25	Sample		m26h2so4.met
43	C-3815x25	Sample		m26h2so4.met
44	C-3815x25	Sample		m26h2so4.met
45	C-3816x25	Sample		m26h2so4.met
46	C-3816x25	Sample		m26h2so4.met
47	C-3819x10	Sample		m26h2so4.met
48	C-3819x10	Sample		m26h2so4.met
49	C-3820x10	Sample		m26h2so4.met
50	C-3820x10	Sample		m26h2so4.met
51	C-3809x100	Sample		m26h2so4.met
52	C-3809x100	Sample		m26h2so4.met
53	C-3812x10	Sample		m26h2so4.met
54	C-3813x10	Sample		m26h2so4.met
55	C-3813x10	Sample		m26h2so4.met
56	C-3807x250spike	Sample		m26h2so4.met
57	C-3811x2(neut.)	Sample		m26h2so4.met
58	a-0000	Sample		m26h2so4.met
59	a-0000	Sample		m26h2so4.met
60	ics	Sample		m26h2so4.met

all
 RECHECK RP
 RETEST CODE SLC

matrix of samples and
 stds affecting appearance
 and interpretation of CCE
 peak 7/11/99

RP
 7/2/99
 #830

per method beginning and
 ending curve are averaged
 and data processed with
 average curve

RP 7/6/99

EXACT COPY OF
 RAW DATA

7/6/99 12:16:59 PM

Line	Sample	Sample Type	Level	Method
61	ics	Sample		m26h2so4.met
62	0.25ppm	Sample		m26h2so4.met
63	0.5ppm	Sample		m26h2so4.met
64	1ppm	Sample		m26h2so4.met
65	2ppm	Sample		m26h2so4.met
66	5ppm	Sample		m26h2so4.met
67	sd	Sample		shutdown.met
68	sd	Sample		shutdown.met

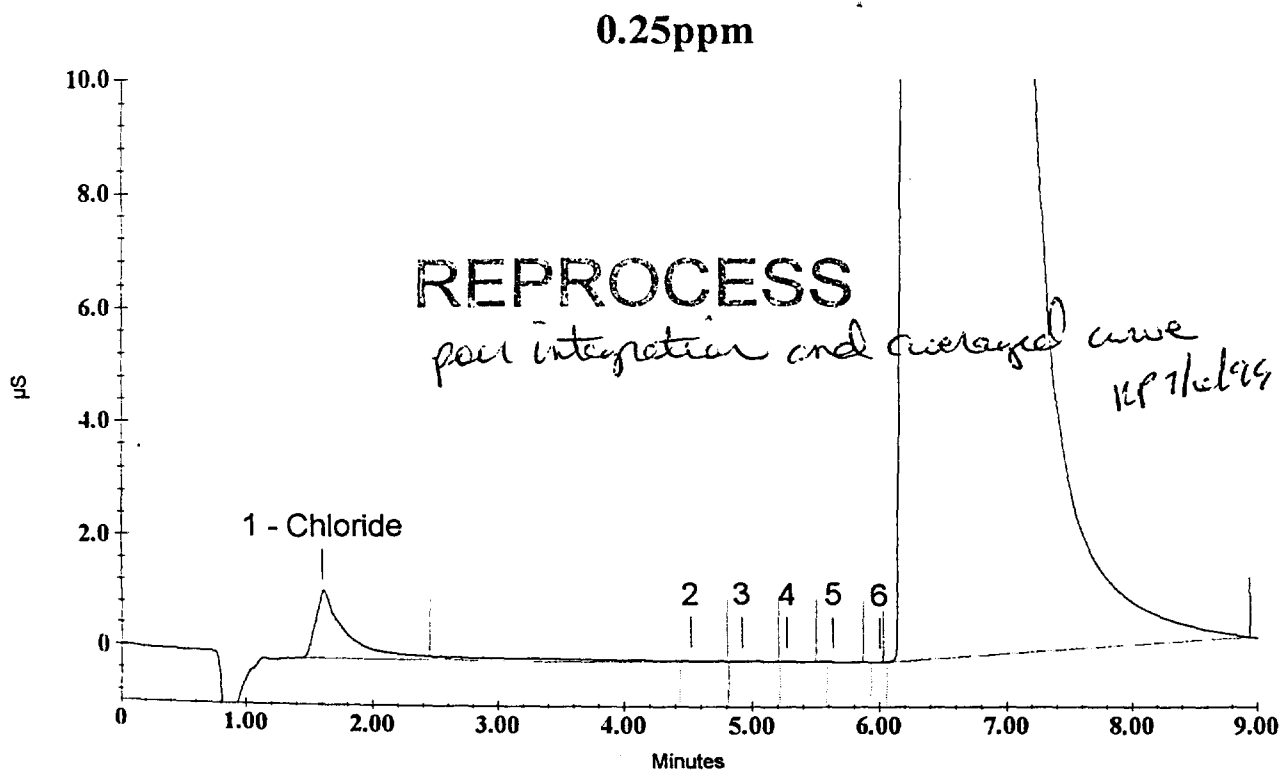
EXACT COPY OF
RAW DATA
07/05/99

Data File : ...025ppm_062.DXD
Sample Name : 0.25ppm
Inject # : 62
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:26:45 PM
Updated : 7/2/99 6:35:50 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.580	191967	11685



EXACT COPY OF
RAW DATA

CH 8/5/99

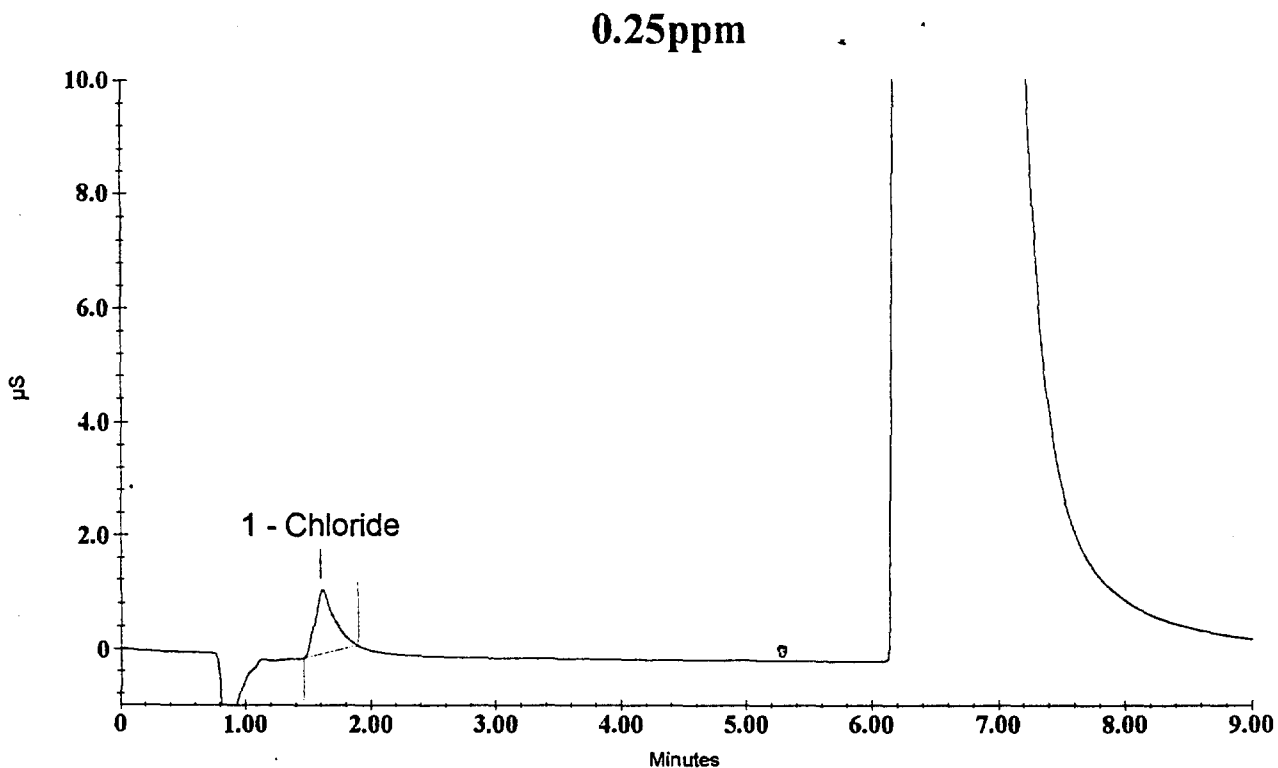
Data File : ...\\025PPM~2.DXD
Sample Name : 0.25ppm
Inject # : 62
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:26:45 PM
Updated : 7/6/99 9:12:13 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.263	118227	10765

REPROCESSED
DATA



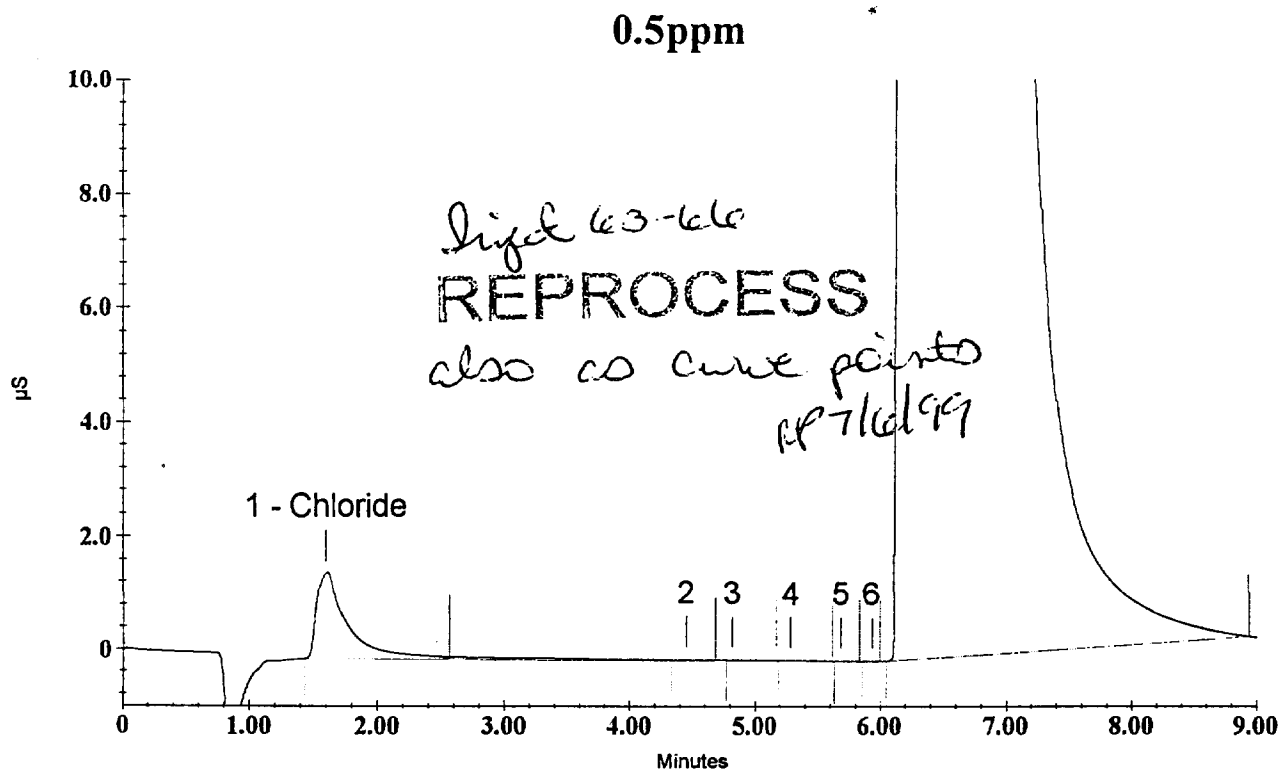
EXACT COPY OF
RAW DATA
04/8/99

Data File : ...\\05ppm_063.DXD
Sample Name : 0.5ppm
Inject # : 63
Method File : c:\\peaknet\\method\\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:36:50 PM
Updated : 7/2/99 6:45:55 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.850	254666	15071



EXACT COPY OF
RAW DATA

APR 15/99

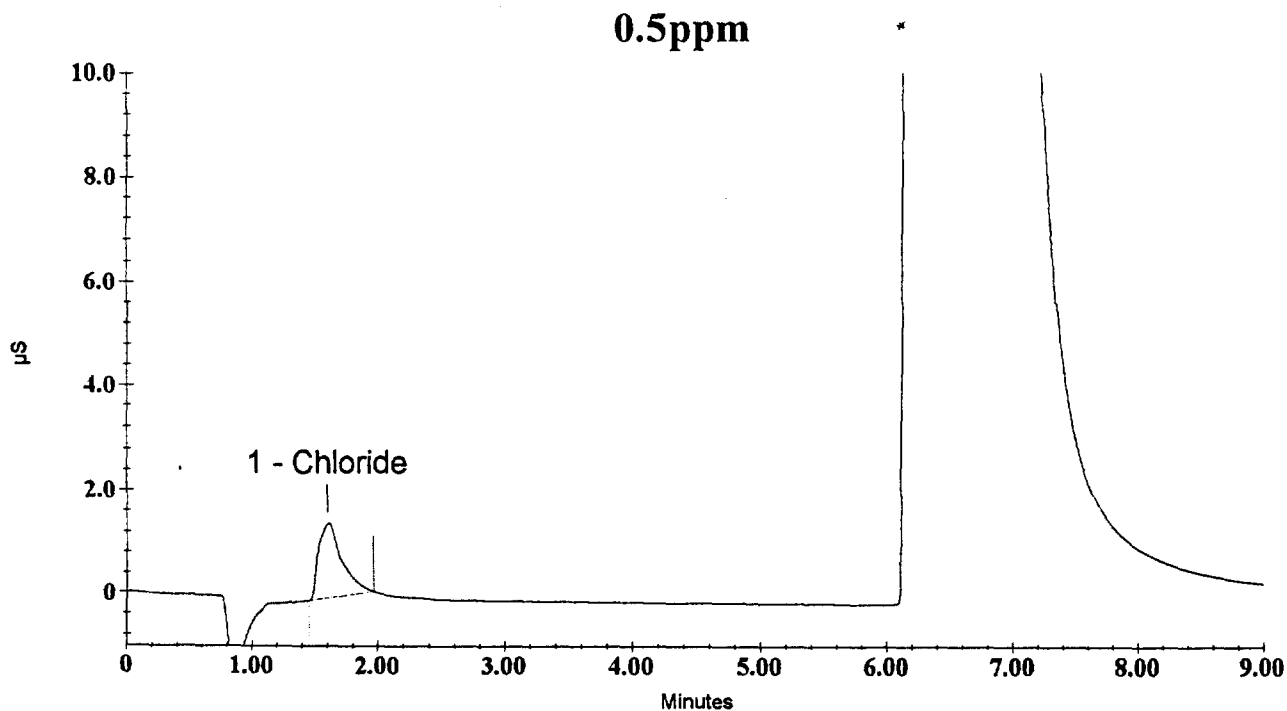
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Sample Name : 0.5ppm
Inject # : 63
Method File : m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:36:50 PM
Updated : 7/6/99 9:16:27 AM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.60	Chloride	0.500	187641	14397

REPROCESSED
DATA



EXACT COPY OF
RAW DATA

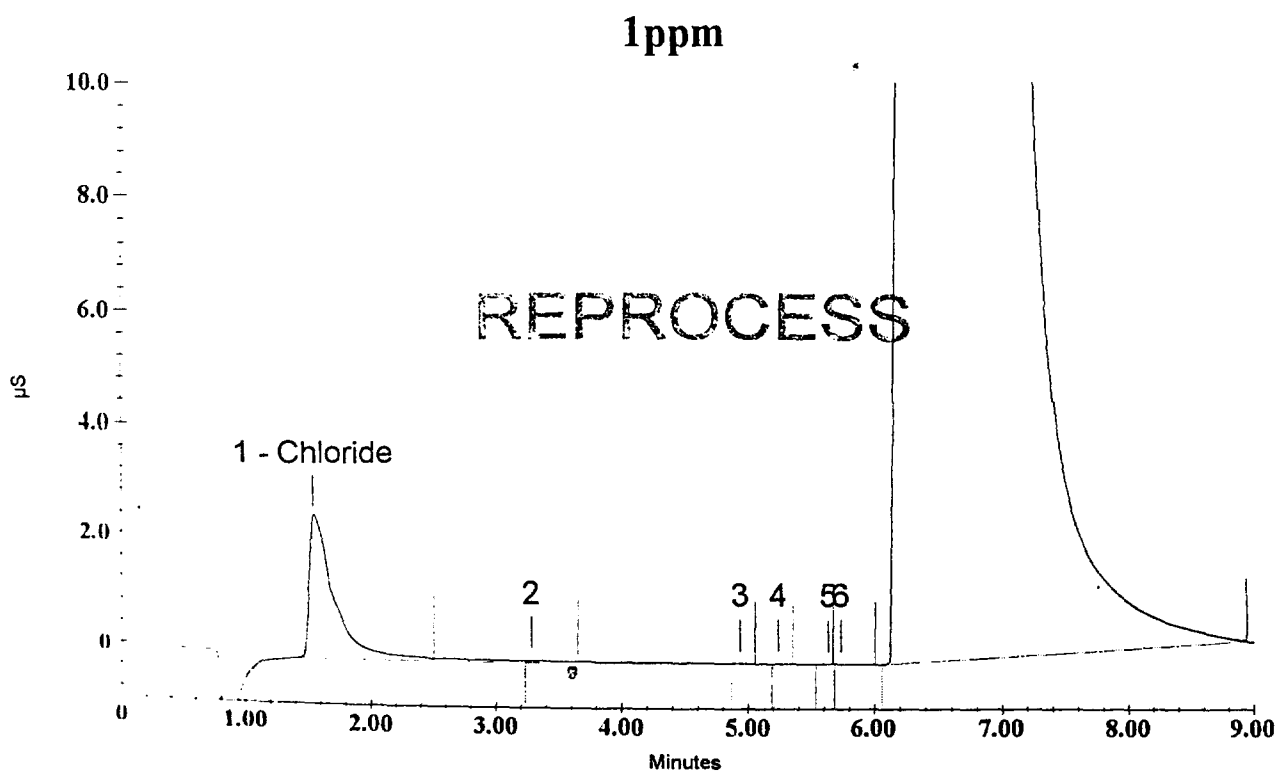
ALS/S/99

Data File : ...Mppm_064.DXD
Sample Name : 1ppm
Inject # : 64
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:46:56 PM
Updated : 7/2/99 6:56:00 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.254	348822	24977



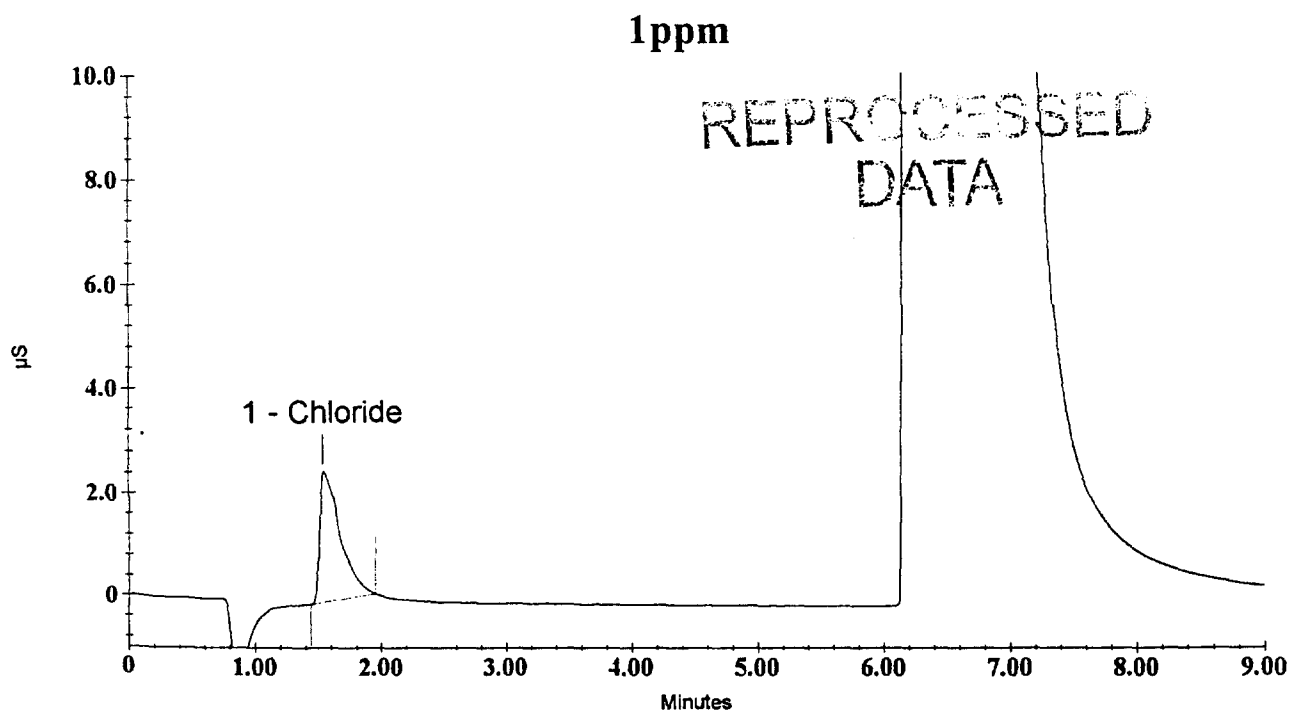
EXACT COPY OF
RAW DATA
AL 8/5/99

Data File : ...1PPM_064.DXD
Sample Name : 1ppm
Inject # : 64
Method File : m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:46:56 PM
Updated : 7/6/99 9:20:12 AM
Calibrated : 7/6/99 9:16:33 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.53	Chloride	1.000	285313	24558



EXACT COPY OF
RAW DATA

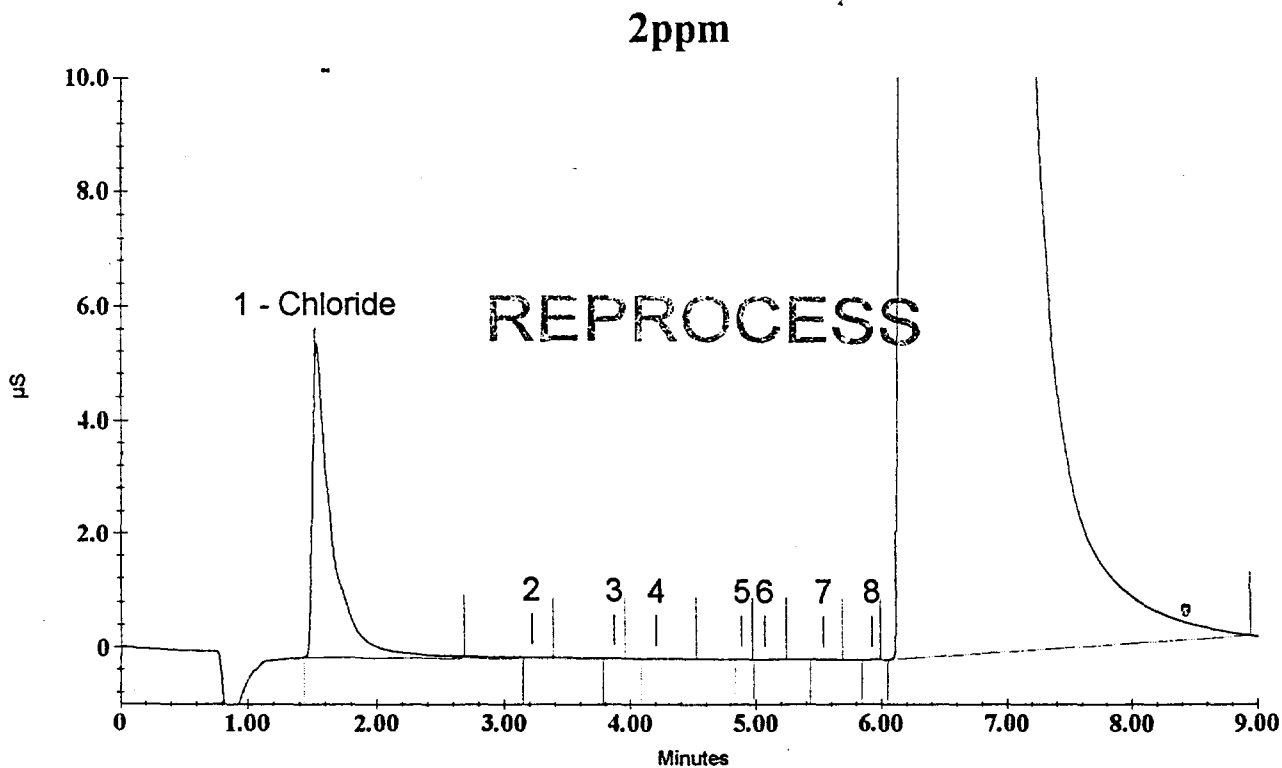
Handwritten signature/initials

Data File : _12ppm_065.DXD
Sample Name : 2ppm
Inject # : 65
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 6:57:00 PM
Updated : 7/2/99 7:06:06 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.181	564465	50263



EXACT COPY OF
RAW DATA

08/5/99

Data File : ...2PPM_065.DXD
Sample Name : 2ppm
Inject # : 65
Method File : m26h2so4.met
System Name : Instr. 830 DX500

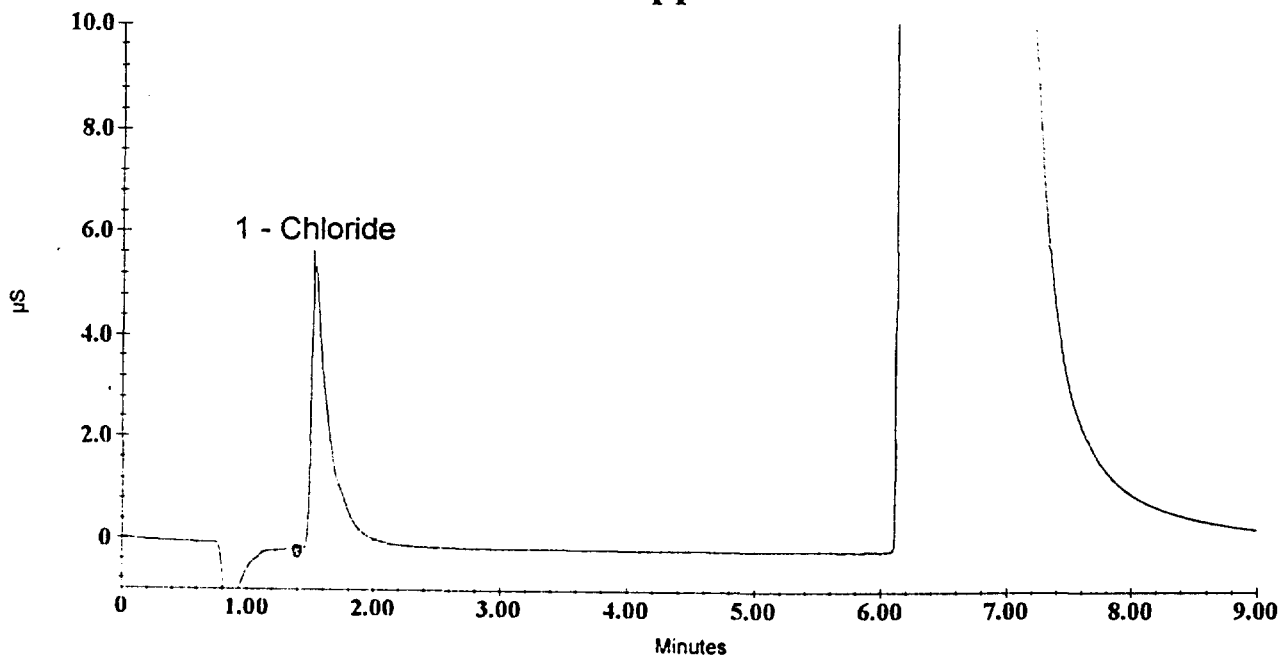
Collected : 7/2/99 6:57:00 PM
Updated : 7/6/99 9:28:04 AM
Calibrated : 7/6/99 9:20:21 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	2.000	509319	50014

REPROCESSED
DATA

2ppm



EXACT COPY OF
RAW DATA

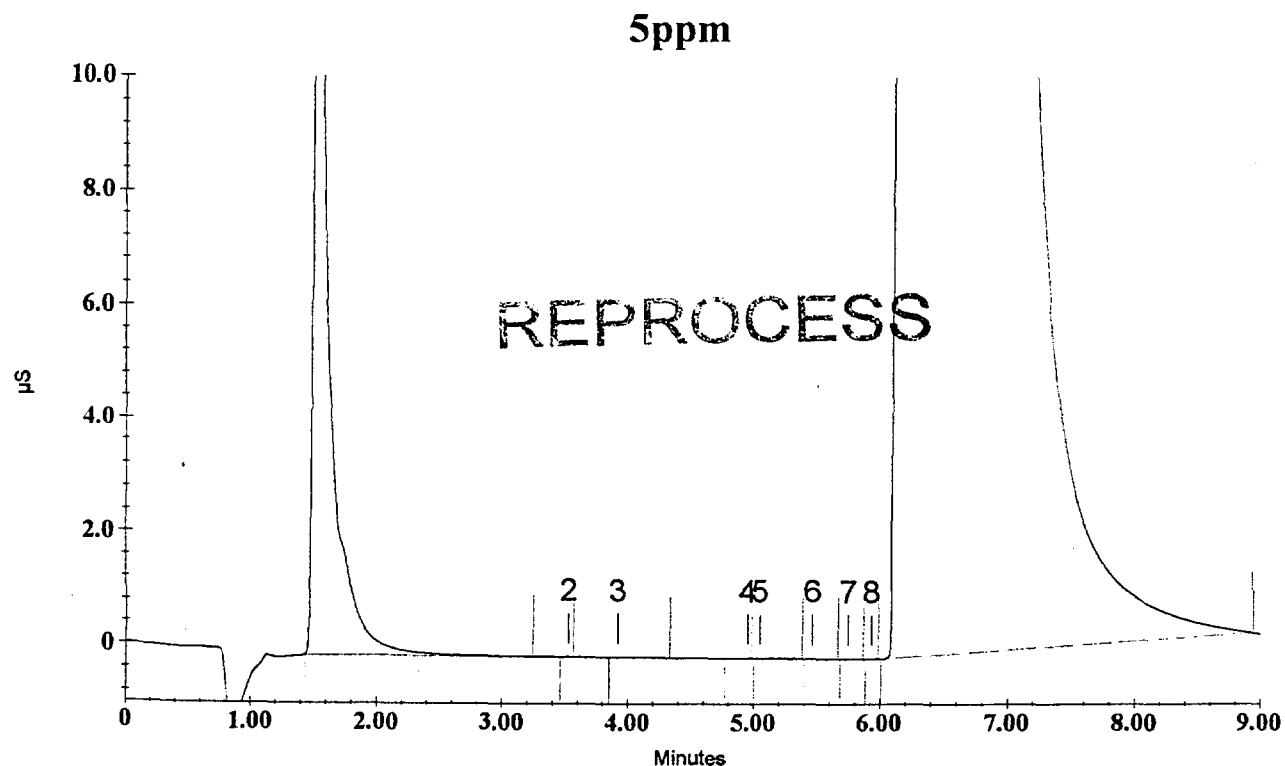
08/17/99

Data File : ...5ppm_066.DXD
Sample Name : 5ppm
Inject # : 66
Method File : c:\peaknet\method\m26h2so4.met
System Name : Instr. 830 DX500

Collected : 7/2/99 7:07:05 PM
Updated : 7/2/99 7:16:07 PM
Calibrated : 7/2/99 9:13:53 AM
Operator : rp

Peak Information : All Components

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	5.476	1331287	178941



EXACT COPY OF
RAW DATA

AL 8/5/99

Data File : ...5PPM_066.DXD
Sample Name : 5ppm
Inject # : 66
Method File : m26h2so4.met
System Name : Instr. 830 DX500

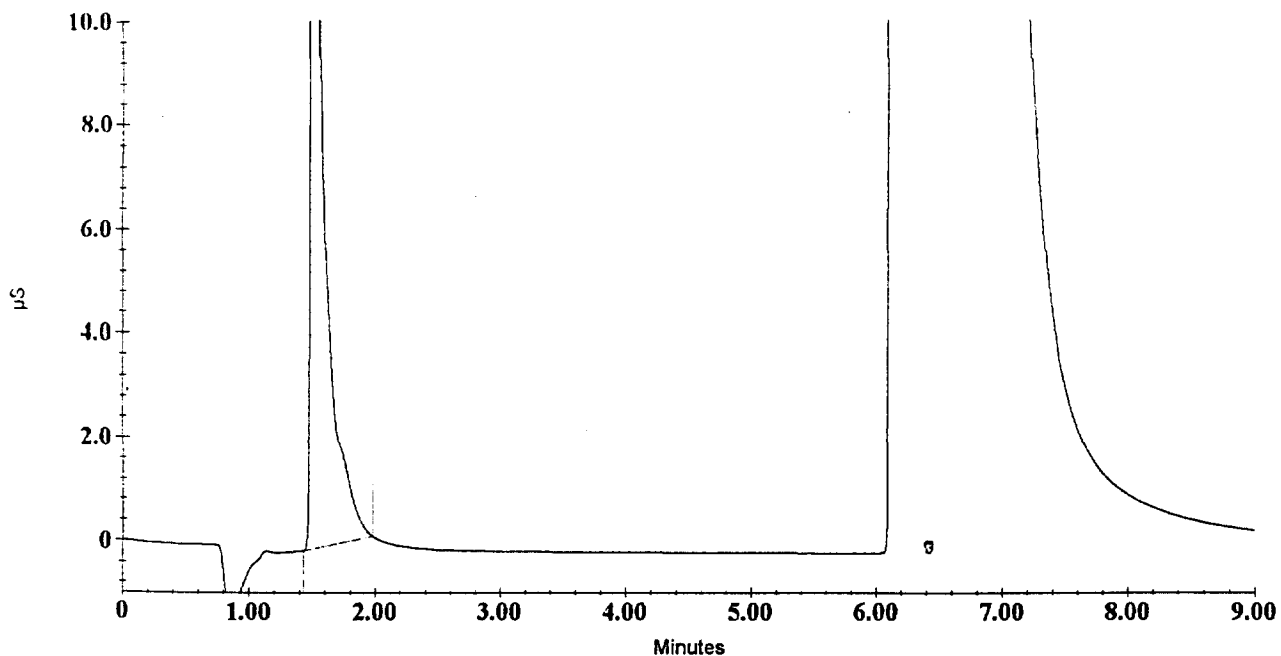
Collected : 7/2/99 7:07:05 PM
Updated : 7/6/99 9:30:03 AM
Calibrated : 7/6/99 9:28:11 AM
Operator : rp

Peak Information : All Peaks

Peak #	RT	Component	Concentration	Area	Height
1	1.52	Chloride	5.000	1249709	178539

REPROCESSED
DATA

5ppm



EXACT COPY OF
RAW DATA

AK 8/5/99

Appendix F

Metals Analysis Results

Appendix F: Emission Test Evaluation of a Crematory at Woodlawn Cemetery in the Bronx, NY—Metals Emission Results

1 Sample Receipt

The metals emission test evaluation of a crematory at Woodlawn Cemetery in the Bronx, NY, consisted of sampling train samples collected using EPA Method 29 in Appendix A of 40 *CFR* 60. The sampling train samples from nine runs at a scrubber inlet sampling location, nine runs at a scrubber outlet sampling location, and the corresponding field reagent blanks were received intact and cold at Midwest Research Institute (MRI) on June 21, 1999.

Before sample preparation, the weight of each sample container (excluding filters) was measured and recorded to verify that sample losses did not occur during shipment. Also, the pH of each front-half and back-half stack sample was measured and found to be less than 2. All samples were stored at approximately 4°C until sample preparation.

In addition to the Method 29 sampling train samples, MRI also received the EPA audit samples titled "Method 29 Compliance Audit Materials", described below:

- Multi-metals spiked filter (low level) plus a corresponding blank filter, for cadmium and lead analysis
- Multi-metals spiked solution (extra low level), for cadmium and lead analysis
- Mercury spiked solution (low level), for mercury analysis

The audit samples were sent with instruction sheets and reporting forms, as addressed in the letter from Jim McGaughey (Eastern Research Group, Inc.) to Foston Curtis (EPA) dated June 10, 1999.

2 Sample Preparation

The sampling train samples were prepared for metals analysis according to the Site-Specific Test Plan for the Emission Test Evaluation of a Crematory at Woodlawn Cemetery in the Bronx, NY, dated May 14, 1999. Quality control samples were also prepared as specified in Table 2.5.2-1 of the Quality Assurance Project Plan (QAPP) dated April 30, 1999. The samples were digested according to the procedures in Method 29 as specified in Section 2.4.2 of the QAPP. Method 29 incorporates analytical methods published in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA SW-846). Additional sample preparation for mercury was conducted according to

MRI Standard Operation Procedure (SOP) ASF-420, based on SW-846 Method 7470A, as specified in the QAPP.

The EPA audit samples were prepared according to the set of instructions received for each respective sample. In summary, the filters were prepared with the sampling train front-half samples using the Method 29 procedures; the multi-metals spiked solution for cadmium and lead analysis was diluted 1,000-fold; and, the mercury spiked solution was diluted 10,000-fold and then prepared for mercury analysis using SOP ASF-420.

3 Sample Analysis

The samples were analyzed for cadmium (Cd) and lead (Pb) using graphite furnace atomic absorption spectrometry (GFAA). Mercury (Hg) was analyzed using cold vapor atomic absorption spectrometry (CVAA). The analyses were conducted as specified in Section 2.4.2 of the QAPP.

3.1 GFAA Analysis

Two Varian SpectrAA-300Z GFAA spectrometers, with Zeeman background correction, were used for GFAA analysis according to MRI SOP ASF-602, based on SW-846 Method 7000A and the respective 7000-series methods. The quality control (QC) procedures listed in SOP were implemented, including initial calibration, initial and continuing calibration verifications (ICVs and CCVs), initial and continuing calibration blanks (ICBs and CCBs), and the analysis of post-digestion spikes and/or serial dilutions to test for matrix interferences. The front-half samples were analyzed by the method of standard additions, based on the results for the post-digestion spike and/or serial dilution tests, according to the method. The method of standard additions was not required for the back-half samples, based on the results of the interference tests.

3.2 CVAA Analysis

A PSA Merlin Plus Mercury CVAA was used for mercury analysis according to MRI SOP ASF-603, based on SW-846 Methods 7000A and 7470A. The QC procedures listed in the SOP were implemented, including initial calibration, ICVs, CCVs, ICBs, and CCBs. All samples were analyzed in duplicate, according to the Method 29 procedures.

4 Sample Results

The attached tables summarize the metals emission test results for cadmium, lead, and mercury, as follows:

- Table F-1 presents the metals analysis results for each component of the sampling trains at both the scrubber inlet and scrubber outlet sampling locations and for the field reagent blanks, in units of total μg .
- Table F-2 presents a summary of the sample quality control data, including spike recoveries, filter reference material recoveries, and spike duplicate precision results. The simulated train method blank results are also shown in this table.
- Table F-3 presents the results of the EPA audit samples received for the project.

5 Quality Control Results and Data Quality Assessment

The instrument analysis and sample analysis QC objectives and results, defined in Table 2.5.2-1 of the QAPP and in the respective SOPs and SW-846 methods, are discussed below.

5.1 Instrument Analysis Quality Control

The instrument analysis QC specifications were met for cadmium, lead, and mercury as follows:

- The ICV recoveries were within 90% to 110% on each of the respective instruments.
- The CCV recoveries were within 80% to 120% on each of the respective instruments.
- The instrument blanks (ICBs and CCBs) were all near or below their respective detection limits.

5.2 Sample Analysis Quality Control

Reference the attached Table F-2 for a summary of the sample analysis QC. The field reagent blank results are summarized as part of Table F-1. The sample analysis QC specifications were met for cadmium, lead, and mercury as follows:

- The cadmium and mercury results were below the detection limit in the simulated train front-half and back-half method blanks (laboratory reagent blanks). Lead was detected in these method blanks at approximately two to three times the corresponding detection limit.
- All cadmium and mercury results in the field reagent blanks were below the detection limit with the exception of cadmium in one of the rinse and filter reagent blanks, which had a result of less than four times the corresponding detection limit. All the

field reagent blank results for lead were between three and eight times the respective detection limit.

- The results from the front-half and back-half simulated train spikes and spike duplicates (spiked laboratory reagent blanks) were within the 65% to 135% recovery specification. Also, all the spike sets met the 40% relative percent difference criterion.
- The results from the filter reference material were within the typical 75% to 125% recovery criterion for cadmium and lead in the filter. Note that mercury was not an analyte in the filter reference material.
- The mercury matrix spike and matrix spike duplicate results were all within the 75% to 125% recovery criterion. Also, the spike set results met the 20% relative percent difference specification of the method.

Project: 5587-0403
Excel File: 5587_QC Summary.xls

Metals Sample Quality Control (QC) Results for Method 29 Emission Test Samples

Sample QC Summary: Verified by M. J. Del 7-29-99

QC Type:	Spiked laboratory reagent blanks						SRM
Barcode:	18340	18341	18340/41	18261	18262	18261/62	18347
	Front Half			Back Half			SRM
	Front Half	Duplicate		Back Half	Duplicate		
Analyte	Recovery (%)	Recovery (%)	RPD (%)	Recovery (%)	Recovery (%)	RPD (%)	Recovery (%)
Cd	125.0%	121.0%	3.3%	92.0%	91.0%	1.1%	106.0%
Pb	104.4%	107.4%	2.8%	94.8%	93.4%	1.5%	103.4%
Hg	101.0%	101.0%	0.0%	NA	NA	NA	NA

Laboratory Reagent Blank Summary: Verified by M. J. Del 7-29-99

Barcode:	18339	18260
	Front Half	Back Half
	Method	Method
	Blank	Blank
Analyte	(µg)	(µg)
Cd	< 0.100	< 0.050
Pb	0.580	0.200
Hg	< 0.400	< 5.00

Hg Matrix Spike Summary: Verified by _____

Barcode:	18265S	18265D	18265S/D	18284S	18284D	18284S/D	18303S	18303D	18303S/D	18322S	18322D	18322S/D
Sample:	2017	2017	2017	2018	2018	2018	2019	2019	2019	2020	2020	2020
	Spike	Spike Dup	Spike Set	Spike	Spike Dup	Spike Set	Spike	Spike Dup	Spike Set	Spike	Spike Dup	Spike Set
Analyte	Recovery (%)	Recovery (%)	RPD (%)	Recovery (%)	Recovery (%)	RPD (%)	Recovery (%)	Recovery (%)	RPD (%)	Recovery (%)	Recovery (%)	RPD (%)
Hg	102.4%	100.0%	2.4%	103.2%	104.2%	1.0%	102.8%	102.4%	0.4%	103.6%	100.6%	2.9%

RPD = Relative percent difference

SRM = Standard reference material (QC filter: High Purity QC-TMFM-B)

NA = Not applicable

Project: 5587-0403
Excel File: 5587_Summary.xls

Metals Analysis Results for Method 29 Emission Test Samples

(Note: All sample results have been rounded to three significant figures)

Metals Data Summary: Verified by Russell J. Furrin / 7-29-99

Sampling Location:	Scrubber Inlet						Scrubber Outlet					
Run No./Description	Field Sample ID	Lab Barcode No.	Flag	Cd (µg)	Pb (µg)	Hg (µg)	Field Sample ID	Lab Barcode No.	Flag	Cd (µg)	Pb (µg)	Hg (µg)
Run 1												
Rinse and filter, µg	1015/1016	18350		8.40	150	< 0.400	1039/1040	18359		4.44	61.6	< 0.400
HNO ₃ impingers, µg	1017	18264		0.348	1.63	35.9	1041	18273		0.169	1.56	49.4
Fourth impinger, µg	1018	18283		NA	NA	5.17	1042	18292		NA	NA	23.5
KMnO ₄ impingers, µg	1019	18302		NA	NA	24.3	1043	18311		NA	NA	8.79
HCl rinse, µg	1020	18321		NA	NA	611	1044	18330		NA	NA	154
Run 2												
Rinse and filter, µg	2015/2016	18351		3.36	39.4	< 0.400	2039/2040	18360		3.76	37.2	< 0.400
HNO ₃ impingers, µg	2017	18265		1.13	2.23	< 4.97	2041	18274		0.211	1.66	< 5.14
Fourth impinger, µg	2018	18284		NA	NA	< 0.196	2042	18293		NA	NA	< 0.195
KMnO ₄ impingers, µg	2019	18303		NA	NA	1.22	2043	18312		NA	NA	< 1.00
HCl rinse, µg	2020	18322		NA	NA	< 1.00	2044	18331		NA	NA	< 1.00
Run 3												
Rinse and filter, µg	3015/3016	18352		29.6	458	0.776	3039/3040	18361		15.6	236	0.440
HNO ₃ impingers, µg	3017	18266		0.649	2.21	50.4	3041	18275		0.608	10.4	28.4
Fourth impinger, µg	3018	18285		NA	NA	8.25	3042	18294		NA	NA	8.47
KMnO ₄ impingers, µg	3019	18304		NA	NA	889	3043	18313		NA	NA	176
HCl rinse, µg	3020	18323		NA	NA	180	3044	18332		NA	NA	74.0

Project: 5587-0403
Excel File: 5587_Summary.xls

Metals Analysis Results for Method 29 Emission Test Samples

(Note: All sample results have been rounded to three significant figures)

Metals Data Summary: Verified by *[Signature]* / 7-29-11

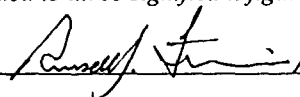
Sampling Location:	Scrubber Inlet							Scrubber Outlet								
	Field	Lab						Field	Lab							
Run No./Description	Sample ID	Barcode No.	Flag	Cd (µg)	Flag	Pb (µg)	Flag	Hg (µg)	Sample ID	Barcode No.	Flag	Cd (µg)	Flag	Pb (µg)	Flag	Hg (µg)
Run 4																
Rinse and filter, µg	4015/4014/4016	18353		88.0		1080		0.488	4039/4040	18362		36.4		604		0.664
HNO ₃ impingers, µg	4017	18267		0.644		2.39		143	4041	18276		0.748		5.34		52.9
Fourth impinger, µg	4018	18286		NA		NA		5.84	4042	18295		NA		NA		10.2
KMnO ₄ impingers, µg	4019	18305		NA		NA		1770	4043	18314		NA		NA		589
HCl rinse, µg	4020	18324		NA		NA		376	4044	18333		NA		NA		239
Run 5																
Rinse and filter, µg	5015/5016	18354		70.0		444	<	0.400	5039/5040	18363		31.0		205	<	0.400
HNO ₃ impingers, µg	5017	18268		0.339		1.53		15.4	5041	18277		0.325		2.16	<	5.32
Fourth impinger, µg	5018	18287		NA		NA		5.97	5042	18296		NA		NA		2.12
KMnO ₄ impingers, µg	5019	18306		NA		NA		249	5043	18315		NA		NA		77.1
HCl rinse, µg	5020	18325		NA		NA		38.5	5044	18334		NA		NA		2.79
Run 6																
Rinse and filter, µg	6015/6016	18355		198		804	<	0.400	6039/6040	18364		73.0		254	<	0.400
HNO ₃ impingers, µg	6017	18269		0.366		1.90		32.8	6041	18278		0.644		3.91	<	5.13
Fourth impinger, µg	6018	18288		NA		NA		1.20	6042	18297		NA		NA		0.537
KMnO ₄ impingers, µg	6019	18307		NA		NA		7.79	6043	18316		NA		NA	<	1.00
HCl rinse, µg	6020	18326		NA		NA	<	1.00	6044	18335		NA		NA	<	1.00

Project: 5587-0403
Excel File: 5587_Summary.xls

Metals Analysis Results for Method 29 Emission Test Samples

(Note: All sample results have been rounded to three significant figures)

Metals Data Summary: Verified by

 7-29-11

Sampling Location:	Scrubber Inlet							Scrubber Outlet								
	Field	Lab						Field	Lab							
Run No./Description	Sample ID	Barcode No.	Flag	Cd (µg)	Flag	Pb (µg)	Flag	Hg (µg)	Sample ID	Barcode No.	Flag	Cd (µg)	Flag	Pb (µg)	Flag	Hg (µg)
Run 7																
Rinse and filter, µg	7015/7016	18356		286		2230		1.78	7039/7040	18365		99.0		976		0.836
HNO ₃ impingers, µg	7017	18270		0.130		1.04		288	7041	18279		0.222		2.06		70.6
Fourth impinger, µg	7018	18289		NA		NA		5.12	7042	18298		NA		NA	<	2.06
KMnO ₄ impingers, µg	7019	18308		NA		NA		157	7043	18317		NA		NA		108
HCl rinse, µg	7020	18327		NA		NA		94.8	7044	18336		NA		NA		2.83
Run 8																
Rinse and filter, µg	8015/8016	18357		448		1270		1.14	8039/8038/8040	18366		166		480	<	0.400
HNO ₃ impingers, µg	8017	18271		1.55		6.16		27.7	8041	18280		0.667		2.53		12.3
Fourth impinger, µg	8018	18290		NA		NA		1.77	8042	18299		NA		NA		1.36
KMnO ₄ impingers, µg	8019	18309		NA		NA		7.15	8043	18318		NA		NA		2.60
HCl rinse, µg	8020	18328		NA		NA	<	1.00	8044	18337		NA		NA	<	1.00
Run 9																
Rinse and filter, µg	9015/9016	18358		73.0		696	<	0.400	9039/9038/9040	18367		31.6		195	<	0.400
HNO ₃ impingers, µg	9017	18272		0.232		1.44	<	5.33	9041	18281		0.383		1.39	<	5.52
Fourth impinger, µg	9018	18291		NA		NA	<	2.10	9042	18300		NA		NA	<	0.192
KMnO ₄ impingers, µg	9019	18310		NA		NA	<	1.00	9043	18319		NA		NA		1.02
HCl rinse, µg	9020	18329		NA		NA	<	1.00	9044	18338		NA		NA	<	1.00

Project: 5587-0403
Excel File: 5587_Summary.xls

Metals Analysis Results for Method 29 Emission Test Samples

(Note: All sample results have been rounded to three significant figures)

Metals Data Summary: Verified by Russell J. Smith / 7-29-99

Sampling Location:	Scrubber Inlet/Outlet					
Run No./Description	Field Sample ID	Lab Barcode No.	Cd Flag (µg)	Pb Flag (µg)	Hg Flag (µg)	
Field Reagent Blank						
Rinse and filter, µg ^a	1061/1062	18342	0.360	0.820	<	0.400
Rinse and filter, µg ^b	1061/1062/B23	18343	< 0.100	1.36	<	0.400
Rinse and filter, µg ^c	1061/1062/B24	18344	< 0.100	0.740	<	0.400
Rinse and filter, µg ^d	1061/1062/B25	18345	< 0.100	0.600	<	0.400
HNO ₃ impingers, µg	1063/1061	18263	< 0.067	0.825	<	3.00
Fourth impinger, µg	1061	18282	NA	NA	<	0.200
KMnO ₄ impingers, µg	1064/1065	18301	NA	NA	<	0.800
HCl rinse, µg	1066	18320	NA	NA	<	1.00

A "<" flag indicates a result less than the detection limit, corrected for any digestion, dilution and aliquot factors.

NA = Not applicable

^a Reagent blank for Runs 1-3 and 5-9 at Inlet plus Runs 1-7 at Outlet

^b Reagent blank for Run 4 at Inlet (B23 = Beaker 23 containing field reagent blank samples 2049/1051)

^c Reagent blank for Run 8 at Outlet (B24 = Beaker 24 containing field reagent blank samples 2049/2051)

^d Reagent blank for Run 9 at Outlet (B25 = Beaker 25 containing field reagent blank sample 2049)



Eastern Research Group, Inc.

0070.02.005

68-D7-0008

Environmental Science
and Engineering

June 10, 1999

Economic and
Regulatory Analysis

Foston Curtis
Emission Measurements Center (MD-19)

Environmental and
Occupational Health
Services

OAQPS
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

Software Applications
Development

Dear Mr. Curtis

Pollution Prevention

At your request, through Mr. Gene Riley of EPA, I have shipped the following
audit materials to Woodlawn Cemetery under Request Numbers M29-019:

Technology Evaluation

Method 29

Environmental
Sampling and Analysis

- one each low-level multi-metals spiked aqueous solution
- one each low-level multi-metals spiked filter
- one each low-level mercury spiked aqueous solution

Technical Writing and
Editing

Meeting Management
and Facilitation

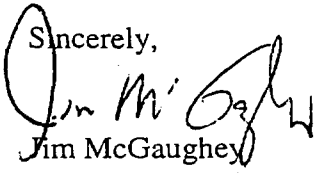
Each of the above listed materials is accompanied by a set of instructions and a
REPORTING FORM which is to be returned to the person designated by you
with the laboratory results recorded in the appropriate blank. Also included is a
RESPONSIBLE AGENCY FORM for each of the audit materials which provides
the acceptable range for the result. These forms provide the correct answer and
should remain in your custody and not be released to the laboratory being audited.
If you have any questions, please contact me at (919) 468-7928 or Rob Martz at
(919) 468-7927. My fax number is (919) 468-7803.

Graphic Design
and Media Services

Public Relations and
Outreach

Education and Training

Sincerely,


Jim McGaughey
Principal Investigator

Equal Opportunity Employer
Printed on Recycled Paper

cc: Lara Autry, EPA (MD-19)
Gene Riley, EPA (MD-19)
Rob Martz, ERG

Jim Surman

1600 Perimeter Park (Office)
P.O. Box 2010
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Phone 919-468-7800
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Fax 703-841-1440

14555 Avion Parkway
Suite 200
Chantilly, VA 20151-1102
Phone 703-633-1600
Fax 703-263-7280

Corporate Headquarters:
110 Hartwell Avenue
Lexington, MA 02421-3134
Phone 781-674-7200
Fax 781-674-2851

MZ9-019/ FL-112
(MZ9-019 / BLANK too)

INSTRUCTIONS FOR PREPARATION OF METHOD 29 SPIKED FILTER

- 1) Digest the entire filter as received and prepare the solution for analysis per the Method 29 instructions.
- 2) Analyze the resulting solution for the list of metals provided on the **REPORTING FORM** which is attached.
- 3) Record the results on the **REPORTING FORM** in total micrograms (total ug) detected on the filter.
- 4) Report the results to the designated agent.

m29-019 / MMA-124

INSTRUCTIONS FOR PREPARATION OF METHOD 29 SPIKED SOLUTION

(Multi-metals Extra Low Level)

- 1) The ampule you received contains approximately 10 mL of an aqueous solution that is 2 % nitric acid by volume and has been spiked with various metals that are listed on the Method 29 Compliance Audit **REPORTING FORM** which is attached.
- 2) The solution is to be diluted 1000 fold (1:1000) before analysis.
- 3) Record the results on the **REPORTING FORM**, which is attached, as the concentration of each metal in the solution that as been diluted 1000 fold in micrograms per milliliter (ug/mL).
- 4) Report the results to the designated agent.

m 29-019 / Hg-117

INSTRUCTIONS FOR PREPARATION OF METHOD 29 SPIKED SOLUTION

(Mercury Low Level)

- 1) The ampule you received contains approximately 10 mL of an aqueous solution that is 10 % nitric acid by volume and has been spiked with mercury.
- 2) The solution is to be diluted 10,000 fold (1:10,000) before analysis with potassium permanganate solution (prepared as per instructions in Method 29) before analysis. .
- 3) Record the results on the **REPORTING FORM**, which is attached, as the concentration of mercury in the solution that has been diluted 10,000 fold in nanograms per milli-liter (ng/mL).
- 4) Report the results to the designated agent.

METHOD 29 COMPLIANCE AUDIT MATERIAL
(Multi-Metals Spiked Filter)

REPORTING FORM: To be completed by laboratory

Request Number//Sample Number: M29-019/FL-112 Date Issued: 6/10/99

Concentration Level: Extra Low _____ Low X Medium _____ High _____

Shipping Address:

Name: The Woodlawn Cemetery

Address: 329 E. 233rd Street, Bronx, New York 10470

Attention of: Foston Curtis or Jim Susman Phone: (718) 920-0500

Requestor:

Name: Foston Curtis

Agency: U.S. EPA

Address: RTP, NC 27711 MD-19

Attention of: Foston Curtis Phone: (919) 541-1063

Project Name: Woodlawn Cemetery

AUDIT RESULTS (Results in total ug)

Result

Cadmium 11.2 ug

Lead 51.0 ug

Results for "Blank" filter received with FL-112:

Cadmium <0.10 ug

Lead 0.280 ug

METHOD 29 COMPLIANCE AUDIT MATERIAL
(Multi-Metals Spiked Solution)

REPORTING FORM: To be completed by laboratory

Request Number//Sample Number: M29-019//MMA-124 Date Issued: 6/10/99

Concentration Level: Extra Low X Low Medium High

Shipping Address:

Name: The Woodlawn Cemetery

Address: 329 E. 233rd Street, Bronx, New York 10470

Attention of: Foston Curtis or Jim Susman Phone: (718) 920-0500

Requestor:

Name: Foston Curtis

Agency: U.S. EPA

Address: RTP, NC 27711 MD-19

Attention of: Foston Curtis Phone: (919) 541-1063

Project Name: Woodlawn Cemetery

AUDIT RESULTS (Results in ug/mL)

Result

Cadmium 0.00980 ug/mL

Lead 0.0494 ug/mL

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Pg(s): 1 of 1 By / Date: [Signature] 8-3-99

METHOD 29 COMPLIANCE AUDIT MATERIAL
(Mercury Metal Spiked Solution)

REPORTING FORM: To be completed by laboratory

Request Number//Sample Number: M29-019//Hg-117 Date Issued: 6/10/99

Concentration Level: Extra Low _____ Low X Medium _____ High _____

Shipping Address:

Name: The Woodlawn Cemetery

Address: 329 E. 233rd Street, Bronx, New York 10470

Attention of: Foston Curtis or Jim Susman Phone: (718) 920-0500

Requestor:

Name: Foston Curtis

Agency: U.S. EPA

Address: RTP, NC 27711 MD-19

Attention of: Foston Curtis Phone: (919) 541-1063

Project Name: Woodlawn Cemetery

AUDIT RESULTS (Results in ng/mL)

Result

Mercury < 0.20 ng/mL

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THE FOLLOWING PAGE(S) HAVE BEEN EXACTLY DUPLICATED
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Appendix G

PCDDs/PCDFs Analysis Results

Date: August 6, 1999
From: Mark Davis
To: Jim Surman
Subject: Results of the analysis of PCDDs/PCDFs in method 23 sampling trains for EMC project 4951-08

XAD Trap Preparation

XAD-2 received from Supelco was pre-extracted in bulk for the entire project. The XAD was extracted for 21 hours with methylene chloride. It was then allowed to air dry overnight. It was then submerged in methanol and taken to dryness using a roto-vap. The XAD was packed into the sampling trap and ultra-pure nitrogen was blown through the trap for three hours to ensure the XAD was dry. The trap was then fortified with 100 μ L $^{13}\text{C}_{12}$ labeled field surrogate standard and capped.

Sample Preparation

Samples were prepared and analyzed in two batches. The first batch included the first six inlet and outlet sampling trains, a LCS and a method blank. The second batch included the last four inlet and outlet sampling trains, an audit sample, a LCS and a method blank. Sample preparation was started for batch one on June 29, 1999 and July 7, 1999 for batch two. Sample preparation was conducted according to the QAPP for 4951-08 revision 0. Sample preparation and analysis is based on Method 23 methods with the modifications listed in Section 4 of the QAPP.

The front half/ back half rinses were received already combined. These were passed through sodium sulfate and concentrated to 5mL by Kurner-Danish apparatus. The particulate filter for the train was cut into small pieces and added to a cellulose extraction thimble. XAD was retrieved from the sampling trap using a minimal amount of acetone and added to the appropriate cellulose thimble. A method blank and LCS was prepared for each batch using 100g of the same lot of XAD used in field sampling and one particulate filter. The samples were then fortified with 100 μ L of $^{13}\text{C}_{12}$ labeled internal quantitation standard. The LCS for each batch was also fortified with 100 μ L of an unlabeled solution containing all 2378-substitute isomers. A large glasswool plug was added to the top of the thimble to prevent the XAD from spilling out. The thimble was added to a soxhlet along with the concentrated front half/ back half rinse. The samples were extracted with toluene for 21 hours.

Toluene rinses for each sampling train were immediately fortified with 50 μ L of $^{13}\text{C}_{12}$ labeled internal quantitation standard in the bottle received. These were then treated as separate samples.

Sample extracts and toluene rinses were passed through sodium sulfate, concentrated by Rapid-Vap to 2mL, and solvent exchanged to hexane. The extract was then split 1:1 and one split was archived in case of difficulty during analysis. The other split went through the clean-up procedures. The extract clean-up included a silica column (neutral, basic, neutral, acidic, neutral), an acidic alumina column and an 18% carbopack C/ Celite 545 carbon column. The final 6mL of toluene off the carbon column was concentrated to 100 μ L and fortified with 10 μ L of $^{13}\text{C}_{12}$ labeled recovery standards in tridecane. The

extract was then concentrated to 10 μ L and transferred to GC vials for analysis. Samples for batch one were delivered for analysis on July 6, 1999. Samples for batch 2 were delivered for analysis on July 13, 1999. No significant difficulties were noted during sample preparation.

Analysis

The extracts were analyzed on a 60m DB-5MS column (0.25 mm internal diameter, 0.25 film thickness) utilizing a Hewlett Packard 5890 Series II high resolution gas chromatograph. The GC was interfaced to a VG70-250S high resolution mass spectrometer, operating at 10,000 mass resolving power in the SIM mode. The analytical run sequence for each 12 hour clock included a window defining mix / isomer specificity mix which is analyzed as one solution, a five point initial calibration (0.5-200pg/ μ L tetra) or a continuing calibration standard, a tridecane solvent instrument blank followed by batch samples. The calibration curve used is lower than the typical method 23 curve and was used to achieve lower detection limits. The method blank of each batch was analyzed first, the LCS second and then field samples with the toluene rinses analyzed before the sampling trains. Second column confirmation analysis for 2,3,7,8-TCDF using a TCDF- specific column was not performed.

Quantitation Approach

The results for the samples were quantitated based on the isotope dilution technique specified in Method 23. Identification of the specific congeners were based on the relative retention time and natural isotopic abundance ratio guidelines presented in the method. If a signal detected at the expected retention of specific PCDD/PCDF congeners does not meet the chlorine natural isotopic abundance ratio, the calculated concentration for these detected signals are reported as the estimated maximum possible concentration (EPMC). This value is given as the detection limit and will be higher than the noise based detection limit. If no signal is detected at the retention of the specific congeners of PCDD/PCDF, a noise-based detection limit is estimated and reported. The noise-based detection limit concentration is calculated based on a signal of 2.5 times the basic noise in a given mass channel. The quantitation limits can be estimated based on concentration presenting a signal 10 times the basic noise in a given mass channel.

Results

Analysis of the initial calibration (ICAL) solutions was performed on July 7, 1999. Analysis of field samples began on July 9, 1999 and ended on July 14, 1999.

- 1) Standards: The initial calibration curve passed the method 23 criteria with %RSD values for each analyte below 20%. The ending continuing calibration standard on July 9 failed the method criteria for 123789-HxCDF at 32.7% difference from the ICAL. The method criteria for this analyte was 30%. All other daily calibration standards passed the method criteria for all analytes. All isomer specificity standards also passed the method criteria for 2378-TCDD with less than 25% valley resolution between it and its closest eluting isomer.

- 2) Dioxin/furans in Field Samples: Most 2378-substituted dioxins and furans were found in the train samples. If the compound was not found, it was usually an EMPC. Several non-2378-substituted isomers were found for each homolog group and are reported in the total homolog section. There were also isomers found in the toluene rinse samples for each train, but these are below the level seen in the train samples. All native results are given a total pg.
- 3) Internal Quantitation Standards: The average recovery of labeled IQS standards for the entire project ranged from 79.6% to 109%. Poor recovery below the method criteria was seen in the toluene rinses from the following field samples (Run 6,7,8,9,10 Inlet trains and Run 8 and 9 Outlet trains). These were the toluene rinses prepared in batch two. No instrument or prep lab difficulties were noted that would cause this recovery. The recovery of all other samples in batch two were good with one high recovery (136% for $^{13}\text{C}_{12}$ 23478PeCDF) in the batch two LCS. The beginning and ending standards for this analysis all passed method criteria, and the lock mass of the instrument was stable throughout the analysis. Since this problem is seen only in one matrix and no other samples including instrument standards, method blank and LCS, this is most likely related to a difficult matrix problem effecting the absorbents used in sample clean-up. These results have been flagged with a "J" in the data tables.
- 4) Field Surrogate Standards: The average recovery of labeled field surrogate standard for the entire project ranged from 70.5% to 97.6%. In some samples, the $^{13}\text{C}_{12}$ 23478PeCDF recovered slightly low. These have been flagged with a "J" in the data tables.
- 5) LCS Sample- Two LCS samples were prepared for this project. For most isomers, the LCS met the criteria of 75-125%. In both samples the 12378-PeCDF did not recover well along with OCDF in batch two. These have been flagged with a "J" on the data table.
- 6) Method Blank- Two method blank samples were prepared for this project. The results for the method blank are presented in total. There were detectable levels of PCDD/PCDF above the calculated noise-based detection limits, but all were significantly below the train samples. The method blanks also met IQS recovery guidelines.



Eastern Research Group, Inc.

June 11, 1999

Foston Curtis
US EPA
MD-19
RTP, NC 27711
(919) 541-1063

Dear Mr. Curtis:

Eastern Research Group (ERG) has been requested by U.S. EPA to provide you with a container of an audit material for a **Method 23 audit, entitled M23-028**. These materials have been shipped directly to Jim Surman at the Woodlawn Cemetery in Bronx, NY for audit purposes per your request.

We urge you to have the laboratory analyze this audit material as they would a sample according to the specifications of the Test Method. The government representative or requestor is to have the material analyzed as soon as possible so the EPA can evaluate the results.

The audit results are to be reported in the units specified by the Test Method, shown in the format given in the **supplied Dioxin Furan Audit Form**, and submitted to:

Eastern Research Group
Attn.: Robert Martz
PO Box 2010
Morrisville, North Carolina 27560-2010
Telephone: (919) 468-7927, Fax (919) 468-7803

Questions about the audit request process or delivery of audit materials should be sent to:

EMC QA Team c/o Mr. Thomas Logan
Emission Measurement Center (MD-19)
OAQPS/EMAD/SCGB
U. S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711
Telephone: (919) 541-2580.

If you have any questions concerning the shipping of the audit material, contact me at the above number. If you wish to ask specific details about the audit materials, please call Thomas Logan.

Sincerely,

Robert F. Martz

cc: **Shipped with audit sample**

1600 Perimeter Park (Office)
P.O. Box 2010
Morrisville, NC 27560-2010
Phone 919-468-7800
Fax 919-468-7801

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110 Hartwell Avenue
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Fax 781-674-2851

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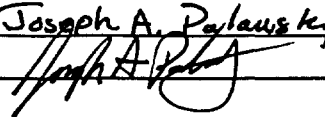
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U.S. EPA Quality Assurance Division

Dioxin/Furan Audit Form

Auditor: _____
Agency: _____
Agency Address: _____
Agency Phone #: _____
Date Analyzed: _____
Auditee Company: Midwest Research Institute
Auditee Address: 425 Volker Blvd Kansas City MO 64110
Date Audit Sam Rec'd: Kansas City 6/23/99
Audit Sample #: M23-028
Confirmation Analysis Used: Yes _____ No ☒
Auditee's Name: Lab Joseph A. Palausky
Signature: 

Compound	Auditee Result (ng/sample)	Compound	Auditee Result (ng/sample)
2378-TCDD	0.185	2378-TCDF	0.168
Other TCDD	0.452	Other TCDF	0.360
12378-PeCDD	0.179	12378-PCDF	0.127
Other PeCDD	0.599	23478-PCDF	0.158
123478-HxCDD	0.169	Other PCDF	0.448
123678-HxCDD	0.175	123478-HxCDF	0.175
123789-HxCDD	0.169	123678-HxCDF	0.179
Other HxCDD	0.876	123789-HxCDF	0.437
1234678-HpCDD	0.355	234678-HxCDF	0.180
Other HpCDD	0.562	Other HxCDF	1.02
OCDD	0.390	1234678-HpCDF	0.380
		1234789-HpCDF	0.393
		Other HpCDF	0.755
		OCDF	0.282

Appendix H

Particulate Matter Emission Determination

PARTICULATE MATTER (FRONT-HALF TRAIN) RINSES ANALYSIS DATA

MRI Project No. 5587.04.01

Client/Source: CANA / Cremation Incinerator Unit

Source Location: The Woodlawn Cemetery, Bronx, New York

Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: Jim Surman

Beaker Size and Type: 150-mL borosilicate glass

Acetone Lot No. BV113

Water Lot No. 5-26-99

Sample Treatment: Acetone and water samples evaporated at ambient temperature and pressure in an enclosure with HEPA-filtered air; then, desiccated and weighed to a constant weight.

Weight Unit: grams

Run No. 1 Inlet Beaker No. 1 Sample No. 1001

Sample Volume + Acetone Rinses of Bottle		Beaker + Sample Residue Weights			
	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>180.2</u>	<u>165.5</u>	<u>68.5727</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>68.6</u>	<u>73.0</u>	<u>68.5726</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>204.1</u>				
B. Water Wt. from Recovery Data:	<u>0</u>				
C. Acetone Wt. (A - B):	<u>204.1</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>258.4</u>				
Beaker + Residue Gross Weight used for data entry:			<u>68.5727</u>		
Beaker Tare Weight from Tare Weight Data:			<u>68.5504</u>		
Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) =			<u>0</u> mg/mL		
Volume (B + D) for data entry =			<u>258.4</u> mLs		

Comments:

Run No. 1 Outlet Beaker No. 2 Sample No. 1025

Sample Volume + Acetone Rinses of Bottle		Beaker + Sample Residue Weights			
	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>163.7</u>	<u>—</u>	<u>63.7017</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>63.7</u>	<u>—</u>	<u>63.7017</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>100.0</u>				
B. Water Wt. from Recovery Data:	<u>0</u>				
C. Acetone Wt. (A - B):	<u>100.0</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>126.6</u>				
Beaker + Residue Gross Weight used for data entry:			<u>63.7017</u>		
Beaker Tare Weight from Tare Weight Data:			<u>63.6896</u>		
Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) =			<u>0</u> mg/mL		
Volume (B + D) for data entry =			<u>126.6</u> mLs		

Comments:

Run No. 2 Inlet Beaker No. 3 Sample No. 2001

Sample Volume + Acetone Rinses of Bottle		Beaker + Sample Residue Weights			
	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>191.5</u>	<u>195.8</u>	<u>65.6864</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>65.7</u>	<u>75.0</u>	<u>65.6864</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>246.6</u>				
B. Water Wt. from Recovery Data:	<u>57.4</u>				
C. Acetone Wt. (A - B):	<u>189.2</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>239.5</u>				
Beaker + Residue Gross Weight used for data entry:			<u>65.6864</u>		
Beaker Tare Weight from Tare Weight Data:			<u>65.6624</u>		
Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) =			<u>0.0017</u> mg/mL		
Volume (B + D) for data entry =			<u>296.9</u> mLs		

Comments:

NOTE: Control beaker weights, reagent blank weights, and balance check data are on other forms.

PARTICULATE MATTER (FRONT-HALF TRAIN) RINSES ANALYSIS DATA

MRI Project No. 5587.04.01

Client/Source: CANA / Cremation Incinerator Unit

Source Location: The Woodlawn Cemetery, Bronx, New York

Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JSurman

Beaker Size and Type: 150-mL borosilicate glass

Acetone Lot No. BV113 Water Lot No. 5-26-99

Sample Treatment: Acetone and water samples evaporated at ambient temperature and pressure in an enclosure with HEPA-filtered air; then, desiccated and weighed to a constant weight.

Weight Unit: grams

Run No. 2 Outlet Beaker No. 4 Sample No. 2025

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>176.2</u>	<u>175.6</u>	<u>67.0484</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>67.0</u>	<u>67.0</u>	<u>67.0484</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>280.9</u>				
B. Water Wt. from Recovery Data:	<u>0</u>				
C. Acetone Wt. (A - B):	<u>280.9</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>355.6</u>				

Beaker + Residue Gross Weight used for data entry: 67.0484

Beaker Tare Weight from Tare Weight Data: 67.0372

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0 mg/mL
Volume (B + D) for data entry = 355.6 mLs

Comments:

Run No. 3 Inlet Beaker No. 5 Sample No. 3001

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>181.1</u>	<u>173.5</u>	<u>67.2299</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>67.2</u>	<u>67.2</u>	<u>67.2300</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>259.6</u>				
B. Water Wt. from Recovery Data:	<u>0</u>				
C. Acetone Wt. (A - B):	<u>259.6</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>328.6</u>				

Beaker + Residue Gross Weight used for data entry: 67.2300

Beaker Tare Weight from Tare Weight Data: 67.2114

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0 mg/mL
Volume (B + D) for data entry = 328.6 mLs

Comments:

Run No. 3 Outlet Beaker No. 6 Sample No. 3025

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>171.3</u>	<u>144.4</u>	<u>67.6330</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>67.6</u>	<u>67.6</u>	<u>67.6330</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>180.5</u>				
B. Water Wt. from Recovery Data:	<u>0</u>				
C. Acetone Wt. (A - B):	<u>180.5</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>228.5</u>				

Beaker + Residue Gross Weight used for data entry: 67.6330

Beaker Tare Weight from Tare Weight Data: 67.6208

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0 mg/mL
Volume (B + D) for data entry = 228.5 mLs

Comments:

NOTE: Control beaker weights, reagent blank weights, and balance check data are on other forms.

PARTICULATE MATTER (FRONT-HALF TRAIN) RINSES ANALYSIS DATA

MRI Project No. 5587.04.01

Client/Source: CANA / Cremation Incinerator Unit

Source Location: The Woodlawn Cemetery, Bronx, New York

Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JSurman

Beaker Size and Type: 150-mL borosilicate glass

Acetone Lot No. BV113 Water Lot No. 5-26-99

Sample Treatment: Acetone and water samples evaporated at ambient temperature and pressure in an enclosure with HEPA-filtered air; then, desiccated and weighed to a constant weight.

Weight Unit: grams

Run No. 4 Inlet Beaker No. 7 Sample No. 4014

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>196.9</u>	<u>---</u>	<u>75.5027</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>75.4</u>	<u>---</u>	<u>75.5027</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.		<u>121.5</u>			
B. ----- Water Wt. from Recovery Data:		<u>27.3</u>			
C. ----- Acetone Wt. (A - B):		<u>94.2</u>			
D. ----- Acetone Wt./0.79 = mLs Acetone:		<u>119.2</u>			

Beaker + Residue Gross Weight used for data entry: 75.5027Beaker Tare Weight from Tare Weight Data: 75.4414Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0.0017 mg/mLVolume (B + D) for data entry = 146.5 mLsComments: Samples from M29 TrainRun No. 4 Outlet Beaker No. 8 Sample No. 4025

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>186.2</u>	<u>153.2</u>	<u>65.7910</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>65.8</u>	<u>85.7</u>	<u>65.7910</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.		<u>187.9</u>			
B. ----- Water Wt. from Recovery Data:		<u>0</u>			
C. ----- Acetone Wt. (A - B):		<u>187.9</u>			
D. ----- Acetone Wt./0.79 = mLs Acetone:		<u>237.8</u>			

Beaker + Residue Gross Weight used for data entry: 65.7910Beaker Tare Weight from Tare Weight Data: 65.7738Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0 mg/mLVolume (B + D) for data entry = 237.8 mLs

Comments:

Run No. 5 Inlet Beaker No. 9 Sample No. 5001

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>187.9</u>	<u>149.8</u>	<u>76.3809</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>76.3</u>	<u>76.4</u>	<u>76.3808</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.		<u>185.0</u>			
B. ----- Water Wt. from Recovery Data:		<u>0</u>			
C. ----- Acetone Wt. (A - B):		<u>185.0</u>			
D. ----- Acetone Wt./0.79 = mLs Acetone:		<u>234.2</u>			

Beaker + Residue Gross Weight used for data entry: 76.3809Beaker Tare Weight from Tare Weight Data: 76.3420Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0 mg/mLVolume (B + D) for data entry = 234.2 mLs

Comments:

NOTE: Control beaker weights, reagent blank weights, and balance check data are on other forms.

PARTICULATE MATTER (FRONT-HALF TRAIN) RINSES ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JS

Beaker Size and Type: 150-mL borosilicate glass

Acetone Lot No. BV113

Water Lot No. 5-26-99

Sample Treatment: Acetone and water samples evaporated at ambient temperature and pressure in an enclosure with HEPA-filtered air; then, desiccated and weighed to a constant weight.

Weight Unit: grams

Run No. 5 Outlet Beaker No. 10 Sample No. 5025

Sample Volume + Acetone Rinses of Bottle			Beaker + Sample Residue Weights		
	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>179.2</u>	<u>125.9</u>	<u>67.4605</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>67.4</u>	<u>72.1</u>	<u>67.4605</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.	<u>165.6</u>				
B. ----- Water Wt. from Recovery Data:	<u>0</u>				
C. ----- Acetone Wt. (A - B):	<u>165.6</u>				
D. ----- Acetone Wt./0.79 = mLs Acetone:	<u>209.6</u>				
			Beaker + Residue Gross Weight used for data entry: <u>67.4605</u>		
			Beaker Tare Weight from Tare Weight Data: <u>67.4402</u>		
Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) =			<u>0</u> mg/mL		
			Volume (B + D) for data entry = <u>209.6</u> mLs		

Comments:

Run No. 6 Inlet Beaker No. 11 Sample No. 6001

Sample Volume + Acetone Rinses of Bottle			Beaker + Sample Residue Weights		
	start	end	Gross Wt.	Date	Time
✓ Beaker + Sample + Rinses Wt.	<u>174.5</u>	<u>108.8</u>	<u>67.7150</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>67.7</u>	<u>77.8</u>	<u>67.7150</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.	<u>134.8</u>				
B. ----- Water Wt. from Recovery Data:	<u>0</u>				
C. ----- Acetone Wt. (A - B):	<u>134.8</u>				
D. ----- Acetone Wt./0.79 = mLs Acetone:	<u>170.6</u>				
			Beaker + Residue Gross Weight used for data entry: <u>67.7150</u>		
			Beaker Tare Weight from Tare Weight Data: <u>67.6637</u>		
Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) =			<u>0</u> mg/mL		
			Volume (B + D) for data entry = <u>170.6</u> mLs		

Comments:

Run No. 6 Outlet Beaker No. 12 Sample No. 6025

Sample Volume + Acetone Rinses of Bottle			Beaker + Sample Residue Weights		
	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>182.5</u>	<u>121.5</u>	<u>67.6920</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>67.7</u>	<u>74.2</u>	<u>67.6921</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.	<u>162.1</u>				
B. ----- Water Wt. from Recovery Data:	<u>0</u>				
C. ----- Acetone Wt. (A - B):	<u>162.1</u>				
D. ----- Acetone Wt./0.79 = mLs Acetone:	<u>205.2</u>				
			Beaker + Residue Gross Weight used for data entry: <u>67.6921</u>		
			Beaker Tare Weight from Tare Weight Data: <u>67.6709</u>		
Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) =			<u>0</u> mg/mL		
			Volume (B + D) for data entry = <u>205.2</u> mLs		

Comments:

NOTE: Control beaker weights, reagent blank weights, and balance check data are on other forms.

PARTICULATE MATTER (FRONT-HALF TRAIN) RINSES ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: Jim Surman

Beaker Size and Type: 150-mL borosilicate glass

Acetone Lot No. BY113 Water Lot No. 5-26-99

Sample Treatment: Acetone and water samples evaporated at ambient temperature and pressure in an enclosure with HEPA-filtered air; then, desiccated and weighed to a constant weight.

Weight Unit: grams

Run No. 7 Inlet Beaker No. 13 Sample No. 7001

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>184.5</u>	<u>179.5</u>	<u>63.3610</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>63.2</u>	<u>93.5</u>	<u>63.3610</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>217.3</u>				
B. Water Wt. from Recovery Data:	<u>36.5</u>				
C. Acetone Wt. (A - B):	<u>180.8</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>228.9</u>				

Beaker + Residue Gross Weight used for data entry: 63.3610

Beaker Tare Weight from Tare Weight Data: 63.1593

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0.0012 mg/mL

Volume (B + D) for data entry = 265.4 mLs

Comments:

Run No. 7 Outlet Beaker No. 14 Sample No. 7025

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>201.1</u>	<u>191.7</u>	<u>68.5004</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>68.5</u>	<u>77.9</u>	<u>68.5005</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>302.2</u>				
B. Water Wt. from Recovery Data:	<u>97.8</u>				
C. Acetone Wt. (A - B):	<u>204.4</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>258.7</u>				

Beaker + Residue Gross Weight used for data entry: 68.5005

Beaker Tare Weight from Tare Weight Data: 68.4437

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0.0025 mg/mL

Volume (B + D) for data entry = 356.5 mLs

Comments:

Run No. 8 Inlet Beaker No. 15 Sample No. 8001

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>210.7</u>	<u>193.5</u>	<u>83.1823</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>83.1</u>	<u>83.1</u>	<u>83.1825</u>	<u>07-01-99</u>	<u>0845</u>
A. Sample + Rinses Wt.	<u>238.0</u>				
B. Water Wt. from Recovery Data:	<u>32.4</u>				
C. Acetone Wt. (A - B):	<u>205.6</u>				
D. Acetone Wt./0.79 = mLs Acetone:	<u>260.3</u>				

Beaker + Residue Gross Weight used for data entry: 83.1824

Beaker Tare Weight from Tare Weight Data: 83.0696

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0.0010 mg/mL

Volume (B + D) for data entry = 292.7 mLs

Comments:

NOTE: Control beaker weights, reagent blank weights, and balance check data are on other forms.

PARTICULATE MATTER (FRONT-HALF TRAIN) RINSES ANALYSIS DATA

MRI Project No. 5587.04.01

Client/Source: CANA / Cremation Incinerator Unit

Source Location: The Woodlawn Cemetery, Bronx, New York

Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JSurman

Beaker Size and Type: 150-mL borosilicate glass

Acetone Lot No. BV113

Water Lot No. 5-26-99

Sample Treatment: Acetone and water samples evaporated at ambient temperature and pressure in an enclosure with HEPA-filtered air; then, desiccated and weighed to a constant weight.

Weight Unit: grams

Run No. 8 Outlet Beaker No. 16 Sample No. 8038

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>189.8</u>	<u>170.3</u>	<u>68.5396</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>68.5</u>	<u>97.3</u>	<u>68.5396</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.		<u>194.3</u>			
B. ----- Water Wt. from Recovery Data:		<u>42.2</u>			
C. ----- Acetone Wt. (A - B):		<u>152.1</u>			
D. ----- Acetone Wt./0.79 = mLs Acetone:		<u>192.5</u>			

Beaker + Residue Gross Weight used for data entry: 68.5396

Beaker Tare Weight from Tare Weight Data: 68.4957

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0.0016 mg/mL

Volume (B + D) for data entry = 234.7 mLs

Comments: Samples from M29 Train.

Run No. 9 Inlet Beaker No. 17 Sample No. 9001

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>184.2</u>	<u>162.9</u>	<u>68.1692</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>68.1</u>	<u>50.8</u>	<u>68.1692</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.		<u>198.2</u>			
B. ----- Water Wt. from Recovery Data:		<u>24.5</u>			
C. ----- Acetone Wt. (A - B):		<u>173.7</u>			
D. ----- Acetone Wt./0.79 = mLs Acetone:		<u>219.9</u>			

Beaker + Residue Gross Weight used for data entry: 68.1692

Beaker Tare Weight from Tare Weight Data: 68.0939

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0.0009 mg/mL

Volume (B + D) for data entry = 244.4 mLs

Comments:

Run No. 9 Outlet Beaker No. 18 Sample No. 9038

Sample Volume + Acetone Rinses of Bottle

Beaker + Sample Residue Weights

	start	end	Gross Wt.	Date	Time
Beaker + Sample + Rinses Wt.	<u>169.3</u>	<u>132.4</u>	<u>60.8818</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>60.9</u>	<u>60.9</u>	<u>60.8818</u>	<u>07-01-99</u>	<u>0845</u>
A. ----- Sample + Rinses Wt.		<u>179.9</u>			
B. ----- Water Wt. from Recovery Data:		<u>0</u>			
C. ----- Acetone Wt. (A - B):		<u>179.9</u>			
D. ----- Acetone Wt./0.79 = mLs Acetone:		<u>227.7</u>			

Beaker + Residue Gross Weight used for data entry: 60.8818

Beaker Tare Weight from Tare Weight Data: 60.8615

Combined Blank = ((Water Blank x B) + (Acetone Blank x D))/(B + D) = 0 mg/mL

Volume (B + D) for data entry = 227.7 mLs

Comments: Samples from M29 Train

NOTE: Control beaker weights, reagent blank weights, and balance check data are on other forms.

BEAKER TARE WEIGHT DATA

MRI Project No. 5587.04.01

Sampling Team Leader: Jim Surman

Analyst: *JSurman*

Beaker Size and Type: 150-mL borosilicate glass

Beaker Treatment: Following cleaning according to the test protocol, heat at 105 °C for 3 hours, desiccate, and weigh to a constant weight.

Weight Unit: grams

Date: 06-28-9906-29-99Time Started: 13300900

Balance Check before beakers are weighed:

Balance Used: Mettler AE200, MRI #10586

Weight Value: 50 and 20 grams

50 and 20 grams

50 and 20 grams

Balance Reads: 70.000270.0002

Beaker I.D. No.	First Weighing	Second Weighing	Third Weighing	Average Weight or Weight to be Used as the Tare
1	68.5505	68.5504		68.5504
2	63.6896	63.6896		63.6896
3	65.6624	65.6624		65.6624
4	67.0372	67.0372		67.0372
5	67.2114	67.2114		67.2114
6	67.6208	67.6208		67.6208
7	75.4414	75.4414		75.4414
8	65.7738	65.7739		65.7738
9	76.3420	76.3420		76.3420
10	67.4402	67.4402		67.4402
11	67.6637	67.6637		67.6637
12	67.6709	67.6709		67.6709
13	63.1593	63.1593		63.1593
14	68.4437	68.4437		68.4437
15	83.0696	83.0696		83.0696
16	68.4957	68.4957		68.4957
17	68.0939	68.0939		68.0939
18	60.8615	60.8616		60.8615
19	67.3799	67.3799		67.3799
20	68.4284	68.4284		68.4284

Balance Check after beakers are weighed:

Balance Reads: _____

COMMENTS:

FILTER TARE WEIGHT DATA

MRI Project No. 5587.04.01

Sampling Team Leader: Jim Surman

Analyst: J. Surman

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heat at 105 °C for 3 hours, desiccate, and weigh to a constant weight.

Weight Unit: grams

Date: 06/02/99

06/03/99

Time Started: 1415

1135

Balance Check before filters are weighed:

Balance Used: Mettler AE200, MRI #10586

Weight Value: 1 gram

1 gram

1 gram

Balance Reads: 1.0000

1.0000

Filter I.D. No.	First Weighing	Second Weighing	Third Weighing	Average Weight or Weight to be Used as the Tare
<u>1</u>	<u>1.0211</u>	<u>1.0211</u>		<u>1.0211</u>
<u>2</u>	<u>1.0443</u>	<u>1.0443</u>		<u>1.0443</u>
<u>3</u>	<u>1.0256</u>	<u>1.0257</u>		<u>1.0256</u>
<u>4</u>	<u>1.0458</u>	<u>1.0458</u>		<u>1.0458</u>
<u>5</u>	<u>1.0363</u>	<u>1.0363</u>		<u>1.0363</u>
<u>6</u>	<u>1.0402</u>	<u>1.0402</u>		<u>1.0402</u>
<u>7</u>	<u>1.0294</u>	<u>1.0294</u>		<u>1.0294</u>
<u>8</u>	<u>1.0329</u>	<u>1.0329</u>		<u>1.0329</u>
<u>9</u>	<u>1.0397</u>	<u>1.0397</u>		<u>1.0397</u>
<u>10</u>	<u>1.0404</u>	<u>1.0404</u>		<u>1.0404</u>
<u>11</u>	<u>1.0433</u>	<u>1.0433</u>		<u>1.0433</u>
<u>12</u>	<u>1.0373</u>	<u>1.0373</u>		<u>1.0373</u>
<u>13</u>	<u>1.0363</u>	<u>1.0364</u>		<u>1.0363</u>
<u>14</u>	<u>1.0388</u>	<u>1.0388</u>		<u>1.0388</u>
<u>15</u>	<u>1.0356</u>	<u>1.0356</u>		<u>1.0356</u>
<u>16</u>	<u>1.0361</u>	<u>1.0361</u>		<u>1.0361</u>
<u>17</u>	<u>1.0390</u>	<u>1.0390</u>		<u>1.0390</u>
<u>18</u>	<u>1.0368</u>	<u>1.0369</u>		<u>1.0368</u>
<u>19</u>	<u>1.0462</u>	<u>1.0462</u>		<u>1.0462</u>
<u>20</u>	<u>1.0354</u>	<u>1.0354</u>		<u>1.0354</u>

Balance Check after filters are weighed:

Balance Reads: 1.0000

1.0000

COMMENTS:

PARTICULATE MATTER ON FILTER ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JSurman

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heated at 105 °C for 3 hours, desiccated, and weighed to a constant weight.

Weight Unit: grams

Run No. 1 Inlet Filter No. 1 Sample No. 1002

Gross Wt.	Date	Time	Comments:
<u>1.0457</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0457</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0457

Filter Tare Weight from Tare Weight Data: 1.0211

Run No. 1 Outlet Filter No. 2 Sample No. 1026

Gross Wt.	Date	Time	Comments:
<u>1.0586</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0586</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0586

Filter Tare Weight from Tare Weight Data: 1.0443

Run No. 2 Inlet Filter No. 3 Sample No. 2002

Gross Wt.	Date	Time	Comments:
<u>1.0378</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0376</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0377

Filter Tare Weight from Tare Weight Data: 1.0256

NOTE: Control and blank filter weight data and balance check data are on other forms.

PARTICULATE MATTER ON FILTER ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JSurman

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heated at 105 °C for 3 hours, desiccated, and weighed to a constant weight.

Weight Unit: grams

Run No. 2 Outlet Filter No. 4 Sample No. 2026

Gross Wt.	Date	Time	Comments:
<u>1.0551</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0551</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0551

Filter Tare Weight from Tare Weight Data: 1.0458

Run No. 3 Inlet Filter No. 5 Sample No. 3002

Gross Wt.	Date	Time	Comments:
<u>1.0563</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0562</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0563

Filter Tare Weight from Tare Weight Data: 1.0363

Run No. 3 Outlet Filter No. 6 Sample No. 3026

Gross Wt.	Date	Time	Comments:
<u>1.0608</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0608</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0608

Filter Tare Weight from Tare Weight Data: 1.0402

NOTE: Control and blank filter weight data and balance check data are on other forms.

PARTICULATE MATTER ON FILTER ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JSurman

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heated at 105 °C for 3 hours, desiccated, and weighed to a constant weight.

Weight Unit: grams

Run No. 4 Inlet Filter No. 26 Sample No. 4016

Gross Wt.	Date	Time	Comments:
<u>1.0909</u>	<u>06-25-99</u>	<u>1445</u>	<u>From M29 train.</u>
<u>1.0908</u>	<u>06-28-99</u>	<u>0900</u>	
_____	_____	_____	
_____	_____	_____	

Filter Gross Weight used for data entry: 1.0909

Filter Tare Weight from Tare Weight Data: 1.0329

Run No. 4 Outlet Filter No. 8 Sample No. 4026

Gross Wt.	Date	Time	Comments:
<u>1.0841</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0841</u>	<u>06-28-99</u>	<u>0900</u>	
_____	_____	_____	
_____	_____	_____	

Filter Gross Weight used for data entry: 1.0841

Filter Tare Weight from Tare Weight Data: 1.0329

Run No. 5 Inlet Filter No. 9 Sample No. 5002

Gross Wt.	Date	Time	Comments:
<u>1.0901</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0901</u>	<u>06-28-99</u>	<u>0900</u>	
_____	_____	_____	
_____	_____	_____	

Filter Gross Weight used for data entry: 1.0901

Filter Tare Weight from Tare Weight Data: 1.0397

NOTE: Control and blank filter weight data and balance check data are on other forms.

PARTICULATE MATTER ON FILTER ANALYSIS DATA

MRI Project No. 5587.04.01

Client/Source: CANA / Cremation Incinerator Unit

Source Location: The Woodlawn Cemetery, Bronx, New York

Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: *JS*

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heated at 105 °C for 3 hours, desiccated, and weighed to a constant weight.

Weight Unit: grams

Run No. 50 Outlet Filter No. 10 Sample No. 5026

Gross Wt.	Date	Time	Comments:
<u>1.0882</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0882</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0882

Filter Tare Weight from Tare Weight Data: 1.0404

Run No. 6 Inlet Filter No. 7 Sample No. 6002

Gross Wt.	Date	Time	Comments:
<u>1.0854</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0854</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0854

Filter Tare Weight from Tare Weight Data: 1.0294

Run No. 6 Outlet Filter No. 12 Sample No. 6026

Gross Wt.	Date	Time	Comments:
<u>1.0914</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0913</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0914

Filter Tare Weight from Tare Weight Data: 1.0323

NOTE: Control and blank filter weight data and balance check data are on other forms.

PARTICULATE MATTER ON FILTER ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: Jim Surman

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heated at 105 °C for 3 hours, desiccated, and weighed to a constant weight.

Weight Unit: grams

Run No. 7 Inlet Filter No. 13 Sample No. 7002

Gross Wt.	Date	Time	Comments:
<u>1.2076</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.2076</u>	<u>06-28-99</u>	<u>0900</u>	
_____	_____	_____	
_____	_____	_____	
Filter Gross Weight used for data entry:			<u>20.11</u> <u>1.0276</u>
Filter Tare Weight from Tare Weight Data:			<u>1.0363</u>

Run No. 7 Outlet Filter No. 14 Sample No. 7026

Gross Wt.	Date	Time	Comments:
<u>1.2182</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.2180</u>	<u>06-28-99</u>	<u>0900</u>	
_____	_____	_____	
_____	_____	_____	
Filter Gross Weight used for data entry:			<u>1.2181</u>
Filter Tare Weight from Tare Weight Data:			<u>1.0388</u>

Run No. 8 Inlet Filter No. 15 Sample No. 8002

Gross Wt.	Date	Time	Comments:
<u>1.1133</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.1133</u>	<u>06-28-99</u>	<u>0900</u>	
_____	_____	_____	
_____	_____	_____	
Filter Gross Weight used for data entry:			<u>1.1133</u>
Filter Tare Weight from Tare Weight Data:			<u>1.0356</u>

NOTE: Control and blank filter weight data and balance check data are on other forms.

PARTICULATE MATTER ON FILTER ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: JSurman

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heated at 105 °C for 3 hours, desiccated, and weighed to a constant weight.

Weight Unit: grams

Run No. 8 Outlet Filter No. 16 Sample No. 8040

Gross Wt.	Date	Time	Comments:
<u>1.1295</u>	<u>06-25-99</u>	<u>1445</u>	<u>From M29 train.</u>
<u>1.1294</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.1295
 Filter Tare Weight from Tare Weight Data: 1.0361

Run No. 9 Inlet Filter No. 17 Sample No. 9002

Gross Wt.	Date	Time	Comments:
<u>1.0848</u>	<u>06-25-99</u>	<u>1445</u>	
<u>1.0849</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0849
 Filter Tare Weight from Tare Weight Data: 1.0390

Run No. 9 Outlet Filter No. 18 Sample No. 9040

Gross Wt.	Date	Time	Comments:
<u>1.0870</u>	<u>06-25-99</u>	<u>1445</u>	<u>From M29 train.</u>
<u>1.0870</u>	<u>06-28-99</u>	<u>0900</u>	

Filter Gross Weight used for data entry: 1.0870
 Filter Tare Weight from Tare Weight Data: 1.0368

NOTE: Control and blank filter weight data and balance check data are on other forms.

PARTICULATE MATTER (FRONT-HALF TRAIN) REAGENT BLANK ANALYSIS DATA

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Location(s): Scrubber Inlet and Outlet Ducts

Sampling Team Leader: Jim Surman

Analyst: Jim Surman

Beaker Size and Type: 150-mL borosilicate glass

Acetone Lot No. BV113

Water Lot No. 5-26-99

Sample Treatment: Acetone and water samples evaporated at ambient temperature and pressure in an enclosure with HEPA-filtered air; then, desiccated and weighed to a constant weight.

Filter Size and Type: 4.9-inch diameter, Whatman QM-A quartz filter

Filter Lot No. 65335

Filter Treatment: Heated at 105 °C for 3 hours, desiccated, and weighed to a constant weight.

Weight Unit: grams

Acetone Blank Determination: For Run No.(s) A11

Beaker No. 19

Sample No. 1049

Acetone Reagent Blank Sample Volume

Beaker + Sample Residue Weights

	Gross Wt.	Date	Time
Beaker + Acetone Sample Wt.	<u>173.2</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>67.3799</u>	<u>07-01-99</u>	<u>0845</u>
Acetone Sample Wt.	<u>105.8</u>		

A. ----- Acetone Wt./0.79 = mLs Acetone: 133.9

Beaker + Residue Gross Weight used for blank determination: 67.3799

Beaker Tare Weight from Tare Weight Data: 67.3799

B. ----- Net Weight of Residue in beaker: -0-

Acetone Blank (B x 1000/A) for data entry or for computing Combined Blank: 0 mg/mL

Comments:

Water Blank Determination: For Run No.(s) A11

Beaker No. 20

Sample No. 1051

Water Reagent Blank Sample Volume

Beaker + Sample Residue Weights

	Gross Wt.	Date	Time
Beaker + Water Sample Wt.	<u>190.1</u>	<u>06-30-99</u>	<u>1230</u>
Beaker Tare Wt.	<u>68.4</u>	<u>07-01-99</u>	<u>0845</u>
Water Sample Wt.	<u>121.7</u>		

A. ----- Water Wt. = mLs Water: 121.7

Beaker + Residue Gross Weight used for blank determination: 68.4295

Beaker Tare Weight from Tare Weight Data: 68.4295

B. ----- Net Weight of Residue in beaker: 0.0011

Water Blank (B x 1000/A) for data entry or for computing Combined Blank: 0.0090 mg/mL

Comments:

Filter Blank Determination: For Run No.(s) A11

Filter No. 25

Sample No. 1050

Gross Wt.	Date	Time
<u>1.0353</u>	<u>06-25-99</u>	<u>1445</u>
<u>1.0353</u>	<u>06-28-99</u>	<u>0900</u>

Comments:

A. ----- Filter Gross Weight used for blank determination: 1.0353

B. ----- Filter Tare Weight from Tare Weight Data: 1.0353

Net Filter Weight Difference (A - B) for data entry: 0

[retain minus sign if value is negative]

NOTE: Control beaker weights, control filter weights, and balance check data are on another form.
 PMBLANKX.WPD April 29, 1996 (rev. PMBLANK.WPD May 27, 1999)

MRI Project No. 5587.04.01
 Client/Source: CANA / Cremation Incinerator Unit
 Source Location: The Woodlawn Cemetery, Bronx, New York
 Sampling Locations: Scrubber Inlet and Outlet Ducts

Analyst:

Filter No. 19
Original Tare Wt.: 1.0462

19
Balance Reading
Start

Current Wt.	Date	Time	Balance Reading
			Start
<u>1.0463</u>	<u>06-25-99</u>	<u>1445</u>	<u>1.0000</u>
<u>1.0462</u>	<u>06-28-99</u>	<u>0900</u>	<u>1.0000</u>

Filter No. 20
Original Tare Wt.: 1.0354

1g
Balance Reading
End

Current Wt.	Date	Time	Balance Reading
<u>1.0354</u>	<u>06-25-99</u>	<u>1445</u>	<u>1.0000</u>
<u>1.0354</u>	<u>06-28-99</u>	<u>0900</u>	<u>1.0000</u>

Beaker No. 21
Original Tare Wt.: 68.7255

50+20g
Balance Reading
Start

Current Wt.	Date	Time	Balance Reading
	06-30-99	1230	70,000.2
	07-01-99	0845	70,000.2

Beaker No. 22
Original Tare Wt.: 67.3654

50 + 20g
Balance Reading
End

Current Wt.	Date	Time	Balance Reading
			End
	06-30-99	1230	70.0002
	07-01-99	0845	70.0002

Each time filters or beakers are weighed, the balance is checked for accuracy by weighing NIST certified weights approximating the weights of the filters or beakers.

Appendix I

Calibration Data for Sampling Equipment

SAMPLING NOZZLE CALIBRATION CHECK DATA

MRI Project No. 4951.08.04.01 and 5587.04.01

Client/Source: U.S. EPA OAQPS SCGA and CANA / Cremation Incinerator Unit

Source Location: The Woodlawn Cemetery, Bronx, New York

Sampling Locations: Scrubber Inlet and Outlet Ducts

Nozzle I.D. Number or Dedicated Sampling Train Number	Remarks or Notes	Three Measured Diameters, inches			Average Diameter, inches	Measured By	Date
		D1	D2	D3			
M23-1		0.708	0.708	0.709	0.708	06/11/99	
M23-2		0.708	0.708	0.708	0.708	06/11/99	
M23-3		0.708	0.708	0.709	0.708	06/11/99	
M23-4		0.707	0.707	0.708	0.707	06/11/99	
M26A-1		0.709	0.708	0.708	0.708	06/11/99	
M26A-2		0.709	0.708	0.708	0.708	06/11/99	
M26A-3		0.708	0.708	0.708	0.708	06/11/99	
M26A-4		0.709	0.708	0.708	0.708	06/11/99	
M29-1		0.709	0.710	0.709	0.709	06/11/99	
M29-2		0.709	0.707	0.708	0.708	06/11/99	
M29-3		0.709	0.709	0.709	0.709	06/11/99	
M29-4		0.709	0.709	0.709	0.709	06/11/99	
M29-5		0.708	0.708	0.708	0.708	06/13/99	
M26A-6		0.708	0.708	0.708	0.708	06/13/99	

COMMENTS: All nozzles are constructed of quartz glass and are of the gooseneck design.

Sampling Location: Scrubber Inlet (Projects 4951.08 and 5587)

SAMPLING LOCATION USING ONE TRAIN AT A CROSS SECTIONAL AREA OF THE DUCT

[illegible][illegible]

BLKGCALC.WK4 04/09/99 (rev. BLKGINLT.WK4 06/28/99)

Sampling Location: Scrubber Outlet (Projects 4951.08 and 5587)

SAMPLING LOCATION USING ONE TRAIN AT A CROSS SECTIONAL AREA OF THE DUCT

[illegible]

**SAMPLING LOCATION USING 2 CONCURRENT TRAINS, EACH AT ONE PORT
ON THE SAME CROSS SECTIONAL AREA OF THE DUCT**

[illegible]BLKG CALC.WK4 04/09/99 (rev. BLKG OUT.WK4 06/28/99)

M5 Console:

[illegible]

Average: 0.30 0.43 0.80 0.64 1.26 0.82

Average Stack Temperature Computations

Probe:

[illegible]

Average:	588	576	1319	1263	1261	1521	1502	1444	609

ANEROID BAROMETER CALIBRATION CHECK

Location: Kansas City, Missouri

Altitude Above Sea Level: 850 feet

Latitude: 39° 05.8' north

Meteorological Gravity: 32.1551 feet/second²

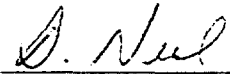
Mercury Barometer Description: Sargent Welch, Cat. S-4519, Lot 791802000

MRI Project No. 104951.1.008

Date: 8/4/99

Time: 11:00

Readings Obtained By: D. Neal



Observed Barometer Reading: 29.36 in. Hg

Mercury Column Temperature: 72 °F

Correction For Temperature: -0.11 in. Hg

Correction For Gravity: -0.02 in. Hg

Corrected Barometric Pressure: 29.23 in. Hg

Aneroid Barometer I.D. No.: X-4029

Reading Before Adjustment: 29.32 in. Hg

Calibration Check Result: within 0.1 in. Hg

Reading After Adjustment: 29.23 in. Hg

Remarks:

MERCURY BAROMETER PRESSURE READING CORRECTION

Location: Kansas City, Missouri

Altitude Above Sea Level: 850 feet

Latitude: 39° 05.8' north

Meteorological Gravity: 32.1551 feet/second²

Mercury Barometer Description: Sargent Welch, Cat. S-4519, Lot 791802000

MRI Project No. 104951.1.008

Date: 8/3/99

Time: 10:00

Readings Obtained By: S. Poandl

Observed Barometer Reading: 29.46 in. Hg

Mercury Column Temperature: 69 °F

Correction For Temperature: -0.10 in. Hg

Correction For Gravity: -0.02 in. Hg

Corrected Barometric Pressure: 29.34 in. Hg

Remarks:

MERCURY BAROMETER PRESSURE READING CORRECTION

Location: Kansas City, Missouri

Altitude Above Sea Level: 850 feet

Latitude: 39° 05.8' north

Meteorological Gravity: 32.1551 feet/second²

Mercury Barometer Description: Sargent Welch, Cat. S-4519, Lot 791802000

MRI Project No. 104951.1.008

Date: 8/5/99

Time: 0.458333

Readings Obtained By: D. Neal

Observed Barometer Reading: 29.34 in. Hg

Mercury Column Temperature: 73 °F

Correction For Temperature: -0.11 in. Hg

Correction For Gravity: -0.02 in. Hg

Corrected Barometric Pressure: 29.21 in. Hg

Remarks:

**METHOD 5 METERING CONSOLE CALIBRATION
CRITICAL ORIFICE BRACKETING DATA**

MRI Project No.	104951.1.008	Critical Orifice Being Evaluated	
Date:	7-20-99	Critical Orifice No.	D19
Operator:	D. Neal	Critical Orifices Used For Bracketing	
Metering Console No.	N10	First Orifice	
Dry Gas Meter Factor (Y):	1.019	Critical Orifice No.	D16
Orifice Used for the Calibration:	D19	Coefficient (K'):	0.44410
Ambient Temperature Meter No.	Y-0815	Second Orifice	
Note: Critical orifice coefficients are in English units.		Critical Orifice No.	D24
		Coefficient (K'):	0.65490

	First Orifice	Second Orifice
CALIBRATION GAS VOLUME DATA		
Initial Dry Gas Meter Gas Volume, ft. ³	732.300	738.504
Final Dry Gas Meter Gas Volume, ft. ³	738.148	747.149
Net Dry Gas Meter Gas Volume (Vm), ft. ³	5.848	8.645
CALIBRATION CONDITIONS DATA		
Dry Gas Meter Temperature, °F:		
Initial Inlet Temperature, °F	94.0	96.0
Final Inlet Temperature, °F	95.0	99.0
Initial Outlet Temperature, °F	91.0	92.0
Final Outlet Temperature, °F	91.0	93.0
Average Dry Gas Meter Temperature (tm), °F	92.8	95.0
Time, seconds	600	600
Orifice Meter Delta-H, inches w.c.	1.100	2.500
Barometric Pressure, in. Hg	29.89	29.89
Critical Orifice Inlet (Ambient) Temperature, °F:		
Initial Ambient Temperature, °F	85.8	86.8
Final Ambient Temperature, °F	86.6	87.4
Average Critical Orifice Inlet Temperature (tamb), °F	86.2	87.1
Pump Vacuum, in. Hg	18	18
COMPUTED CALIBRATION RESULTS		
Critical Orifice Gas Volume (Vcr (std)), std. ft. ³	5.681	8.371
Dry Gas Meter Gas Volume (Vm (std)), std. ft. ³	5.595	8.266
Factor (Y) Obtained With Bracketing Orifice	1.015	1.013
CRITICAL ORIFICE ACCEPTABILITY		
<i>Criterion: All Ys Must Be Within 2% Of All Other Ys</i>		
Larger % Difference Between Dry Gas Meter Factor (Y) And Factor (Y) Obtained With The Bracketing Orifice	0.35%	0.62%
Larger % Difference Between Factors (Ys) Obtained With Bracketing Orifices	0.26%	
Acceptability Result	All Orifices Are Acceptable	

Remarks:

METHOD 5 METERING CONSOLE CALIBRATION CRITICAL ORIFICE BRACKETING DATA

MRI Project No.	104951.1.008	Critical Orifice Being Evaluated	
Date:	8/5/99	Critical Orifice No.	D16
Operator:	D. Neal	Critical Orifices Used For Bracketing	
Metering Console No.	N9	First Orifice	
Dry Gas Meter Factor (Y):	1.011	Critical Orifice No.	D12
Orifice Used for the Calibration:	D16	Coefficient (K'):	0.32080
Ambient Temperature Meter No.	Y-0815	Second Orifice	
Note: Critical orifice coefficients are in English units.		Critical Orifice No.	D19
		Coefficient (K'):	0.51210

	First Orifice	Second Orifice
CALIBRATION GAS VOLUME DATA		
Initial Dry Gas Meter Gas Volume, ft. ³	579.500	583.902
Final Dry Gas Meter Gas Volume, ft. ³	583.708	590.632
Net Dry Gas Meter Gas Volume (V _m), ft. ³	4.208	6.730
CALIBRATION CONDITIONS DATA		
Dry Gas Meter Temperature, °F:		
Initial Inlet Temperature, °F	83.0	84.0
Final Inlet Temperature, °F	83.0	85.0
Initial Outlet Temperature, °F	79.0	79.0
Final Outlet Temperature, °F	79.0	79.0
Average Dry Gas Meter Temperature (t _m), °F	81.0	81.8
Time, seconds	600	600
Orifice Meter Delta-H, inches w.c.	0.540	1.500
Barometric Pressure, in. Hg	29.21	29.21
Critical Orifice Inlet (Ambient) Temperature, °F:		
Initial Ambient Temperature, °F	74.8	83.6
Final Ambient Temperature, °F	80.2	83.4
Average Critical Orifice Inlet Temperature (t _{amb}), °F	77.5	83.5
Pump Vacuum, in. Hg	18	18
COMPUTED CALIBRATION RESULTS		
Critical Orifice Gas Volume (V _{cr} (std)), std. ft. ³	4.043	6.418
Dry Gas Meter Gas Volume (V _m (std)), std. ft. ³	4.015	6.427
Factor (Y) Obtained With Bracketing Orifice	1.007	0.999
CRITICAL ORIFICE ACCEPTABILITY		
Criterion: All Ys Must Be Within 2% Of All Other Ys		
Larger % Difference Between Dry Gas Meter Factor (Y) And Factor (Y) Obtained With The Bracketing Orifice	0.39%	1.24%
Larger % Difference Between Factors (Ys) Obtained With Bracketing Orifices	0.85%	
Acceptability Result	All Orifices Are Acceptable	

Remarks:

METHOD 5 METERING CONSOLE CALIBRATION WITH CRITICAL ORIFICE

MRI Project No.	104951.1.008	Metering Console No.	N5
Date:	8/5/99	Previous Dry Gas Meter Factor (Y):	0.995
Operator:	D. Neal	Calibrated Critical Orifice No.	D16
		Critical Orifice Coefficient in English Units (K'):	0.44410
		Ambient Temperature Meter No.	Y-0815

	Run 1	Run 2	Run 3
CALIBRATION GAS VOLUME DATA			
Initial Dry Gas Meter Gas Volume, ft. ³	764.398	770.055	775.747
Final Dry Gas Meter Gas Volume, ft. ³	770.055	775.747	781.423
Net Dry Gas Meter Gas Volume (Vm), ft. ³	5.657	5.692	5.676
CALIBRATION CONDITIONS DATA			
Dry Gas Meter Temperature, °F:			
Initial Inlet Temperature, °F	72.0	74.0	76.0
Final Inlet Temperature, °F	73.0	75.0	76.0
Initial Outlet Temperature, °F	71.0	72.0	72.0
Final Outlet Temperature, °F	71.0	72.0	73.0
Average Dry Gas Meter Temperature (tm), °F	71.8	73.3	74.3
Time, seconds	600	600	600
Orifice Meter Delta-H, inches w.c.	1.100	1.100	1.100
Barometric Pressure, in. Hg	29.21	29.21	29.21
Critical Orifice Inlet (Ambient) Temperature, °F:			
Initial Ambient Temperature, °F	71.6	71.8	73.8
Final Ambient Temperature, °F	71.2	72.4	72.4
Avg. Critical Orifice Inlet Temperature (tamb), °F	71.4	72.1	73.1
Pump Vacuum, in. Hg	18	18	18
COMPUTED CALIBRATION RESULTS			
Critical Orifice Gas Volume (Vcr (std)), std. ft. ³	5.629	5.625	5.620
Dry Gas Meter Gas Volume (Vm (std)), std. ft. ³	5.499	5.517	5.491
Dry Gas Meter Calibration Factor (Y)	1.024	1.020	1.023
Orifice Meter Delta-H@	1.903	1.901	1.901
AVERAGE CALIBRATION RESULTS			
Average Dry Gas Meter Calibration Factor (Y)	1.022		
Average Orifice Meter Delta-H@	1.901		
CALIBRATION RESULTS COMPARISON			
Criterion: Y Must Be Within 2% Of Average Y			
Percent Difference Of Y From Average Y	0.14%	0.26%	0.12%
Tolerance Result	PASS	PASS	PASS
COMPARISON WITH PRETEST RESULTS			
Criterion: Y Must Be Within 5% Of Previous Y			
% Difference Of Average Y From Previous Y	2.74%		
Tolerance Result	PASS		

Y = 1.022244143947615

Remarks:

CONSOLE CALIBRATION WORKSHEET

Job No. 104951.1.008 Console No. N5
Date 8/5/99 Orifice No. D16
Performed By D. Neal K Factor 0.4441
Barometer 29.21 in. Hg. Previous Y 0.995

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.9 + 9.1 = 18.0 In. Hg.

Console vacuum gauge reading: - 18.0 In. Hg.

Console vacuum gauge correction factor: 0.0 In. Hg.

	RUN #1	RUN #2	RUN #3
DGM Initial Volume:			
Initial:	<u>764.398</u>	<u>770.055</u>	<u>775.747</u>
Final:	<u>770.055</u>	<u>775.747</u>	<u>781.423</u>
DGM Inlet Temperature:			
Initial:	<u>72</u>	<u>74</u>	<u>76</u>
Final:	<u>73</u>	<u>75</u>	<u>76</u>
DGM Outlet Temperature:			
Initial:	<u>71</u>	<u>72</u>	<u>72</u>
Final:	<u>71</u>	<u>72</u>	<u>73</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>	<u>600</u>
Orifice Delta H (in. H ₂ O):	<u>1.1</u>	<u>1.1</u>	<u>1.1</u>
Room Temperature:			
Initial:	<u>71.6</u>	<u>71.8</u>	<u>73.8</u>
Final:	<u>71.2</u>	<u>72.4</u>	<u>72.4</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>	<u>18.0</u>

M5 CONSOLE POST TEST CHECKLIST

Job No. 104951.1.008 Date 8/5/99

Console No. N5 Performed By D. Neal

Place a check (in black ink) in the space provided after the required checks are performed.

1. X Perform positive leak check of Delta H manometer.
(See back of this sheet.)

2. X Leak check Delta P manometer.

3. N/A Clean pump.

4. X Clean muffler jar(s).

5. X Inspect/refill oiler jar.

6. X Calibrate DGM thermocouples:

		Reference Pyrometer °F	Console Pyrometer °F
(Note: Reading must be Within +/-2.5°F)	DGM Inlet:	69.0	69.0
	DGM Outlet:	69.2	69.0

7. X Digital clock/timer in place and functional.

8. X Vacuum check. (Leak check at 25 in. Hg. vacuum. Leak rate should be zero.)

9. X Check indicator lights.

10. X Check thermocouple switched.

11. X Check fan.

12. X Check pump heater.

13. X Check heat controllers.

14. X Check Orsat pump and rotameter.

If any of the above items were replaced or repaired, please document that information below:

METHOD 5 METERING CONSOLE CALIBRATION WITH CRITICAL ORIFICE

MRI Project No.	104951.1.008	Metering Console No.	N9
Date:	8/5/99	Previous Dry Gas Meter Factor (Y):	0.990
Operator:	D. Neal	Calibrated Critical Orifice No.	D16
		Critical Orifice Coefficient in English Units (K):	0.44410
		Ambient Temperature Meter No.	Y-0815

	Run 1	Run 2	Run 3
CALIBRATION GAS VOLUME DATA			
Initial Dry Gas Meter Gas Volume, ft. ³	558.802	564.558	570.338
Final Dry Gas Meter Gas Volume, ft. ³	564.558	570.338	576.118
Net Dry Gas Meter Gas Volume (V _m), ft. ³	5.756	5.780	5.780
CALIBRATION CONDITIONS DATA			
Dry Gas Meter Temperature, °F:			
Initial Inlet Temperature, °F	81.0	82.0	83.0
Final Inlet Temperature, °F	82.0	83.0	84.0
Initial Outlet Temperature, °F	75.0	76.0	78.0
Final Outlet Temperature, °F	76.0	77.0	78.0
Average Dry Gas Meter Temperature (t _m), °F	78.5	79.5	80.8
Time, seconds	600	600	600
Orifice Meter Delta-H, inches w.c.	1.100	1.100	1.100
Barometric Pressure, in. Hg	29.21	29.21	29.21
Critical Orifice Inlet (Ambient) Temperature, °F:			
Initial Ambient Temperature, °F	77.0	80.0	78.2
Final Ambient Temperature, °F	79.4	78.4	79.8
Avg. Critical Orifice Inlet Temperature (t _{amb}), °F	78.2	79.2	79.0
Pump Vacuum, in. Hg	18	18	18
COMPUTED CALIBRATION RESULTS			
Critical Orifice Gas Volume (V _{cr} (std)), std. ft. ³	5.593	5.588	5.589
Dry Gas Meter Gas Volume (V _m (std)), std. ft. ³	5.525	5.538	5.525
Dry Gas Meter Calibration Factor (Y)	1.012	1.009	1.012
Orifice Meter Delta-H@	1.904	1.904	1.898
AVERAGE CALIBRATION RESULTS			
Average Dry Gas Meter Calibration Factor (Y)	1.011		
Average Orifice Meter Delta-H@	1.902		
CALIBRATION RESULTS COMPARISON			
Criterion: Y Must Be Within 2% Of Average Y			
Percent Difference Of Y From Average Y	0.13%	0.19%	0.06%
Tolerance Result	PASS	PASS	PASS
COMPARISON WITH PRETEST RESULTS			
Criterion: Y Must Be Within 5% Of Previous Y			
% Difference Of Average Y From Previous Y	2.13%		
Tolerance Result	PASS		

Y = 1.011071874784609

Remarks:

CONSOLE CALIBRATION WORKSHEET

Job No. 104951.1.008 Console No. N9
Date 8/5/99 Orifice No. D16
Performed By D. Neal K Factor 0.4441
Barometer 29.21 in. Hg. Previous Y 0.990

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.7 + 8.9 = 18.0 In. Hg.

Console vacuum gauge reading: - 17.6 In. Hg.

Console vacuum gauge correction factor: +0.4 In. Hg.

	RUN #1	RUN #2	RUN #3
DGM Initial Volume:			
Initial:	<u>558.802</u>	<u>564.558</u>	<u>570.338</u>
Final:	<u>564.558</u>	<u>570.338</u>	<u>567.118</u>
DGM Inlet Temperature:			
Initial:	<u>81</u>	<u>82</u>	<u>83</u>
Final:	<u>82</u>	<u>83</u>	<u>84</u>
DGM Outlet Temperature:			
Initial:	<u>75</u>	<u>76</u>	<u>78</u>
Final:	<u>76</u>	<u>77</u>	<u>78</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>	<u>600</u>
Orifice Delta H (in. H ₂ O):	<u>1.1</u>	<u>1.1</u>	<u>1.1</u>
Room Temperature:			
Initial:	<u>77.0</u>	<u>80.0</u>	<u>78.2</u>
Final:	<u>79.4</u>	<u>78.4</u>	<u>79.8</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>	<u>18.0</u>

CONSOLE BRACKETING WORKSHEET

Job No. 104951.1.008 Console No. N9
Date 8/5/99 Bracketing Orifice No.1 D12
Performed By D. Neal K Factor 0.3208
Calibration Orifice No. D16 Bracketing Orifice No.2 D19
New Y Factor 1.011 K Factor 0.5121
Barometer 29.21 in. Hg.

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.7 + 8.9 = 18.0 in. Hg.

Console vacuum gauge reading: -17.6 in. Hg.

Console vacuum gauge correction factor: +0.4 in. Hg.

	RUN #1	RUN #2
DGM Initial Volume:		
Initial:	<u>579.500</u>	<u>583.902</u>
Final:	<u>583.708</u>	<u>590.632</u>
DGM Inlet Temperature:		
Initial:	<u>83</u>	<u>84</u>
Final:	<u>83</u>	<u>85</u>
DGM Outlet Temperature:		
Initial:	<u>79</u>	<u>79</u>
Final:	<u>79</u>	<u>79</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>
Orifice Delta H(in. H ₂ O):	<u>0.54</u>	<u>1.50</u>
Room Temperature:		
Initial:	<u>74.8</u>	<u>83.6</u>
Final:	<u>80.2</u>	<u>83.4</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>

M5 CONSOLE POST TEST CHECKLIST

Job No. 104951.1.008 Date 8/5/99

Console No. N9 Performed By D. Neal

Place a check (in black ink) in the space provided after the required checks are performed.

1. X Perform positive leak check of Delta H manometer.
(See back of this sheet.)

2. X Leak check Delta P manometer.

3. N/A Clean pump.

4. X Clean muffler jar(s).

5. X Inspect/refill oiler jar.

6. X Calibrate DGM thermocouples:

		Reference Pyrometer °F	Console Pyrometer °F
(Note: Reading must be Within +/-2.5°F)	DGM Inlet:	70.8	72
	DGM Outlet:	71.0	72

7. X Digital clock/timer in place and functional.

8. X Vacuum check. (Leak check at 25 in. Hg. vacuum. Leak rate should be zero.)

9. X Check indicator lights.

10. X Check thermocouple switched.

11. X Check fan.

12. X Check pump heater.

13. X Check heat controllers.

14. X Check Orsat pump and rotameter.

If any of the above items were replaced or repaired, please document that information below:

METHOD 5 METERING CONSOLE CALIBRATION WITH CRITICAL ORIFICE

MRI Project No.	104951.1.088	Metering Console No.	N10
Date:	7-20-99	Previous Dry Gas Meter Factor (Y):	1.011
Operator:	D. Neal	Calibrated Critical Orifice No.	D19
		Critical Orifice Coefficient in English Units (K):	0.51210
		Ambient Temperature Meter No.	Y-0815

	Run 1	Run 2	Run 3
CALIBRATION GAS VOLUME DATA			
Initial Dry Gas Meter Gas Volume, ft. ³	705.299	711.960	718.640
Final Dry Gas Meter Gas Volume, ft. ³	711.960	718.640	725.329
Net Dry Gas Meter Gas Volume (Vm), ft. ³	6.661	6.680	6.689
CALIBRATION CONDITIONS DATA			
Dry Gas Meter Temperature, °F:			
Initial Inlet Temperature, °F	88.0	90.0	92.0
Final Inlet Temperature, °F	90.0	91.0	93.0
Initial Outlet Temperature, °F	86.0	87.0	88.0
Final Outlet Temperature, °F	86.0	87.0	89.0
Average Dry Gas Meter Temperature (tm), °F	87.5	88.8	90.5
Time, seconds	600	600	600
Orifice Meter Delta-H, inches w.c.	1.450	1.450	1.450
Barometric Pressure, in. Hg	29.89	29.89	29.89
Critical Orifice Inlet (Ambient) Temperature, °F:			
Initial Ambient Temperature, °F	83.6	83.8	85.4
Final Ambient Temperature, °F	83.4	84.8	84.2
Avg. Critical Orifice Inlet Temperature (tamb), °F	83.5	84.3	84.8
Pump Vacuum, in. Hg	18	18	18
COMPUTED CALIBRATION RESULTS			
Critical Orifice Gas Volume (Vcr (std)), std. ft. ³	6.568	6.563	6.560
Dry Gas Meter Gas Volume (Vm (std)), std. ft. ³	6.440	6.443	6.432
Dry Gas Meter Calibration Factor (Y)	1.020	1.019	1.020
Orifice Meter Delta-H@	1.835	1.833	1.829
AVERAGE CALIBRATION RESULTS			
Average Dry Gas Meter Calibration Factor (Y)	1.019		
Average Orifice Meter Delta-H@	1.832		
CALIBRATION RESULTS COMPARISON			
Criterion: Y Must Be Within 2% Of Average Y			
Percent Difference Of Y From Average Y	0.04%	0.09%	0.05%
Tolerance Result	PASS	PASS	PASS
COMPARISON WITH PRETEST RESULTS			
Criterion: Y Must Be Within 5% Of Previous Y			
% Difference Of Average Y From Previous Y	0.83%		
Tolerance Result	PASS		

Y = 1.019439290346411

Remarks:

CONSOLE CALIBRATION WORKSHEET

Job No. 104951.1.008 Console No. N10
Date 7/20/99 Orifice No. D19
Performed By D. Neal K Factor 0.5121
Barometer 29.89 in. Hg. Previous Y 1.011

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.9 + 9.1 = 18.0 In. Hg.

Console vacuum gauge reading: - 18.0 In. Hg.

Console vacuum gauge correction factor: 0.0 In. Hg.

	RUN #1	RUN #2	RUN #3
DGM Initial Volume:			
Initial:	<u>705.299</u>	<u>711.960</u>	<u>718.640</u>
Final:	<u>711.960</u>	<u>718.640</u>	<u>725.329</u>
DGM Inlet Temperature:			
Initial:	<u>88</u>	<u>90</u>	<u>92</u>
Final:	<u>90</u>	<u>91</u>	<u>93</u>
DGM Outlet Temperature:			
Initial:	<u>86</u>	<u>87</u>	<u>88</u>
Final:	<u>86</u>	<u>87</u>	<u>89</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>	<u>600</u>
Orifice Delta H (in. H ₂ O):	<u>1.45</u>	<u>1.45</u>	<u>1.45</u>
Room Temperature:			
Initial:	<u>83.6</u>	<u>83.8</u>	<u>85.4</u>
Final:	<u>83.4</u>	<u>84.8</u>	<u>84.2</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>	<u>18.0</u>

CONSOLE BRACKETING WORKSHEET

Job No. 104951.1.008 Console No. N10
Date 7/20/99 Bracketing Orifice No.1 D16
Performed By D. Neal K Factor 0.4441
Calibration Orifice No. D19 Bracketing Orifice No.2 D24
New Y Factor 1.019 K Factor 0.6549
Barometer 29.89 in. Hg.

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.9 + 9.1 = 18.0 in. Hg.

Console vacuum gauge reading: -18.0 in. Hg.

Console vacuum gauge correction factor: 0.0 in. Hg.

	RUN #1	RUN #2
DGM Initial Volume:		
Initial:	<u>732.300</u>	<u>738.504</u>
Final:	<u>738.148</u>	<u>747.149</u>
DGM Inlet Temperature:		
Initial:	<u>94</u>	<u>96</u>
Final:	<u>95</u>	<u>99</u>
DGM Outlet Temperature:		
Initial:	<u>91</u>	<u>92</u>
Final:	<u>91</u>	<u>93</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>
Orifice Delta H(in. H ₂ O):	<u>1.1</u>	<u>2.5</u>
Room Temperature:		
Initial:	<u>85.8</u>	<u>86.8</u>
Final:	<u>86.6</u>	<u>87.4</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>

M5 CONSOLE POST TEST CHECKLIST

Job No. 104951.1.008 Date 7/20/99

Console No. N10 Performed By D. Neal

Place a check (in black ink) in the space provided after the required checks are performed.

1. X Perform positive leak check of Delta H manometer.
(See back of this sheet.)
2. X Leak check Delta P manometer.
3. N/A Clean pump.
4. X Clean muffler jar(s).
5. X Inspect/refill oiler jar.
6. X Calibrate DGM thermocouples:

		Reference Pyrometer °F	Console Pyrometer °F
(Note: Reading must be Within +/-2.5°F)	DGM Inlet:	84.2	84
	DGM Outlet:	84.2	84

7. X Digital clock/timer in place and functional.
8. X Vacuum check. (Leak check at 25 in. Hg. vacuum. Leak rate should be zero.)
9. X Check indicator lights.
10. X Check thermocouple switched.
11. X Check fan.
12. X Check pump heater.
13. X Check heat controllers.
14. X Check Orsat pump and rotameter.

If any of the above items were replaced or repaired, please document that information below:

METHOD 5 METERING CONSOLE CALIBRATION WITH CRITICAL ORIFICE

MRI Project No.	104951.1.008	Metering Console No.	N11
Date:	7-20-99	Previous Dry Gas Meter Factor (Y):	0.988
Operator:	D. Neal	Calibrated Critical Orifice No.	D19
		Critical Orifice Coefficient in English Units (K'):	0.51210
		Ambient Temperature Meter No.	Y-0815

	Run 1	Run 2	Run 3
CALIBRATION GAS VOLUME DATA			
Initial Dry Gas Meter Gas Volume, ft. ³	1,006.701	1,013.332	1,019.976
Final Dry Gas Meter Gas Volume, ft. ³	1,013.332	1,019.976	1,026.638
Net Dry Gas Meter Gas Volume (Vm), ft. ³	6.631	6.644	6.662
CALIBRATION CONDITIONS DATA			
Dry Gas Meter Temperature, °F:			
Initial Inlet Temperature, °F	88.0	89.0	91.0
Final Inlet Temperature, °F	89.0	90.0	92.0
Initial Outlet Temperature, °F	87.0	88.0	89.0
Final Outlet Temperature, °F	87.0	88.0	90.0
Average Dry Gas Meter Temperature (tm), °F	87.8	88.8	90.5
Time, seconds	600	600	600
Orifice Meter Delta-H, inches w.c.	1.500	1.500	1.500
Barometric Pressure, in. Hg	29.89	29.89	29.89
Critical Orifice Inlet (Ambient) Temperature, °F:			
Initial Ambient Temperature, °F	85.4	85.0	86.4
Final Ambient Temperature, °F	84.8	86.2	87.2
Avg. Critical Orifice Inlet Temperature (tamb), °F	85.1	85.6	86.8
Pump Vacuum, in. Hg	18	18	18
COMPUTED CALIBRATION RESULTS			
Critical Orifice Gas Volume (Vcr (std)), std. ft. ³	6.558	6.555	6.548
Dry Gas Meter Gas Volume (Vm (std)), std. ft. ³	6.409	6.410	6.406
Dry Gas Meter Calibration Factor (Y)	1.023	1.023	1.022
Orifice Meter Delta-H@	1.903	1.901	1.899
AVERAGE CALIBRATION RESULTS			
Average Dry Gas Meter Calibration Factor (Y)	1.023		
Average Orifice Meter Delta-H@	1.901		
CALIBRATION RESULTS COMPARISON			
Criterion: Y Must Be Within 2% Of Average Y			
Percent Difference Of Y From Average Y	0.06%	0.00%	0.06%
Tolerance Result	PASS	PASS	PASS
COMPARISON WITH PRETEST RESULTS			
Criterion: Y Must Be Within 5% Of Previous Y			
% Difference Of Average Y From Previous Y	3.51%		
Tolerance Result	PASS		

Y = 1.022690817611001

Remarks:

CONSOLE CALIBRATION WORKSHEET

Job No. 104951.1.008 Console No. N11
Date 7/20/99 Orifice No. D19
Performed By D. Neal K Factor 0.5121
Barometer 29.89 in. Hg. Previous Y 0.988

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.9 + 9.1 = 18.0 In. Hg.

Console vacuum gauge reading: - 18.0 In. Hg.

Console vacuum gauge correction factor: 0.0 In. Hg.

	RUN #1	RUN #2	RUN #3
DGM Initial Volume:			
Initial:	<u>6.701</u>	<u>13.332</u>	<u>19.976</u>
Final:	<u>13.332</u>	<u>19.976</u>	<u>26.638</u>
DGM Inlet Temperature:			
Initial:	<u>88</u>	<u>89</u>	<u>91</u>
Final:	<u>89</u>	<u>90</u>	<u>92</u>
DGM Outlet Temperature:			
Initial:	<u>87</u>	<u>88</u>	<u>89</u>
Final:	<u>87</u>	<u>88</u>	<u>90</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>	<u>600</u>
Orifice Delta H (in. H ₂ O):	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>
Room Temperature:			
Initial:	<u>85.4</u>	<u>85.0</u>	<u>86.4</u>
Final:	<u>84.8</u>	<u>86.2</u>	<u>87.2</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>	<u>18.0</u>

M5 CONSOLE POST TEST CHECKLIST

Job No. 104951.1.008 Date 7/20/99

Console No. N11 Performed By D. Neal

Place a check (in black ink) in the space provided after the required checks are performed.

1. X Perform positive leak check of Delta H manometer.
(See back of this sheet.)

2. X Leak check Delta P manometer.

3. N/A Clean pump.

4. X Clean muffler jar(s).

5. X Inspect/refill oiler jar.

6. X Calibrate DGM thermocouples:

		Reference Pyrometer °F	Console Pyrometer °F
(Note: Reading must be Within +/-2.5°F)	DGM Inlet:	83.3	83
	DGM Outlet:	83.3	83

7. X Digital clock/timer in place and functional.

8. X Vacuum check. (Leak check at 25 in. Hg. vacuum. Leak rate should be zero.)

9. X Check indicator lights.

10. X Check thermocouple switched.

11. X Check fan.

12. X Check pump heater.

13. X Check heat controllers.

14. X Check Orsat pump and rotameter.

If any of the above items were replaced or repaired, please document that information below:

METHOD 5 METERING CONSOLE CALIBRATION WITH CRITICAL ORIFICE

MRI Project No.	104951.1.008	Metering Console No.	N12
Date:	9/15/99	Previous Dry Gas Meter Factor (Y):	1.001
Operator:	D. Neal	Calibrated Critical Orifice No.	D19
		Critical Orifice Coefficient in English Units (K'):	0.51210
		Ambient Temperature Meter No.	Y-0815

	Run 1	Run 2	Run 3
CALIBRATION GAS VOLUME DATA			
Initial Dry Gas Meter Gas Volume, ft. ³	182.200	188.902	195.637
Final Dry Gas Meter Gas Volume, ft. ³	188.902	195.637	202.375
Net Dry Gas Meter Gas Volume (Vm), ft. ³	6.702	6.735	6.738
CALIBRATION CONDITIONS DATA			
Dry Gas Meter Temperature, °F:			
Initial Inlet Temperature, °F	73.0	76.0	77.0
Final Inlet Temperature, °F	75.0	77.0	78.0
Initial Outlet Temperature, °F	69.0	70.0	71.0
Final Outlet Temperature, °F	69.0	71.0	72.0
Average Dry Gas Meter Temperature (tm), °F	71.5	73.5	74.5
Time, seconds	600	600	600
Orifice Meter Delta-H, inches w.c.	1.400	1.400	1.400
Barometric Pressure, in. Hg	29.31	29.31	29.31
Critical Orifice Inlet (Ambient) Temperature, °F:			
Initial Ambient Temperature, °F	68.4	70.4	72.2
Final Ambient Temperature, °F	69.6	71.4	70.8
Avg. Critical Orifice Inlet Temperature (tamb), °F	69.0	70.9	71.5
Pump Vacuum, in. Hg	18	18	18
COMPUTED CALIBRATION RESULTS			
Critical Orifice Gas Volume (Vcr (std)), std. ft. ³	6.528	6.516	6.513
Dry Gas Meter Gas Volume (Vm (std)), std. ft. ³	6.545	6.552	6.543
Dry Gas Meter Calibration Factor (Y)	0.997	0.994	0.995
Orifice Meter Delta-H@	1.811	1.811	1.809
AVERAGE CALIBRATION RESULTS			
Average Dry Gas Meter Calibration Factor (Y)	0.996		
Average Orifice Meter Delta-H@	1.810		
CALIBRATION RESULTS COMPARISON			
Criterion: Y Must Be Within 2% Of Average Y			
Percent Difference Of Y From Average Y	0.17%	0.13%	0.04%
Tolerance Result	PASS	PASS	PASS
COMPARISON WITH PRETEST RESULTS			
Criterion: Y Must Be Within 5% Of Previous Y			
% Difference Of Average Y From Previous Y	0.52%		
Tolerance Result	PASS		
Y = 0.995763322308701			

Remarks:

CONSOLE CALIBRATION WORKSHEET

Job No. 104951.1.008 Console No. N12
Date 9/15/99 Orifice No. D19
Performed By D. Neal K Factor 0.5121
Barometer 29.31 in. Hg. Previous Y 1.001

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.9 + 9.1 = 18.0 In. Hg.

Console vacuum gauge reading: - 18.0 In. Hg.

Console vacuum gauge correction factor: 0.0 In. Hg.

	RUN #1	RUN #2	RUN #3
DGM Initial Volume:			
Initial:	<u>182.200</u>	<u>188.902</u>	<u>195.637</u>
Final:	<u>188.902</u>	<u>195.637</u>	<u>202.375</u>
DGM Inlet Temperature:			
Initial:	<u>73</u>	<u>76</u>	<u>77</u>
Final:	<u>75</u>	<u>77</u>	<u>78</u>
DGM Outlet Temperature:			
Initial:	<u>69</u>	<u>70</u>	<u>71</u>
Final:	<u>69</u>	<u>71</u>	<u>72</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>	<u>600</u>
Orifice Delta H (in. H ₂ O):	<u>1.40</u>	<u>1.40</u>	<u>1.40</u>
Room Temperature:			
Initial:	<u>68.4</u>	<u>70.4</u>	<u>72.2</u>
Final:	<u>69.6</u>	<u>71.4</u>	<u>70.8</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>	<u>18.0</u>

M5 CONSOLE POST TEST CHECKLIST

Job No. 104951.1.008 Date 9/15/99

Console No. N12 Performed By D. Neal

Place a check (in black ink) in the space provided after the required checks are performed.

1. X Perform positive leak check of Delta H manometer.
(See back of this sheet.)
2. X Leak check Delta P manometer.
3. N/A Clean pump.
4. X Clean muffler jar(s).
5. X Inspect/refill oiler jar.
6. X Calibrate DGM thermocouples:

		Reference Pyrometer °F	Console Pyrometer °F
(Note: Reading must be Within +/-2.5°F)	DGM Inlet:	63.0	*65
	DGM Outlet:	63.0	*65

7. X Digital clock/timer in place and functional.
8. X Vacuum check. (Leak check at 25 in. Hg. vacuum. Leak rate should be zero.)
9. X Check indicator lights.
10. X Check thermocouple switched.
11. X Check fan.
12. X Check pump heater.
13. X Check heat controllers.
14. X Check Orsat pump and rotameter.

If any of the above items were replaced or repaired, please document that information below:

* Adjusted console pyrometer to read 63°F.

METHOD 5 METERING CONSOLE CALIBRATION WITH CRITICAL ORIFICE

MRI Project No.	104951.1.008	Metering Console No.	N13
Date:	8/5/99	Previous Dry Gas Meter Factor (Y):	0.985
Operator:	D. Neal	Calibrated Critical Orifice No.	D16
		Critical Orifice Coefficient in English Units (K'):	0.44410
		Ambient Temperature Meter No.	Y-0815

	Run 1	Run 2	Run 3
CALIBRATION GAS VOLUME DATA			
Initial Dry Gas Meter Gas Volume, ft. ³	353.099	358.907	364.742
Final Dry Gas Meter Gas Volume, ft. ³	358.907	364.742	370.592
Net Dry Gas Meter Gas Volume (Vm), ft. ³	5.808	5.835	5.850
CALIBRATION CONDITIONS DATA			
Dry Gas Meter Temperature, °F:			
Initial Inlet Temperature, °F	79.0	81.0	82.0
Final Inlet Temperature, °F	81.0	82.0	83.0
Initial Outlet Temperature, °F	75.0	76.0	78.0
Final Outlet Temperature, °F	76.0	77.0	78.0
Average Dry Gas Meter Temperature (tm), °F	77.8	79.0	80.3
Time, seconds	600	600	600
Orifice Meter Delta-H, inches w.c.	1.000	1.000	1.000
Barometric Pressure, in. Hg	29.21	29.21	29.21
Critical Orifice Inlet (Ambient) Temperature, °F:			
Initial Ambient Temperature, °F	76.0	78.6	79.8
Final Ambient Temperature, °F	79.0	80.4	78.0
Avg. Critical Orifice Inlet Temperature (tamb), °F	77.5	79.5	78.9
Pump Vacuum, in. Hg	18	18	18
COMPUTED CALIBRATION RESULTS			
Critical Orifice Gas Volume (Vcr (std)), std. ft. ³	5.597	5.587	5.590
Dry Gas Meter Gas Volume (Vm (std)), std. ft. ³	5.581	5.594	5.595
Dry Gas Meter Calibration Factor (Y)	1.003	0.999	0.999
Orifice Meter Delta-H@	1.730	1.732	1.726
AVERAGE CALIBRATION RESULTS			
Average Dry Gas Meter Calibration Factor (Y)	1.000		
Average Orifice Meter Delta-H@	1.729		
CALIBRATION RESULTS COMPARISON			
Criterion: Y Must Be Within 2% Of Average Y			
Percent Difference Of Y From Average Y	0.27%	0.15%	0.12%
Tolerance Result	PASS	PASS	PASS
COMPARISON WITH PRETEST RESULTS			
Criterion: Y Must Be Within 5% Of Previous Y			
% Difference Of Average Y From Previous Y	1.54%		
Tolerance Result	PASS		

Y = 1.000168534226996

Remarks:

CONSOLE CALIBRATION WORKSHEET

Job No. 104951.1.008 Console No. N13
Date 8/5/99 Orifice No. D16
Performed By D. Neal K Factor 0.4441
Barometer 29.21 in. Hg. Previous Y 0.985

NOTE: Prior to running calibration, connect mercury manometer to sample orifice. Turn on pump and bring mercury manometer up to 18.0 in. Hg. Record mercury manometer and console vacuum gauge readings below. Insert critical orifice into console sample orifice. Set console vacuum gauge at 18.0 in. Hg. +/- the console vacuum gauge correction factor calculated below.

Mercury manometer readings: 8.9 + 9.1 = 18.0 In. Hg.

Console vacuum gauge reading: - 18.0 In. Hg.

Console vacuum gauge correction factor: 0.0 In. Hg.

	RUN #1	RUN #2	RUN #3
DGM Initial Volume:			
Initial:	<u>353.099</u>	<u>358.907</u>	<u>364.742</u>
Final:	<u>358.907</u>	<u>364.742</u>	<u>370.592</u>
DGM Inlet Temperature:			
Initial:	<u>79</u>	<u>81</u>	<u>82</u>
Final:	<u>81</u>	<u>82</u>	<u>83</u>
DGM Outlet Temperature:			
Initial:	<u>75</u>	<u>76</u>	<u>78</u>
Final:	<u>76</u>	<u>77</u>	<u>78</u>
Time of run (In Seconds):	<u>600</u>	<u>600</u>	<u>600</u>
Orifice Delta H (in. H ₂ O):	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>
Room Temperature:			
Initial:	<u>76.0</u>	<u>78.6</u>	<u>79.8</u>
Final:	<u>79.0</u>	<u>80.4</u>	<u>78.0</u>
Pump Vacuum (in. Hg):	<u>18.0</u>	<u>18.0</u>	<u>18.0</u>

M5 CONSOLE POST TEST CHECKLIST

Job No. 104951.1.008 Date 8/5/99

Console No. N13 Performed By D. Neal

Place a check (in black ink) in the space provided after the required checks are performed.

1. X Perform positive leak check of Delta H manometer.
(See back of this sheet.)
2. X Leak check Delta P manometer.
3. N/A Clean pump.
4. X Clean muffler jar(s).
5. X Inspect/refill oiler jar.
6. X Calibrate DGM thermocouples:

		Reference Pyrometer °F	Console Pyrometer °F
(Note: Reading must be Within +/-2.5°F)	DGM Inlet:	71.2	73
	DGM Outlet:	71.6	73

7. X Digital clock/timer in place and functional.
8. X Vacuum check. (Leak check at 25 in. Hg. vacuum. Leak rate should be zero.)
9. X Check indicator lights.
10. X Check thermocouple switched.
11. X Check fan.
12. X Check pump heater.
13. X Check heat controllers.
14. X Check Orsat pump and rotameter.

If any of the above items were replaced or repaired, please document that information below:

SAMPLE BOX FILTER THERMOCOUPLE CALIBRATION DATA FORM

Job No. 104951.1.008 Console Pyrometer No. N-7

Date 8/3/99 Reference Pyrometer No. Y-0815

Ambient Temp. (°F) 69 Reference TC No. TC-008

Performed By Steve Poandl Barometer 29.34 In. Hg

Calibration Method: Heat sample box to 250⁰ F with M5 Console.
Then, check filter box temperature by comparing M5 console
temperature meter against calibrated pyrometer and
thermocouple.

Sample Box No.	Reference Pyrometer Temp. (°F)	Console Pyrometer Temp. (°F)	Temperature Difference Tolerance: +/- 5.4 (°F)
011996	246.4	249	+2.6
12	249.4	250	+0.6
011187	246.6	249	+2.4
011190	247.8	249	+1.2
011191	247.4	250	+2.6
012003	248.2	249	+0.8
010288	244.8	249	+4.2
012002	246.8	250	+3.2
55	247.6	250	+2.4
011192	247.0	248	+1.0
010286	245.8	249	+3.2
010285	246.2	249	+2.8

XAD THERMOCOUPLE CALIBRATION DATA FORM

Job No. 104951.1.008 Pyrometer No. Y-0815

Date 8/3/99 Reference Thermometer ASTM 63F

Ambient Temp. (°F) 69 Serial Number 1979299

Performed By Steve Poandl Barometer 29.34 in. Hg

Calibration Method: Water bath with ASTM thermometer @ ambient
and ice temperatures.

XAD Thermocouple Number	Reference Thermometer Temp. (°F)	Pyrometer Temperature (°F)	Temperature Difference Tolerance: +/- 2 °F
91-11	63.1	62.4	-0.7
XAD-3	63.1	63.4	+0.3

GOOSENECK THERMOCOUPLE CALIBRATION DATA FORM

Job No. 104951.1.008 Pyrometer No. Y-0815

Date 8/3/99 Reference Thermometer ASTM 63F

Ambient Temp. (°F) 69 Serial Number 1979299

Performed By Steve Poandl Barometer 29.34 in. Hg

Calibration Method: Ambient water bath with ASTM thermometer.

Goose-neck T.C. No.	Leak Check & Check Valve Pass/No-pass	Ref. Thermometer Temperature (°F)	Pyrometer Temp. (°F)	Temp. Difference Tolerance: +/- 2 °F
UH-4	Pass	63.0	61.8	-1.2
UH-6	Pass	63.0	62.0	-1.0
UH-7	Pass	63.0	61.8	-1.2
UH-8	Pass	63.0	61.8	-1.2
UH-10	Pass	63.1	62.2	-0.9
UH-22	Pass	63.1	61.8	-1.3
UH-39	Pass	63.1	62.0	-1.1

GOOSENECK THERMOCOUPLE CALIBRATION DATA FORM

Job No. 104951.1.008 Pyrometer No. _____

Date 7/20/99 Reference Thermometer Fisherbrand

Ambient Temp. (°F) _____ Serial Number 15-041-1A

Performed By _____ Barometer 29.89 in. Hg

Calibration Method: Direct comparison of gooseneck thermocouple with reference thermometer in ambient air.

Goose-neck T.C. No.	Leak Check & Check Valve Pass/No-pass	Ref. Thermometer Temperature (°F)	Pyrometer Temp. (°F)	Temp. Difference Tolerance: +/- 2 °F
UH-35	Pass	82.4	83	0.6
UH-1	Pass	83.3	83	0.3
UH-32	Pass	83.3	83	0.3

GOOSENECK THERMOCOUPLE CALIBRATION DATA FORM

Job No. 104951.1.008 Pyrometer No. Y-0815
Date 9/15/99 Reference Thermometer ASTM 63F
Ambient Temp. (°F) 66 Serial Number 1979299
Performed By D. Neal Barometer 29.31 in. Hg

Calibration Method: Ambient water bath with ASTM thermometer.

Goose-neck T.C. No.	Leak Check & Check Valve Pass/No-pass	Ref. Thermometer Temperature (°F)	Pyrometer Temp. (°F)	Temp. Difference Tolerance: +/- 2 °F
UH-11	Pass	61.2	59.4	-1.8
UH-37	Pass	61.2	59.8	-1.4

Type S Pitot Tube Inspection Data Form

Pitot Tube #: WC3-1 Date: 8/5/99 Performed By: Steve Poandl

Probe #: WC3-1 Job #: 104951.1.008

Pitot tube assembly level? X Yes No

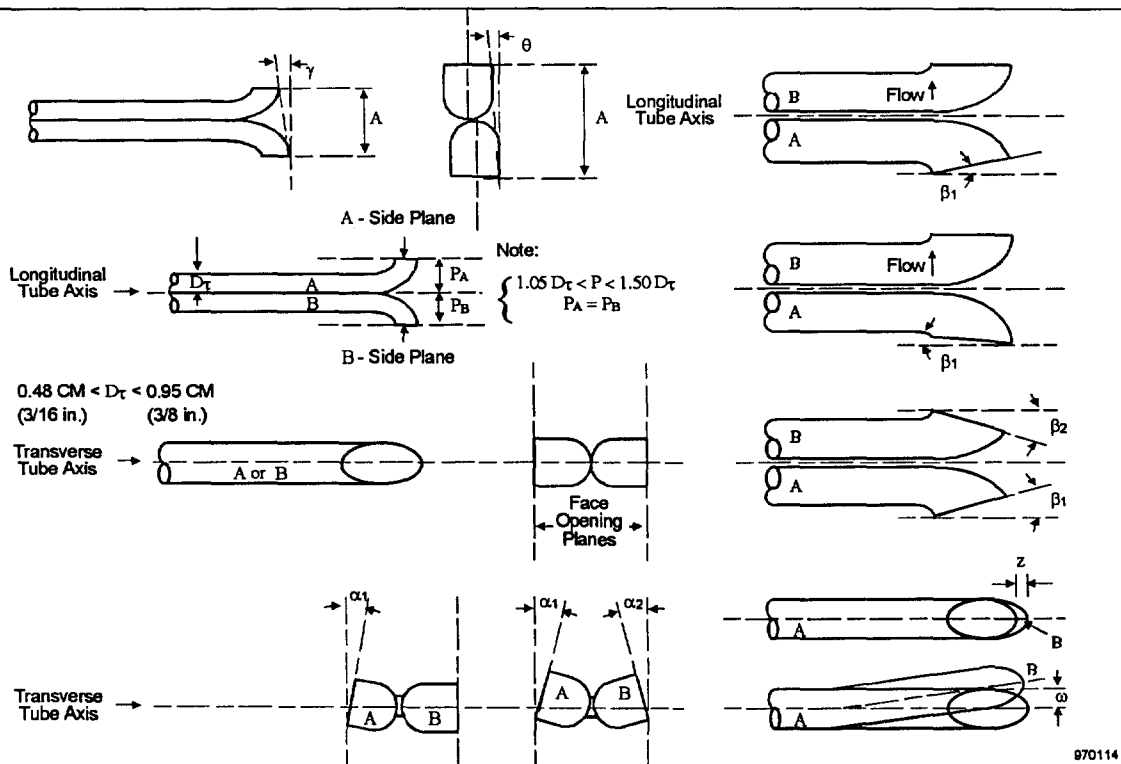
Pitot tube openings damaged? _____ Yes (explain below) _____ X No

$$\alpha_1 = 1^\circ (<10^\circ), \quad \alpha_2 = 1.5^\circ (<10^\circ)$$
$$\beta_1 = 1^\circ (<5^\circ), \quad \beta_2 = 1^\circ (<5^\circ)$$
$$\gamma = 2^\circ, \quad \theta = 0^\circ, \quad A = 0.7430 \text{ (in)}$$
$$z = A \sin \gamma \quad 0.0259 \text{ (in); } (< 0.125 \text{ in})$$
$$\omega = A \sin \theta \quad \underline{0.0000} \quad (\text{in}); (< 0.03125 \text{ in})$$

$P_A =$ 0.3730 (in), $P_B =$ 0.3700 (in), $D_r =$ 0.2510 (in)

Calibration required? Yes X No

Comments: _____



Type S Pitot Tube Inspection Data Form

Pitot Tube #: WC3-2 Date: 8/4/99 Performed By: Steve Poandl

Probe #: WC3-2 Job #: 104951.1.008

Pitot tube assembly level? X Yes No

Pitot tube openings damaged? Yes (explain below) X No

$\alpha_1 = \underline{1}^\circ (<10^\circ)$, $\alpha_2 = \underline{0.5}^\circ (<10^\circ)$

$\beta_1 = \underline{0.5}^\circ (<5^\circ)$, $\beta_2 = \underline{2}^\circ (<5^\circ)$

$\gamma = \underline{2}^\circ$, $\theta = \underline{1}^\circ$, $A = \underline{0.7450}$ (in)

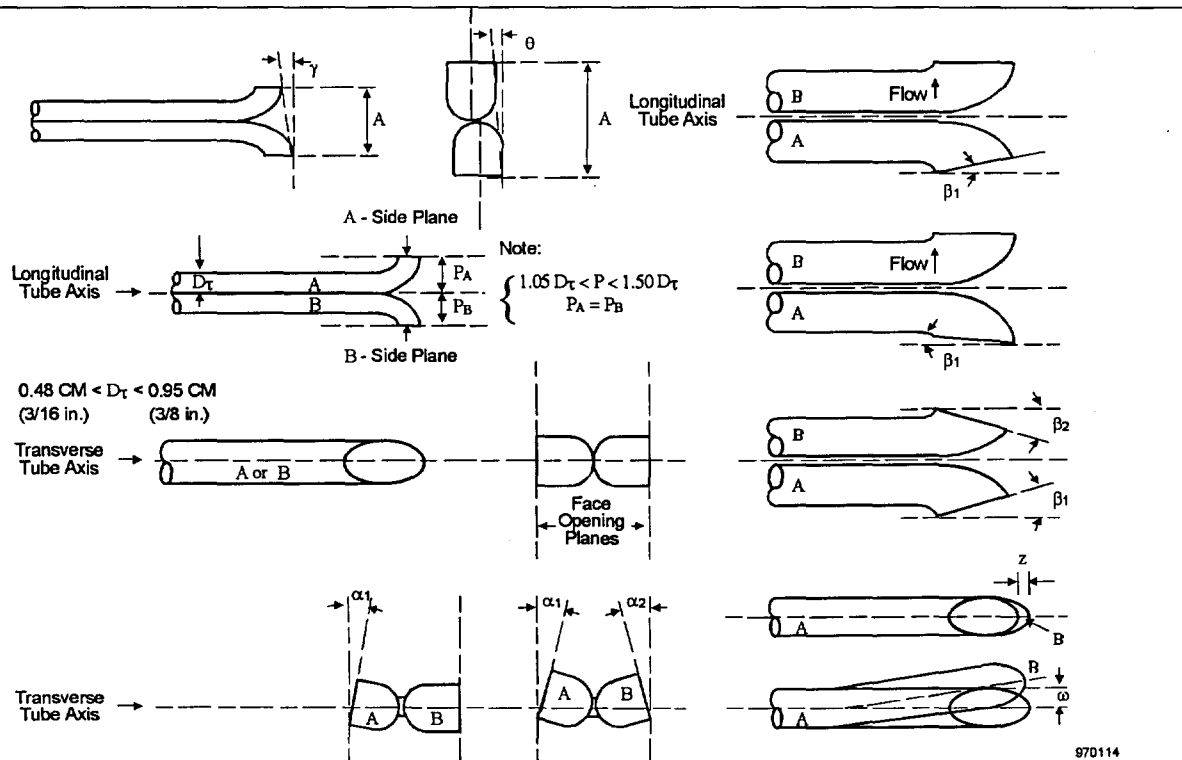
$z = A \sin \gamma$ 0.0259 (in); (< 0.125 in)

$\phi = A \sin \theta$ 0.0130 (in); (< 0.03125 in)

$P_A = \underline{0.3725}$ (in), $P_B = \underline{0.3725}$ (in), $D_T = \underline{0.2530}$ (in)

Calibration required? Yes X No

Comments:



Type S Pitot Tube Inspection Data Form

Pitot Tube #: WC3-3 Date: 8/4/99 Performed By: Steve Poandl

Probe #: WC3-3 Job #: 104951.1.008

Pitot tube assembly level? X Yes No

Pitot tube openings damaged? Yes (explain below) X No

$\alpha_1 =$ 2 $^{\circ}$ ($<10^{\circ}$), $\alpha_2 =$ 1 $^{\circ}$ ($<10^{\circ}$)

$\beta_1 =$ 1 $^{\circ}$ ($<5^{\circ}$), $\beta_2 =$ 2 $^{\circ}$ ($<5^{\circ}$)

$\gamma =$ 1 $^{\circ}$, $\theta =$ 2 $^{\circ}$, $A =$ 0.7420 (in)

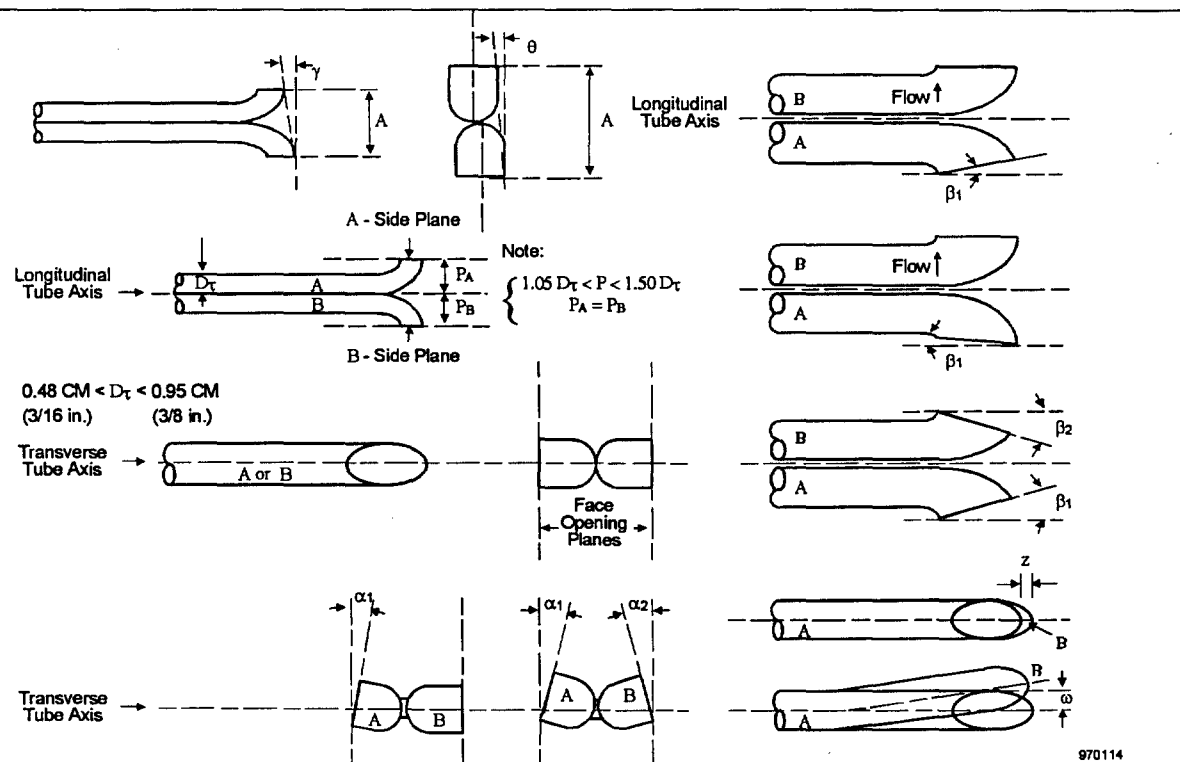
$z = A \sin \gamma$ 0.0129 (in); (< 0.125 in)

$\varphi = A \sin \theta$ 0.0259 (in); (< 0.03125 in)

$P_A =$ 0.3710 (in), $P_B =$ 0.3710 (in), $D_T =$ 0.250 (in)

Calibration required? Yes X No

Comments:



Type S Pitot Tube Inspection Data Form

Pitot Tube #: WC3-4 Date: 8/4/99 Performed By: Steve Poandl

Probe #: WC3-4 Job #: 104951.1.008

Pitot tube assembly level? X Yes No

Pitot tube openings damaged? Yes (explain below) X No

$\alpha_1 =$ 1 $^{\circ}$ ($<10^{\circ}$), $\alpha_2 =$ 1.5 $^{\circ}$ ($<10^{\circ}$)

$\beta_1 =$ 1 $^{\circ}$ ($<5^{\circ}$), $\beta_2 =$ 1 $^{\circ}$ ($<5^{\circ}$)

$\gamma =$ 1 $^{\circ}$, $\theta =$ 2 $^{\circ}$, $A =$ 0.7480 (in)

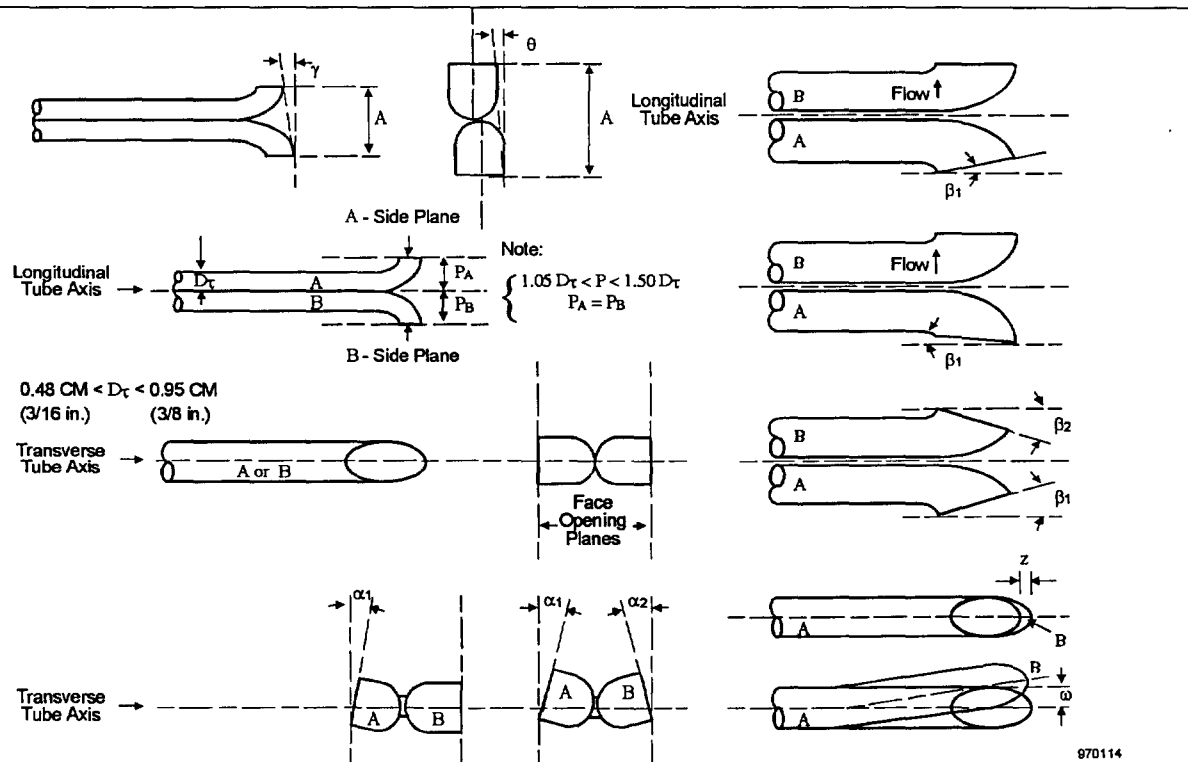
$z = A \sin \gamma$ 0.0130 (in); (< 0.125 in)

$\varphi = A \sin \theta$ 0.0261 (in); (< 0.03125 in)

$P_A =$ 0.3850 (in), $P_B =$ 0.3630 (in), $D_T =$ 0.2500 (in)

Calibration required? Yes X No

Comments:



970114

Type S Pitot Tube Inspection Data Form

Pitot Tube #: WC3-5 Date: 8/4/99 Performed By: Steve Poandl

Probe #: WC3-5 Job #: 104951.1.008

Pitot tube assembly level? X Yes No

Pitot tube openings damaged? Yes (explain below) X No

$\alpha_1 =$ 2 $^{\circ}$ ($<10^{\circ}$), $\alpha_2 =$ 2 $^{\circ}$ ($<10^{\circ}$)

$\beta_1 =$ 2 $^{\circ}$ ($<5^{\circ}$), $\beta_2 =$ 1 $^{\circ}$ ($<5^{\circ}$)

$\gamma =$ 1 $^{\circ}$, $\theta =$ 1 $^{\circ}$, $A =$ 0.7320 (in)

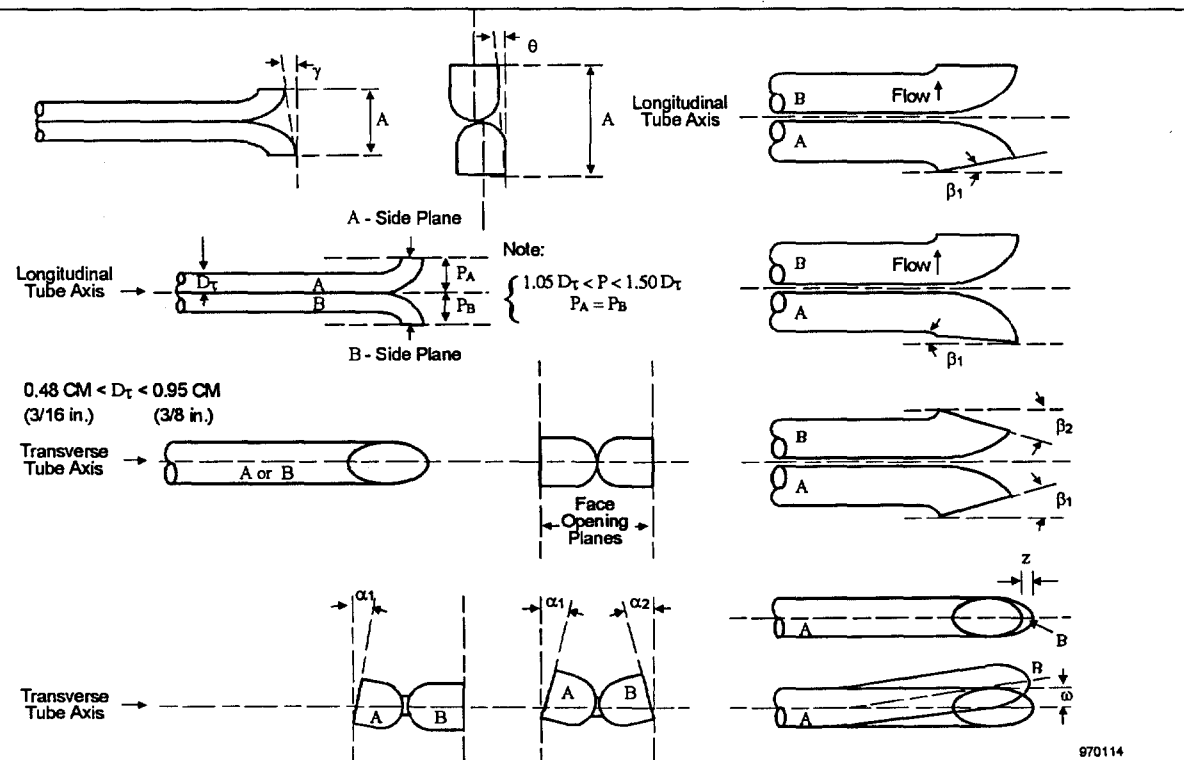
$z = A \sin \gamma$ 0.0128 (in); (< 0.125 in)

$\varphi = A \sin \theta$ 0.0128 (in); (< 0.03125 in)

$P_A =$ 0.3660 (in), $P_B =$ 0.3660 (in), $D_T =$ 0.2490 (in)

Calibration required? Yes X No

Comments:



Type S Pitot Tube Inspection Data Form

Pitot Tube #: WC3-6 Date: 8/4/99 Performed By: Steve Poandl

Probe #: WC3-6 Job #: 104951.1.008

Pitot tube assembly level? X Yes No

Pitot tube openings damaged? Yes (explain below) X No

$\alpha_1 = \underline{1}^\circ (<10^\circ)$, $\alpha_2 = \underline{2}^\circ (<10^\circ)$

$\beta_1 = \underline{1}^\circ (<5^\circ)$, $\beta_2 = \underline{2}^\circ (<5^\circ)$

$\gamma = \underline{3}^\circ$, $\theta = \underline{1}^\circ$, $A = \underline{0.7425}$ (in)

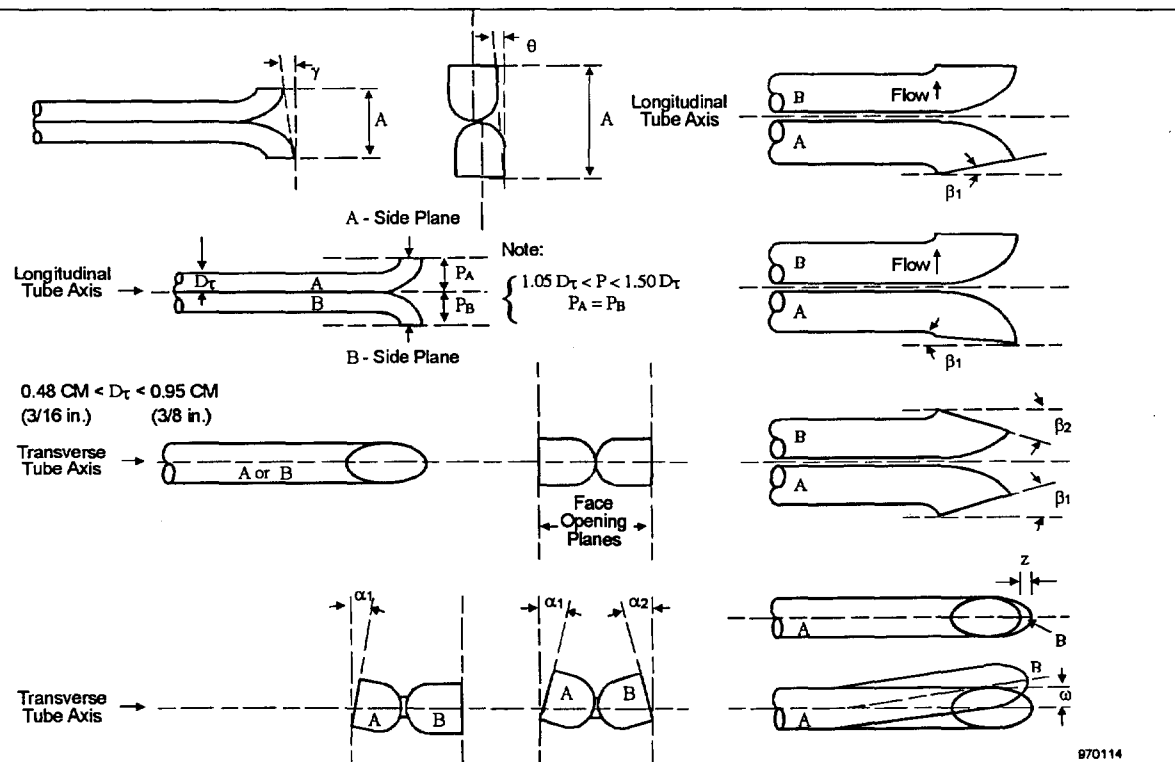
$z = A \sin \gamma$ 0.0389 (in); (< 0.125 in)

$\phi = A \sin \theta$ 0.0130 (in); (< 0.03125 in)

$P_A = \underline{0.3780}$ (in), $P_B = \underline{0.3645}$ (in), $D_T = \underline{0.2505}$ (in)

Calibration required? Yes X No

Comments:



Type S Pitot Tube Inspection Data Form

Pitot Tube #: WC3-7 Date: 8/4/99 Performed By: Steve Poandl

Probe #: WC3-7 Job #: 104951.1.008

Pitot tube assembly level? X Yes No

Pitot tube openings damaged? Yes (explain below) X No

$\alpha_1 = \underline{1}^\circ$ ($<10^\circ$), $\alpha_2 = \underline{1.5}^\circ$ ($<10^\circ$)

$\beta_1 = \underline{1}^\circ$ ($<5^\circ$), $\beta_2 = \underline{1}^\circ$ ($<5^\circ$)

$\gamma = \underline{2}^\circ$, $\theta = \underline{0.5}^\circ$, $A = \underline{0.7455}$ (in)

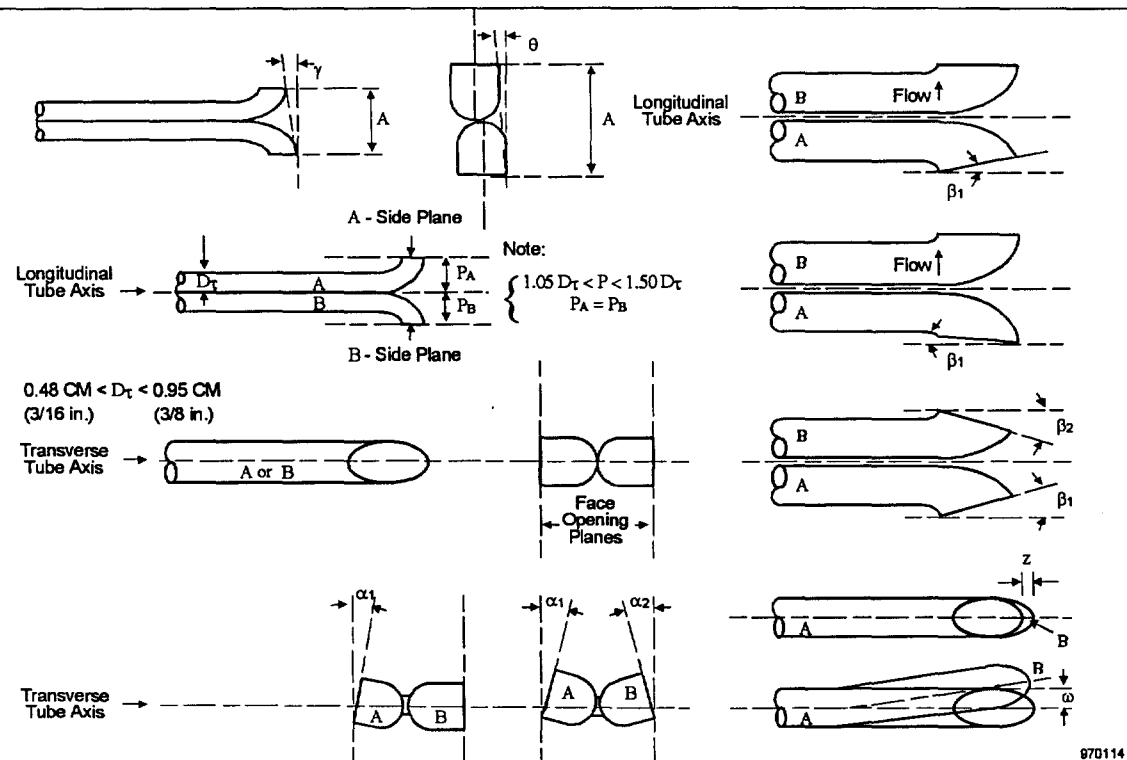
$z = A \sin \gamma$ 0.0260 (in); (< 0.125 in)

$\varphi = A \sin \theta$ 0.0065 (in); (< 0.03125 in)

$P_A = \underline{0.3430}$ (in), $P_B = \underline{0.4025}$ (in), $D_r = \underline{0.2460}$ (in)

Calibration required? Yes X No

Comments: _____





CALIBRATION LAB DATA



RA Nbr:	6-LE294-5-1	Mfg:	OTHER MFG
Description:	TYPE K THERMOCOUPLE PROBE	Model:	TYPE K
Customer:	MIDWEST	Serial:	WC3-1
Calibrated:	8/6/99	PO Nbr:	CREDIT CARD
Date due:	8/6/00	ID Nbr:	WC3-1
Service Type:	R6	Verification Procedure:	6-10053-0

-----Input-----|-----I/O-----|-----Accuracy-----|-----Low /High Limits----- As Rec'd As Shipped
-328 TO 2282°F

Range: AVERAGE STACK TEMP					
1319	°F	0 ±2.2°C or 0.75%rdg	1309	1329	°F
					1322
					1322

Remarks:



CALIBRATION LAB DATA



RA Nbr:	6-LE294-8-1	Mfg:	OTHER MFG
Description:	TYPE K THERMOCOUPLE PROBE	Model:	TYPE K
Customer:	MIDWEST	Serial:	WC3-2
Calibrated:	8/6/99	PO Nbr:	CREDIT CARD
Date due:	8/6/00	ID Nbr:	WC3-2
Service Type:	R6	Verification Procedure:	6-10053-0

-----Input-----|-----I/O-----|-----Accuracy-----|-----Low /High Limits----- As Rec'd As Shipped
-328 TO 2282°F

Range: AVERAGE STACK TEMP

587.7	°F	○ ±2.2°C or 0.75%rdg	584.1	591.8	°F	589.2	589.2

Remarks:



CALIBRATION LAB DATA



RA Nbr: 6-LE294-11-1	Mfg: OTHER MFG
Description: TYPE K THERMOMETER PROBE	Model: TYPE K
Customer: MIDWEST	Serial: WC3-3 also Re-numbered WC3-2A in field
Calibrated: 8/6/99	PO Nbr: CREDIT CARD
Date due: 8/6/00	ID Nbr: WC3-3
Service Type: R6	Verification Procedure: 6-10053-0

-----Input-----|I/O|-----Accuracy-----|-----Low /High Limits----- As Rec'd As Shipped
-328 TO 2282°F

Range: AVERAGE STACK TEMP

1521	°F	O ±2.2°C or 0.75%rdg	1510	1531	°F	1523	1523

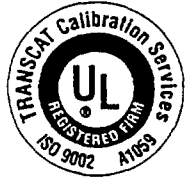
Range: AVERAGE STACK TEMP

1261	°F	O ±2.2°C or 0.75%rdg	1252	1269	°F	1262	1262

Remarks:



CALIBRATION LAB DATA



RA Nbr:	6-LE294-14-1	Mfg:	OTHER MFG
Description:	TYPE K THERMOCOUPLE PROBE	Model:	TYPE K
Customer:	MIDWEST	Serial:	WC3-4
Calibrated:	8/6/99	PO Nbr:	CREDIT CARD
Date due:	8/6/00	ID Nbr:	WC3-4
Service Type:	R6	Verification Procedure:	6-10053-0

Input	I/O	Accuracy	Low /High Limits	As Rec'd	As Shipped
-228 TO 2282°F					

Range: AVERAGE STACK TEMP

1263	°F	±2.2°C or 0.75%rdg	1254	1272	°F	1263	1263

Remarks:



CALIBRATION LAB DATA



RA Nbr:	6-LE294-17-1	Mfg:	OTHER MFG
Description:	TYPE K THERMOCOUPLE PROBE	Model:	TYPE K
Customer:	MIDWEST	Serial:	WC3-5
Calibrated:	8/6/99	PO Nbr:	CREDIT CARD
Date due:	8/6/00	ID Nbr:	WC3-5
Service Type:	R6	Verification Procedure:	6-10053-0

-----Input-----|---I/O---|-----Accuracy-----|-----Low /High Limits----- As Rec'd As Shipped
-328 TO 2282°F

Range: AVERAGE STACK TEMP							
575.9	°F	○ ±2.2°C or 0.75%rdg	571.8	580.1	°F	576.2	576.2
Range: AVERAGE STACK TEMP							
1502	°F	○ ±2.2°C or 0.75%rdg	1491	1513	°F	1502	1502

Remarks:



CALIBRATION LAB DATA



RA Nbr:	6-LE294-20-1	Mfg:	OTHER MFG
Description:	TYPE K THERMOCOUPLE PROBE	Model:	TYPE K
Customer:	MIDWEST	Serial:	WC3-6
Calibrated:	8/6/99	PO Nbr:	CREDIT CARD
Date due:	8/6/00	ID Nbr:	WC3-6
Service Type:	R6	Verification Procedure:	6-10053-0

-----Input-----|---I/O---|-----Accuracy-----|-----Low /High Limits----- As Rec'd As Shipped
-328 TO 2282°F

Range: AVERAGE STACK TEMP

609.5	°F	Q ±2.2°C or 0.75%rdg	605.1	613.8	°F	608.6	608.6

Remarks:



CALIBRATION LAB DATA



RA Nbr:	6-LE294-23-1	Mfg:	OTHER MFG
Description:	TYPE K THERMOCOUPLE PROBE	Model:	TYPE K
Customer:	MIDWEST	Serial:	WC3-7
Calibrated:	8/6/99	PO Nbr:	CREDIT CARD
Date due:	8/6/00	ID Nbr:	WC3-7
Service Type:	R6	Verification Procedure:	6-10053-0

-----Input-----|---I/O---|-----Accuracy-----|-----Low /High Limits----- As Rec'd As Shipped
-328 TO 2282°F

Range: AVERAGE STACK TEMP					
1444	°F	○ ±2.2°C or 0.75%rdg	1432	1454	°F
1444			1444	1444	

Remarks:

Appendix J

Continuous Emission Monitoring Data

Test Report

Continuous Emissions Monitoring and Visible Emissions Evaluation

Conducted at Woodlawn Cemetery The Bronx, New York

For Midwest Research Institute Kansas City, Missouri

Test Dates: June 11-17, 1999

Report Date: July 19, 1999



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ETS CONTRACT NO. 99-544-T

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Appendix F - Equipment Calibration Data

1.0 Introduction

1.1 Background An air emissions test program was conducted for Midwest Research Institute (MRI) at the Woolworth Chapel Crematorium in the Woodlawn Cemetery, a 400-acre necropolitan cemetery located in the Bronx, New York.

The test program was conducted on June 11-17, 1999 by ETS, Incorporated (ETS) of Roanoke, Virginia. ETS personnel participating in the test program were David Vecellio and Pete Brown.

1.2 Objective The objective of the test program was to evaluate the opacity of visible emissions from the common stack serving the crematoriums's four cremation incinerator units (Units 1 through 4), and to measure controlled (wet scrubber) and uncontrolled emissions of O₂, CO₂, SO₂, NO_x and CO from Unit 4 during the cremation process.

1.3 Test Program Nine test runs were conducted: three runs at each of three operating conditions. The three test conditions reflected the operating temperature of Unit 4's secondary combustion chamber: 1400°F, 1600°F and 1800°F. Each test run consisted of continuous emissions monitoring for the pollutants described in Section 1.2 above, plus a concurrent visible emissions evaluation. Each test run was conducted for the duration of a cremation (approximately 2.5 hours). Appendix A contains a test log detailing the date and time of each test run.

2.0 Summary of Results

Table 1 summarizes the results both of the continuous emissions monitoring, and of the visible emissions evaluations. Detailed data and results can be found in Appendices B and C.

3.0 Discussion of Results

The run-5 cremation in Unit 4 (15:54-18:22 on 6/14/99) started 30 minutes before the end of a cremation in Unit 1. For the first 30 minutes of run 5, therefore, visible emissions from the crematorium stack originated from two cremations. Thus, the visible emissions recorded may not reflect the true visible emissions from Unit 4 only.

The SO₂, NO_x and CO monitors occasionally recorded gas concentration spikes that exceeded their span. At the end of the test program, the linearity of the analyzers at higher concentrations was demonstrated by using a calibration gas above the highest one-minute average spike measured during the test program. Calibration gas was introduced at the sampling probe, and linearity was demonstrated to meet the accuracy and calibration error requirements of Methods 6C, 7E and 10 in Appendix A to 40 CFR 60. Data from the post-test linearity checks are contained in Appendix F.

Table 1 - Summary of Results

Analyte	Secondary Chamber Temperature: 1400 F							
	Run 1		Run 2		Run 3		Average	
	inlet	outlet	inlet	outlet	inlet	outlet	inlet	outlet
Oxygen (%dv)	9.78	11.36	10.43	11.85	9.22	10.37	9.81	11.19
Carbon dioxide (%dv)	6.92	6.13	6.50	5.81	7.56	6.88	6.99	6.27
Sulfur dioxide (ppmdv)	9.17	8.54	1.45	0.00	16.66	14.60	9.09	7.71
Nitrogen oxides (ppmdv)	132.35	119.59	110.62	97.42	96.31	84.87	113.09	100.63
Carbon monoxide (ppmdv)	1.91	1.42	2.99	2.41	1.78	1.38	2.23	1.74
Visible emissions (% opacity)								
max. 6-min. value	0.00		0.00		3.75		1.25	
run average	0.00		0.00		0.33		0.11	
Analyte	Secondary Chamber Temperature: 1600 F							
	Run 4		Run 5		Run 6		Average	
	inlet	outlet	inlet	outlet	inlet	outlet	inlet	outlet
Oxygen (%dv)	8.56	9.31	8.25	9.79	8.90	10.50	8.57	9.87
Carbon dioxide (%dv)	7.76	7.29	8.76	7.68	7.80	6.88	8.11	7.28
Sulfur dioxide (ppmdv)	17.62	16.19	20.03	16.79	15.18	12.48	17.61	15.15
Nitrogen oxides (ppmdv)	113.18	102.92	176.69	140.46	88.23	75.09	126.03	106.16
Carbon monoxide (ppmdv)	0.16	0.19	0.15	0.04	0.68	0.58	0.33	0.27
Visible emissions (% opacity)								
max. 6-min. value	0.00		7.71		0.00		2.57	
run average	0.00		0.99		0.00		0.33	
Analyte	Secondary Chamber Temperature: 1800 F							
	Run 7		Run 8		Run 9		Average	
	inlet	outlet	inlet	outlet	inlet	outlet	inlet	outlet
Oxygen (%dv)	7.24	8.78	7.53	8.94	7.71	9.48	7.49	9.07
Carbon dioxide (%dv)	9.55	8.37	8.21	7.34	8.16	7.07	8.64	7.59
Sulfur dioxide (ppmdv)	48.46	38.96	33.71	26.84	17.68	16.12	33.28	27.31
Nitrogen oxides (ppmdv)	128.09	113.18	79.62	70.97	85.29	73.86	97.67	86.00
Carbon monoxide (ppmdv)	15.73	10.50	1.49	1.48	0.00	0.46	5.74	4.15
Visible emissions (% opacity)								
max. 6-min. value	6.04		13.96		12.50		10.83	
run average	0.78		0.92		0.72		0.81	

4.0 Continuous Emissions Monitoring for O₂, CO₂, SO₂, NO_x and CO - Instrumental Methods

Oxygen, NO_x, SO₂, CO and CO₂ were sampled simultaneously at a single point in the centroidal area of the scrubber inlet and outlet. Instrumental monitoring of the stack gases was performed as follows:

Gas	Reference Method	Instrument Type
O ₂	EPA Method 3A	Teledyne Model 320A Chemical Cell Portable O ₂ Analyzer
CO ₂	EPA Method 3A	HORIBA Model PIR-2000 NDIR CO ₂ Analyzer
SO ₂	EPA Method 6C	Western Research 721AT SO ₂ Analyzer
NO _x	EPA Method 7E	TECO Model 10AR Chemiluminescence NO _x Analyzer
CO	EPA Method 10	TECO Model 48 NDIR CO Analyzer

4.1 Sampling System Description An integrated, remote instrumental system housing the pollutant gas analyzers and the diluent gas (O₂ and CO₂) monitors was used. Figure 1 outlines the general schematic of the dry extractive system. All of the instruments were housed in a trailer at ground level.

The sampling system consisted of a stainless steel probe at each scrubber test location. A heated glass-fiber filter was attached to each probe for rough particulate removal, and heated Teflon sample line delivered the sample to an ice-cooled condenser for removal of flue gas moisture. A short, unheated Teflon sample line transported the dry gas sample from the condenser to the instrumental system. The sample gas exiting the Teflon sample line was pumped to the SO₂, NO_x, CO, O₂ and CO₂ monitors, which all measure gas concentration on a dry volume basis.

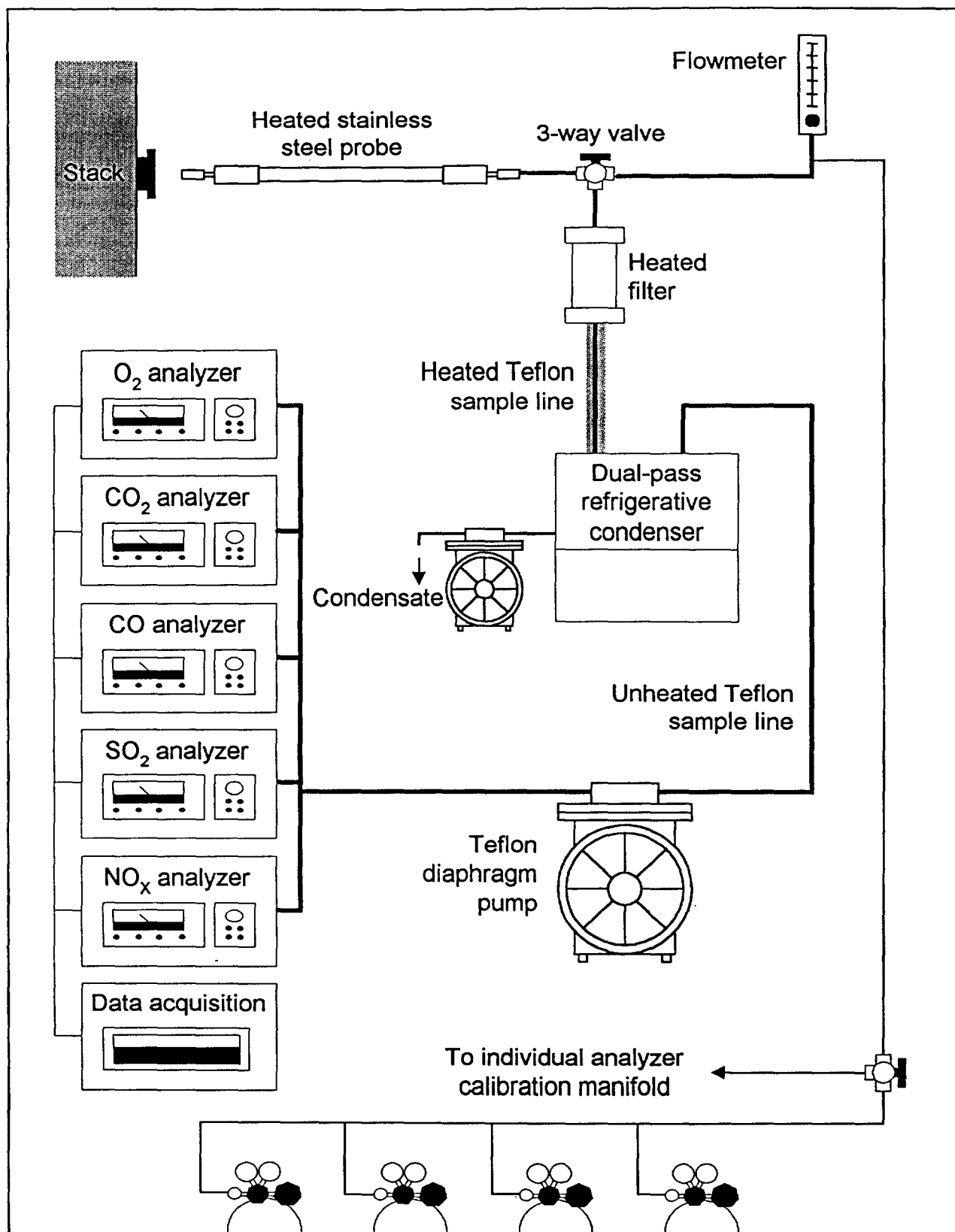


Figure 1 - Continuous Emissions Monitoring System for EPA Methods 3A, 6C, 7E and 10 (O_2 , CO_2 , SO_2 , NO_x and CO)

4.2 Data Acquisition System The response outputs of the monitors were recorded digitally by a Campbell Scientific model CR10WP multichannel data-acquisition system, which sampled at 60 Hz, and stored one-minute average values.

4.3 Dry System Calibration At the beginning of each test day, the NO_x, SO₂, O₂ and CO₂ monitors on the sampling system were zeroed using zero nitrogen, and spanned using a certified calibration gas with a concentration of 80-100% of the instrument span. Following calibration, a mid-range gas (40-60% of the instrument span) was introduced into each monitor. The mid-range response did not exceed 2% of the instrument span, as required by EPA reference Method 6C.

The CO monitor was zeroed using zero nitrogen, and spanned using a known concentration of CO in nitrogen. Following calibration, the CO monitor was challenged with two additional gas concentrations corresponding to approximately 60% and 30% of instrument span. All calibration gases were EPA Protocol 1 certified.

After calibrating the SO₂, NO_x, O₂ and CO₂ monitors, calibration gas was introduced remotely through the probe to verify the absence of sampling system bias. The bias error did not exceed 5% of the instrument span, as required by EPA Method 6C.

After each test run, zero nitrogen and either a mid- or high-range calibration gas were introduced remotely through the sampling train system to each monitor to check for

calibration drift error. In accordance with Method 6C, the calibration drift did not exceed 3% of the instrument span for all valid test runs.

5.0 Visible Emissions Determination

All visible emissions readings were performed using EPA Method 9 procedures contained in USEPA 40 CFR 60, Appendix A. Appendix E of this report contains the raw field data for the tests.

5.1 Visible Emissions Determination Procedures Evaluations of visible emissions from the crematorium stack were made by an observer who was certified in accordance with Section 3.12.1, Subsection 1.3 of the *Quality Assurance Handbook for Air Pollution Measurements Systems: Volume III* (EPA-600/4-77-027b, August 1977). Appendix E contains the observer's certification.

5.1.1 Observer Position The observer stood at a distance that provided a clear view of the emissions with the sun oriented in the 140° sector to his back. In addition, the observer made observations from a position at which the line of vision was approximately perpendicular to the plume direction. For more detailed information on the observer position, see Appendix E.

5.1.2 Opacity Observations Opacity observations were made at the point of greatest opacity in the portion of the plume where condensed water vapor was not

present. Opacity was read at 15-second intervals, and readings were made to the nearest 5 percent opacity with a minimum of 24 observations being recorded. Readings were taken against a clearly visible background which gave the highest degree of contrast. See Appendix E for more detailed information on the observations.

6.0 Data Analysis

All calculations related to this test program are shown in Appendix D.

7.0 Equipment Calibration

Field equipment was calibrated in accordance with the requirements of the applicable EPA Methods, and with those recommended within the *Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III* (EPA-600/4-77-027b, August 1977). Appendix F contains records for all of the calibrations.

Appendix A

Test Log

TEST LOG

UNIT 4

Simultaneous Continuous Emissions
Monitoring at Scrubber Inlet and Outlet, plus
Visible Emissions Evaluation at Stack Outlet

MRI - Woodlawn Cemetery
Woolworth Chapel Crematorium
The Bronx, New York

Run I.D.	Temp. in Second. Chamber	Test Parameters	Date	Start Time	End Time
CEMS-RUN1@1400F	1400°F	O ₂ CO ₂ SO ₂ NO _x CO EPA Methods 3A, 6C, 7E, 10	6/11/99	1520	1802
CEMS-RUN2@1400F			6/12/99	1145	1412
CEMS-RUN3@1400F			6/13/99	0906	1130
CEMS-RUN1@1600F	1605			1842	
CEMS-RUN2@1600F	1600°F		6/14/99	1550	1822
CEMS-RUN3@1600F			6/15/99	1045	1313
CEMS-RUN1@1800F				1750	2012
CEMS-RUN2@1800F	1800°F		6/16/99	1540	1819
CEMS-RUN3@1800F			6/17/99	1005	1219
U4-M9-R1	1400°F	Opacity of Visible Emissions EPA Method 9	6/11/99	1523	1806
U4-M9-R2			6/12/99	1141	1416
U4-M9-R3			6/13/99	0905	1130
U4-M9-R4	1606			1835	
U4-M9-R5	1600°F		6/14/99	1554	1822
U4-M9-R6			6/15/99	1044	1312
U4-M9-R7				1749	2011
U4-M9-R8	1800°F		6/16/99	1540	1819
U4-M9-R9			6/17/99	1005	1219

Appendix B

Data and Results for Continuous Emissions Monitoring

Appendix B.1

CEMS Data and Results

Runs 1 - 3 (1400°F)

Scrubber Inlet

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
15:21	7.36	9.14	1.41	68.16	1.74
15:22	4.97	11.16	6.61	152.60	10.55
15:23	8.72	8.13	12.17	136.70	3.64
15:24	8.77	8.00	12.48	126.70	4.08
15:25	4.31	10.94	12.46	218.50	2.53
15:26	8.17	8.06	10.50	161.30	2.15
15:27	7.58	8.74	10.16	178.40	4.69
15:28	4.61	10.24	11.64	228.80	1.45
15:29	7.86	8.29	11.91	173.40	2.07
15:30	8.10	8.40	12.55	180.10	4.96
15:31	4.23	10.55	13.96	266.50	1.38
15:32	8.18	7.88	13.89	204.30	1.79
15:33	8.48	8.09	12.40	236.80	2.83
15:34	3.53	11.04	13.39	294.20	1.44
15:35	8.42	7.80	13.81	269.00	1.78
15:36	8.70	7.84	14.43	310.30	2.67
15:37	5.19	10.27	15.60	306.20	2.25
15:38	6.16	9.22	15.70	324.90	1.09
15:39	8.16	8.13	15.60	483.00	1.86
15:40	7.99	8.24	18.60	416.90	2.34
15:41	7.95	8.29	18.21	426.20	2.38
15:42	5.14	10.34	19.16	353.60	1.89
15:43	6.44	9.05	22.09	426.20	1.11
15:44	7.90	8.32	22.47	444.30	1.43
15:45	7.92	8.29	22.61	443.50	1.57
15:46	7.89	8.34	24.05	445.30	1.80
15:47	7.68	8.41	23.65	450.10	1.82
15:48	7.80	8.29	22.54	428.50	1.60
15:49	7.96	8.22	22.99	417.00	1.85
15:50	7.95	8.29	22.11	430.90	1.81
15:51	8.00	8.19	22.44	417.80	2.07
15:52	7.85	8.24	21.91	425.10	3.31
15:53	7.96	8.17	21.51	409.10	2.70
15:54	7.91	8.13	21.37	398.70	2.65
15:55	4.12	10.69	25.21	322.60	1.86
15:56	7.93	8.07	21.06	376.50	2.02
15:57	8.03	8.09	20.02	384.30	1.86
15:58	8.22	7.91	19.56	347.40	2.17
15:59	8.29	7.82	20.23	318.50	3.09
16:00	8.31	8.09	21.16	295.90	3.47
16:01	4.19	10.35	24.70	268.90	2.81

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
16:02	8.90	7.46	20.39	220.10	2.37
16:03	9.03	7.35	20.97	198.60	2.48
16:04	8.43	7.90	21.17	214.60	2.47
16:05	4.46	10.18	23.63	223.20	1.24
16:06	9.81	7.18	20.26	152.70	1.63
16:07	9.80	7.20	20.18	153.60	2.17
16:08	7.83	8.55	21.03	186.10	2.35
16:09	5.74	9.50	22.94	196.90	1.10
16:10	9.23	7.64	21.19	170.70	1.73
16:11	9.33	7.58	20.79	156.90	1.95
16:12	9.28	7.63	20.75	160.10	1.85
16:13	9.28	7.57	20.57	152.00	1.85
16:14	9.56	7.42	20.14	133.70	2.26
16:15	9.55	7.43	19.70	128.00	2.20
16:16	9.60	7.40	19.02	125.30	2.37
16:17	9.59	7.34	17.90	108.40	2.38
16:18	9.65	7.21	17.02	91.10	2.66
16:19	9.95	7.15	16.68	83.90	3.24
16:20	5.11	10.03	17.28	141.60	1.80
16:21	9.54	7.20	14.90	81.10	1.70
16:22	10.21	6.99	14.28	68.11	2.67
16:23	10.34P	6.92P	14.56P	64.27P	2.99P
16:24	10.22P	6.96P	13.76P	64.54P	3.36P
16:25	5.15P	9.96P	13.62P	111.80P	1.82P
16:26	10.20P	6.81P	11.61P	48.62P	1.85P
16:27	10.85P	6.54P	10.88P	42.09P	3.29P
16:28	10.80P	6.54P	10.32P	41.13P	3.73P
16:29	6.67P	9.09P	10.83P	74.50P	2.55P
16:30	9.50P	7.03P	9.67P	42.17P	1.37P
16:31	11.17P	6.27P	9.04P	33.03P	2.91P
16:32	11.27P	6.26P	8.66P	34.46P	3.88P
16:33	6.13P	9.07P	8.63P	62.92P	1.78P
16:34	11.12P	6.03P	8.61P	31.76P	2.01P
16:35	11.91P	5.73P	8.53P	29.88P	3.36P
16:36	10.39P	6.73P	8.23P	41.88P	3.59P
16:37	7.87P	7.75P	8.29P	48.08P	1.14P
16:38	12.23P	5.49P	7.53P	31.18P	2.63P
16:39	12.33P	5.42P	7.37P	31.38P	3.25P
16:40	8.23P	7.90P	7.46P	53.00P	2.52P
16:41	9.76P	6.70P	7.38P	39.03P	1.26P
16:42	12.14P	5.54P	7.05P	31.47P	2.76P

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
16:43	11.19P	6.24P	7.02P	43.00P	3.34P
16:44	6.82P	8.33P	7.17P	57.52P	0.91P
16:45	12.20P	5.43P	6.42P	39.06P	1.87P
16:46	12.32P	5.40P	6.18P	38.32P	2.86P
16:47	8.48P	7.67P	6.23P	57.16P	2.20P
16:48	10.01P	6.47P	6.06P	47.47P	1.01P
16:49	12.58P	5.20P	5.58P	40.33P	2.68P
16:50	11.37P	6.06P	5.53P	48.34P	3.12P
16:51	7.79P	7.74P	5.91P	58.77P	0.84P
16:52	12.63P	5.14P	5.49P	40.29P	1.99P
16:53	12.87P	4.99P	5.21P	42.20P	2.91P
16:54	7.94P	7.95P	5.23P	64.69P	1.89P
16:55	10.63P	6.11P	5.28P	48.92P	0.81P
16:56	12.44P	5.23P	5.04P	43.07P	1.75P
16:57	12.40P	5.26P	4.74P	44.40P	2.02P
16:58	7.29P	8.25P	3.81P	67.68P	1.19P
16:59	10.45P	6.22P	3.92P	52.86P	0.82P
17:00	11.63P	5.63P	4.03P	55.13P	1.19P
17:01	12.24	5.22	3.62	49.25	1.40
17:02	10.45	6.46	3.41	53.92	2.34
17:03	9.29	6.78	3.38	54.83	0.53
17:04	12.31	5.22	3.38	49.73	1.72
17:05	12.29	5.21	3.33	49.90	1.85
17:06	9.54	6.92	3.22	63.06	1.66
17:07	8.90	6.88	3.54	61.05	0.62
17:08	12.47	5.07	3.12	48.19	1.33
17:09	12.39	5.12	3.00	48.34	1.75
17:10	11.86	5.57	2.86	51.91	1.86
17:11	6.70	8.11	3.06	68.82	0.76
17:12	11.99	5.32	2.95	48.42	0.97
17:13	12.21	5.19	2.70	48.22	1.14
17:14	12.17	5.21	2.56	48.51	1.12
17:15	12.17	5.20	2.54	48.10	1.21
17:16	8.65	7.33	2.50	66.61	1.01
17:17	10.03	6.17	2.71	54.34	0.61
17:18	12.15	5.19	2.42	46.80	0.93
17:19	12.30	5.09	2.40	46.09	1.00
17:20	12.59	4.89	2.37	43.90	1.26
17:21	12.61	5.04	2.35	46.48	1.27
17:22	6.99	7.88	2.39	67.77	0.74
17:23	12.50	4.92	2.37	43.83	0.85

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
17:24	12.31	5.00	2.27	43.84	0.95
17:25	12.26	4.94	2.29	42.96	0.95
17:26	11.82	5.03	2.26	43.27	1.00
17:27	10.78	5.72	2.26	50.08	1.15
17:28	7.42	7.41	2.32	61.44	3.30
17:29	11.98	4.95	2.32	41.53	0.85
17:30	11.92	4.93	2.21	40.96	1.55
17:31	12.27	4.96	2.16	40.91	1.54
17:32	11.66	4.85	2.19	39.90	1.23
17:33	11.22	5.77	2.09	48.97	1.45
17:34	7.98	7.09	2.16	59.55	0.51
17:35	11.69	4.89	2.08	40.41	2.40
17:36	12.52	4.88	2.11	40.62	2.34
17:37	12.30	4.84	2.12	40.02	2.25
17:38	11.94	4.74	2.01	39.42	1.26
17:39	10.94	5.96	1.91	49.95	1.23
17:40	8.19	6.87	2.13	55.89	1.37
17:41	11.99	4.72	2.08	37.52	0.94
17:42	12.46	4.73	2.06	37.48	0.91
17:43	12.73	4.72	1.95	37.23	0.98
17:44	12.00	4.69	1.95	36.82	1.34
17:45	8.67	7.12	2.02	60.80	1.21
17:46	12.25	4.91	1.92	41.80	0.59
17:47	12.49	4.65	1.96	39.88	1.02
17:48	13.20	4.53	1.92	37.18	1.30
17:49	13.25	4.50	1.87	36.34	1.35
17:50	12.44	5.13	1.82	43.48	1.35
17:51	8.88	6.80	1.95	56.76	0.41
17:52	13.38	4.37	1.87	34.94	1.11
17:53	13.40	4.35	1.89	34.53	1.17
17:54	13.55	4.24	1.91	33.68	1.34
17:55	12.72	4.91	1.90	40.49	1.70
17:56	8.90	6.75	1.90	56.09	0.66
17:57	13.53	4.24	1.93	32.62	1.14
17:58	13.52	4.25	2.00	32.48	1.35
17:59	13.41	4.34	1.80	31.93	1.54
18:00	12.05	5.28	1.86	39.61	1.35
18:01	7.72	7.34	1.84	55.80	0.57
18:02	12.68	4.73	1.84	32.89	0.85

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
162 MinAvg	9.74	6.88	9.60	128.63	1.91

Data Corrected for Calibrations

162 MinAvg	9.78	6.92	9.17	132.35	1.91

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1400 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 1.90 HIGH Cal. Response = 45.56
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 0.94 HIGH Cal. Response = 46.14

LOW System Drift = -0.96 % HIGH System Drift = 0.57 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = -0.01 HIGH Cal. Response = 10.01
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 0.02 HIGH Cal. Response = 9.99

LOW System Drift = 0.18 % HIGH System Drift = -0.09 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.81
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.84

LOW System Drift = 0.00 % HIGH System Drift = 0.01 %

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1400 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 0.57 HIGH Cal. Response = 100.32
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = -1.71 HIGH Cal. Response = 97.10

LOW System Drift = -0.91 % HIGH System Drift = -1.29 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 0.09 HIGH Cal. Response = 10.08
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 0.07 HIGH Cal. Response = 9.85

LOW System Drift = -0.07 % HIGH System Drift = -0.94 %

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
11:46	6.28	12.04	9.08	168.00	1.01
11:47	7.55	11.15	8.04	147.60	1.92
11:48	7.82	10.80	6.67	134.40	2.02
11:49	7.93	10.65	5.95	127.90	2.02
11:50	8.08	10.44	5.86	125.20	2.40
11:51	4.61	12.51	5.91	112.30	2.12
11:52	7.12	10.24	4.97	84.40	0.69
11:53	10.60	8.10	3.40	53.52	5.55
11:54	6.95	10.05	2.90	74.60	5.86
11:55	7.11	9.24	2.67	74.20	0.08
11:56	12.86	6.24	2.34	55.91	10.48
11:57	7.60	8.88	2.27	84.60	6.83
11:58	8.21	8.12	2.05	84.30	0.07
11:59	13.32	5.72	1.92	63.84	13.01
12:00	7.21	8.61	2.37	122.10	8.53
12:01	8.16	7.86	2.44	105.70	1.13
12:02	12.52	5.84	2.29	78.50	21.11
12:03	7.07	8.52	2.22	143.20	9.40
12:04	8.52	7.54	2.25	126.00	0.96
12:05	12.63	5.70	2.13	95.10	21.55
12:06	7.25	8.47	2.17	154.80	8.62
12:07	8.84	7.35	2.18	128.40	0.53
12:08	12.71	5.61	2.27	104.70	19.10
12:09	6.19	8.81	2.26	168.90	7.30
12:10	9.05	7.05	2.33	134.20	0.94
12:11	12.63	5.50	2.26	115.00	6.75
12:12	7.13	8.26	2.19	173.10	3.12
12:13	10.13	6.46	2.13	132.20	1.60
12:14	12.64	5.43	2.10	113.80	7.78
12:15	7.10	8.18	2.19	167.50	4.57
12:16	10.78	6.03	2.13	120.20	8.49
12:17	12.49	5.46	2.17	113.30	11.99
12:18	7.18	8.12	2.18	164.20	2.63
12:19	11.04	5.81	2.16	116.40	2.23
12:20	12.39	5.48	2.18	116.30	7.95
12:21	7.30	8.07	2.25	165.20	1.63
12:22	11.43	5.56	2.05	112.10	1.84
12:23	12.17	5.57	2.17	120.00	6.93
12:24	7.63	7.85	2.07	163.70	1.00
12:25	12.16	5.16	2.16	105.00	1.91
12:26	12.11	5.56	2.24	122.70	7.77

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
12:27	6.68	8.30	2.24	174.50	1.41
12:28	11.84	5.34	2.20	106.00	1.14
12:29	12.55	5.32	2.03	113.10	4.89
12:30	7.30	8.02	2.15	166.30	1.18
12:31	11.71	5.39	2.10	105.90	1.14
12:32	12.85	5.16	2.23	108.30	3.98
12:33	6.35	8.44	2.33	173.40	1.01
12:34	11.46	5.50	2.33	108.40	1.02
12:35	13.24	4.91	2.18	100.70	3.19
12:36	6.66	8.28	2.27	166.90	1.35
12:37	11.32	5.59	2.22	108.90	0.69
12:38	13.53	4.66	2.26	93.40	3.48
12:39	7.31	8.02	2.30	163.50	1.66
12:40	11.00	5.72	2.28	110.40	0.69
12:41	13.72	4.47	2.14	86.80	3.58
12:42	7.33	8.01	2.21	163.60	1.66
12:43	10.54	5.95	2.35	115.10	0.69
12:44	13.72	4.42	2.33	86.70	3.22
12:45	8.00	7.67	2.51	165.70	2.40
12:46	10.20	6.13	2.72	130.30	0.48
12:47	13.75	4.40	2.38	88.50	2.81
12:48	9.52P	6.84P	2.43P	150.90P	2.51P
12:49	9.73P	6.41P	2.40P	133.10P	0.31P
12:50	14.52P	3.92P	2.44P	84.00P	7.94P
12:51	9.46P	6.94P	2.29P	156.70P	10.65P
12:52	9.94P	6.27P	2.38P	131.90P	0.41P
12:53	14.12P	4.14P	2.36P	83.50P	3.18P
12:54	10.33P	6.45P	2.39P	147.50P	3.81P
12:55	9.09P	6.73P	2.70P	150.60P	0.17P
12:56	14.06P	4.15P	2.71P	82.30P	3.88P
12:57	10.76P	6.17P	2.76P	142.70P	4.08P
12:58	8.92P	6.79P	2.68P	149.70P	0.51P
12:59	14.16P	4.07P	2.43P	77.80P	3.58P
13:00	11.30P	5.84P	2.40P	133.60P	4.44P
13:01	8.85P	6.74P	2.44P	133.70P	0.11P
13:02	14.33P	3.94P	2.41P	64.31P	3.09P
13:03	11.86P	5.53P	2.47P	110.90P	5.00P
13:04	8.30P	7.13P	2.53P	142.20P	0.21P
13:05	14.01P	4.10P	2.49P	68.17P	2.31P
13:06	12.47P	5.18P	2.63P	100.80P	4.88P
13:07	7.47P	7.72P	2.78P	135.80P	0.44P

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
13:08	12.06P	5.24P	4.97P	52.53P	1.48P
13:09	12.50P	5.20P	5.35P	56.92P	3.82P
13:10	6.13P	8.51P	5.55P	121.40P	1.36P
13:11	11.01	5.68	5.18	66.47	0.87
13:12	12.73	4.94	4.59	53.13	3.20
13:13	8.30	7.47	4.43	117.90	2.69
13:14	9.18	6.61	4.49	94.60	0.32
13:15	13.00	4.79	3.77	55.74	3.04
13:16	10.59	6.27	3.60	99.90	4.07
13:17	7.71	7.39	3.56	133.70	0.11
13:18	13.01	4.78	3.22	59.60	1.75
13:19	12.41	5.25	3.04	75.90	3.57
13:20	6.48	8.22	3.36	143.30	0.90
13:21	11.81	5.22	3.37	72.57	0.81
13:22	12.78	4.88	3.21	66.48	2.51
13:23	8.19	7.51	3.41	121.60	2.19
13:24	9.28	6.51	3.58	102.80	0.32
13:25	13.13	4.68	3.18	62.67	2.40
13:26	11.02	6.01	3.25	91.10	2.59
13:27	7.07	7.62	3.56	129.30	0.10
13:28	12.74	4.80	3.22	64.62	1.32
13:29	12.87	4.88	3.26	65.89	2.52
13:30	6.05	8.53	3.64	138.90	0.89
13:31	11.13	5.44	3.63	78.30	0.64
13:32	12.84	4.72	3.31	59.79	2.29
13:33	9.99	6.51	3.39	102.80	2.23
13:34	8.59	6.89	3.55	105.10	0.07
13:35	13.19	4.63	3.20	60.24	1.75
13:36	12.66	5.08	3.10	71.20	2.62
13:37	6.60	8.12	3.54	129.80	0.77
13:38	12.47	4.88	3.37	66.19	0.97
13:39	12.92	4.78	3.27	59.03	2.06
13:40	8.73	7.16	3.46	103.80	1.56
13:41	9.12	6.56	3.80	92.60	0.07
13:42	12.84	4.85	3.39	59.45	1.92
13:43	12.42	5.19	3.58	62.29	2.18
13:44	6.11	8.43	4.07	132.90	0.77
13:45	11.84	5.47	4.40	71.94	0.64
13:46	12.60	5.14	4.77	64.14	2.07
13:47	11.74	5.66	3.90	108.90	2.85
13:48	8.48	7.03	3.40	135.50	0.38

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
13:49	13.54	4.46	2.94	69.58	1.91
13:50	13.68	4.41	2.76	70.20	3.19
13:51	8.20	7.51	2.91	138.10	1.55
13:52	12.44	4.88	2.82	79.80	0.85
13:53	13.62	4.42	2.54	65.96	2.69
13:54	9.89	6.65	2.79	113.20	1.78
13:55	10.11	6.12	2.88	103.60	0.07
13:56	13.66	4.37	2.51	64.69	2.08
13:57	12.33	5.29	2.38	86.30	2.64
13:58	7.98	7.31	2.69	128.50	0.37
13:59	13.54	4.42	2.56	67.06	1.32
14:00	13.65	4.35	2.46	68.20	2.41
14:01	8.80	7.26	2.67	149.00	1.54
14:02	11.60	5.32	2.77	96.30	0.48
14:03	12.67	5.18	3.63	74.30	2.01
14:04	11.39	5.99	6.24	80.30	2.02
14:05	7.51	7.60	5.04	116.90	0.37
14:06	13.17	4.77	3.48	62.31	1.32
14:07	13.18	4.78	2.97	59.25	2.17
14:08	9.00	7.19	2.91	108.50	1.67
14:09	10.57	6.00	3.15	83.60	0.23
14:10	13.27	4.71	2.77	61.64	1.75
14:11	12.41	5.34	2.54	78.70	2.24
14:12	7.57	7.60	2.80	116.00	0.38
147 MinAvg	10.44	6.44	3.05	106.41	2.99

Data Corrected for Calibrations

147 MinAvg	10.43	6.50	1.45	110.62	2.99

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1400 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80

INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = 2.25 HIGH Cal. Response = 46.97
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 1.21 HIGH Cal. Response = 47.12

LOW System Drift = -1.04 % HIGH System Drift = 0.15 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06

INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = 0.04 HIGH Cal. Response = 10.06
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 0.05 HIGH Cal. Response = 9.82

LOW System Drift = 0.04 % HIGH System Drift = -1.21 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60

INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.69
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.58

LOW System Drift = 0.00 % HIGH System Drift = -0.03 %

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1400 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = 0.25 HIGH Cal. Response = 99.31
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 0.58 HIGH Cal. Response = 96.42

LOW System Drift = 0.13 % HIGH System Drift = -1.16 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = -0.10 HIGH Cal. Response = 9.99
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 0.23 HIGH Cal. Response = 10.05

LOW System Drift = 1.33 % HIGH System Drift = 0.26 %

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
09:07	4.76	10.94	22.07	106.90	4.54
09:08	6.07	9.76	15.86	95.10	0.57
09:09	9.50	7.97	15.17	81.00	6.90
09:10	3.84	11.45	21.14	141.90	3.27
09:11	6.98	8.99	19.07	114.90	1.51
09:12	9.75	7.59	14.63	88.70	7.77
09:13	4.96	10.15	12.83	128.50	5.37
09:14	7.24	8.53	11.56	115.60	0.98
09:15	10.93	6.70	11.67	85.60	8.20
09:16	5.52	9.59	11.35	152.10	4.07
09:17	7.79	8.04	10.70	118.50	0.85
09:18	11.41	6.31	10.08	91.00	6.49
09:19	5.23	9.69	11.86	144.80	3.58
09:20	7.37	8.26	13.93	102.90	1.03
09:21	10.56	6.93	15.92	73.20	12.19
09:22	4.41	10.30	16.77	157.50	5.10
09:23	7.50	8.31	15.86	97.10	1.57
09:24	10.32	7.07	17.66	78.50	8.39
09:25	4.18	10.66	18.65	164.50	4.05
09:26	7.40	8.42	17.98	110.80	1.37
09:27	9.54	7.41	19.65	89.10	5.31
09:28	5.64	9.86	22.38	149.40	4.30
09:29	5.98	9.25	22.82	145.20	0.44
09:30	9.34	7.54	22.90	108.60	3.57
09:31	8.37	8.30	24.30	128.50	4.64
09:32	3.32	10.81	26.48	190.90	0.85
09:33	9.28	7.64	24.27	116.90	2.12
09:34	9.29	7.61	25.49	113.50	3.80
09:35	5.81	9.79	27.29	181.60	3.46
09:36	6.14	9.19	27.35	151.90	0.39
09:37	9.36	7.62	26.66	114.20	2.88
09:38	9.35	7.63	26.75	114.90	3.79
09:39	4.55	10.55	29.84	212.10	2.30
09:40	7.23	8.58	26.69	171.00	0.54
09:41	9.05	7.80	25.93	149.30	2.02
09:42	8.71	7.91	25.44	177.50	2.03
09:43	7.81	8.60	25.14	208.00	2.02
09:44	3.70	10.64	28.52	229.80	0.35
09:45	8.58	8.01	24.82	197.50	0.95
09:46	8.57	8.07	25.21	204.60	1.10
09:47	8.28	8.22	25.45	254.80	1.44

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
09:48	8.64	8.04	25.42	200.20	1.77
09:49	8.46	8.13	26.40	217.70	1.95
09:50	8.57	7.98	24.91	183.60	1.78
09:51	4.24	10.73	29.34	177.40	1.35
09:52	8.07	8.10	25.14	154.40	0.43
09:53	8.94	7.83	24.63	128.10	1.32
09:54	9.01	7.79	25.42	120.80	2.06
09:55	9.27	7.69	25.84	103.60	2.34
09:56	4.04	10.76	28.89	139.00	1.01
09:57	8.84	7.80	25.99	102.00	0.59
09:58	9.19	7.71	24.31	101.70	1.02
09:59	9.17	7.75	24.00	108.70	1.93
10:00	9.27	7.66	23.74	101.20	1.68
10:01	4.53	10.47	26.64	118.60	1.02
10:02	8.73	7.72	24.17	75.20	0.79
10:03	9.76	7.29	23.42	70.30	2.03
10:04	9.67	7.35	24.03	70.90	2.50
10:05	6.39	9.44	25.21	105.10	2.19
10:06	6.97	8.66	24.23	85.20	0.27
10:07	9.62	7.32	22.09	67.00	1.44
10:08	9.74P	7.26P	21.45P	64.20P	2.09P
10:09	8.89P	8.00P	21.89P	69.30P	2.84P
10:10	5.51P	9.47P	24.42P	68.10P	0.34P
10:11	7.68P	9.39P	38.03P	174.20P	0.93P
10:12	3.74P	11.76P	80.30P	331.20P	0.93P
10:13	7.36P	9.15P	40.74P	228.30P	0.00P
10:14	9.82P	7.68P	23.74P	65.20P	0.25P
10:15	10.75P	7.08P	19.69P	38.61P	1.26P
10:16	11.18P	6.77P	18.16P	36.58P	2.09P
10:17	11.73P	6.41P	16.96P	47.86P	2.89P
10:18	8.44P	8.23P	15.65P	77.50P	1.70P
10:19	9.88P	7.09P	14.17P	66.70P	0.34P
10:20	12.37P	5.86P	12.82P	62.70P	2.02P
10:21	12.23P	6.05P	12.36P	70.90P	2.80P
10:22	6.47P	8.99P	12.83P	97.50P	0.76P
10:23	10.20P	6.90P	17.32P	47.68P	0.84P
10:24	11.03P	6.54P	17.26P	43.66P	2.10P
10:25	11.08P	6.55P	16.69P	46.05P	2.90P
10:26	5.63P	9.43P	16.88P	79.60P	1.07P
10:27	10.68P	6.50P	14.72P	47.98P	0.84P
10:28	11.46P	6.24P	14.32P	39.77P	2.53P

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
10:29	10.18P	7.00P	14.11P	50.64P	2.79P
10:30	6.56	8.60	14.28	66.40	0.34
10:31	11.80	5.94	13.29	45.69	1.18
10:32	12.02	5.77	12.72	47.40	2.52
10:33	7.42	8.41	12.70	71.20	1.70
10:34	9.44	6.94	13.15	58.00	0.34
10:35	12.21	5.64	12.07	48.85	2.02
10:36	9.94	7.14	12.31	52.40	2.58
10:37	5.55	9.11	16.35	69.90	0.17
10:38	11.29	6.19	14.52	48.02	0.60
10:39	11.56	6.01	12.61	49.68	1.26
10:40	10.43	6.77	12.19	59.70	1.93
10:41	6.08	8.71	13.45	74.70	0.08
10:42	11.67	5.91	12.12	50.60	0.76
10:43	11.82	5.78	12.03	50.80	1.26
10:44	10.52	6.73	11.88	59.10	1.93
10:45	5.98	8.75	13.54	77.70	0.09
10:46	11.99	5.64	11.16	50.00	0.76
10:47	12.18	5.53	9.73	49.79	1.77
10:48	11.42	6.13	9.55	57.10	2.03
10:49	5.89	8.71	10.57	79.00	0.35
10:50	12.20	5.43	9.85	50.50	0.61
10:51	12.33	5.39	9.96	50.10	1.03
10:52	12.17	5.57	9.79	54.20	1.60
10:53	6.03	8.68	10.55	87.20	0.52
10:54	11.99	5.41	9.58	56.00	0.42
10:55	12.48	5.26	8.82	57.00	1.01
10:56	12.55	5.20	8.83	56.90	1.04
10:57	11.59	5.91	8.83	66.20	1.04
10:58	6.74	8.07	9.95	88.20	0.26
10:59	11.95	5.49	9.45	53.40	0.80
11:00	11.91	5.48	9.52	52.40	1.04
11:01	11.89	5.48	9.26	52.30	1.03
11:02	11.53	5.85	8.75	57.10	1.03
11:03	5.95	8.47	9.60	81.30	0.27
11:04	12.00	5.46	8.53	61.20	0.45
11:05	12.06	5.53	8.71	84.70	1.03
11:06	12.25	5.39	7.69	79.60	1.03
11:07	12.54	5.20	6.90	69.40	1.23
11:08	9.42	7.03	6.63	86.00	0.81
11:09	10.10	6.26	6.89	78.70	0.11

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
11:10	12.99	4.89	5.74	72.70	1.05
11:11	12.96	4.90	5.50	73.60	1.04
11:12	12.95	4.88	5.18	68.80	1.26
11:13	6.62	8.37	5.77	83.70	0.74
11:14	11.40	5.43	5.34	58.53	0.10
11:15	12.60	4.97	4.57	53.72	1.04
11:16	12.77	4.86	4.25	51.30	1.05
11:17	12.70	4.96	4.10	52.77	1.04
11:18	6.53	8.24	4.34	80.40	0.49
11:19	12.32	5.00	4.25	51.23	0.28
11:20	12.79	4.85	3.87	49.63	1.03
11:21	12.79	4.83	3.75	49.39	1.02
11:22	12.74	4.89	3.61	50.38	1.02
11:23	6.59	8.20	3.73	78.50	0.44
11:24	12.57	4.82	3.74	46.76	0.41
11:25	12.93	4.73	3.41	46.32	1.01
11:26	13.10	4.62	3.27	44.90	1.01
11:27	12.88	4.83	3.10	48.13	1.02
11:28	6.48	8.13	3.27	75.90	0.28
11:29	12.71	4.77	3.29	45.47	0.24
11:30	13.10	4.62	3.02	43.01	1.02
144 MinAvg	9.23	7.40	16.26	94.84	1.78
Data Corrected for Calibrations					
144 MinAvg	9.22	7.56	16.66	96.31	1.78

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1400 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = 0.98 HIGH Cal. Response = 45.65
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 2.05 HIGH Cal. Response = 45.56

LOW System Drift = 1.06 % HIGH System Drift = -0.09 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = 0.05 HIGH Cal. Response = 9.72
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 0.01 HIGH Cal. Response = 9.98

LOW System Drift = -0.19 % HIGH System Drift = 1.29 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = 0.00 HIGH Cal. Response = 93.24
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.35

LOW System Drift = 0.00 % HIGH System Drift = -0.29 %

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1400 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = 0.66 HIGH Cal. Response = 98.03
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 0.96 HIGH Cal. Response = 102.18

LOW System Drift = 0.12 % HIGH System Drift = 1.66 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = 0.08 HIGH Cal. Response = 9.85
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 0.19 HIGH Cal. Response = 10.17

LOW System Drift = 0.46 % HIGH System Drift = 1.28 %

Appendix B.2

CEMS Data and Results

Runs 1 - 3 (1400°F)

Scrubber Outlet

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
15:21	8.83	8.49	1.01	58.96	2.20
15:22	6.79	9.99	6.36	129.50	6.32
15:23	10.30	7.49	12.12	118.20	4.50
15:24	10.28	7.37	10.31	109.50	3.36
15:25	6.13	9.91	10.59	191.70	2.20
15:26	9.60	7.34	10.69	141.50	2.39
15:27	9.11	7.96	10.70	156.30	3.04
15:28	6.37	9.20	11.17	201.40	1.80
15:29	9.29	7.44	11.47	149.60	2.70
15:30	9.60	7.64	12.82	157.20	3.91
15:31	6.09	9.46	13.90	236.70	2.70
15:32	9.68	7.19	13.28	183.40	2.66
15:33	9.97	7.46	12.53	215.00	1.73
15:34	5.26	9.95	13.56	266.00	1.33
15:35	9.82	7.16	13.65	247.70	2.07
15:36	10.17	7.21	14.29	289.30	1.60
15:37	6.70	9.40	15.41	284.80	1.65
15:38	7.77	8.38	15.64	311.80	2.12
15:39	9.82	7.47	15.19	363.20	1.78
15:40	9.65	7.57	17.25	389.00	1.57
15:41	9.57	7.63	17.72	399.20	1.18
15:42	6.87	9.41	18.80	328.50	1.06
15:43	8.18	8.22	21.36	397.40	1.66
15:44	9.43	7.69	19.40	419.60	1.56
15:45	9.37	7.68	18.93	420.20	0.89
15:46	9.45	7.67	19.30	417.70	0.76
15:47	9.32	7.75	21.38	427.30	0.59
15:48	9.36	7.64	21.32	409.10	0.42
15:49	9.52	7.56	21.13	398.00	0.68
15:50	9.41	7.66	22.04	416.20	0.64
15:51	9.75	7.40	21.78	395.30	0.86
15:52	9.58	7.54	21.48	408.90	2.13
15:53	9.55	7.49	21.10	396.10	2.19
15:54	9.81	7.38	20.49	381.10	2.47
15:55	6.15	9.56	23.67	306.70	3.07
15:56	9.78	7.32	23.61	359.40	2.97
15:57	9.78	7.37	20.74	369.30	1.70
15:58	10.01	7.18	19.23	333.50	1.26
15:59	10.12	7.10	19.29	306.80	1.52
16:00	9.98	7.33	19.57	283.50	1.47
16:01	6.14	9.19	21.62	257.60	1.47

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
16:02	10.60	6.71	19.92	211.00	1.73
16:03	10.86	6.61	19.02	188.80	2.14
16:04	10.17	7.18	19.07	206.60	1.53
16:05	6.22	9.03	19.77	214.00	1.01
16:06	10.92	6.47	18.74	146.20	1.09
16:07	10.94	6.53	17.93	147.90	0.82
16:08	9.20	7.71	17.74	177.60	0.69
16:09	7.36	8.41	19.07	187.20	1.17
16:10	10.47	6.82	18.89	162.20	0.57
16:11	10.61	6.76	18.18	149.10	0.26
16:12	10.51	6.83	18.27	152.90	0.25
16:13	10.59	6.74	17.99	144.50	0.20
16:14	10.92	6.60	17.94	126.50	0.30
16:15	10.86	6.64	17.79	121.90	0.17
16:16	10.93	6.62	17.18	119.00	0.42
16:17	10.94	6.59	16.56	103.80	0.25
16:18	11.15	6.46	15.65	86.70	0.46
16:19	11.29	6.45	15.41	80.40	0.96
16:20	6.93	8.94	15.49	134.80	0.67
16:21	10.88	6.53	14.91	78.90	0.69
16:22	11.54	6.28	13.69	64.96	0.74
16:23	11.77P	6.14P	13.94P	60.38P	1.01P
16:24	12.22P	5.87P	13.44P	57.62P	1.29P
16:25	8.46P	7.97P	12.34P	95.10P	0.89P
16:26	12.54P	5.45P	11.49P	41.47P	1.54P
16:27	13.18P	5.17P	10.79P	35.13P	1.88P
16:28	12.90P	5.34P	10.48P	35.56P	1.89P
16:29	9.39P	7.52P	10.27P	65.38P	1.31P
16:30	11.69P	5.75P	9.71P	36.90P	1.21P
16:31	12.99P	5.24P	8.70P	29.27P	1.80P
16:32	12.86P	5.41P	8.48P	31.33P	2.38P
16:33	8.43P	7.85P	8.61P	57.63P	1.24P
16:34	12.65P	5.15P	8.43P	28.82P	2.32P
16:35	13.38P	4.94P	7.64P	27.03P	2.82P
16:36	12.13P	5.82P	7.34P	37.90P	2.42P
16:37	10.02P	6.58P	7.33P	43.39P	1.79P
16:38	13.65P	4.72P	6.68P	28.45P	2.48P
16:39	13.71P	4.66P	6.27P	28.77P	2.52P
16:40	10.45P	6.72P	6.07P	47.55P	1.70P
16:41	11.85P	5.48P	6.32P	34.10P	1.87P
16:42	13.76P	4.63P	5.97P	27.97P	2.23P

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
16:43	13.37P	4.96P	5.75P	35.94P	2.23P
16:44	9.98P	6.62P	5.68P	48.45P	0.97P
16:45	14.11P	4.30P	5.38P	32.67P	1.92P
16:46	14.32P	4.21P	4.81P	31.71P	2.14P
16:47	11.22P	6.19P	4.71P	48.57P	1.53P
16:48	12.73P	4.80P	4.90P	37.26P	1.30P
16:49	15.23P	3.57P	4.10P	29.45P	2.02P
16:50	14.34P	4.25P	3.68P	35.35P	2.07P
16:51	12.17P	5.23P	3.67P	42.08P	1.36P
16:52	14.72P	3.88P	3.79P	32.51P	2.24P
16:53	14.83P	3.77P	3.62P	33.81P	2.15P
16:54	11.24P	6.11P	3.33P	52.58P	1.30P
16:55	12.68P	4.91P	3.69P	42.30P	1.26P
16:56	14.13P	4.22P	3.60P	37.16P	1.18P
16:57	14.08P	4.26P	3.34P	38.44P	1.18P
16:58	10.19P	6.62P	3.43P	57.57P	0.71P
16:59	12.55P	4.95P	3.61P	44.99P	1.01P
17:00	13.73P	4.39P	3.57P	45.53P	0.80P
17:01	14.05	4.15	3.36	41.86	0.92
17:02	12.54	5.26	3.08	46.52	1.26
17:03	11.60	5.43	3.07	47.12	0.59
17:04	14.11	4.14	2.96	41.87	1.18
17:05	14.09	4.13	2.93	42.47	1.17
17:06	12.11	5.46	2.88	52.57	0.96
17:07	11.47	5.39	2.89	51.26	0.97
17:08	14.25	3.98	2.73	40.49	1.05
17:09	13.32	4.61	2.35	46.86	0.76
17:10	12.71	5.09	2.34	50.61	1.05
17:11	8.09	7.38	2.39	67.27	0.59
17:12	12.70	4.86	2.57	47.82	0.88
17:13	13.05	4.69	2.13	47.17	0.59
17:14	12.97	4.74	2.02	47.41	0.72
17:15	12.96	4.74	1.99	47.08	0.72
17:16	10.02	6.64	1.95	64.09	0.55
17:17	11.02	5.56	2.01	53.10	0.92
17:18	12.92	4.74	1.98	46.09	0.67
17:19	13.10	4.62	1.81	45.03	0.63
17:20	13.35	4.43	1.53	42.95	0.63
17:21	13.44	4.56	1.49	44.79	0.63
17:22	8.82	6.91	1.50	63.78	0.92
17:23	13.42	4.38	1.51	42.01	1.77

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
17:24	13.29	4.48	1.51	42.23	1.68
17:25	13.47	4.40	1.38	41.42	1.47
17:26	13.32	4.54	1.30	41.91	0.97
17:27	12.74	5.14	1.23	47.66	0.84
17:28	9.25	6.64	1.27	58.80	0.72
17:29	13.62	4.44	1.30	40.07	0.89
17:30	13.76	4.37	1.27	38.68	2.57
17:31	13.61	4.48	1.22	39.43	1.14
17:32	13.73	4.37	1.04	38.31	0.80
17:33	12.63	5.26	1.00	47.52	1.80
17:34	9.51	6.50	1.13	58.34	1.59
17:35	13.54	4.47	1.23	40.01	1.93
17:36	13.54	4.47	1.06	40.34	1.47
17:37	13.56	4.44	1.00	39.61	1.17
17:38	13.72	4.33	1.00	38.80	1.30
17:39	12.22	5.43	1.00	49.36	1.09
17:40	9.69	6.31	1.00	55.39	0.88
17:41	13.67	4.32	1.00	37.37	1.05
17:42	13.63	4.33	1.00	37.12	0.97
17:43	13.63	4.34	1.00	36.95	1.01
17:44	13.66	4.31	1.00	36.66	1.09
17:45	10.20	6.57	1.00	60.25	1.43
17:46	13.05	4.54	1.00	41.37	1.59
17:47	13.74	4.33	1.00	39.49	1.18
17:48	13.90	4.21	1.00	37.40	1.17
17:49	13.92	4.19	1.01	36.48	1.18
17:50	13.23	4.78	1.00	43.20	1.13
17:51	9.86	6.25	1.00	56.71	0.71
17:52	14.04	4.04	1.00	35.02	1.09
17:53	14.05	4.04	1.00	34.63	0.93
17:54	14.21	3.92	1.00	33.55	1.13
17:55	13.45	4.59	1.00	40.42	1.43
17:56	9.98	6.13	1.00	55.51	1.47
17:57	14.16	3.93	1.00	32.64	2.01
17:58	14.14	3.94	0.93	32.38	1.35
17:59	14.10	3.98	1.01	31.62	1.26
18:00	12.94	4.83	0.93	38.83	0.80
18:01	8.99	6.64	1.00	55.12	0.67
18:02	13.38	4.32	1.00	32.94	0.59

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1400 F

Starting
06-11-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
162 MinAvg	11.34	6.05	8.61	119.61	1.42

Data Corrected for Calibrations

162 MinAvg	11.36	6.13	8.54	119.59	1.42

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1400 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 0.67 HIGH Cal. Response = 45.50
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 1.33 HIGH Cal. Response = 45.30

LOW System Drift = 0.66 % HIGH System Drift = -0.20 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.92
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.94

LOW System Drift = -0.01 % HIGH System Drift = 0.07 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = -0.17 HIGH Cal. Response = 91.80
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 0.17 HIGH Cal. Response = 93.95

LOW System Drift = 0.11 % HIGH System Drift = 0.69 %

6/11/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1400 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 0.06 HIGH Cal. Response = 10.09
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = 0.05 HIGH Cal. Response = 9.90

LOW System Drift = -0.06 % HIGH System Drift = -0.75 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1407
LOW Cal. Response = 0.85 HIGH Cal. Response = 100.25
FINAL CALIBRATION TIME ----> 1823
LOW Cal. Response = -1.17 HIGH Cal. Response = 103.13

LOW System Drift = -0.81 % HIGH System Drift = 1.15 %

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
11:46	7.49	11.26	6.89	158.90	8.48
11:47	8.53	10.44	6.36	139.50	6.22
11:48	8.77	10.18	5.48	128.40	3.62
11:49	9.07	9.96	4.39	121.00	3.36
11:50	9.19	9.79	4.02	119.00	2.43
11:51	6.30	11.65	3.80	106.10	2.35
11:52	8.00	9.79	3.84	81.50	0.84
11:53	11.21	7.70	2.64	51.07	4.45
11:54	8.26	9.36	1.99	70.10	5.12
11:55	8.15	8.72	1.63	71.00	0.35
11:56	13.39	5.80	1.36	51.65	8.66
11:57	8.81	8.47	1.02	80.10	6.31
11:58	9.00	7.84	1.00	81.50	0.34
11:59	13.78	5.37	1.01	59.81	11.25
12:00	8.63	8.09	1.00	113.20	8.29
12:01	9.16	7.45	1.12	100.90	0.93
12:02	13.20	5.45	1.27	71.90	17.59
12:03	8.23	8.17	1.06	137.00	8.69
12:04	9.25	7.21	1.00	122.30	0.76
12:05	13.24	5.33	1.00	88.00	17.54
12:06	8.42	8.07	1.00	147.10	9.23
12:07	9.56	7.05	1.00	124.30	3.11
12:08	13.35	5.24	1.00	96.70	18.13
12:09	7.69	8.35	1.00	158.80	8.98
12:10	9.77	6.72	1.00	129.40	2.69
12:11	13.31	5.09	1.00	106.60	6.04
12:12	8.60	7.65	1.00	161.30	3.87
12:13	10.92	5.98	1.00	125.00	2.27
12:14	13.46	4.98	1.00	105.00	6.55
12:15	8.66	7.51	1.00	155.20	2.78
12:16	11.50	5.64	1.00	115.40	4.46
12:17	13.27	5.05	1.00	105.50	8.06
12:18	8.40	7.62	0.88	156.00	2.28
12:19	11.65	5.47	1.00	112.40	1.51
12:20	13.27	5.06	1.00	108.30	5.62
12:21	8.48	7.58	0.86	157.60	1.10
12:22	11.90	5.28	0.96	109.60	1.36
12:23	13.07	5.14	1.00	112.50	5.07
12:24	9.02	7.18	0.92	152.60	1.01
12:25	12.74	4.80	0.94	101.00	1.69
12:26	13.12	5.07	1.00	113.30	5.46

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
12:27	8.14	7.79	1.01	165.80	0.77
12:28	12.24	5.09	0.94	104.40	0.76
12:29	13.54	4.81	1.00	103.20	3.05
12:30	8.80	7.36	0.99	156.00	0.76
12:31	12.25	5.06	1.01	103.20	0.60
12:32	13.67	4.73	1.00	100.40	2.10
12:33	7.75	8.02	1.01	166.80	0.40
12:34	11.84	5.26	1.00	107.00	0.14
12:35	14.02	4.43	1.00	92.30	1.43
12:36	8.24	7.77	0.93	159.40	0.73
12:37	11.77	5.30	0.88	107.30	0.59
12:38	14.08	4.34	1.00	87.80	1.76
12:39	8.87	7.44	0.96	154.60	1.01
12:40	11.60	5.40	0.96	107.90	0.59
12:41	14.23	4.17	0.97	82.00	1.93
12:42	8.91	7.46	0.97	154.60	0.84
12:43	11.03	5.68	1.00	113.90	0.14
12:44	14.22	4.13	1.01	82.60	1.61
12:45	9.56	7.12	1.01	154.80	1.35
12:46	10.91	5.76	1.01	126.70	0.34
12:47	14.29	4.05	1.01	83.10	1.27
12:48	12.12P	5.53P	1.00P	123.90P	1.26P
12:49	12.44P	4.82P	1.00P	102.60P	0.43P
12:50	16.46P	2.67P	1.00P	58.20P	4.70P
12:51	13.82P	4.52P	1.00P	103.10P	7.07P
12:52	13.18P	4.46P	1.00P	96.20P	0.74P
12:53	16.07P	2.89P	1.00P	59.95P	1.75P
12:54	13.93P	4.39P	1.00P	101.50P	2.29P
12:55	12.79P	4.67P	1.00P	107.40P	1.35P
12:56	16.43P	2.65P	1.01P	53.73P	2.09P
12:57	14.46P	4.04P	1.00P	93.90P	2.12P
12:58	12.99P	4.52P	1.00P	102.30P	1.35P
12:59	16.24P	2.77P	1.00P	54.14P	2.25P
13:00	14.78P	3.82P	1.00P	88.00P	2.05P
13:01	13.68P	4.12P	1.00P	93.80P	0.74P
13:02	16.61P	2.52P	1.00P	49.51P	1.75P
13:03	15.07P	3.69P	1.00P	84.00P	2.28P
13:04	12.41P	4.92P	1.00P	112.90P	0.44P
13:05	15.84P	2.96P	1.00P	56.68P	1.14P
13:06	14.91P	3.78P	1.01P	83.00P	2.30P
13:07	10.90P	5.99P	1.01P	121.80P	0.44P

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
13:08	13.77P	4.22P	1.14P	49.94P	0.58P
13:09	14.29P	4.14P	2.14P	50.97P	1.92P
13:10	9.74P	6.83P	2.35P	109.80P	0.96P
13:11	12.92	4.58	2.82	62.90	0.85
13:12	14.48	3.92	2.43	48.32	1.42
13:13	11.48	5.88	2.15	103.10	1.40
13:14	11.61	5.35	2.17	88.40	0.24
13:15	14.68	3.78	2.04	49.76	1.16
13:16	11.96	5.69	2.01	94.40	2.06
13:17	9.00	6.87	2.01	121.20	0.34
13:18	13.62	4.41	2.02	58.31	0.91
13:19	13.28	4.81	1.97	71.70	1.75
13:20	8.19	7.63	1.99	139.70	0.71
13:21	12.29	4.95	2.01	68.95	0.57
13:22	13.39	4.56	1.94	59.66	1.92
13:23	9.65	6.99	1.90	120.60	1.95
13:24	10.03	6.19	2.02	101.00	1.36
13:25	13.76	4.32	1.98	61.19	1.91
13:26	12.12	5.54	1.91	90.40	1.96
13:27	8.38	7.17	1.93	128.00	0.44
13:28	13.38	4.50	1.87	61.31	0.34
13:29	13.43	4.57	1.71	64.27	0.58
13:30	7.59	8.14	1.88	136.40	0.06
13:31	11.76	5.15	1.96	76.90	-0.18
13:32	13.69	4.35	1.87	59.83	0.34
13:33	11.39	5.90	1.62	99.60	0.97
13:34	9.62	6.43	1.78	104.10	0.05
13:35	13.86	4.24	1.82	59.57	0.34
13:36	13.50	4.63	1.49	68.59	0.41
13:37	8.36	7.48	1.77	129.00	-0.05
13:38	12.99	4.53	1.96	65.88	-0.07
13:39	13.64	4.39	1.77	58.90	0.34
13:40	10.65	6.37	1.92	97.90	0.19
13:41	10.08	6.16	1.86	94.30	-0.18
13:42	13.50	4.50	1.96	58.72	0.41
13:43	13.16	4.82	1.91	61.06	0.84
13:44	7.54	8.02	1.96	131.90	0.06
13:45	12.23	5.25	2.20	71.80	-0.29
13:46	13.10	4.87	2.89	64.51	0.12
13:47	12.71	5.25	2.91	107.50	1.01
13:48	9.53	6.60	2.16	136.80	-0.25

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1400 F

Starting
06-12-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
13:49	14.04	4.18	1.94	69.25	0.16
13:50	14.41	3.96	1.55	65.88	0.98
13:51	9.90	6.76	1.51	132.10	0.45
13:52	12.94	4.58	1.51	78.00	0.05
13:53	14.08	4.17	1.37	63.81	1.31
13:54	10.84	6.28	1.31	112.10	1.55
13:55	10.71	5.81	1.48	101.40	0.12
13:56	14.12	4.10	1.42	63.22	0.91
13:57	13.08	4.98	1.25	84.70	1.28
13:58	8.89	6.91	1.30	127.60	-0.15
13:59	13.90	4.18	1.54	66.86	0.17
14:00	14.13	4.09	1.36	66.96	1.07
14:01	9.94	6.77	1.31	145.10	0.51
14:02	12.05	5.04	1.48	98.10	-0.28
14:03	13.20	4.90	1.52	73.90	0.34
14:04	12.28	5.59	3.33	78.00	0.34
14:05	8.58	7.24	3.97	115.10	0.00
14:06	13.57	4.49	2.82	61.74	0.34
14:07	13.63	4.49	1.98	58.23	0.41
14:08	10.18	6.72	1.91	106.20	0.62
14:09	11.03	5.74	1.95	83.20	-0.34
14:10	13.69	4.43	1.95	60.86	0.27
14:11	13.08	4.99	1.64	76.40	0.34
14:12	8.60	7.18	1.54	116.20	-0.26
147 MinAvg	11.72	5.79	1.62	98.36	2.17

Data Corrected for Calibrations

147 MinAvg	11.85	5.81	-0.05	97.42	2.41

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1400 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = 2.33 HIGH Cal. Response = 45.61
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 1.00 HIGH Cal. Response = 47.51

LOW System Drift = -1.33 % HIGH System Drift = 1.90 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = -0.00 HIGH Cal. Response = 10.04
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = -0.00 HIGH Cal. Response = 10.00

LOW System Drift = -0.02 % HIGH System Drift = -0.21 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = -0.34 HIGH Cal. Response = 96.32
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = -0.34 HIGH Cal. Response = 95.29

LOW System Drift = 0.00 % HIGH System Drift = -0.33 %

6/12/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1400 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = 0.02 HIGH Cal. Response = 9.92
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 0.33 HIGH Cal. Response = 9.94

LOW System Drift = 1.27 % HIGH System Drift = 0.06 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1121
LOW Cal. Response = -0.04 HIGH Cal. Response = 101.15
FINAL CALIBRATION TIME ----> 1421
LOW Cal. Response = 0.24 HIGH Cal. Response = 104.20

LOW System Drift = 0.11 % HIGH System Drift = 1.22 %

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
09:07	5.96	10.46	21.74	96.90	4.17
09:08	6.56	9.42	16.94	86.50	0.49
09:09	10.23	7.68	14.15	73.80	5.81
09:10	5.28	10.81	17.07	125.30	2.95
09:11	7.42	8.78	18.36	109.00	1.21
09:12	10.30	7.27	14.59	79.50	6.03
09:13	6.28	9.60	12.81	120.20	4.88
09:14	7.83	8.18	11.08	105.20	0.66
09:15	11.39	6.35	9.97	79.20	6.14
09:16	6.86	9.09	9.21	137.50	3.31
09:17	8.10	7.85	9.04	116.60	0.65
09:18	11.77	6.05	8.20	83.60	4.65
09:19	6.29	9.39	8.56	135.80	3.19
09:20	7.74	8.01	10.58	95.00	0.61
09:21	11.13	6.57	11.99	65.69	9.39
09:22	5.64	9.81	13.16	141.50	5.09
09:23	7.86	8.02	13.47	97.60	1.32
09:24	10.97	6.62	13.33	70.90	6.30
09:25	5.53	10.15	14.71	152.00	3.43
09:26	7.88	8.08	14.64	103.00	1.02
09:27	10.21	7.10	15.62	81.60	3.61
09:28	7.01	9.22	17.17	137.50	3.56
09:29	6.42	9.02	19.12	134.90	1.73
09:30	10.13	7.15	18.09	94.30	3.27
09:31	9.46	7.80	19.42	118.90	3.70
09:32	4.17	10.43	21.43	177.40	1.21
09:33	9.81	7.26	20.24	102.20	0.90
09:34	9.97	7.29	21.07	102.80	1.58
09:35	7.02	9.25	21.68	162.90	1.72
09:36	7.17	8.52	22.76	140.30	0.01
09:37	10.16	7.17	22.23	109.80	1.35
09:38	10.16	7.21	22.69	111.00	2.25
09:39	5.82	10.04	24.39	186.60	1.28
09:40	7.83	8.28	24.70	151.70	0.04
09:41	9.73	7.49	22.07	135.00	0.34
09:42	9.49	7.69	22.24	155.10	0.35
09:43	8.79	8.29	21.80	186.00	0.34
09:44	4.51	10.31	23.66	203.70	0.10
09:45	9.45	7.68	22.11	167.90	0.36
09:46	9.49	7.66	21.86	180.40	0.34
09:47	9.12	7.96	22.07	221.20	0.34

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
09:48	9.57	7.63	21.52	169.50	0.35
09:49	9.25	7.87	22.52	186.10	0.35
09:50	9.43	7.68	21.78	153.50	0.35
09:51	5.56	10.20	22.79	161.60	0.09
09:52	8.51	7.94	24.22	141.30	0.06
09:53	9.55	7.56	21.70	119.80	0.56
09:54	9.72	7.48	21.92	115.80	0.55
09:55	9.97	7.30	22.29	99.10	1.06
09:56	5.90	9.83	23.25	128.20	0.64
09:57	9.36	7.44	23.40	98.70	0.50
09:58	9.84	7.37	21.71	98.60	0.51
09:59	9.80	7.43	20.86	103.10	0.50
10:00	9.85	7.33	21.24	92.00	0.51
10:01	5.80	9.96	21.52	107.10	0.71
10:02	9.27	7.34	22.34	71.60	0.33
10:03	10.60	6.84	20.33	62.58	0.88
10:04	10.39	6.96	21.11	63.49	1.52
10:05	7.61	8.88	21.17	91.30	1.13
10:06	7.62	8.29	22.09	79.80	0.09
10:07	10.51	6.82	19.91	55.72	0.51
10:08	11.85P	5.95P	17.87P	46.82P	1.04P
10:09	12.80P	5.32P	16.13P	49.05P	1.51P
10:10	12.58P	5.16P	14.03P	49.68P	0.84P
10:11	13.48P	5.30P	14.10P	94.30P	0.98P
10:12	12.13P	6.05P	38.46P	146.00P	0.85P
10:13	13.69P	4.93P	28.48P	116.80P	0.50P
10:14	14.59P	4.38P	16.07P	47.42P	0.50P
10:15	13.64P	5.15P	13.99P	36.05P	0.50P
10:16	12.53P	5.78P	15.98P	37.34P	1.21P
10:17	12.96P	5.50P	15.42P	44.59P	1.51P
10:18	10.24P	7.27P	14.71P	65.60P	1.14P
10:19	11.02P	6.30P	13.78P	59.15P	0.54P
10:20	13.26P	5.25P	11.97P	56.70P	1.51P
10:21	12.70P	5.73P	11.96P	65.80P	1.85P
10:22	7.54P	8.67P	12.21P	87.00P	0.45P
10:23	10.51P	6.64P	14.22P	46.78P	0.19P
10:24	11.51P	6.17P	16.44P	40.50P	1.38P
10:25	11.58P	6.18P	16.17P	42.20P	2.02P
10:26	6.89P	8.97P	15.84P	72.80P	0.48P
10:27	10.91P	6.24P	14.76P	43.10P	0.43P
10:28	11.94P	5.89P	13.89P	35.93P	1.54P

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
10:29	10.97P	6.60P	13.93P	47.78P	2.48P
10:30	7.35	8.27	13.91	63.76	0.64
10:31	12.10	5.67	12.85	44.36	1.04
10:32	12.38	5.50	11.81	44.94	1.71
10:33	8.49	8.07	12.03	65.93	1.44
10:34	9.70	6.75	12.72	54.03	0.42
10:35	12.55	5.37	11.21	46.44	1.51
10:36	10.85	6.70	11.12	51.69	1.64
10:37	6.48	8.67	14.71	65.32	0.28
10:38	11.71	5.82	14.06	48.93	0.51
10:39	12.06	5.64	12.43	49.62	0.71
10:40	11.39	6.26	11.89	55.95	1.48
10:41	6.99	8.30	12.80	68.67	0.48
10:42	12.14	5.55	11.88	50.87	0.42
10:43	12.31	5.41	11.05	50.14	0.70
10:44	11.41	6.28	10.61	55.76	1.48
10:45	6.80	8.38	11.72	71.10	0.04
10:46	12.41	5.25	10.98	49.59	0.41
10:47	12.68	5.17	9.26	49.33	0.88
10:48	12.14	5.70	9.12	54.08	1.15
10:49	7.22	8.16	9.71	70.00	0.07
10:50	12.52	5.11	9.47	50.64	0.52
10:51	12.65	5.11	8.09	50.61	0.53
10:52	12.52	5.29	7.82	53.36	0.51
10:53	7.17	8.37	8.06	77.60	0.05
10:54	12.20	5.11	7.88	54.56	0.30
10:55	12.89	4.91	6.73	54.71	0.50
10:56	12.95	4.86	6.66	54.92	0.54
10:57	12.28	5.51	6.68	60.93	0.53
10:58	7.51	7.80	7.18	79.40	-0.07
10:59	13.00	4.67	7.10	47.79	0.45
11:00	13.04	4.80	6.25	48.57	0.53
11:01	12.35	5.17	6.61	52.24	0.53
11:02	12.22	5.42	6.58	54.54	0.53
11:03	6.86	8.16	6.72	75.30	0.05
11:04	12.23	5.23	6.88	59.42	0.44
11:05	12.25	5.37	6.65	78.60	0.52
11:06	12.39	5.23	7.01	75.30	0.52
11:07	12.74	4.99	6.28	66.86	0.55
11:08	10.13	6.78	6.00	83.80	0.42
11:09	10.19	6.13	6.27	75.20	-0.00

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1400 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
11:10	13.21	4.61	5.46	61.10	0.55
11:11	13.11	4.69	4.54	62.67	0.54
11:12	13.14	4.63	4.36	59.25	0.52
11:13	7.82	7.96	4.53	76.00	0.30
11:14	11.40	5.25	4.46	52.06	0.10
11:15	12.86	4.70	3.38	47.01	0.54
11:16	13.05	4.57	2.99	44.80	0.55
11:17	12.98	4.65	2.83	45.57	0.54
11:18	7.76	7.81	2.71	73.90	0.21
11:19	12.32	4.78	2.92	45.85	0.22
11:20	13.05	4.55	2.41	43.85	0.53
11:21	13.01	4.55	2.06	43.67	0.51
11:22	12.93	4.65	2.02	44.40	0.51
11:23	7.74	7.83	2.03	72.80	0.04
11:24	12.53	4.58	2.11	42.41	0.19
11:25	13.14	4.44	1.86	41.39	0.50
11:26	13.32	4.32	1.53	40.05	0.50
11:27	13.07	4.54	1.45	42.30	0.51
11:28	7.48	7.83	1.54	71.50	0.06
11:29	12.65	4.56	1.49	41.32	0.06
11:30	13.28	4.34	1.26	38.83	0.41
144 MinAvg	10.16	6.86	13.49	84.18	1.16
Data Corrected for Calibrations					
144 MinAvg	10.37	6.88	14.60	84.87	1.38

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1400 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = 0.04 HIGH Cal. Response = 45.08
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 0.58 HIGH Cal. Response = 45.48

LOW System Drift = 0.54 % HIGH System Drift = 0.40 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = -0.00 HIGH Cal. Response = 9.99
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = -0.00 HIGH Cal. Response = 10.07

LOW System Drift = 0.01 % HIGH System Drift = 0.38 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = -0.34 HIGH Cal. Response = 95.32
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = -0.17 HIGH Cal. Response = 94.45

LOW System Drift = 0.05 % HIGH System Drift = -0.28 %

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1400 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = 0.04 HIGH Cal. Response = 9.90
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 0.02 HIGH Cal. Response = 9.72

LOW System Drift = -0.07 % HIGH System Drift = -0.74 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 827
LOW Cal. Response = -0.04 HIGH Cal. Response = 99.36
FINAL CALIBRATION TIME ----> 1151
LOW Cal. Response = 1.38 HIGH Cal. Response = 102.12

LOW System Drift = 0.57 % HIGH System Drift = 1.10 %

Appendix B.3

CEMS Data and Results

Runs 4 - 6 (1600°F)

Scrubber Inlet

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
16:06	11.12	5.41	2.04	48.25	1.02
16:07	15.49	3.29	1.96	24.90	19.02
16:08	5.43	10.61	8.27	76.10	2.76
16:09	4.62	11.49	30.36	112.40	1.03
16:10	7.79	9.93	40.17	159.90	1.89
16:11	8.55	8.74	35.65	154.10	2.05
16:12	5.82	10.35	26.92	171.90	2.05
16:13	5.51	9.93	23.39	146.60	1.92
16:14	10.41	7.20	20.94	75.70	2.63
16:15	5.51	9.94	17.41	137.60	2.35
16:16	7.50	8.33	17.99	106.80	1.88
16:17	10.22	7.13	15.61	87.10	2.68
16:18	5.32	9.57	14.21	145.10	1.32
16:19	9.22	7.13	12.08	93.50	1.38
16:20	8.95	7.58	11.38	107.30	2.17
16:21	5.91	8.96	11.58	144.50	1.01
16:22	10.65	6.25	11.71	76.40	1.38
16:23	7.66	8.27	11.42	130.10	1.65
16:24	5.69	8.91	11.14	149.20	1.01
16:25	12.02	5.60	10.82	65.20	1.55
16:26	7.06	8.42	11.10	138.30	1.32
16:27	7.23	7.93	11.93	134.20	1.02
16:28	12.16	5.65	11.05	76.60	1.72
16:29	6.64	8.41	10.66	143.40	1.11
16:30	9.00	6.92	11.24	110.00	0.21
16:31	11.07	6.18	10.01	100.00	1.53
16:32	6.25	8.55	10.75	164.30	0.14
16:33	10.48	6.08	11.09	105.10	0.37
16:34	9.87	6.83	10.66	127.70	0.81
16:35	6.37	8.49	11.36	170.10	0.00
16:36	11.58	5.66	11.40	94.60	0.37
16:37	8.21	7.78	11.80	165.90	0.64
16:38	6.28	8.52	14.18	168.00	0.00
16:39	10.86	6.37	15.88	63.84	0.71
16:40	5.65	9.51	18.35	205.10	0.48
16:41	5.98	9.06	21.55	198.50	0.01
16:42	9.45	7.36	19.00	134.50	0.00
16:43	5.86	9.57	19.27	220.90	0.01
16:44	5.29	9.54	23.15	227.00	0.01
16:45	8.62	7.85	20.11	242.80	0.01
16:46	8.60	7.86	21.20	261.90	0.01

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
16:47	3.32	11.19	30.16	341.30	0.01
16:48	7.37	8.39	29.79	338.40	0.01
16:49	8.53	7.91	23.72	293.20	0.01
16:50	8.83	7.68	24.26	210.00	0.01
16:51	3.34	11.03	31.16	313.60	0.01
16:52	8.17	7.87	30.14	185.70	0.01
16:53	9.39	7.30	26.11	121.10	0.01
16:54	4.90	10.07	28.08	236.90	0.00
16:55	6.81	8.54	29.37	161.10	0.01
16:56	9.61	7.20	25.55	114.30	0.00
16:57	5.27	9.86	28.15	227.40	0.01
16:58	6.36	8.82	30.95	183.50	0.00
16:59	9.63	7.20	26.18	115.80	0.00
17:00	6.33	9.21	26.52	195.70	0.01
17:01	5.52	9.26	29.53	189.40	0.00
17:02	9.84	7.01	24.70	102.00	0.01
17:03	7.17	8.73	25.59	160.10	0.01
17:04	5.07	9.45	29.18	184.40	0.00
17:05	10.18	6.83	24.87	83.30	0.00
17:06	7.68	8.38	24.25	142.90	0.00
17:07	5.27	9.28	26.05	154.10	0.00
17:08	10.32P	6.78P	21.69P	70.20P	0.00P
17:09	7.80P	8.32P	22.20P	116.00P	0.00P
17:10	4.99P	9.49P	25.42P	148.70P	0.00P
17:11	10.32P	6.79P	21.39P	65.00P	0.01P
17:12	7.91P	8.28P	19.83P	105.70P	0.01P
17:13	4.96P	9.52P	22.43P	143.60P	0.00P
17:14	10.26P	6.80P	19.42P	65.10P	0.01P
17:15	8.33P	8.06P	20.31P	103.00P	0.01P
17:16	4.96P	9.55P	24.25P	149.80P	0.00P
17:17	10.21P	6.83P	21.45P	70.10P	0.01P
17:18	8.99P	7.65P	20.78P	89.60P	0.00P
17:19	4.64P	9.73P	23.54P	128.50P	0.01P
17:20	10.23P	6.75P	20.85P	66.70P	0.01P
17:21	9.58P	7.29P	19.55P	88.30P	0.00P
17:22	4.07P	10.10P	22.96P	141.40P	0.00P
17:23	9.85P	6.81P	20.67P	70.80P	0.00P
17:24	10.27P	6.83P	18.86P	70.80P	0.01P
17:25	4.14P	10.16P	21.63P	127.40P	0.00P
17:26	9.42	6.97	20.31	67.50	0.00
17:27	10.62	6.55	18.05	60.89	0.01

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
17:28	4.92	9.78	20.20	111.60	0.01
17:29	8.95	7.21	20.04	77.40	0.01
17:30	10.75	6.41	17.26	55.27	0.01
17:31	5.33	9.58	19.09	108.50	0.01
17:32	8.56	7.38	19.98	76.40	0.01
17:33	10.81	6.35	17.61	55.62	0.01
17:34	5.57	9.45	19.28	119.70	0.00
17:35	8.11	7.62	21.94	82.90	0.01
17:36	10.74	6.38	17.28	58.62	0.01
17:37	6.18	9.09	18.40	100.40	0.01
17:38	7.82	7.80	19.89	83.80	0.01
17:39	10.73	6.40	17.43	57.39	0.00
17:40	6.55	8.88	18.24	98.80	0.00
17:41	7.27	8.08	19.33	85.90	0.00
17:42	10.80	6.34	16.83	55.32	0.00
17:43	7.19	8.52	16.34	88.40	0.01
17:44	6.70	8.40	19.51	88.20	0.01
17:45	10.82	6.31	16.51	52.40	0.01
17:46	7.81	8.15	16.18	77.40	0.01
17:47	6.70	8.37	18.53	82.50	0.00
17:48	10.91	6.24	16.05	55.16	0.01
17:49	8.21	7.91	15.49	73.70	0.00
17:50	6.08	8.67	17.50	79.00	0.00
17:51	11.08	6.13	14.83	48.68	0.01
17:52	9.08	7.38	13.65	64.20	0.00
17:53	5.67	8.85	15.54	75.70	0.01
17:54	11.27	5.95	14.07	41.61	0.00
17:55	9.89	6.89	13.58	53.08	0.00
17:56	5.57	8.91	16.10	69.70	0.01
17:57	10.58	6.71	19.08	53.25	0.00
17:58	9.84	7.15	19.58	44.61	0.01
17:59	5.89	8.90	19.07	67.10	0.01
18:00	11.03	6.25	16.51	50.73	0.00
18:01	9.96	7.05	17.29	75.80	0.00
18:02	4.31	9.96	19.20	94.40	0.01
18:03	10.36	6.51	17.03	76.50	0.00
18:04	10.90	6.29	14.99	79.80	0.01
18:05	8.15	7.93	15.11	93.40	0.01
18:06	7.24	8.04	16.87	92.60	0.01
18:07	10.82	6.30	14.93	83.60	0.01
18:08	10.90	6.23	14.41	83.90	0.01

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
18:09	9.00	7.48	14.54	95.80	0.01
18:10	6.24	8.58	16.95	101.80	0.01
18:11	10.81	6.24	14.86	82.20	0.00
18:12	10.91	6.18	14.16	80.10	0.01
18:13	10.99	6.17	14.02	79.40	0.00
18:14	5.03	9.42	15.63	106.10	0.01
18:15	10.78	6.13	15.08	78.90	0.01
18:16	11.06	6.03	13.61	77.80	0.00
18:17	11.25	5.90	13.28	75.40	0.01
18:18	6.80	8.54	13.94	97.60	0.01
18:19	9.37	6.72	14.90	78.80	0.01
18:20	11.31	5.84	12.85	73.70	0.00
18:21	11.49	5.71	12.16	73.30	0.01
18:22	9.01	7.26	12.10	83.90	0.02
18:23	7.80	7.51	13.90	85.90	0.01
18:24	11.69	5.58	11.91	68.60	0.01
18:25	11.64	5.58	11.32	68.80	0.00
18:26	10.46	6.41	10.98	76.10	0.01
18:27	6.80	7.97	12.70	89.50	0.02
18:28	11.80	5.47	11.42	62.90	0.01
18:29	11.93	5.39	10.45	62.60	0.01
18:30	11.50	5.79	10.04	70.40	0.01
18:31	6.11	8.34	11.34	91.90	0.02
18:32	11.80	5.43	10.91	68.50	0.00
18:33	11.91	5.39	10.10	68.20	0.01
18:34	12.08	5.29	9.61	65.10	0.01
18:35	6.17	8.60	10.34	92.40	0.02
18:36	11.86	5.42	10.61	66.10	0.01
18:37	11.92	5.56	9.70	65.70	0.04
18:38	12.09	5.36	9.19	65.50	0.04
18:39	6.14	8.41	9.35	65.40	0.01
18:40	11.86	5.52	9.28	92.70	0.00
18:41	11.94	5.47	9.18	66.70	0.17
18:42	12.07	5.31	9.55	66.10	0.17
157 MinAvg	8.54	7.63	17.59	109.46	0.41

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv

Data Corrected for Calibrations

157 MinAvg	8.56	7.76	17.62	113.18	0.16

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1600 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80

INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 1.88 HIGH Cal. Response = 45.54
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 2.43 HIGH Cal. Response = 46.02

LOW System Drift = 0.55 % HIGH System Drift = 0.48 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06

INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 0.04 HIGH Cal. Response = 9.90
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.04 HIGH Cal. Response = 9.87

LOW System Drift = 0.02 % HIGH System Drift = -0.12 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60

INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 0.50 HIGH Cal. Response = 92.42
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.53

LOW System Drift = -0.16 % HIGH System Drift = 0.04 %

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1600 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 1.12 HIGH Cal. Response = 99.41
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.83 HIGH Cal. Response = 97.51

LOW System Drift = -0.12 % HIGH System Drift = -0.76 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 0.05 HIGH Cal. Response = 10.06
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.03 HIGH Cal. Response = 9.88

LOW System Drift = -0.07 % HIGH System Drift = -0.73 %

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
15:51	4.73	11.33	1.35	327.50	2.60
15:52	8.66	9.45	1.36	325.40	2.23
15:53	6.28	10.83	1.39	357.70	2.84
15:54	4.68	11.40	1.37	366.20	2.70
15:55	8.41	9.55	1.91	379.60	3.11
15:56	6.40	10.89	1.42	390.00	3.34
15:57	3.83	12.09	1.62	381.90	3.99
15:58	8.43	9.47	1.75	392.20	0.16
15:59	6.89	10.69	1.82	375.60	0.01
16:00	4.98	11.31	1.82	324.10	0.00
16:01	9.34	8.72	3.48	200.80	0.00
16:02	3.80	12.82	4.37	286.10	0.01
16:03	5.14	12.08	12.60	476.50	0.03
16:04	5.92	12.04	21.70	525.90	0.01
16:05	5.69	12.22	20.15	503.90	0.01
16:06	5.55	12.25	22.29	505.00	0.01
16:07	5.13	12.65	23.17	500.10	0.00
16:08	5.30	12.36	30.15	490.60	0.01
16:09	5.82	11.74	30.85	527.50	0.03
16:10	6.29	11.25	30.59	558.10	0.01
16:11	6.69	10.87	30.41	526.00	0.01
16:12	6.87	10.72	33.53	513.30	0.01
16:13	7.94	9.53	31.69	419.20	0.00
16:14	8.22	9.14	29.80	377.90	0.01
16:15	8.25	9.06	30.29	367.70	0.01
16:16	6.41	10.26	29.93	266.50	0.01
16:17	6.20	10.04	31.85	245.20	0.01
16:18	9.11	8.40	27.34	226.10	0.01
16:19	7.98	9.25	27.43	222.00	0.00
16:20	4.46	10.94	29.91	212.60	0.00
16:21	9.38	8.15	26.51	166.80	0.00
16:22	8.37	8.99	26.58	191.20	0.01
16:23	3.59	11.45	31.89	212.80	0.00
16:24	9.16	8.30	27.41	202.90	0.00
16:25	8.92	8.46	27.28	241.20	0.00
16:26	5.19	10.86	30.49	239.70	0.02
16:27	6.93	9.36	26.23	241.70	0.01
16:28	8.91	8.42	22.98	238.60	0.02
16:29	8.85	8.42	23.96	242.70	0.03
16:30	4.64	11.13	28.31	218.60	0.05
16:31	7.91	8.80	28.03	247.40	0.03

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
16:32	8.65	8.53	26.73	253.80	0.02
16:33	8.67	8.53	27.92	262.50	0.04
16:34	7.44	9.43	29.37	252.60	0.04
16:35	5.24	10.28	33.28	224.00	0.05
16:36	8.88	8.31	26.94	229.00	0.01
16:37	8.89	8.27	27.10	226.70	0.00
16:38	7.21	9.45	28.31	207.40	0.01
16:39	5.57	9.98	34.01	220.80	0.00
16:40	8.92	8.24	32.06	228.00	0.01
16:41	8.73	8.34	34.34	240.20	0.00
16:42	8.67	8.37	37.62	242.80	0.00
16:43	4.55	10.95	47.15	214.70	0.01
16:44	8.16	8.52	43.21	242.00	0.00
16:45	8.54	8.42	44.26	256.10	0.00
16:46	8.66	8.36	42.49	245.70	0.01
16:47	8.55	8.43	46.55	259.50	0.01
16:48	3.83	11.19	65.22	212.90	0.00
16:49	8.86	8.19	42.84	210.40	0.02
16:50	8.92	8.20	39.42	218.00	0.00
16:51	8.89	8.23	40.07	213.70	0.01
16:52	5.91	10.16	44.46	197.40	0.01
16:53	6.91P	9.14P	45.79P	205.80P	0.01P
16:54	8.76P	8.27P	39.11P	220.80P	0.01P
16:55	8.88P	8.17P	39.56P	202.20P	0.01P
16:56	7.93P	8.91P	35.72P	183.10P	0.01P
16:57	4.84P	10.25P	44.13P	168.00P	0.00P
16:58	9.03P	8.03P	33.60P	173.30P	0.01P
16:59	9.28P	7.88P	31.58P	151.10P	0.00P
17:00	6.37P	9.71P	32.43P	157.80P	0.01P
17:01	6.31P	9.32P	34.37P	156.70P	0.00P
17:02	9.27P	7.80P	29.21P	141.40P	0.01P
17:03	9.40P	7.73P	29.44P	137.60P	0.00P
17:04	5.40P	10.18P	33.31P	149.10P	0.01P
17:05	7.54P	8.52P	29.84P	124.60P	0.03P
17:06	9.59P	7.57P	25.22P	114.20P	0.02P
17:07	9.36P	7.82P	24.71P	111.60P	0.00P
17:08	4.18P	10.53P	28.28P	121.50P	0.01P
17:09	9.72P	7.39P	24.61P	98.50P	0.01P
17:10	10.01P	7.29P	23.10P	106.50P	0.01P
17:11	7.71P	8.73P	25.38P	128.30P	0.01P
17:12	6.66P	8.93P	27.19P	100.30P	0.01P

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
17:13	9.96P	7.33P	23.92P	128.70P	0.01P
17:14	10.06P	7.25P	23.85P	119.20P	0.01P
17:15	7.42P	8.86P	23.82P	108.80P	0.00P
17:16	6.89P	8.74P	27.95P	92.30P	0.00P
17:17	10.47P	6.93P	21.95P	85.80P	0.03P
17:18	9.68P	7.50P	19.48P	91.40P	0.01P
17:19	5.56P	9.40P	20.72P	89.90P	0.00P
17:20	10.64P	6.82P	17.24P	80.70P	0.00P
17:21	10.40	6.99	17.05	75.70	0.01
17:22	6.88	9.14	17.52	94.80	0.00
17:23	8.08	8.07	18.18	85.90	0.01
17:24	10.38	7.00	15.80	70.60	0.01
17:25	10.47	6.93	15.27	68.10	0.01
17:26	5.86	9.64	15.93	92.00	0.01
17:27	9.35	7.34	15.84	70.50	0.02
17:28	10.58	6.85	14.05	62.40	0.00
17:29	10.00	7.29	13.63	70.60	0.00
17:30	5.51	9.45	14.56	85.90	0.01
17:31	10.83	6.67	13.53	59.06	0.00
17:32	10.90	6.64	12.64	58.26	0.01
17:33	7.42	8.69	12.89	78.80	0.01
17:34	8.32	7.83	13.52	71.00	0.01
17:35	11.07	6.50	11.96	57.80	0.01
17:36	10.02	7.23	11.53	64.50	0.01
17:37	6.22	8.92	12.67	81.90	0.00
17:38	11.20	6.41	11.61	56.29	0.01
17:39	11.22	6.39	11.12	55.38	0.01
17:40	6.54	9.10	11.53	78.70	0.01
17:41	9.79	6.99	11.72	61.10	0.01
17:42	11.24	6.39	10.68	54.38	0.00
17:43	8.63	8.01	10.70	68.60	0.01
17:44	7.48	8.23	11.61	73.40	0.02
17:45	11.37	6.30	10.16	53.76	0.01
17:46	10.88	6.70	9.57	59.73	0.02
17:47	5.74	9.21	10.63	79.30	0.01
17:48	11.21	6.33	9.96	53.47	0.01
17:49	11.33	6.32	9.39	51.87	0.01
17:50	7.19	8.76	9.97	72.80	0.01
17:51	8.98	7.47	10.40	59.70	0.01
17:52	10.32	6.94	10.04	55.06	0.00
17:53	10.09	7.19	10.03	57.24	0.01

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
17:54	3.92	10.46	11.55	70.20	0.01
17:55	10.08	6.97	10.54	55.65	0.01
17:56	10.46	6.83	9.17	55.36	0.00
17:57	10.28	7.04	8.62	58.65	0.01
17:58	4.15	10.18	9.70	72.80	0.01
17:59	10.75	6.54	8.60	55.47	0.01
18:00	11.12	6.34	7.08	55.67	0.01
18:01	11.01	6.50	6.73	57.39	0.02
18:02	4.93	9.67	7.19	72.90	0.01
18:03	10.97	6.29	7.11	55.08	0.00
18:04	11.51	6.01	6.18	54.73	0.01
18:05	11.53	6.06	5.79	58.30	0.00
18:06	5.36	9.33	6.19	76.10	0.01
18:07	11.26	5.95	6.42	55.58	0.01
18:08	11.85	5.71	5.45	54.38	0.00
18:09	11.93	5.75	5.06	56.36	0.01
18:10	5.91	8.94	5.49	78.30	0.01
18:11	11.57	5.71	5.82	54.22	0.02
18:12	12.11	5.53	4.94	53.39	0.00
18:13	11.95	5.71	4.76	55.25	0.01
18:14	5.49	9.06	5.27	75.40	0.01
18:15	11.06	5.96	6.27	51.05	0.01
18:16	11.53	5.76	5.49	50.42	0.01
18:17	11.47	5.89	5.09	52.73	0.01
18:18	5.48	9.01	5.40	73.40	0.02
18:19	11.27	5.78	5.59	50.12	0.00
18:20	11.65	5.65	5.01	49.31	0.02
18:21	11.51	5.85	4.84	51.49	0.00
18:22	5.31	9.08	5.22	70.70	0.02
152 MinAvg	8.21	8.56	19.95	174.94	0.15

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv

Data Corrected for Calibrations

152 MinAvg	8.25	8.76	20.03	176.69	0.15

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1600 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80

INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 1.78 HIGH Cal. Response = 46.19
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 2.35 HIGH Cal. Response = 46.84

LOW System Drift = 0.57 % HIGH System Drift = 0.65 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06

INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 0.06 HIGH Cal. Response = 9.88
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.01 HIGH Cal. Response = 9.75

LOW System Drift = -0.25 % HIGH System Drift = -0.65 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60

INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.64
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.00 HIGH Cal. Response = 93.71

LOW System Drift = 0.00 % HIGH System Drift = 0.35 %

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1600 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 0.25 HIGH Cal. Response = 99.79
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 1.20 HIGH Cal. Response = 102.22

LOW System Drift = 0.38 % HIGH System Drift = 0.97 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = -0.02 HIGH Cal. Response = 9.95
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.04 HIGH Cal. Response = 9.97

LOW System Drift = 0.24 % HIGH System Drift = 0.07 %

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
10:46	11.22	5.78	1.09	34.53	41.28
10:47	2.65	12.75	15.61	53.21	54.12
10:48	9.35	7.96	21.48	43.02	0.05
10:49	9.27	8.16	16.15	62.19	0.82
10:50	5.84	9.49	15.26	80.50	0.01
10:51	10.40	6.87	14.14	50.67	0.22
10:52	7.92	8.46	10.99	76.20	0.48
10:53	6.30	8.97	13.58	83.10	0.01
10:54	11.52	6.48	11.98	50.67	0.55
10:55	5.92	9.71	12.29	95.20	0.33
10:56	6.93	9.12	15.38	90.20	0.00
10:57	9.68	8.07	13.18	91.40	0.67
10:58	3.56	11.72	16.79	159.10	0.00
10:59	7.47	9.14	17.43	164.50	0.01
11:00	8.11	8.88	15.99	200.30	0.00
11:01	7.95	9.18	16.78	223.40	0.01
11:02	3.43	11.77	24.82	222.10	0.00
11:03	8.20	8.78	19.89	206.20	0.01
11:04	8.22	8.69	18.17	198.50	0.01
11:05	7.55	9.26	18.08	178.60	0.01
11:06	3.97	11.12	24.65	197.00	0.00
11:07	8.11	8.64	20.38	215.80	0.00
11:08	8.14	8.56	19.84	223.00	0.01
11:09	8.16	8.50	19.91	214.70	0.01
11:10	3.95	11.28	24.71	215.50	0.00
11:11	7.86	8.52	23.64	212.80	0.00
11:12	8.31	8.30	20.39	198.60	0.01
11:13	8.70	8.18	20.52	178.20	0.37
11:14	3.64	11.24	25.50	203.90	0.68
11:15	8.20	8.28	23.46	196.90	0.13
11:16	8.59	8.08	20.41	173.60	0.00
11:17	8.34	8.48	21.02	161.20	0.00
11:18	4.06	10.69	26.85	178.20	0.00
11:19	8.91	7.94	22.51	142.80	0.01
11:20	8.90	7.91	20.65	137.70	0.00
11:21	6.67	9.41	21.89	149.50	0.01
11:22	6.02	9.41	26.29	136.90	0.00
11:23	9.30	7.68	21.56	110.80	0.00
11:24	9.21	7.79	21.23	120.10	0.00
11:25	3.99	10.92	25.22	148.20	0.01
11:26	8.70	7.84	23.81	111.30	0.00

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
11:27	9.48	7.60	21.36	97.90	0.01
11:28	6.86	9.28	22.83	122.60	0.00
11:29	6.51	9.07	26.56	110.30	0.02
11:30	9.34	7.61	21.93	98.00	0.00
11:31	9.04	7.86	20.79	96.30	0.00
11:32	4.49	10.34	24.59	120.50	0.01
11:33	9.63	7.42	22.57	83.60	0.01
11:34	9.96	7.32	20.54	78.10	0.01
11:35	5.78	9.83	22.56	106.80	0.01
11:36	8.27	8.02	23.68	112.70	0.02
11:37	10.48	7.03	20.05	74.90	0.01
11:38	7.28	8.92	20.94	97.20	0.01
11:39	7.27	8.55	23.55	89.40	0.01
11:40	10.69	6.87	20.09	66.20	0.01
11:41	8.52	8.18	19.66	89.00	0.01
11:42	6.50	8.92	22.13	86.90	0.00
11:43	10.77	6.83	19.47	69.50	0.01
11:44	9.03	7.93	18.80	85.90	0.02
11:45	6.03	9.21	21.77	95.20	0.01
11:46	10.88	6.74	18.90	60.90	0.01
11:47	9.57	7.62	17.72	76.40	0.02
11:48	5.61P	9.45P	20.63P	90.90P	0.05P
11:49	11.00P	6.64P	18.19P	45.42P	0.03P
11:50	9.73P	7.50P	16.96P	65.80P	0.01P
11:51	5.61P	9.44P	19.48P	83.70P	0.03P
11:52	11.07P	6.56P	17.51P	39.95P	0.01P
11:53	9.65P	7.48P	16.18P	57.50P	0.00P
11:54	5.26P	9.34P	18.03P	81.80P	0.00P
11:55	10.96P	6.40P	16.47P	31.51P	0.00P
11:56	8.64P	7.70P	15.80P	54.10P	0.02P
11:57	6.01P	9.05P	17.87P	70.40P	0.01P
11:58	10.32P	6.55P	15.59P	52.80P	0.00P
11:59	8.98P	7.85P	13.87P	67.10P	0.01P
12:00	6.23P	8.92P	16.42P	62.00P	0.01P
12:01	11.71P	6.09P	14.14P	42.13P	0.01P
12:02	8.96P	7.70P	12.93P	61.50P	0.01P
12:03	7.64P	8.05P	14.49P	63.60P	0.01P
12:04	12.00P	5.86P	12.54P	40.40P	0.01P
12:05	8.08P	8.13P	12.21P	62.70P	0.01P
12:06	8.24P	7.71P	13.73P	54.50P	0.01P
12:07	12.05P	5.79P	11.71P	42.22P	0.01P

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
12:08	7.33P	8.51P	11.76P	63.40P	0.01P
12:09	9.25P	7.12P	12.95P	51.53P	0.01P
12:10	12.23P	5.75P	11.07P	43.46P	0.01P
12:11	7.07P	8.52P	11.39P	65.40P	0.01P
12:12	9.85	6.81	13.15	41.27	0.02
12:13	11.23	6.36	13.08	38.63	0.01
12:14	5.97	9.01	13.70	64.30	0.01
12:15	10.42	6.47	13.57	38.87	0.01
12:16	11.07	6.44	11.84	40.49	0.01
12:17	6.08	8.88	12.27	63.10	0.01
12:18	10.82	6.28	12.20	38.83	0.01
12:19	10.67	6.64	10.92	44.44	0.01
12:20	6.08	8.86	11.84	64.80	0.01
12:21	10.82	6.29	12.21	39.96	0.00
12:22	10.25	6.86	11.42	56.70	0.00
12:23	6.03	8.80	12.32	64.00	0.00
12:24	11.69	5.84	10.61	38.04	0.01
12:25	10.22	6.87	8.96	51.40	0.01
12:26	6.16	8.64	10.46	63.40	0.00
12:27	11.46	5.99	10.33	34.00	0.01
12:28	9.91	7.03	9.24	48.69	0.01
12:29	6.64	8.43	9.69	63.80	0.01
12:30	11.83	5.83	8.99	40.24	0.01
12:31	10.47	6.68	8.50	42.34	0.01
12:32	5.74	8.90	8.93	59.40	0.01
12:33	11.45	5.92	8.65	37.89	0.01
12:34	11.19	6.21	7.60	42.92	0.01
12:35	5.87	8.85	7.76	58.30	0.01
12:36	11.12	5.93	7.92	38.02	0.01
12:37	11.90	5.73	7.00	41.86	0.01
12:38	6.10	8.75	7.03	61.20	0.01
12:39	10.91	5.97	7.50	40.15	-0.16
12:40	12.04	5.55	6.61	39.77	0.01
12:41	6.77	8.42	6.46	62.50	0.01
12:42	10.35	6.20	7.30	39.07	0.00
12:43	12.28	5.36	6.46	39.71	0.00
12:44	7.79	7.90	6.26	59.90	0.00
12:45	10.01	6.38	7.01	46.72	0.00
12:46	12.40	5.28	6.33	40.30	0.00
12:47	7.95	7.79	6.24	60.20	0.00
12:48	9.32	6.69	6.93	48.20	0.01

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
12:49	12.36	5.29	6.27	41.37	0.00
12:50	8.71	7.37	5.89	62.10	0.01
12:51	8.65	7.05	6.38	50.24	0.00
12:52	11.35	5.84	6.37	44.78	0.01
12:53	11.47	6.00	6.78	70.60	0.00
12:54	5.97	8.66	8.17	95.70	-0.14
12:55	11.57	5.68	9.57	66.00	-0.01
12:56	11.96	5.57	9.17	66.00	0.00
12:57	11.63	5.88	8.45	68.50	0.00
12:58	6.49	8.24	9.29	85.80	0.02
12:59	12.10	5.42	9.68	63.70	0.01
13:00	12.35	5.30	9.51	63.90	0.01
13:01	10.16	6.62	9.37	76.10	0.00
13:02	8.38	7.19	10.27	77.60	0.01
13:03	12.35	5.26	9.21	62.10	0.02
13:04	12.33	5.27	8.48	60.50	0.01
13:05	8.42	7.53	8.62	82.40	0.01
13:06	9.76	6.43	9.62	68.40	0.01
13:07	12.48	5.15	8.27	58.90	0.01
13:08	12.62	5.09	7.59	58.30	0.01
13:09	7.37	7.97	7.74	91.40	0.01
13:10	11.63	5.39	8.13	59.36	0.01
13:11	12.80	4.95	6.93	54.20	0.01
13:12	11.55	5.78	6.51	60.60	0.01
13:13	7.66	7.49	7.11	72.10	0.02
148 MinAvg	8.83	7.68	14.50	86.19	0.68

Data Corrected for Calibrations

148 MinAvg	8.90	7.80	15.18	88.23	0.68

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1600 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 0.35 HIGH Cal. Response = 45.45
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = 1.03 HIGH Cal. Response = 46.55

LOW System Drift = 0.67 % HIGH System Drift = 1.10 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 0.04 HIGH Cal. Response = 9.96
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = 0.01 HIGH Cal. Response = 9.83

LOW System Drift = -0.13 % HIGH System Drift = -0.62 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.69
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.69

LOW System Drift = 0.00 % HIGH System Drift = 0.00 %

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1600 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = -0.54 HIGH Cal. Response = 99.68
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = -0.21 HIGH Cal. Response = 99.14

LOW System Drift = 0.13 % HIGH System Drift = -0.22 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = -0.04 HIGH Cal. Response = 9.93
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = -0.02 HIGH Cal. Response = 9.93

LOW System Drift = 0.09 % HIGH System Drift = 0.03 %

Appendix B.4

CEMS Data and Results

Runs 4 - 6 (1600°F)

Scrubber Outlet

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
16:06	11.38	5.10	1.01	42.17	0.16
16:07	15.33	3.12	1.00	21.65	13.48
16:08	6.64	9.95	3.37	66.36	1.68
16:09	5.84	10.58	27.31	91.80	0.15
16:10	8.67	9.26	36.04	149.60	0.00
16:11	9.20	8.42	32.02	152.00	0.09
16:12	7.02	9.62	23.53	162.20	0.18
16:13	6.32	9.30	21.74	144.10	0.22
16:14	10.86	6.65	17.40	71.40	0.18
16:15	7.10	8.99	14.78	129.10	0.17
16:16	8.31	7.68	14.02	99.90	0.39
16:17	10.98	6.54	11.56	80.50	0.16
16:18	6.50	8.89	10.80	140.40	0.16
16:19	9.55	6.76	10.54	91.60	0.38
16:20	9.91	7.03	9.30	105.80	0.17
16:21	7.05	8.42	9.21	139.00	0.15
16:22	10.84	5.92	9.32	72.50	0.16
16:23	8.64	7.79	8.76	126.10	0.15
16:24	6.47	8.56	9.87	143.00	0.15
16:25	12.15	5.26	9.10	61.01	0.15
16:26	8.21	7.87	8.76	131.50	0.27
16:27	7.79	7.62	9.13	124.80	0.38
16:28	12.55	5.21	8.16	70.80	0.16
16:29	7.76	7.90	8.43	135.90	0.15
16:30	9.45	6.57	8.96	107.10	0.16
16:31	11.74	5.74	7.58	95.50	0.17
16:32	7.05	8.24	7.73	154.80	0.15
16:33	10.64	5.82	8.46	99.00	0.15
16:34	10.68	6.35	8.08	119.10	0.16
16:35	7.64	7.88	8.86	153.50	0.15
16:36	11.73	5.36	9.88	89.60	0.19
16:37	9.13	7.35	10.65	158.70	0.69
16:38	7.22	8.04	12.58	156.80	0.71
16:39	11.26	5.97	15.27	56.49	0.07
16:40	6.89	8.85	16.90	186.40	0.51
16:41	6.76	8.52	19.93	180.70	0.38
16:42	10.13	6.85	18.26	125.30	0.15
16:43	7.07	8.89	17.99	200.30	0.35
16:44	6.20	8.93	20.56	207.70	0.16
16:45	9.37	7.40	19.19	225.90	0.16
16:46	9.46	7.35	18.94	234.80	0.15

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
16:47	4.77	10.42	23.33	296.50	0.16
16:48	7.87	8.02	28.07	298.30	0.16
16:49	9.14	7.53	20.54	256.40	0.16
16:50	9.47	7.28	20.02	188.10	0.18
16:51	4.76	10.24	23.15	264.30	0.18
16:52	8.69	7.44	25.80	170.10	0.15
16:53	9.93	6.88	21.47	117.20	0.19
16:54	6.36	9.26	21.27	199.30	0.12
16:55	7.53	8.01	23.17	148.90	0.16
16:56	10.15	6.76	20.40	101.30	0.19
16:57	6.49	9.22	21.21	194.50	0.11
16:58	7.07	8.28	25.06	165.60	0.15
16:59	10.21	6.74	21.39	105.70	0.19
17:00	7.46	8.61	20.62	169.60	0.19
17:01	6.24	8.74	23.56	169.80	0.15
17:02	10.43	6.55	20.28	90.10	0.15
17:03	8.19	8.17	19.73	148.30	0.15
17:04	5.93	8.86	22.32	164.60	0.15
17:05	10.72	6.35	20.01	74.80	0.19
17:06	8.72	7.78	18.50	125.20	0.12
17:07	6.13	8.73	20.07	140.60	0.17
17:08	11.04P	6.11P	18.28P	61.68P	0.15P
17:09	10.56P	6.59P	16.81P	88.50P	0.15P
17:10	8.08P	7.61P	17.41P	114.90P	0.60P
17:11	12.24P	5.41P	16.90P	50.81P	0.27P
17:12	10.60P	6.58P	17.32P	88.80P	0.16P
17:13	8.03P	7.65P	18.65P	111.60P	0.49P
17:14	12.07P	5.48P	17.46P	53.47P	0.38P
17:15	11.06P	6.27P	17.34P	81.20P	0.15P
17:16	8.25P	7.57P	19.20P	113.30P	0.60P
17:17	12.10P	5.46P	18.94P	56.15P	0.38P
17:18	11.41P	6.03P	17.88P	70.40P	0.15P
17:19	7.66P	8.01P	18.26P	109.70P	0.61P
17:20	10.77P	6.23P	20.17P	60.29P	0.16P
17:21	10.27P	6.81P	18.54P	74.40P	0.93P
17:22	5.24P	9.49P	20.02P	126.80P	0.26P
17:23	10.12P	6.45P	19.69P	61.52P	0.15P
17:24	10.79P	6.41P	17.22P	58.85P	0.16P
17:25	5.31P	9.59P	18.80P	114.90P	0.15P
17:26	9.72	6.61	19.58	62.65	0.15
17:27	11.07	6.11	16.92	52.70	0.15

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
17:28	6.28	9.10	18.22	100.80	0.27
17:29	9.33	6.82	19.25	66.14	0.60
17:30	11.19	5.99	16.78	49.32	0.16
17:31	6.59	8.92	17.15	97.90	0.16
17:32	8.94	7.02	19.26	69.59	0.16
17:33	11.19	5.96	17.21	49.19	0.15
17:34	6.66	8.89	17.38	107.30	0.15
17:35	8.49	7.27	20.24	74.40	0.15
17:36	11.08	6.03	17.05	51.19	0.15
17:37	7.27	8.52	17.09	94.80	0.15
17:38	8.32	7.38	19.35	74.30	0.15
17:39	11.06	6.05	17.16	50.04	0.15
17:40	7.58	8.35	16.95	90.60	0.15
17:41	7.72	7.74	19.04	79.50	0.15
17:42	11.15	6.00	16.32	48.27	0.15
17:43	8.20	7.98	15.65	81.90	0.15
17:44	7.12	8.07	18.80	82.60	0.15
17:45	11.20	5.93	16.32	47.23	0.16
17:46	8.85	7.57	14.88	71.00	0.15
17:47	7.36	7.92	17.31	77.20	0.15
17:48	11.27	5.89	15.70	46.43	0.16
17:49	9.04	7.46	14.16	68.62	0.15
17:50	6.67	8.30	16.06	75.20	0.15
17:51	11.39	5.81	14.47	43.74	0.16
17:52	9.83	6.97	13.07	57.03	0.15
17:53	6.43	8.45	14.34	71.60	0.15
17:54	11.60	5.61	13.62	37.64	0.15
17:55	10.67	6.44	11.83	48.82	0.15
17:56	6.51	8.50	13.41	65.76	0.38
17:57	10.91	6.33	17.56	47.61	0.49
17:58	10.35	6.83	18.20	40.64	0.16
17:59	6.78	8.52	16.77	62.91	0.16
18:00	11.30	5.94	14.92	46.37	0.49
18:01	10.57	6.61	14.32	69.25	0.15
18:02	5.48	9.39	16.44	88.80	0.15
18:03	10.64	6.16	15.80	73.80	0.37
18:04	11.33	5.92	12.64	76.10	0.16
18:05	9.14	7.41	11.90	86.90	0.15
18:06	7.85	7.66	13.94	88.10	0.15
18:07	11.33	5.89	12.24	80.10	0.49
18:08	11.46	5.78	11.13	79.80	0.16

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1600 F

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
18:09	9.96	6.93	10.87	88.60	0.16
18:10	6.91	8.18	13.13	95.40	0.15
18:11	11.24	5.90	12.05	79.50	0.26
18:12	11.36	5.84	10.46	77.60	0.15
18:13	11.48	5.80	10.28	76.70	0.15
18:14	6.32	8.84	10.90	97.00	0.16
18:15	11.07	5.81	11.81	75.60	0.16
18:16	11.50	5.70	9.65	74.80	0.15
18:17	11.73	5.55	9.07	72.70	0.16
18:18	7.98	8.00	8.89	90.00	0.15
18:19	9.70	6.46	10.69	76.10	0.38
18:20	11.75	5.52	8.70	69.70	0.15
18:21	11.96	5.39	7.59	69.30	0.16
18:22	9.97	6.80	7.32	79.70	0.17
18:23	8.42	7.15	8.80	80.20	0.26
18:24	12.16	5.24	7.91	66.59	0.50
18:25	12.07	5.28	6.54	67.61	0.15
18:26	11.25	5.99	6.23	73.90	0.16
18:27	7.64	7.61	7.29	85.30	0.17
142 MinAvg	9.16	7.24	15.51	102.97	0.32

Data Corrected for Calibrations

142 MinAvg	9.31	7.29	16.19	102.92	0.19

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1600 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 1.62 HIGH Cal. Response = 45.59
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.67 HIGH Cal. Response = 45.06
LOW System Drift = -0.96 % HIGH System Drift = -0.53 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 0.01 HIGH Cal. Response = 9.98
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.99
LOW System Drift = -0.02 % HIGH System Drift = 0.03 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = -0.17 HIGH Cal. Response = 94.44
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.42 HIGH Cal. Response = 97.73
LOW System Drift = 0.19 % HIGH System Drift = 1.06 %

6/13/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1600 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01
INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 0.03 HIGH Cal. Response = 9.91
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 0.03 HIGH Cal. Response = 9.78

LOW System Drift = 0.01 % HIGH System Drift = -0.50 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70
INITIAL CALIBRATION TIME --> 1539
LOW Cal. Response = 0.85 HIGH Cal. Response = 98.69
FINAL CALIBRATION TIME ----> 1847
LOW Cal. Response = 1.58 HIGH Cal. Response = 104.84

LOW System Drift = 0.29 % HIGH System Drift = 2.46 %

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
15:51	6.60	10.31	1.38	233.10	1.82
15:52	10.21	8.23	1.17	255.30	1.68
15:53	8.42	9.81	1.18	254.10	1.83
15:54	6.52	10.47	1.30	263.40	1.84
15:55	10.09	8.49	1.29	278.00	2.49
15:56	8.53	9.73	1.24	288.30	1.31
15:57	6.31	10.56	1.08	279.50	2.03
15:58	10.11	8.47	1.83	291.30	1.66
15:59	8.82	9.44	2.27	276.40	0.83
16:00	6.98	9.92	3.01	241.30	1.49
16:01	10.69	7.91	3.25	168.00	0.99
16:02	6.66	10.92	3.33	225.00	0.83
16:03	6.76	10.78	12.47	347.70	1.51
16:04	7.75	10.60	20.17	407.10	0.82
16:05	7.68	10.67	19.94	388.30	0.82
16:06	7.40	10.74	21.47	389.10	1.00
16:07	7.18	11.03	22.92	388.50	0.82
16:08	7.18	10.85	28.37	377.60	0.83
16:09	7.68	10.26	30.16	402.40	0.85
16:10	8.33	9.62	29.31	418.60	0.82
16:11	8.56	9.40	28.65	406.40	0.83
16:12	8.59	9.30	30.35	395.60	0.82
16:13	9.41	8.47	30.32	336.50	0.82
16:14	9.80	8.12	26.82	300.80	0.72
16:15	9.70	8.11	25.88	297.20	0.61
16:16	8.68	8.79	25.14	217.10	0.83
16:17	7.61	8.97	24.97	198.90	0.83
16:18	10.43	7.48	22.31	187.90	0.82
16:19	9.90	7.96	20.93	181.80	0.82
16:20	6.78	9.39	21.27	172.10	0.82
16:21	10.48	7.28	20.35	143.20	0.82
16:22	10.02	7.80	19.54	158.10	0.82
16:23	5.46	10.27	20.96	177.70	0.82
16:24	10.28	7.41	21.06	168.10	1.49
16:25	10.32	7.53	19.14	194.00	0.82
16:26	7.56	9.36	20.23	203.30	0.62
16:27	8.17	8.49	22.36	197.40	0.61
16:28	10.21	7.50	19.93	195.60	0.73
16:29	10.16	7.49	19.57	200.80	0.18
16:30	7.26	9.46	20.42	181.30	0.30
16:31	8.91	8.02	23.55	202.50	0.85

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
16:32	9.95	7.61	22.62	210.60	0.28
16:33	9.95	7.62	23.66	215.60	0.19
16:34	9.10	8.32	24.67	210.60	0.18
16:35	6.95	9.08	27.25	184.90	0.53
16:36	10.12	7.38	23.54	191.20	0.50
16:37	10.09	7.38	22.87	190.30	0.15
16:38	8.94	8.26	23.11	175.20	0.27
16:39	7.15	8.86	26.99	183.30	0.37
16:40	10.47	7.09	26.56	184.00	0.16
16:41	9.93	7.49	27.76	200.60	0.15
16:42	9.89	7.52	31.08	202.20	0.15
16:43	6.72	9.59	35.87	180.40	0.16
16:44	9.29	7.67	38.82	201.20	0.60
16:45	9.78	7.54	35.68	213.10	0.15
16:46	9.89	7.48	35.30	204.10	0.15
16:47	9.76	7.59	36.92	214.70	0.26
16:48	5.86	9.92	48.09	183.20	0.15
16:49	9.94	7.32	40.42	178.40	0.62
16:50	10.12	7.31	31.43	183.20	0.15
16:51	10.07	7.36	32.01	180.70	0.16
16:52	8.85	8.10	32.61	156.10	0.16
16:53	9.57P	7.38P	33.11P	157.60P	0.16P
16:54	9.92P	7.44P	30.82P	186.40P	0.16P
16:55	10.01P	7.32P	32.56P	173.20P	0.16P
16:56	9.39P	7.92P	29.60P	159.30P	0.15P
16:57	6.40P	9.18P	33.35P	146.50P	0.49P
16:58	10.03P	7.28P	27.72P	152.50P	0.38P
16:59	10.27P	7.09P	26.45P	134.40P	0.15P
17:00	7.97P	8.68P	25.05P	141.00P	0.15P
17:01	7.94P	8.17P	26.29P	135.30P	0.48P
17:02	10.26P	7.01P	24.39P	127.50P	0.15P
17:03	10.36P	6.98P	22.81P	124.50P	0.15P
17:04	7.13P	9.12P	25.74P	134.60P	0.15P
17:05	8.50P	7.75P	25.51P	115.00P	0.28P
17:06	10.49P	6.81P	20.92P	106.80P	0.17P
17:07	10.36P	7.02P	19.75P	104.00P	0.15P
17:08	6.06P	9.38P	21.09P	111.70P	0.15P
17:09	10.48P	6.66P	20.83P	94.30P	0.16P
17:10	10.90P	6.54P	18.51P	99.30P	0.16P
17:11	9.16P	7.76P	19.99P	116.90P	0.16P
17:12	7.87P	8.05P	21.50P	95.10P	0.16P

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
17:13	10.87P	6.57P	19.58P	115.90P	0.16P
17:14	10.97P	6.49P	19.42P	109.50P	0.16P
17:15	8.93P	7.89P	18.59P	102.50P	0.15P
17:16	8.03P	7.91P	21.67P	87.40P	0.26P
17:17	11.28P	6.25P	19.06P	81.50P	0.29P
17:18	10.78P	6.72P	16.10P	88.40P	0.16P
17:19	7.08P	8.47P	15.75P	87.80P	0.15P
17:20	11.42P	6.12P	14.64P	74.20P	0.15P
17:21	11.29	6.25	13.34	72.60	0.16
17:22	8.56	8.10	13.61	90.20	0.15
17:23	9.09	7.30	14.32	80.00	0.16
17:24	11.24	6.29	13.01	66.76	0.15
17:25	11.33	6.22	12.38	63.04	0.16
17:26	7.73	8.52	12.30	87.50	0.16
17:27	10.15	6.67	13.02	65.89	0.17
17:28	11.41	6.17	11.64	58.50	0.15
17:29	11.07	6.53	11.08	63.80	0.15
17:30	7.13	8.49	11.27	82.40	0.15
17:31	11.59	5.99	10.98	55.64	0.60
17:32	11.73	5.96	10.32	55.03	0.16
17:33	9.03	7.74	10.30	74.00	0.16
17:34	9.28	7.15	10.94	66.04	0.27
17:35	11.87	5.85	10.05	53.01	0.26
17:36	11.20	6.46	9.30	60.90	0.15
17:37	7.64	8.11	9.65	76.10	0.15
17:38	11.97	5.76	9.76	53.29	0.16
17:39	12.01	5.76	8.99	52.55	0.15
17:40	8.38	8.10	9.04	75.30	0.16
17:41	10.61	6.36	9.42	57.87	0.60
17:42	12.06	5.72	8.76	51.52	0.15
17:43	10.08	7.13	8.31	64.71	0.15
17:44	8.63	7.48	9.00	67.28	0.17
17:45	12.16	5.66	8.38	51.21	0.27
17:46	11.88	5.99	7.61	54.78	0.17
17:47	7.41	8.33	7.82	75.10	0.16
17:48	11.88	5.72	8.10	51.10	0.15
17:49	12.14	5.68	7.40	49.57	0.16
17:50	8.88	7.80	7.69	68.34	0.16
17:51	10.03	6.71	8.28	55.74	0.38
17:52	11.46	6.11	7.75	50.87	0.15
17:53	11.35	6.30	7.83	51.82	0.16

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
17:54	6.34	9.11	8.48	66.57	0.16
17:55	11.04	6.19	9.24	51.56	0.71
17:56	11.58	6.01	7.60	50.95	0.15
17:57	11.54	6.15	6.99	52.69	0.16
17:58	6.31	8.96	7.11	67.64	0.16
17:59	11.63	5.79	7.64	51.02	0.15
18:00	12.13	5.58	5.87	50.77	0.16
18:01	12.11	5.66	5.24	51.39	0.17
18:02	7.26	8.41	5.40	68.40	0.15
18:03	11.79	5.59	5.79	50.53	0.26
18:04	12.47	5.29	4.78	49.96	0.16
18:05	12.51	5.30	4.33	52.10	0.15
18:06	7.65	8.16	4.23	72.30	0.15
18:07	11.96	5.35	4.74	51.57	0.16
18:08	12.74	5.05	3.88	49.81	0.15
18:09	12.84	5.05	3.41	50.70	0.16
18:10	8.15	7.83	3.38	73.10	0.16
18:11	12.24	5.13	3.89	50.60	0.17
18:12	12.97	4.88	3.27	49.19	0.15
18:13	12.89	5.01	3.13	50.11	0.16
18:14	7.73	7.97	3.14	69.90	0.16
18:15	11.83	5.33	3.88	48.00	0.16
18:16	12.50	5.11	3.70	46.91	0.16
18:17	12.53	5.17	3.33	47.86	0.16
18:18	7.84	7.88	3.20	67.32	0.17
18:19	12.08	5.17	3.76	47.12	0.26
18:20	12.64	5.00	3.25	46.08	0.17
18:21	12.58	5.14	3.05	47.11	0.15
18:22	7.89	7.81	2.93	65.07	0.17
152 MinAvg	9.61	7.59	16.18	144.70	0.43

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1600 F

Starting
06-14-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv

Data Corrected for Calibrations

152 MinAvg	9.79	7.68	16.79	140.46	0.04

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1600 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 1.00 HIGH Cal. Response = 45.79
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 1.00 HIGH Cal. Response = 46.26

LOW System Drift = 0.00 % HIGH System Drift = 0.47 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 0.01 HIGH Cal. Response = 9.94
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.01 HIGH Cal. Response = 9.92

LOW System Drift = 0.03 % HIGH System Drift = -0.13 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 0.62 HIGH Cal. Response = 96.79
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.15 HIGH Cal. Response = 94.04

LOW System Drift = -0.15 % HIGH System Drift = -0.89 %

6/14/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1600 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 0.02 HIGH Cal. Response = 9.85
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.06 HIGH Cal. Response = 9.81

LOW System Drift = 0.16 % HIGH System Drift = -0.17 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1314
LOW Cal. Response = 0.36 HIGH Cal. Response = 101.84
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 1.78 HIGH Cal. Response = 108.29

LOW System Drift = 0.57 % HIGH System Drift = 2.58 %

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
10:46	13.14	5.44	0.68	32.72	34.60
10:47	4.73	11.53	7.21	50.45	2.68
10:48	10.58	7.14	21.21	40.92	2.01
10:49	10.71	7.38	13.78	57.54	0.93
10:50	7.78	8.58	10.17	75.10	1.57
10:51	11.56	6.19	8.75	47.83	1.44
10:52	9.60	7.70	7.99	71.60	0.89
10:53	8.15	8.12	9.08	79.20	2.74
10:54	12.44	5.87	9.19	46.43	2.11
10:55	7.89	8.74	9.33	90.90	1.35
10:56	8.59	8.12	10.92	86.30	2.06
10:57	11.00	7.32	11.31	87.60	1.15
10:58	5.67	10.44	12.67	152.80	0.72
10:59	9.15	8.28	14.39	156.50	1.86
11:00	9.84	8.12	14.06	188.00	0.55
11:01	9.69	8.38	14.85	212.40	0.15
11:02	5.59	10.46	18.58	211.40	0.42
11:03	9.88	8.01	18.87	192.30	0.82
11:04	9.91	7.93	17.23	186.30	0.33
11:05	9.40	8.37	16.97	168.10	0.15
11:06	6.12	9.82	19.28	187.60	0.42
11:07	9.84	7.83	19.09	206.20	0.82
11:08	9.86	7.78	18.36	213.30	0.44
11:09	9.85	7.71	18.86	204.30	0.15
11:10	6.11	10.04	19.51	205.20	0.42
11:11	9.39	7.74	21.46	201.10	0.78
11:12	10.02	7.52	18.85	189.60	0.15
11:13	10.28	7.39	18.84	167.20	0.15
11:14	5.91	9.86	20.16	190.20	0.77
11:15	10.03	7.33	20.43	185.40	1.04
11:16	10.30	7.20	18.48	162.60	0.15
11:17	9.98	7.59	18.85	151.80	0.15
11:18	6.20	9.38	20.82	166.80	0.53
11:19	10.41	7.10	20.11	136.20	0.56
11:20	10.45	7.08	18.32	131.80	0.15
11:21	8.58	8.37	18.85	142.30	0.20
11:22	7.88	8.31	20.77	130.60	1.56
11:23	10.78	6.84	19.49	104.90	0.65
11:24	10.62	7.01	19.37	113.40	0.15
11:25	6.17	9.61	20.41	141.00	0.42
11:26	10.08	7.03	21.13	106.90	0.67

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
11:27	10.81	6.80	19.55	93.50	0.16
11:28	8.61	8.30	20.32	115.30	0.15
11:29	8.22	8.02	21.73	104.00	0.77
11:30	10.71	6.84	20.04	91.30	0.44
11:31	10.46	7.12	18.93	90.70	0.15
11:32	6.51	9.14	19.91	112.10	0.42
11:33	10.77	6.68	20.08	77.30	0.56
11:34	11.05	6.56	18.72	72.00	0.16
11:35	7.62	8.75	19.13	103.20	0.21
11:36	9.61	7.14	19.97	80.00	0.84
11:37	11.40	6.31	18.51	63.52	0.23
11:38	8.75	8.05	18.69	87.50	0.16
11:39	8.67	7.61	19.73	80.60	1.44
11:40	11.59	6.15	18.30	59.17	0.34
11:41	9.85	7.36	17.95	74.20	0.20
11:42	8.12	7.90	18.45	75.60	1.66
11:43	11.64	6.14	17.57	50.43	0.56
11:44	10.22	7.17	17.21	63.83	0.17
11:45	7.64	8.22	17.93	74.20	0.65
11:46	11.72	6.05	17.31	47.23	0.23
11:47	10.65	6.89	16.62	58.77	0.17
11:48	7.25P	8.45P	17.14P	75.10P	0.35P
11:49	12.43P	5.45P	16.14P	41.22P	0.80P
11:50	12.62P	5.46P	13.88P	45.26P	0.16P
11:51	10.71P	6.29P	12.98P	55.45P	0.74P
11:52	13.94P	4.45P	12.38P	31.97P	1.43P
11:53	13.06P	5.20P	11.72P	40.14P	0.33P
11:54	10.72P	6.25P	12.07P	50.35P	0.83P
11:55	14.13P	4.30P	11.49P	28.25P	1.53P
11:56	12.80P	5.36P	11.30P	40.96P	0.22P
11:57	10.67P	6.33P	11.75P	50.73P	0.98P
11:58	14.04P	4.44P	11.39P	29.64P	1.02P
11:59	11.56P	6.20P	10.53P	46.41P	0.50P
12:00	8.86P	7.43P	12.09P	56.08P	1.16P
12:01	12.45P	5.51P	12.55P	38.53P	0.66P
12:02	10.16P	7.06P	11.79P	52.25P	0.15P
12:03	9.00P	7.31P	11.86P	54.46P	0.16P
12:04	12.70P	5.33P	11.35P	38.54P	0.27P
12:05	9.39P	7.50P	10.68P	55.85P	0.16P
12:06	9.37P	7.09P	11.36P	50.70P	0.31P
12:07	12.70P	5.30P	10.68P	39.05P	0.33P

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
12:08	8.70P	7.88P	10.04P	57.90P	0.20P
12:09	10.26P	6.49P	10.85P	47.28P	0.82P
12:10	12.87P	5.28P	9.95P	40.63P	0.23P
12:11	8.56P	7.80P	9.70P	58.01P	0.16P
12:12	10.83	6.16	10.66	38.53	0.50
12:13	12.01	5.82	11.78	36.29	0.16
12:14	7.65	8.23	12.02	56.46	0.20
12:15	11.29	5.86	12.05	35.76	0.78
12:16	11.89	5.88	10.98	37.42	0.15
12:17	7.73	8.12	10.87	54.56	0.53
12:18	11.59	5.69	10.90	33.87	0.56
12:19	11.55	6.09	10.17	39.06	0.16
12:20	7.70	8.11	10.60	54.50	0.53
12:21	11.61	5.70	11.09	33.32	0.67
12:22	11.22	6.26	11.11	40.81	0.15
12:23	7.71	7.98	11.16	54.56	0.88
12:24	12.32	5.34	10.24	34.76	0.94
12:25	11.14	6.35	8.50	42.50	0.16
12:26	7.83	7.86	9.16	52.98	0.37
12:27	12.18	5.43	9.92	30.88	0.27
12:28	10.92	6.44	8.84	41.80	0.16
12:29	8.14	7.64	8.70	54.88	0.65
12:30	12.51	5.29	8.35	36.45	0.56
12:31	11.44	6.10	7.74	38.02	0.16
12:32	7.48	8.04	8.15	51.98	0.54
12:33	12.19	5.37	8.17	32.53	0.56
12:34	12.03	5.65	7.14	36.18	0.16
12:35	7.63	8.08	6.92	53.37	0.54
12:36	11.88	5.36	7.31	34.12	0.33
12:37	12.62	5.22	6.42	37.06	0.16
12:38	7.88	7.97	6.03	53.83	0.16
12:39	11.80	5.36	6.73	37.83	0.50
12:40	12.70	5.07	5.89	35.33	0.15
12:41	9.04	7.23	5.71	51.19	0.20
12:42	12.99	4.66	5.79	34.32	1.16
12:43	12.94	4.85	5.03	35.69	0.33
12:44	9.31	7.19	5.05	54.46	0.15
12:45	11.05	5.72	5.79	42.84	0.75
12:46	13.03	4.78	5.50	36.83	0.22
12:47	9.34	7.17	5.02	54.16	0.15
12:48	10.30	6.10	5.71	43.54	0.42

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1600 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
12:49	12.92	4.83	5.29	36.57	0.22
12:50	9.94	6.76	4.72	50.97	0.15
12:51	10.45	6.00	4.95	44.21	0.52
12:52	12.28	5.20	4.90	39.48	0.33
12:53	12.21	5.47	5.11	64.20	0.15
12:54	7.92	7.82	6.75	82.90	0.42
12:55	12.31	5.14	8.83	61.76	0.67
12:56	12.63	5.05	8.91	61.28	0.15
12:57	12.36	5.36	8.07	63.52	0.15
12:58	8.29	7.42	8.37	79.70	0.78
12:59	12.72	4.90	9.19	59.31	1.11
13:00	12.98	4.78	8.66	58.56	0.15
13:01	11.20	6.01	8.41	68.87	0.15
13:02	9.68	6.45	9.16	71.10	0.54
13:03	12.91	4.78	8.52	55.92	0.34
13:04	12.85	4.82	7.44	56.11	0.16
13:05	9.78	6.82	7.19	73.60	0.16
13:06	10.68	5.86	8.03	63.65	0.48
13:07	13.03	4.65	7.15	53.53	0.15
13:08	13.14	4.61	6.19	53.23	0.16
13:09	8.98	7.20	6.01	77.30	0.42
13:10	12.28	4.85	6.40	53.01	0.94
13:11	13.27	4.49	5.56	49.48	0.16
13:12	12.24	5.27	4.99	55.88	0.15
13:13	9.02	6.76	5.19	68.50	0.32
148 MinAvg	10.32	6.81	12.34	78.02	0.78

Data Corrected for Calibrations

148 MinAvg	10.50	6.88	12.48	75.09	0.58

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1600 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 1.00 HIGH Cal. Response = 45.71
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = 1.00 HIGH Cal. Response = 46.83

LOW System Drift = 0.00 % HIGH System Drift = 1.12 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.97
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = -0.00 HIGH Cal. Response = 9.94

LOW System Drift = -0.03 % HIGH System Drift = -0.14 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 0.19 HIGH Cal. Response = 94.75
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = 0.19 HIGH Cal. Response = 94.70

LOW System Drift = 0.00 % HIGH System Drift = -0.01 %

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1600 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 0.08 HIGH Cal. Response = 9.96
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = 0.08 HIGH Cal. Response = 9.72

LOW System Drift = 0.01 % HIGH System Drift = -0.96 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 905
LOW Cal. Response = 0.93 HIGH Cal. Response = 103.54
FINAL CALIBRATION TIME ----> 1326
LOW Cal. Response = 1.74 HIGH Cal. Response = 106.86

LOW System Drift = 0.32 % HIGH System Drift = 1.33 %

Appendix B.5

CEMS Data and Results

Runs 7 - 9 (1800°F)

Scrubber Inlet

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
17:51	10.90	5.87	3.65	58.35	0.00
17:52	5.82	9.78	3.85	131.20	0.46
17:53	1.75	13.52	7.78	251.50	0.33
17:54	5.94	11.54	16.85	452.50	1.83
17:55	5.18	12.42	11.56	393.30	0.01
17:56	0.67	15.16	179.20	265.80	522.00
17:57	6.69	12.02	91.90	502.00	380.70
17:58	4.15	13.60	29.32	362.10	12.16
17:59	2.67	13.75	71.90	278.70	352.10
18:00	7.78	11.02	28.82	271.20	0.30
18:01	1.82	14.23	21.33	204.20	0.01
18:02	6.48	11.42	26.37	271.80	0.02
18:03	4.17	13.65	31.58	291.30	6.51
18:04	2.20	14.52	394.20	304.20	919.00
18:05	6.45	12.33	73.30	468.50	50.17
18:06	5.60	13.14	42.76	478.70	0.51
18:07	4.62	14.00	63.88	467.20	0.02
18:08	5.06	13.39	84.70	474.10	0.00
18:09	5.61	12.79	85.00	460.70	0.00
18:10	6.84	11.62	73.30	431.00	0.00
18:11	2.97	13.76	96.00	287.90	0.47
18:12	6.38	10.87	106.70	217.90	0.22
18:13	6.65	10.90	57.05	179.80	0.01
18:14	3.09	12.54	78.00	148.20	0.01
18:15	8.84	8.86	62.50	92.90	0.00
18:16	3.71	12.33	59.66	134.00	0.01
18:17	4.93	11.19	78.50	117.20	0.01
18:18	7.68	10.00	50.12	107.00	0.01
18:19	2.99	12.66	71.30	128.40	0.01
18:20	7.91	9.63	66.72	129.90	0.01
18:21	4.36	12.30	66.26	173.90	0.00
18:22	5.18	11.37	96.30	169.90	0.01
18:23	7.91	10.15	59.64	172.40	0.02
18:24	2.08	13.39	98.20	173.90	0.01
18:25	8.30	9.38	74.00	144.20	0.01
18:26	5.12	11.57	59.60	150.20	0.00
18:27	4.60	11.35	93.30	146.20	0.00
18:28	8.80	9.09	52.45	127.10	0.01
18:29	3.15	12.36	63.74	129.20	0.01
18:30	7.80	9.26	61.54	100.50	0.00
18:31	6.54	10.39	42.97	101.10	0.01

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
18:32	4.32	11.29	59.33	100.30	0.01
18:33	9.82	8.27	41.96	76.80	0.01
18:34	4.20	11.55	44.47	99.40	0.01
18:35	7.16	9.51	51.32	83.70	0.03
18:36	7.81	9.50	34.67	85.10	0.00
18:37	4.11	11.39	47.95	93.20	0.01
18:38	9.94	7.78	40.56	72.30	0.01
18:39	5.66	10.62	34.70	93.30	0.01
18:40	5.93	10.05	46.97	88.00	0.01
18:41	9.80	8.15	33.29	78.20	0.01
18:42	4.63	11.01	40.43	95.50	0.00
18:43	8.45	8.52	43.46	80.70	0.01
18:44	7.56	9.43	31.31	89.80	0.01
18:45	5.14	10.55	43.99	99.20	0.00
18:46	10.74	7.35	36.07	77.20	0.01
18:47	5.52	10.46	34.94	101.50	0.00
18:48	7.09	9.27	45.01	92.50	0.01
18:49	9.49	8.25	31.40	88.00	0.01
18:50	4.98	10.65	40.60	102.50	0.01
18:51	9.46	7.83	40.60	86.20	0.01
18:52	7.60	9.25	30.83	99.70	0.01
18:53	6.00P	9.82P	43.35P	111.70P	0.00P
18:54	11.48P	6.88P	34.54P	88.90P	0.01P
18:55	6.26P	9.86P	34.76P	113.80P	0.00P
18:56	7.94P	8.66P	43.41P	97.50P	0.00P
18:57	9.97P	7.87P	29.97P	94.00P	0.01P
18:58	5.80P	10.08P	39.31P	109.90P	0.01P
18:59	10.31P	7.31P	39.37P	87.40P	0.01P
19:00	6.56P	9.85P	35.72P	96.10P	0.01P
19:01	5.49P	9.97P	56.24P	91.90P	0.01P
19:02	9.90P	7.73P	41.13P	69.71P	0.01P
19:03	4.46P	10.82P	49.10P	100.60P	0.01P
19:04	7.88P	8.59P	55.36P	76.40P	0.00P
19:05	7.58P	9.15P	43.05P	84.30P	0.01P
19:06	4.28P	10.72P	60.19P	97.80P	0.00P
19:07	9.79P	7.56P	50.47P	68.31P	0.01P
19:08	5.34P	10.38P	47.43P	94.70P	0.01P
19:09	6.44P	9.38P	57.54P	82.30P	0.02P
19:10	8.95P	8.28P	40.01P	74.10P	0.00P
19:11	3.40	11.38	54.37	96.00	0.00
19:12	8.84	7.99	50.95	71.00	0.01

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
19:13	6.83	9.55	40.28	84.90	0.03
19:14	4.80	10.35	57.98	89.50	0.04
19:15	9.99	7.54	43.01	65.91	0.03
19:16	4.63	10.82	45.75	94.20	0.05
19:17	7.13	8.97	55.15	79.30	0.05
19:18	8.56	8.55	38.62	75.70	0.01
19:19	3.73	11.10	52.71	95.40	0.01
19:20	9.48	7.65	47.16	64.53	0.00
19:21	6.63	9.65	39.16	84.00	0.01
19:22	5.75	9.76	54.11	82.70	0.01
19:23	10.21	7.45	39.39	61.81	0.00
19:24	4.66	10.66	43.04	91.20	0.00
19:25	8.23	8.30	48.68	67.19	0.01
19:26	8.48	8.51	35.07	70.10	0.00
19:27	4.83	10.30	45.52	84.50	0.00
19:28	10.54	7.03	38.41	49.85	0.01
19:29	6.16	9.78	33.41	78.10	0.02
19:30	6.96	8.92	44.54	65.43	0.00
19:31	9.99	7.54	31.28	54.39	0.02
19:32	5.16	10.13	37.00	75.50	0.00
19:33	9.78	7.27	38.04	49.51	0.01
19:34	8.03	8.60	27.74	63.11	0.01
19:35	5.96	9.47	38.70	68.61	0.01
19:36	11.20	6.67	32.39	47.39	0.01
19:37	6.26	9.64	29.09	74.40	0.02
19:38	8.14	8.16	38.46	59.43	0.00
19:39	10.36	7.24	25.83	55.35	0.01
19:40	5.30	9.95	33.42	75.30	0.01
19:41	10.79	6.63	32.88	49.00	0.01
19:42	8.29	8.35	24.54	67.67	0.00
19:43	7.17	8.63	35.11	77.10	0.01
19:44	11.23	6.71	29.03	85.80	0.01
19:45	6.53	9.53	27.46	106.20	0.01
19:46	8.67	7.87	35.88	88.20	0.00
19:47	11.56	6.48	24.00	76.80	0.01
19:48	5.50	9.89	28.40	108.30	0.15
19:49	10.36	6.78	32.36	76.80	0.01
19:50	10.90	6.80	23.69	78.80	0.01
19:51	5.38	9.59	30.74	98.40	0.02
19:52	11.12	6.34	29.76	67.84	0.00
19:53	9.13	7.75	21.99	81.00	0.01

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
19:54	6.01	9.08	33.51	91.00	0.00
19:55	11.71	6.00	26.77	63.12	0.01
19:56	8.15	8.20	22.05	85.10	0.01
19:57	7.59	8.10	33.79	80.70	0.01
19:58	11.69	5.98	27.22	59.96	0.00
19:59	7.11	8.69	23.62	88.30	0.01
20:00	9.12	7.16	32.60	69.83	0.00
20:01	11.92	5.91	22.72	58.79	0.00
20:02	5.78	9.26	26.62	91.80	0.00
20:03	10.98	6.09	29.90	57.11	0.03
20:04	10.72	6.60	22.09	64.67	0.03
20:05	6.25	8.69	29.52	84.30	0.01
20:06	12.22	5.48	27.39	49.05	0.01
20:07	9.26	7.33	19.97	70.20	0.01
20:08	7.98	7.66	31.10	70.60	0.00
20:09	12.55	5.32	24.28	45.54	0.01
20:10	7.50	8.27	22.44	79.30	0.00
20:11	9.59	6.77	30.57	58.30	0.04
20:12	11.86	5.88	19.61	50.83	0.03
142 MinAvg	7.17	9.53	46.56	126.95	15.83

Data Corrected for Calibrations

142 MinAvg	7.24	9.55	48.46	128.09	15.73

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1800 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 1.07 HIGH Cal. Response = 47.52
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = 1.09 HIGH Cal. Response = 48.11
LOW System Drift = 0.02 % HIGH System Drift = 0.59 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 0.06 HIGH Cal. Response = 9.91
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = 0.11 HIGH Cal. Response = 10.16
LOW System Drift = 0.26 % HIGH System Drift = 1.28 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 0.00 HIGH Cal. Response = 92.70
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = 0.00 HIGH Cal. Response = 93.68
LOW System Drift = 0.00 % HIGH System Drift = 0.32 %

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN1 @ 1800 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70

INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = -0.33 HIGH Cal. Response = 100.46
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = -0.75 HIGH Cal. Response = 100.91

LOW System Drift = -0.17 % HIGH System Drift = 0.18 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01

INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = -0.02 HIGH Cal. Response = 9.91
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = -0.06 HIGH Cal. Response = 9.94

LOW System Drift = -0.14 % HIGH System Drift = 0.12 %

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
15:41	10.13	6.80	4.75	45.31	0.32
15:42	1.79	13.75	70.50	87.60	23.92
15:43	7.07	11.07	137.60	69.69	208.00
15:44	7.84	9.38	102.60	60.87	0.01
15:45	5.49	10.36	110.30	80.90	0.67
15:46	9.49	7.72	82.30	65.46	0.01
15:47	9.10	7.91	53.77	75.00	0.01
15:48	7.66	8.17	59.25	75.60	0.00
15:49	8.24	7.55	53.19	70.00	0.34
15:50	12.53	5.61	29.78	49.54	0.00
15:51	8.29	7.69	27.73	76.20	0.00
15:52	7.63	7.65	27.86	78.50	0.01
15:53	7.60	7.62	26.11	78.10	0.34
15:54	8.38	7.42	24.60	78.00	0.01
15:55	7.22	8.09	25.88	90.60	0.00
15:56	5.99	8.50	34.71	96.90	0.01
15:57	6.11	8.50	36.32	98.40	0.17
15:58	8.30	7.35	20.78	102.30	0.01
15:59	8.25	7.66	15.16	87.60	0.02
16:00	5.91	8.58	23.60	102.10	0.00
16:01	5.61	8.72	26.36	100.10	0.33
16:02	5.83	8.78	28.46	104.50	-0.12
16:03	9.86	6.71	22.21	76.90	0.01
16:04	5.86	8.58	20.63	104.20	0.01
16:05	5.47	8.71	25.26	110.10	0.01
16:06	5.78	8.67	27.21	108.70	0.34
16:07	9.65	6.84	21.07	81.10	0.01
16:08	5.46	8.92	21.91	113.80	0.01
16:09	5.57	8.68	25.83	106.30	0.00
16:10	7.76	7.54	26.72	88.40	0.35
16:11	8.06	7.80	18.66	97.00	0.01
16:12	5.87	8.59	22.94	109.80	0.17
16:13	5.44	8.73	26.78	112.40	0.01
16:14	9.64	6.55	23.52	73.80	4.62
16:15	4.22	9.76	21.93	106.80	0.01
16:16	4.75	9.29	27.34	104.80	0.01
16:17	10.26	6.41	21.42	70.90	0.01
16:18	3.73	10.05	22.71	96.00	0.65
16:19	5.07	9.19	32.75	84.30	-0.12
16:20	8.57	7.77	22.55	65.10	0.00
16:21	2.41	11.12	34.85	92.60	0.01

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
16:22	6.58	8.36	41.28	64.85	0.96
16:23	5.72	9.55	28.41	79.50	0.01
16:24	3.03	10.61	48.87	94.10	0.01
16:25	9.66	6.85	33.97	68.03	0.01
16:26	5.21	9.33	26.99	101.20	0.20
16:27	4.85	9.55	35.83	109.50	0.00
16:28	9.45	7.13	28.70	75.00	0.01
16:29	4.22	9.91	30.50	134.90	0.00
16:30	5.34	9.21	38.07	116.10	0.03
16:31	8.88	7.73	28.63	95.90	0.04
16:32	4.34	10.01	35.02	138.10	0.03
16:33	6.32	8.55	40.27	105.10	0.03
16:34	7.17	8.52	27.57	108.60	0.18
16:35	4.25	10.13	39.05	135.80	0.01
16:36	9.04	7.18	35.09	66.26	0.00
16:37	5.66	9.19	26.46	103.40	0.00
16:38	4.90	9.40	36.03	102.90	0.01
16:39	9.44	7.02	33.44	65.14	0.17
16:40	5.70	9.25	27.77	101.10	0.00
16:41	5.32	9.26	36.14	96.40	0.00
16:42	9.39P	6.99P	32.44P	63.50P	0.00P
16:43	5.40P	9.21P	27.98P	96.20P	0.00P
16:44	5.39P	9.13P	36.03P	88.80P	0.00P
16:45	9.90P	6.88P	31.45P	57.25P	0.01P
16:46	5.44P	9.35P	27.25P	91.50P	0.00P
16:47	5.51P	9.16P	35.26P	85.70P	0.00P
16:48	9.51P	7.05P	28.67P	57.78P	0.00P
16:49	4.68	9.56	28.44	84.40	0.01
16:50	5.91	8.77	35.42	70.50	0.03
16:51	9.42	7.28	25.74	59.27	0.01
16:52	5.01	9.55	31.65	82.10	0.01
16:53	6.40	8.43	39.32	64.07	0.01
16:54	7.83	7.94	26.36	57.76	0.01
16:55	4.63	9.55	34.24	73.10	0.17
16:56	8.34	7.51	36.12	48.61	0.01
16:57	6.66	8.79	26.44	64.43	0.00
16:58	4.58	9.69	36.96	73.40	0.01
16:59	10.12	6.49	32.43	40.34	0.02
17:00	5.75	8.88	26.56	62.42	0.01
17:01	5.62	8.87	35.57	62.46	0.01
17:02	10.66	6.36	28.99	39.73	0.01

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
17:03	4.67	9.90	29.47	71.40	0.01
17:04	5.23	9.29	50.32	65.77	0.01
17:05	9.06	7.20	29.86	44.12	0.01
17:06	4.36	9.58	32.29	60.72	0.01
17:07	8.65	7.05	35.09	44.28	0.01
17:08	7.14	8.36	24.59	54.58	0.00
17:09	5.08	9.08	35.27	58.22	0.01
17:10	10.82	6.23	28.47	39.51	0.01
17:11	4.85	9.29	27.46	61.18	0.01
17:12	7.55	7.56	34.87	51.20	0.01
17:13	8.52	7.42	24.25	48.20	0.01
17:14	4.61	9.44	32.78	61.51	0.17
17:15	10.24	6.25	31.92	41.97	0.00
17:16	6.30	8.75	25.24	57.34	0.00
17:17	6.05	8.36	36.14	55.70	0.01
17:18	10.37	6.48	26.18	44.00	0.01
17:19	4.28	9.59	30.05	60.85	0.18
17:20	8.97	6.91	34.10	46.07	0.01
17:21	8.04	7.78	23.68	53.02	0.02
17:22	4.89	9.17	34.60	71.70	0.00
17:23	10.69	6.30	31.83	69.75	0.01
17:24	5.37	9.24	29.33	83.20	0.18
17:25	7.96	7.62	37.90	67.43	0.00
17:26	9.35	7.21	25.23	63.96	0.03
17:27	5.25	9.10	32.54	75.60	0.01
17:28	10.56	6.17	32.06	55.54	0.01
17:29	6.64	8.49	25.40	75.30	0.03
17:30	6.79	8.00	36.07	69.92	0.01
17:31	10.46	6.47	25.83	59.68	0.02
17:32	5.33	9.09	29.80	77.30	0.02
17:33	9.67	6.62	33.02	58.19	0.04
17:34	8.16	7.74	23.64	69.81	0.03
17:35	6.12	8.49	34.02	74.30	0.05
17:36	11.45	5.91	27.57	59.09	0.01
17:37	5.18	9.20	27.60	84.20	0.03
17:38	8.04	7.42	36.43	71.60	0.03
17:39	9.71	6.88	24.72	70.00	0.03
17:40	4.95	9.13	32.18	85.30	0.04
17:41	10.65	5.97	32.44	58.76	0.03
17:42	7.51	8.16	24.10	74.30	0.01
17:43	6.47	8.33	36.77	77.20	0.04

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
17:44	11.40	5.94	26.68	63.02	0.03
17:45	5.27	9.24	28.55	87.70	0.01
17:46	9.22	6.80	35.45	69.01	0.01
17:47	9.62	6.94	23.65	72.10	0.00
17:48	5.22	9.02	34.04	83.30	0.01
17:49	11.52	5.64	30.21	54.85	0.00
17:50	7.15	8.19	24.91	75.60	0.01
17:51	7.95	7.39	35.89	68.42	0.01
17:52	11.25	6.03	25.64	59.37	0.01
17:53	5.59	8.87	30.33	82.60	0.01
17:54	10.19	6.22	34.84	58.52	0.00
17:55	9.10	7.11	23.76	67.84	0.01
17:56	6.19	8.23	34.54	75.80	0.01
17:57	11.86	5.38	29.39	51.92	0.01
17:58	6.76	8.37	26.25	80.20	0.02
17:59	8.62	7.05	35.90	67.94	0.02
18:00	10.98	6.11	24.78	60.23	0.01
18:01	5.69	8.59	30.54	81.80	0.00
18:02	11.00	5.64	32.65	51.65	0.01
18:03	8.24	7.42	23.83	68.45	0.01
18:04	7.06	7.70	34.38	69.62	0.01
18:05	12.28	5.33	26.86	47.97	0.01
18:06	6.54	8.36	26.22	74.70	0.03
18:07	9.66	6.44	33.93	55.12	0.01
18:08	10.51	6.28	22.94	54.46	0.01
18:09	6.22	8.26	30.27	70.90	0.02
18:10	11.42	5.13	29.37	38.10	0.01
18:11	7.90	7.63	23.07	65.06	0.01
18:12	8.16	7.16	32.93	58.51	0.00
18:13	11.51	5.49	24.35	43.96	0.00
18:14	6.01	8.25	26.72	72.70	0.01
18:15	9.79	5.86	32.07	45.60	0.00
18:16	9.42	6.79	22.63	54.25	0.01
18:17	6.79	7.92	31.95	66.16	0.01
18:18	12.41	4.94	27.82	36.43	0.00
18:19	6.93	7.91	24.19	67.95	0.01
159 MinAvg	7.43	8.02	32.30	74.43	1.53

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv

Data Corrected for Calibrations

159 MinAvg	7.53	8.21	33.71	79.62	1.49

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1800 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 0.60 HIGH Cal. Response = 46.85
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 1.49 HIGH Cal. Response = 47.58

LOW System Drift = 0.90 % HIGH System Drift = 0.73 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 0.03 HIGH Cal. Response = 9.80
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.08 HIGH Cal. Response = 9.85

LOW System Drift = 0.24 % HIGH System Drift = 0.21 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 0.04 HIGH Cal. Response = 93.70
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.00 HIGH Cal. Response = 94.69

LOW System Drift = -0.01 % HIGH System Drift = 0.32 %

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN2 @ 1800 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 0.83 HIGH Cal. Response = 97.81
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.33 HIGH Cal. Response = 92.01

LOW System Drift = -0.20 % HIGH System Drift = -2.32 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = -0.05 HIGH Cal. Response = 9.98
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = -0.00 HIGH Cal. Response = 9.77

LOW System Drift = 0.19 % HIGH System Drift = -0.80 %

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1800 F

Starting
06-17-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
10:06	8.62	8.56	0.96	40.65	0.00
10:07	2.69	13.22	12.37	49.43	0.02
10:08	6.24	10.58	35.91	110.80	0.00
10:09	6.11	10.49	38.86	119.40	0.01
10:10	4.37	11.07	46.57	122.70	0.02
10:11	7.08	9.11	46.83	89.40	0.00
10:12	7.14	9.18	29.97	85.80	0.01
10:13	6.29	9.24	27.82	86.20	0.00
10:14	6.51	8.97	25.78	89.70	0.01
10:15	6.47	8.98	25.23	89.40	0.01
10:16	6.65	8.80	23.37	89.10	0.00
10:17	6.31	9.01	21.56	88.50	0.01
10:18	6.60	8.77	20.61	86.00	0.00
10:19	6.63	8.80	19.77	86.50	0.01
10:20	5.96	9.17	21.95	103.60	0.01
10:21	5.92	9.17	22.51	99.40	0.01
10:22	6.59	8.65	21.98	84.80	0.01
10:23	8.29	8.10	20.15	76.20	0.01
10:24	5.74	9.34	20.88	96.00	0.01
10:25	5.58	9.46	23.85	94.70	0.01
10:26	5.50	9.52	25.60	98.70	0.00
10:27	8.38	7.92	25.17	74.70	0.01
10:28	5.49	9.70	21.89	117.80	0.00
10:29	5.11	9.83	27.66	118.30	0.01
10:30	5.91	9.25	30.46	129.50	0.01
10:31	7.26	8.88	25.49	126.70	0.00
10:32	4.37	10.33	29.57	153.30	0.00
10:33	6.79	8.83	30.94	133.90	0.01
10:34	6.25	9.49	24.87	147.60	0.00
10:35	3.93	10.62	33.08	165.90	0.01
10:36	8.72	7.92	29.23	132.30	0.01
10:37	3.66	11.02	29.42	174.70	0.01
10:38	5.72	9.59	38.52	175.60	0.01
10:39	6.92	9.29	28.45	180.90	0.01
10:40	3.08	11.13	43.78	183.10	0.00
10:41	8.80	7.98	33.80	148.30	0.01
10:42	4.06	10.88	31.46	161.70	0.02
10:43	5.98	9.39	40.05	145.80	0.01
10:44	7.31	8.99	28.50	128.50	0.01
10:45	3.59	10.86	34.88	137.30	0.00
10:46	8.74	7.81	29.50	101.60	0.00

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1800 F

Starting
06-17-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
10:47	4.89	10.25	25.95	120.60	0.01
10:48	5.23	9.70	31.66	112.50	0.01
10:49	8.58	8.19	24.29	95.80	0.01
10:50	4.37	10.32	24.82	112.30	0.00
10:51	7.39	8.42	26.96	88.40	0.00
10:52	6.85	9.03	20.99	95.60	0.00
10:53	4.67	10.08	24.30	104.20	0.01
10:54	9.16	7.46	23.32	67.12	0.00
10:55	5.47	9.74	19.35	94.40	0.02
10:56	5.07	9.69	23.21	92.80	0.00
10:57	9.58	7.44	20.61	62.29	0.01
10:58	5.20	9.69	18.86	86.00	0.00
10:59	6.27	8.93	20.76	72.70	0.01
11:00	8.91	7.81	18.43	57.76	0.00
11:01	5.36	9.54	17.49	77.30	0.01
11:02	6.85	8.62	20.30	60.88	0.02
11:03	8.33	8.09	19.21	55.01	0.06
11:04	5.53	9.38	19.21	65.70	0.04
11:05	8.05	7.83	18.87	51.84	0.02
11:06	7.78	8.28	15.45	57.56	0.02
11:07	5.80P	9.11P	16.28P	63.93P	0.01P
11:08	9.49P	6.98P	14.89P	50.99P	0.00P
11:09	7.50P	8.30P	9.98P	63.04P	0.01P
11:10	6.26P	8.74P	12.19P	66.43P	0.01P
11:11	9.99P	6.63P	12.15P	51.07P	0.01P
11:12	7.46P	8.29P	10.57P	66.87P	0.00P
11:13	6.46P	8.62P	13.72P	67.17P	0.01P
11:14	10.81P	6.27P	12.98P	50.21P	0.01P
11:15	6.91P	8.45P	10.73P	67.97P	0.01P
11:16	6.77P	8.43P	13.22P	68.00P	0.00P
11:17	11.01P	6.16P	12.86P	49.25P	0.00P
11:18	7.11P	8.28P	10.54P	68.12P	0.01P
11:19	7.02P	8.33P	12.65P	73.10P	0.01P
11:20	10.20P	6.71P	14.22P	84.00P	0.01P
11:21	6.60P	8.77P	13.90P	95.30P	0.00P
11:22	7.26P	8.08P	16.07P	90.00P	0.01P
11:23	10.69P	6.56P	13.76P	78.30P	0.01P
11:24	6.46P	8.58P	13.70P	94.70P	0.00P
11:25	9.44P	6.84P	15.94P	78.60P	0.01P
11:26	9.24P	7.27P	12.08P	82.90P	0.01P
11:27	6.82P	8.35P	14.06P	92.20P	0.00P

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WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1800 F

Starting
06-17-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
11:28	11.78P	5.60P	14.04P	67.05P	0.01P
11:29	7.57	8.09	11.35	90.10	0.00
11:30	8.03	7.53	14.22	84.10	0.01
11:31	11.40	6.06	12.28	67.54	0.01
11:32	6.11	8.59	11.87	76.50	0.03
11:33	8.54	7.13	14.19	61.78	0.05
11:34	9.77	6.85	10.89	60.87	0.05
11:35	6.05	8.58	11.51	74.70	0.01
11:36	10.79	5.92	12.62	51.12	0.01
11:37	8.02	7.75	10.00	67.91	0.01
11:38	6.58	8.18	11.92	70.00	0.01
11:39	12.22	5.41	11.51	45.61	0.00
11:40	6.46	8.44	9.79	71.80	0.00
11:41	8.72	6.99	11.70	57.80	0.00
11:42	10.48	6.42	9.07	53.32	0.00
11:43	6.30	8.43	9.48	70.90	0.01
11:44	11.07	5.73	10.92	45.51	0.01
11:45	8.50	7.47	8.44	62.09	0.01
11:46	7.01	7.92	10.39	65.48	0.01
11:47	12.50	5.24	9.79	41.71	0.01
11:48	6.75	8.24	8.51	69.28	0.01
11:49	9.29	6.65	10.74	53.11	0.01
11:50	10.49	6.38	8.47	51.10	0.01
11:51	6.67	8.22	8.97	68.43	0.01
11:52	11.48	5.47	10.18	40.91	0.01
11:53	8.42	7.48	7.89	61.04	0.01
11:54	7.43	7.65	9.70	61.40	0.01
11:55	12.51	5.25	9.19	39.75	0.01
11:56	6.88	8.14	7.94	67.04	0.01
11:57	9.23	6.67	10.14	51.27	0.00
11:58	10.81	6.19	8.34	47.91	0.01
11:59	6.82	8.13	8.54	69.99	0.01
12:00	11.50	5.45	9.99	39.24	0.01
12:01	8.57	7.39	7.79	59.50	0.01
12:02	7.23	7.72	9.70	58.50	0.03
12:03	12.50	5.21	9.46	39.00	0.00
12:04	6.92	8.11	8.05	65.20	0.01
12:05	9.67	6.42	10.36	46.70	0.01
12:06	10.76	6.19	8.53	45.30	0.01
12:07	7.04	8.00	8.98	63.80	0.01
12:08	11.77	5.28	10.57	36.16	0.02

6/17/99
 WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
 REFERENCE METHOD DATA
 INLET-CEMS-RUN3 @ 1800 F

Starting
 06-17-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
12:09	9.61	6.82	8.03	57.00	0.00
12:10	8.96	6.87	9.96	57.10	0.02
12:11	12.99	4.95	9.67	39.47	0.01
12:12	8.23	7.43	8.30	61.70	0.00
12:13	10.69	5.89	10.46	44.29	0.02
12:14	11.14	5.98	8.64	45.89	0.06
12:15	8.38	7.34	8.92	59.47	0.05
12:16	12.52	4.86	10.20	31.91	0.02
12:17	9.45	6.91	7.91	53.65	0.02
12:18	8.67	7.05	9.50	53.88	0.01
12:19	13.21	4.73	9.55	30.60	0.01
134 MinAvg	7.75	8.10	17.75	80.69	0.01

Data Corrected for Calibrations

134 MinAvg	7.71	8.16	17.68	85.29	0.00

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1800 F

Calibrations:

[SO2 IN] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 0.98 HIGH Cal. Response = 47.06
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = 1.72 HIGH Cal. Response = 48.04

LOW System Drift = 0.74 % HIGH System Drift = 0.98 %

[CO2 IN] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 0.04 HIGH Cal. Response = 10.17
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = 0.09 HIGH Cal. Response = 9.78

LOW System Drift = 0.27 % HIGH System Drift = -1.94 %

[CO IN] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 0.00 HIGH Cal. Response = 93.74
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = 0.01 HIGH Cal. Response = 91.64

LOW System Drift = 0.00 % HIGH System Drift = -0.68 %

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
INLET-CEMS-RUN3 @ 1800 F

Calibrations:

[NOx IN] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 0.29 HIGH Cal. Response = 99.57
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = -1.12 HIGH Cal. Response = 93.03

LOW System Drift = -0.57 % HIGH System Drift = -2.62 %

[O2 IN] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 0.01 HIGH Cal. Response = 10.00
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = -0.00 HIGH Cal. Response = 10.14

LOW System Drift = -0.05 % HIGH System Drift = 0.56 %

Appendix B.6

CEMS Data and Results

Runs 7 - 9 (1800°F)

Scrubber Outlet

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
17:51	11.19	5.56	2.91	53.36	0.82
17:52	6.95	8.98	2.91	114.20	0.82
17:53	3.20	12.31	3.96	215.90	0.27
17:54	6.76	10.51	16.33	388.70	0.68
17:55	6.06	11.52	13.49	335.20	1.32
17:56	2.06	14.08	116.30	236.10	387.60
17:57	7.57	10.90	103.60	434.10	258.50
17:58	5.13	12.64	23.81	310.60	15.39
17:59	4.05	12.44	53.42	243.80	113.90
18:00	8.31	10.27	26.55	237.40	0.70
18:01	3.25	12.90	17.19	178.10	0.27
18:02	7.89	9.96	21.95	232.80	0.76
18:03	5.65	12.31	19.30	236.90	8.72
18:04	4.33	12.72	257.60	254.70	686.30
18:05	7.87	10.81	71.70	390.40	13.79
18:06	7.17	11.48	33.52	398.20	0.24
18:07	6.19	12.40	47.69	396.20	0.17
18:08	6.50	11.86	61.54	406.80	0.15
18:09	6.99	11.34	59.58	399.20	0.15
18:10	8.29	10.08	52.63	370.50	0.15
18:11	4.69	12.28	52.51	256.40	0.30
18:12	7.98	9.41	75.80	192.00	0.80
18:13	7.77	9.86	40.52	164.40	0.16
18:14	4.95	10.99	45.82	136.30	0.80
18:15	9.96	7.95	44.21	84.90	1.13
18:16	5.16	11.10	36.52	125.00	0.41
18:17	6.50	9.88	51.23	107.80	1.00
18:18	8.68	9.14	37.15	98.60	0.35
18:19	4.86	11.11	43.53	118.20	0.64
18:20	9.36	8.40	48.57	115.50	0.58
18:21	5.97	10.97	42.79	158.40	0.41
18:22	6.95	9.85	69.62	152.30	1.33
18:23	8.98	9.16	47.11	154.00	0.36
18:24	4.25	11.53	62.48	158.20	1.02
18:25	9.53	8.32	62.66	128.00	1.13
18:26	6.56	10.37	42.22	137.10	0.29
18:27	6.42	9.87	70.10	131.30	1.15
18:28	9.79	8.28	46.45	113.90	0.35
18:29	5.19	10.73	44.75	114.90	0.52
18:30	9.36	7.97	49.20	87.70	0.23
18:31	7.92	9.24	33.99	90.40	0.30

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
18:32	6.31	9.68	42.19	88.00	0.99
18:33	10.78	7.44	36.04	69.00	0.57
18:34	6.07	10.05	31.91	87.80	0.52
18:35	8.76	8.14	39.48	73.10	1.17
18:36	8.97	8.52	28.90	76.20	0.37
18:37	5.84	9.94	34.18	83.30	1.40
18:38	11.08	6.78	34.27	63.99	0.77
18:39	7.12	9.41	26.49	82.90	0.43
18:40	7.69	8.61	34.55	77.00	0.22
18:41	10.66	7.36	29.07	70.10	0.15
18:42	6.26	9.71	29.21	84.90	0.64
18:43	9.76	7.36	34.93	70.70	1.33
18:44	8.71	8.45	25.72	80.30	0.49
18:45	6.84	9.16	31.99	87.10	1.22
18:46	11.50	6.65	31.17	69.56	1.10
18:47	7.02	9.23	26.49	89.70	0.53
18:48	8.57	8.04	34.23	81.10	1.23
18:49	10.35	7.47	27.87	79.10	0.59
18:50	6.49	9.46	30.16	91.70	1.33
18:51	10.59	6.82	34.19	76.00	1.50
18:52	9.51	7.73	25.76	82.20	0.26
18:53	10.01P	7.03P	28.20P	79.90P	0.82P
18:54	13.63P	5.15P	26.47P	65.29P	0.22P
18:55	12.56P	5.40P	21.24P	60.36P	0.42P
18:56	13.56P	4.75P	22.64P	52.73P	0.82P
18:57	14.32P	4.62P	18.95P	53.66P	0.49P
18:58	11.33P	6.34P	20.79P	68.29P	0.82P
18:59	12.03P	6.08P	28.39P	73.70P	0.78P
19:00	7.83P	8.85P	29.63P	85.10P	0.20P
19:01	7.31P	8.58P	47.09P	79.40P	0.83P
19:02	10.80P	6.97P	40.03P	62.82P	0.33P
19:03	6.31P	9.42P	39.95P	87.60P	0.42P
19:04	9.40P	7.39P	48.32P	65.95P	0.78P
19:05	8.85P	8.17P	39.06P	74.60P	0.16P
19:06	6.32P	9.16P	48.30P	84.10P	0.75P
19:07	10.93P	6.64P	47.59P	59.92P	0.67P
19:08	6.97P	9.15P	40.48P	83.00P	0.15P
19:09	8.16P	8.05P	48.09P	71.00P	0.43P
19:10	10.02P	7.46P	37.91P	66.20P	0.33P
19:11	5.29	9.91	43.01	84.50	0.42
19:12	10.23	6.89	47.25	61.14	0.78

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
19:13	8.26	8.48	36.13	74.80	0.22
19:14	6.74	8.90	47.22	77.40	0.86
19:15	11.12	6.66	42.00	58.23	0.70
19:16	6.33	9.53	38.80	82.50	0.46
19:17	8.75	7.70	48.19	68.34	0.87
19:18	9.65	7.70	37.13	67.16	0.34
19:19	5.73	9.54	43.33	82.80	0.65
19:20	10.74	6.66	44.79	55.64	0.55
19:21	8.09	8.57	35.93	74.10	0.20
19:22	7.59	8.36	46.23	70.80	0.82
19:23	11.23	6.64	38.76	54.72	0.44
19:24	6.53	9.25	37.09	78.80	0.42
19:25	9.76	7.12	43.87	57.12	0.78
19:26	9.71	7.59	34.67	61.56	0.15
19:27	6.83	8.84	38.20	71.90	0.75
19:28	11.69	6.14	37.15	42.99	0.67
19:29	7.65	8.73	30.04	68.52	0.32
19:30	8.59	7.64	39.56	55.71	1.15
19:31	10.97	6.79	30.46	47.92	0.46
19:32	6.99	8.80	31.40	65.03	0.98
19:33	10.99	6.29	35.62	42.39	0.78
19:34	9.52	7.57	26.40	54.08	0.20
19:35	7.75	8.16	31.82	58.54	0.83
19:36	12.24	5.80	31.42	40.63	0.56
19:37	8.03	8.41	25.90	63.39	0.32
19:38	9.62	7.02	33.68	50.52	0.82
19:39	11.56	6.37	25.65	47.15	0.34
19:40	7.21	8.60	27.24	64.20	0.31
19:41	11.91	5.71	31.80	41.66	0.67
19:42	10.37	6.98	23.17	54.58	0.31
19:43	8.80	7.48	28.02	65.59	0.72
19:44	12.37	5.77	28.39	72.60	0.44
19:45	8.40	8.22	24.91	89.40	0.43
19:46	10.13	6.72	33.29	74.80	0.82
19:47	12.61	5.65	23.93	65.21	0.22
19:48	7.43	8.57	24.43	91.70	0.53
19:49	11.53	5.84	31.44	65.31	0.78
19:50	12.55	5.60	23.09	62.49	0.15
19:51	8.05	7.91	23.91	79.70	0.43
19:52	12.19	5.50	29.26	57.90	0.66
19:53	10.45	6.86	21.06	69.58	0.16

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1800 F

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
19:54	7.69	7.88	28.96	77.70	0.64
19:55	12.75	5.21	26.09	53.37	0.56
19:56	9.65	7.25	21.84	72.40	0.20
19:57	9.12	7.00	29.99	68.55	0.82
19:58	12.67	5.24	26.39	51.41	0.33
19:59	8.79	7.68	22.38	75.20	0.16
20:00	11.29	5.61	30.11	53.00	0.53
20:01	13.09	5.18	21.93	49.52	0.33
20:02	7.67	8.09	22.95	77.30	0.19
20:03	12.13	5.24	29.28	48.05	0.80
20:04	11.98	5.80	21.35	54.28	0.17
20:05	8.10	7.53	23.99	70.80	0.54
20:06	13.21	4.74	26.82	41.08	0.68
20:07	10.77	6.42	19.76	58.43	0.16
20:08	9.56	6.63	25.17	59.07	1.26
20:09	13.56	4.59	24.20	37.95	0.45
20:10	9.20	7.31	20.05	66.58	0.31
20:11	10.86	5.89	26.87	49.27	0.86
20:12	13.10	4.93	22.08	40.12	0.36
142 MinAvg	8.75	8.28	37.19	108.96	11.01

Data Corrected for Calibrations

142 MinAvg	8.78	8.37	38.96	113.18	10.50

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1800 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 1.18 HIGH Cal. Response = 46.85
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = 1.62 HIGH Cal. Response = 47.45

LOW System Drift = 0.44 % HIGH System Drift = 0.60 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.94
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.96

LOW System Drift = 0.00 % HIGH System Drift = 0.09 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 0.18 HIGH Cal. Response = 94.85
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = 0.15 HIGH Cal. Response = 96.75

LOW System Drift = -0.01 % HIGH System Drift = 0.61 %

6/15/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN1 @ 1800 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 0.07 HIGH Cal. Response = 9.85
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = 0.06 HIGH Cal. Response = 10.08

LOW System Drift = -0.04 % HIGH System Drift = 0.94 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70
INITIAL CALIBRATION TIME --> 1730
LOW Cal. Response = 0.25 HIGH Cal. Response = 99.85
FINAL CALIBRATION TIME ----> 2029
LOW Cal. Response = -1.66 HIGH Cal. Response = 95.82

LOW System Drift = -0.76 % HIGH System Drift = -1.61 %

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
15:41	10.98	6.57	4.19	42.34	1.99
15:42	3.44	12.81	57.63	82.80	26.94
15:43	8.25	10.02	135.60	62.86	111.40
15:44	9.23	8.73	77.80	57.54	1.78
15:45	6.97	9.51	66.20	76.30	2.33
15:46	10.29	6.98	55.62	61.14	1.78
15:47	9.94	7.41	33.60	71.20	1.27
15:48	9.13	7.58	34.15	71.40	2.83
15:49	9.65	6.89	33.64	65.27	2.29
15:50	12.85	5.24	23.13	47.64	1.27
15:51	9.27	7.10	17.72	72.00	1.49
15:52	9.09	7.00	19.68	73.70	1.93
15:53	9.05	7.01	18.46	73.50	1.95
15:54	9.41	6.79	17.30	72.90	1.83
15:55	8.25	7.60	17.63	86.00	1.83
15:56	7.44	8.02	23.25	91.90	1.84
15:57	7.48	7.96	25.58	92.60	1.83
15:58	9.31	6.67	15.76	94.80	2.12
15:59	9.25	7.23	7.76	83.90	0.89
16:00	7.36	8.05	14.25	95.90	1.27
16:01	7.31	8.12	17.25	93.20	1.72
16:02	7.07	8.22	19.52	97.80	1.33
16:03	10.57	6.23	18.12	72.20	1.45
16:04	7.56	7.96	14.93	96.70	1.38
16:05	7.20	8.14	18.62	102.70	1.84
16:06	7.21	8.05	20.70	101.20	2.33
16:07	10.35	6.45	18.24	77.70	1.28
16:08	6.73	8.39	16.79	107.00	1.55
16:09	7.29	8.05	20.29	98.40	1.83
16:10	8.84	6.94	21.54	81.90	1.79
16:11	9.17	7.23	16.81	90.00	1.10
16:12	7.49	7.96	17.60	101.30	2.61
16:13	7.16	8.14	20.58	104.30	2.05
16:14	10.81	6.02	20.98	68.41	2.07
16:15	6.00	8.79	17.85	97.10	1.38
16:16	6.46	8.36	22.82	94.70	1.84
16:17	11.28	5.79	20.98	64.14	1.45
16:18	5.85	9.01	18.04	86.60	1.42
16:19	6.46	8.28	26.55	76.90	1.95
16:20	9.87	6.96	22.41	58.32	0.68
16:21	4.64	9.88	26.86	83.20	1.30

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
16:22	8.07	7.48	37.83	58.70	1.61
16:23	7.47	8.52	25.61	71.40	0.49
16:24	4.86	9.49	37.86	85.60	1.55
16:25	10.78	6.34	33.34	63.16	0.86
16:26	6.71	8.62	21.42	93.20	1.02
16:27	6.14	8.80	26.64	100.80	1.83
16:28	10.41	6.56	25.37	69.37	1.42
16:29	5.77	9.17	23.56	125.00	1.13
16:30	6.84	8.33	28.93	104.90	1.50
16:31	9.86	7.08	25.81	87.80	1.20
16:32	5.89	9.13	26.00	126.30	1.57
16:33	7.85	7.74	31.27	95.50	1.86
16:34	8.71	7.78	24.65	99.80	0.95
16:35	5.73	9.22	28.23	124.00	1.72
16:36	9.91	6.50	29.39	60.43	1.61
16:37	7.25	8.49	21.64	94.60	0.54
16:38	6.74	8.57	26.26	93.00	1.83
16:39	10.40	6.34	27.65	59.19	1.78
16:40	7.21	8.47	22.48	91.30	1.26
16:41	6.95	8.45	26.68	86.60	1.83
16:42	10.59P	6.19P	26.91P	55.84P	1.61P
16:43	11.75P	5.35P	19.66P	53.98P	0.93P
16:44	13.23P	4.70P	15.77P	44.30P	1.66P
16:45	13.83P	4.37P	16.27P	35.65P	0.94P
16:46	10.87P	6.16P	16.69P	58.82P	1.76P
16:47	8.45P	7.68P	22.08P	70.90P	2.83P
16:48	10.48P	6.55P	26.41P	53.77P	1.25P
16:49	6.24	8.87	23.86	78.20	1.03
16:50	7.22	8.04	28.82	64.29	1.83
16:51	10.34	6.70	24.72	54.23	1.28
16:52	6.55	8.74	25.21	74.90	1.33
16:53	7.86	7.67	31.51	58.36	1.00
16:54	9.28	7.34	25.34	53.22	0.49
16:55	6.33	8.75	26.92	66.68	0.99
16:56	9.26	6.87	30.17	44.42	1.33
16:57	7.82	8.20	23.69	59.68	0.76
16:58	5.96	8.96	28.78	67.42	1.83
16:59	10.95	5.92	29.79	36.72	1.46
17:00	7.54	8.18	22.92	56.46	1.21
17:01	7.20	8.13	27.13	56.39	1.84
17:02	11.41	5.85	26.08	36.34	1.45

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
17:03	6.17	9.13	23.16	65.14	1.33
17:04	6.70	8.41	41.65	59.67	1.33
17:05	10.44	6.53	31.51	39.56	0.82
17:06	6.36	8.65	25.99	54.25	1.21
17:07	9.87	6.35	29.55	39.76	1.62
17:08	8.61	7.63	21.90	49.01	0.60
17:09	6.70	8.22	26.96	52.36	1.00
17:10	11.58	5.69	26.24	35.95	0.68
17:11	6.89	8.38	22.42	54.27	0.74
17:12	9.13	6.77	28.09	45.69	1.78
17:13	10.03	6.78	22.50	43.50	0.46
17:14	6.38	8.57	24.66	54.95	1.46
17:15	11.14	5.64	27.49	37.71	1.44
17:16	7.86	8.03	21.20	51.58	0.53
17:17	7.68	7.56	27.27	49.70	1.83
17:18	11.44	5.93	23.98	39.69	0.81
17:19	6.15	8.75	22.59	54.97	1.20
17:20	9.99	6.26	27.82	41.75	1.45
17:21	9.47	7.09	21.13	47.88	0.61
17:22	6.60	8.37	24.88	65.46	0.82
17:23	11.62	5.75	28.52	64.29	0.69
17:24	7.12	8.54	24.12	76.80	0.58
17:25	9.03	6.96	29.85	62.00	1.27
17:26	10.36	6.70	22.99	59.07	0.51
17:27	6.77	8.46	24.55	69.33	0.83
17:28	11.34	5.61	27.44	50.92	0.96
17:29	8.19	7.91	21.48	69.29	0.48
17:30	8.72	7.10	27.06	62.17	1.28
17:31	11.52	6.00	23.92	55.34	0.47
17:32	6.81	8.48	23.22	71.70	1.10
17:33	10.51	6.09	28.38	54.12	0.86
17:34	9.37	7.22	21.28	64.31	0.40
17:35	7.46	7.85	25.66	68.22	1.59
17:36	12.09	5.48	25.29	54.84	0.97
17:37	6.88	8.49	21.90	77.70	0.55
17:38	9.30	6.73	30.03	65.85	1.36
17:39	11.03	6.24	23.19	64.01	0.47
17:40	6.87	8.36	24.43	78.40	0.78
17:41	11.73	5.38	28.30	54.35	0.82
17:42	8.79	7.62	20.68	70.00	0.19
17:43	7.61	7.66	28.42	72.30	0.86

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
17:44	12.14	5.49	25.31	59.49	0.70
17:45	6.78	8.55	23.07	81.60	0.52
17:46	10.18	6.16	29.63	63.64	0.82
17:47	10.73	6.39	21.86	66.97	0.37
17:48	6.70	8.25	24.97	77.40	0.83
17:49	12.23	5.15	26.84	51.35	0.68
17:50	8.59	7.60	20.40	70.70	0.30
17:51	9.27	6.65	26.85	62.73	1.21
17:52	12.13	5.53	22.75	55.51	0.69
17:53	7.13	8.21	21.86	76.80	0.75
17:54	10.97	5.63	28.16	54.45	0.82
17:55	10.35	6.51	20.63	62.68	0.82
17:56	7.82	7.50	24.71	69.53	0.83
17:57	12.66	4.89	25.41	48.16	0.79
17:58	8.17	7.75	20.21	74.20	0.42
17:59	9.63	6.41	27.40	62.55	0.84
18:00	11.94	5.56	22.09	55.43	0.80
18:01	7.42	7.91	22.00	75.40	0.74
18:02	12.02	5.04	26.49	47.32	0.83
18:03	9.76	6.86	19.16	63.71	0.39
18:04	8.63	6.98	24.46	64.44	0.89
18:05	13.01	4.87	22.94	44.97	0.66
18:06	8.07	7.67	19.13	69.54	0.55
18:07	10.58	5.83	25.49	51.29	1.00
18:08	11.59	5.72	19.52	50.53	0.34
18:09	7.83	7.55	21.22	65.46	0.84
18:10	12.72	4.65	23.65	35.81	1.22
18:11	9.22	7.10	17.64	61.85	0.42
18:12	9.21	6.56	23.96	55.41	0.82
18:13	12.66	5.07	20.85	41.87	0.55
18:14	7.97	7.55	18.77	68.12	0.71
18:15	11.40	5.32	24.23	43.14	1.09
18:16	10.60	6.31	18.30	52.06	0.49
18:17	8.07	7.28	22.29	62.92	1.16
18:18	13.18	4.54	22.98	34.97	0.67
18:19	8.78	7.28	18.07	64.45	0.43
159 MinAvg	8.88	7.28	25.54	67.89	2.05

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1800 F

Starting
06-16-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv

Data Corrected for Calibrations

159 MinAvg	8.94	7.34	26.84	70.97	1.48

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1800 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 1.00 HIGH Cal. Response = 46.59
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 1.00 HIGH Cal. Response = 46.46

LOW System Drift = 0.00 % HIGH System Drift = -0.13 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = -0.00 HIGH Cal. Response = 10.01
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.01 HIGH Cal. Response = 9.96

LOW System Drift = 0.07 % HIGH System Drift = -0.23 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 0.19 HIGH Cal. Response = 95.75
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.85 HIGH Cal. Response = 96.74

LOW System Drift = 0.21 % HIGH System Drift = 0.32 %

6/16/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN2 @ 1800 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 0.04 HIGH Cal. Response = 9.88
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = 0.05 HIGH Cal. Response = 9.99

LOW System Drift = 0.03 % HIGH System Drift = 0.41 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70
INITIAL CALIBRATION TIME --> 1531
LOW Cal. Response = 0.16 HIGH Cal. Response = 98.80
FINAL CALIBRATION TIME ----> 1834
LOW Cal. Response = -0.16 HIGH Cal. Response = 95.78

LOW System Drift = -0.13 % HIGH System Drift = -1.21 %

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1800 F

Starting
06-17-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
10:06	9.89	7.80	1.34	37.56	0.82
10:07	4.80	11.82	10.84	45.64	0.84
10:08	7.70	9.45	33.49	100.00	0.82
10:09	7.89	9.31	35.10	108.50	0.29
10:10	6.18	9.82	38.07	115.30	0.82
10:11	8.31	8.13	37.44	86.40	0.82
10:12	8.77	8.17	28.63	81.20	0.61
10:13	7.87	8.32	24.87	81.50	1.66
10:14	8.04	8.13	22.73	84.40	0.82
10:15	8.00	8.15	21.96	83.90	0.82
10:16	8.18	7.99	21.25	83.20	0.82
10:17	7.80	8.21	19.98	83.20	0.82
10:18	8.11	7.96	19.70	80.10	1.49
10:19	8.18	7.96	19.47	80.00	0.83
10:20	7.61	8.26	20.86	95.20	0.82
10:21	7.57	8.27	21.93	91.80	0.83
10:22	8.02	7.83	21.63	78.50	0.82
10:23	9.75	7.23	20.08	69.54	0.82
10:24	7.42	8.40	20.72	87.70	0.83
10:25	7.28	8.47	22.39	86.90	1.00
10:26	7.19	8.53	23.75	90.60	0.82
10:27	9.49	7.11	24.48	69.28	0.83
10:28	7.36	8.66	22.78	107.70	0.26
10:29	6.85	8.78	25.38	108.20	0.82
10:30	7.35	8.28	26.89	119.00	0.82
10:31	8.91	7.85	24.75	115.20	0.40
10:32	6.24	9.15	25.59	139.60	0.69
10:33	8.14	7.86	27.48	123.60	0.83
10:34	8.05	8.40	24.31	134.70	0.28
10:35	6.05	9.25	27.94	149.40	0.81
10:36	9.99	7.05	28.52	122.20	1.16
10:37	5.66	9.78	27.40	158.90	0.61
10:38	7.48	8.39	33.95	158.80	0.82
10:39	8.47	8.30	28.30	165.20	0.51
10:40	5.24	9.71	35.98	165.60	0.69
10:41	10.09	7.07	33.52	135.70	0.63
10:42	6.02	9.66	30.60	147.20	0.25
10:43	7.70	8.20	35.73	131.90	0.83
10:44	8.79	7.97	27.95	116.90	0.40
10:45	6.81	8.86	28.63	116.10	0.57
10:46	10.00	6.88	29.01	92.90	0.90

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1800 F

Starting
06-17-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
10:47	6.59	9.20	25.07	110.30	0.35
10:48	6.90	8.55	28.27	102.00	1.13
10:49	9.84	7.31	24.13	88.00	0.67
10:50	6.22	9.13	23.86	101.70	0.69
10:51	8.71	7.41	25.36	79.60	0.82
10:52	8.36	8.07	20.75	87.30	0.60
10:53	6.45	8.92	22.96	94.10	0.96
10:54	10.22	6.56	23.10	60.69	1.36
10:55	9.02	7.52	18.73	73.10	0.39
10:56	6.84	8.57	20.11	82.50	0.82
10:57	10.59	6.65	20.36	56.89	0.74
10:58	6.91	8.65	18.47	76.80	0.69
10:59	7.76	7.92	20.70	64.64	0.82
11:00	10.10	7.00	17.98	52.32	0.40
11:01	7.05	8.52	17.44	69.01	0.70
11:02	8.29	7.59	19.88	53.77	0.84
11:03	9.66	7.23	16.86	49.51	0.46
11:04	7.24	8.37	16.89	58.54	0.61
11:05	9.24	6.96	18.52	46.37	0.84
11:06	9.17	7.46	14.95	51.75	0.42
11:07	10.12P	6.27P	15.60P	43.16P	0.81P
11:08	14.74P	3.59P	11.87P	26.06P	1.32P
11:09	13.34P	4.79P	9.27P	35.69P	0.83P
11:10	12.05P	5.32P	10.86P	39.45P	0.82P
11:11	13.78P	4.19P	11.86P	32.41P	0.83P
11:12	12.08P	5.51P	9.89P	43.53P	0.96P
11:13	11.82P	5.45P	10.94P	41.42P	1.83P
11:14	13.68P	4.47P	10.95P	36.50P	2.20P
11:15	8.56P	7.53P	10.62P	60.31P	0.71P
11:16	8.37P	7.51P	12.95P	60.25P	0.99P
11:17	11.90P	5.42P	12.79P	44.29P	0.82P
11:18	8.73P	7.35P	10.48P	60.61P	0.50P
11:19	8.53P	7.45P	11.60P	65.74P	0.60P
11:20	11.20P	5.91P	14.17P	75.30P	1.16P
11:21	8.28P	7.87P	13.80P	85.00P	0.60P
11:22	8.72P	7.17P	15.47P	80.10P	1.66P
11:23	11.70P	5.85P	13.60P	70.90P	0.72P
11:24	8.12P	7.68P	12.07P	84.80P	0.82P
11:25	10.56P	6.02P	14.20P	70.60P	0.83P
11:26	10.54P	6.48P	11.32P	75.00P	0.49P
11:27	8.44P	7.40P	11.71P	82.30P	1.79P

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1800 F

Starting
06-17-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
11:28	12.58P	4.89P	12.35P	60.87P	1.03P
11:29	9.15	7.17	9.78	81.00	0.26
11:30	9.43	6.61	11.52	75.30	1.63
11:31	12.38	5.36	10.67	61.36	0.83
11:32	8.02	7.60	9.76	67.85	0.83
11:33	9.87	6.25	11.98	55.42	1.71
11:34	11.14	6.01	9.79	54.73	0.53
11:35	7.92	7.58	9.64	66.98	1.00
11:36	11.83	5.10	11.16	45.66	1.00
11:37	9.71	6.80	8.53	60.59	0.49
11:38	8.40	7.14	9.92	61.99	0.83
11:39	13.07	4.70	10.10	41.45	1.07
11:40	8.40	7.41	8.19	63.71	0.88
11:41	10.11	6.06	10.27	51.55	1.36
11:42	11.77	5.60	8.74	48.15	0.40
11:43	8.17	7.40	8.38	63.27	0.81
11:44	12.12	4.90	9.79	40.87	1.16
11:45	10.13	6.53	7.41	55.75	0.74
11:46	8.80	6.86	8.49	58.07	1.84
11:47	13.34	4.54	8.86	38.01	1.20
11:48	8.67	7.17	7.32	61.64	0.60
11:49	10.56	5.76	8.99	47.69	0.82
11:50	11.74	5.58	7.54	46.38	0.40
11:51	8.50	7.20	7.28	61.10	1.27
11:52	12.38	4.71	8.66	36.96	1.03
11:53	10.02	6.55	6.67	54.92	1.01
11:54	9.02	6.65	7.82	54.84	1.36
11:55	13.34	4.56	8.03	36.26	0.80
11:56	8.71	7.09	6.58	59.73	0.58
11:57	10.48	5.78	8.58	46.09	1.66
11:58	12.02	5.38	7.31	43.31	0.51
11:59	8.71	7.02	6.90	59.15	1.75
12:00	12.42	4.67	8.36	35.65	1.56
12:01	10.07	6.53	6.64	53.54	0.49
12:02	8.73	6.78	8.04	54.36	1.83
12:03	13.25	4.55	8.13	34.48	1.17
12:04	8.73	7.06	6.65	59.11	0.75
12:05	10.84	5.55	8.49	43.40	0.84
12:06	11.95	5.38	7.18	42.92	0.50
12:07	8.80	6.94	7.07	58.49	0.97
12:08	12.61	4.54	8.65	32.80	1.36

6/17/99
 WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
 REFERENCE METHOD DATA
 OUTLET-CEMS-RUN3 @ 1800 F

Starting
 06-17-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
12:09	10.81	6.03	6.45	51.38	0.82
12:10	10.18	5.99	7.90	50.66	1.83
12:11	13.62	4.37	7.90	34.09	1.08
12:12	9.61	6.52	6.34	55.55	0.70
12:13	11.63	5.12	8.09	39.64	1.50
12:14	12.08	5.29	6.95	42.12	0.89
12:15	9.73	6.43	6.64	53.81	1.52
12:16	13.16	4.21	7.88	29.20	1.53
12:17	10.64	6.13	6.17	49.97	0.73
12:18	9.94	6.15	6.91	49.35	1.82
12:19	13.74	4.20	7.42	29.83	1.35
134 MinAvg	9.42	7.03	16.12	72.11	0.91
Data Corrected for Calibrations					
134 MinAvg	9.48	7.07	16.12	73.86	0.46

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1800 F

Calibrations:

[SO2 OUT] Span Value = 100
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 49.80
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 1.00 HIGH Cal. Response = 46.52
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = 1.50 HIGH Cal. Response = 47.91

LOW System Drift = 0.50 % HIGH System Drift = 1.39 %

[CO2 OUT] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.06
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = -0.00 HIGH Cal. Response = 10.03
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.98

LOW System Drift = 0.04 % HIGH System Drift = -0.30 %

[CO OUT] Span Value = 310
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 92.60
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 0.19 HIGH Cal. Response = 96.76
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = 0.69 HIGH Cal. Response = 94.07

LOW System Drift = 0.16 % HIGH System Drift = -0.87 %

6/17/99
WOODLAWN CEMETERY - CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
OUTLET-CEMS-RUN3 @ 1800 F

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 10.01
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = 0.02 HIGH Cal. Response = 10.04
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = 0.08 HIGH Cal. Response = 9.86

LOW System Drift = 0.25 % HIGH System Drift = -0.72 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 101.70
INITIAL CALIBRATION TIME --> 931
LOW Cal. Response = -0.24 HIGH Cal. Response = 100.02
FINAL CALIBRATION TIME ----> 1230
LOW Cal. Response = -0.12 HIGH Cal. Response = 98.68

LOW System Drift = 0.05 % HIGH System Drift = -0.53 %

Appendix C

Data and Results for Visible Emissions Evaluation

Appendix C.1

VEE Data and Results

Runs 1 - 3 (1400°F)

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R1
DATE: 06/11/99
RUN START TIME: 15:23
RUN STOP TIME: 18:06

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
1	15:23	0	0	0	0	
2	15:24	0	0	0	0	
3	15:25	0	0	0	0	
4	15:26	0	0	0	0	
5	15:27	0	0	0	0	
6	15:28	0	0	0	0	0.00 %
7	15:29	0	0	0	0	
8	15:30	0	0	0	0	
9	15:31	0	0	0	0	
10	15:32	0	0	0	0	
11	15:33	0	0	0	0	
12	15:34	0	0	0	0	0.00 %
13	15:35	0	0	0	0	
14	15:36	0	0	0	0	
15	15:37	0	0	0	0	
16	15:38	0	0	0	0	
17	15:39	0	0	0	0	
18	15:40	0	0	0	0	0.00 %
19	15:41	0	0	0	0	
20	15:42	0	0	0	0	
21	15:43	0	0	0	0	
22	15:44	0	0	0	0	
23	15:45	0	0	0	0	
24	15:46	0	0	0	0	0.00 %
25	15:47	0	0	0	0	
26	15:48	0	0	0	0	
27	15:49	0	0	0	0	
28	15:50	0	0	0	0	
29	15:51	0	0	0	0	
30	15:52	0	0	0	0	0.00 %
31	15:53	0	0	0	0	
32	15:54	0	0	0	0	
33	15:55	0	0	0	0	
34	15:56	0	0	0	0	
35	15:57	0	0	0	0	
36	15:58	0	0	0	0	0.00 %
37	15:59	0	0	0	0	
38	16:00	0	0	0	0	
39	16:01	0	0	0	0	
40	16:02	0	0	0	0	
41	16:03	0	0	0	0	
42	16:04	0	0	0	0	0.00 %
43	16:05	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R1
 DATE: 06/11/99
 RUN START TIME: 15:23
 RUN STOP TIME: 18:06

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	16:06	0	0	0	0	
45	16:07	0	0	0	0	
46	16:08	0	0	0	0	
47	16:09	0	0	0	0	
48	16:10	0	0	0	0	0.00 %
49	16:11	0	0	0	0	
50	16:12	0	0	0	0	
51	16:13	0	0	0	0	
52	16:14	0	0	0	0	
53	16:15	0	0	0	0	
54	16:16	0	0	0	0	0.00 %
55	16:17	0	0	0	0	
56	16:18	0	0	0	0	
57	16:19	0	0	0	0	
58	16:20	0	0	0	0	
59	16:21	0	0	0	0	
60	16:22	0	0	0	0	0.00 %
61	16:23	0	0	0	0	
62	16:24	0	0	0	0	
63	16:25	0	0	0	0	
64	16:26	0	0	0	0	
65	16:27	0	0	0	0	
66	16:28	0	0	0	0	0.00 %
67	16:29	0	0	0	0	
68	16:30	0	0	0	0	
69	16:31	0	0	0	0	
70	16:32	0	0	0	0	
71	16:33	0	0	0	0	
72	16:34	0	0	0	0	0.00 %
73	16:35	0	0	0	0	
74	16:36	0	0	0	0	
75	16:37	0	0	0	0	
76	16:38	0	0	0	0	
77	16:39	0	0	0	0	
78	16:40	0	0	0	0	0.00 %
79	16:41	0	0	0	0	
80	16:42	0	0	0	0	
81	16:43	0	0	0	0	
82	16:44	0	0	0	0	
83	16:45	0	0	0	0	
84	16:46	0	0	0	0	0.00 %
85	16:47	0	0	0	0	
86	16:48	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R1
DATE: 06/11/99
RUN START TIME: 15:23
RUN STOP TIME: 18:06

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
87	16:49	0	0	0	0	
88	16:50	0	0	0	0	
89	16:51	0	0	0	0	
90	16:52	0	0	0	0	0.00 %
91	16:53	0	0	0	0	
92	16:54	0	0	0	0	
93	16:55	0	0	0	0	
94	16:56	0	0	0	0	
95	16:57	0	0	0	0	
96	16:58	0	0	0	0	0.00 %
97	16:59	0	0	0	0	
98	17:00	0	0	0	0	
99	17:01	0	0	0	0	
100	17:02	0	0	0	0	
101	17:03	0	0	0	0	
102	17:04	0	0	0	0	0.00 %
103	17:05	0	0	0	0	
104	17:06	0	0	0	0	
105	17:07	0	0	0	0	
106	17:08	0	0	0	0	
107	17:09	0	0	0	0	
108	17:10	0	0	0	0	0.00 %
109	17:11	0	0	0	0	
110	17:12	0	0	0	0	
111	17:13	0	0	0	0	
112	17:14	0	0	0	0	
113	17:15	0	0	0	0	
114	17:16	0	0	0	0	0.00 %
115	17:17	0	0	0	0	
116	17:18	0	0	0	0	
117	17:19	0	0	0	0	
118	17:20	0	0	0	0	
119	17:21	0	0	0	0	
120	17:22	0	0	0	0	0.00 %
121	17:23	0	0	0	0	
122	17:24	0	0	0	0	
123	17:25	0	0	0	0	
124	17:26	0	0	0	0	
125	17:27	0	0	0	0	
126	17:28	0	0	0	0	0.00 %
127	17:29	0	0	0	0	
128	17:30	0	0	0	0	
129	17:31	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R1
DATE: 06/11/99
RUN START TIME: 15:23
RUN STOP TIME: 18:06

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	17:32	0	0	0	0	
131	17:33	0	0	0	0	
132	17:34	0	0	0	0	0.00 %
133	17:35	0	0	0	0	
134	17:36	0	0	0	0	
135	17:37	0	0	0	0	
136	17:38	0	0	0	0	
137	17:39	0	0	0	0	
138	17:40	0	0	0	0	0.00 %
139	17:41	0	0	0	0	
140	17:42	0	0	0	0	
141	17:43	0	0	0	0	
142	17:44	0	0	0	0	
143	17:45	0	0	0	0	
144	17:46	0	0	0	0	0.00 %
145	17:47	0	0	0	0	
146	17:48	0	0	0	0	
147	17:49	0	0	0	0	
148	17:50	0	0	0	0	
149	17:51	0	0	0	0	
150	17:52	0	0	0	0	0.00 %
151	17:53	0	0	0	0	
152	17:54	0	0	0	0	
153	17:55	0	0	0	0	
154	17:56	0	0	0	0	
155	17:57	0	0	0	0	
156	17:58	0	0	0	0	0.00 %
157	17:59	0	0	0	0	
158	18:00	0	0	0	0	
159	18:01	0	0	0	0	
160	18:02	0	0	0	0	
161	18:03	0	0	0	0	
162	18:04	0	0	0	0	0.00 %
163	18:05	0	0	0	0	
Maximum 6-Minute Value =						0.00 %
Average for Total Run =						0.00 %

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R2
DATE: 06/12/99
RUN START TIME: 11:41
RUN STOP TIME: 14:16

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
1	11:41	0	0	0	0	
2	11:42	0	0	0	0	
3	11:43	0	0	0	0	
4	11:44	0	0	0	0	
5	11:45	0	0	0	0	
6	11:46	0	0	0	0	0.00 %
7	11:47	0	0	0	0	
8	11:48	0	0	0	0	
9	11:49	0	0	0	0	
10	11:50	0	0	0	0	
11	11:51	0	0	0	0	
12	11:52	0	0	0	0	0.00 %
13	11:53	0	0	0	0	
14	11:54	0	0	0	0	
15	11:55	0	0	0	0	
16	11:56	0	0	0	0	
17	11:57	0	0	0	0	
18	11:58	0	0	0	0	0.00 %
19	11:59	0	0	0	0	
20	12:00	0	0	0	0	
21	12:01	0	0	0	0	
22	12:02	0	0	0	0	
23	12:03	0	0	0	0	
24	12:04	0	0	0	0	0.00 %
25	12:05	0	0	0	0	
26	12:06	0	0	0	0	
27	12:07	0	0	0	0	
28	12:08	0	0	0	0	
29	12:09	0	0	0	0	
30	12:10	0	0	0	0	0.00 %
31	12:11	0	0	0	0	
32	12:12	0	0	0	0	
33	12:13	0	0	0	0	
34	12:14	0	0	0	0	
35	12:15	0	0	0	0	
36	12:16	0	0	0	0	0.00 %
37	12:17	0	0	0	0	
38	12:18	0	0	0	0	
39	12:19	0	0	0	0	
40	12:20	0	0	0	0	
41	12:21	0	0	0	0	
42	12:22	0	0	0	0	0.00 %
43	12:23	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R2
DATE: 06/12/99
RUN START TIME: 11:41
RUN STOP TIME: 14:16

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	12:24	0	0	0	0	
45	12:25	0	0	0	0	
46	12:26	0	0	0	0	
47	12:27	0	0	0	0	
48	12:28	0	0	0	0	0.00 %
49	12:29	0	0	0	0	
50	12:30	0	0	0	0	
51	12:31	0	0	0	0	
52	12:32	0	0	0	0	
53	12:33	0	0	0	0	
54	12:34	0	0	0	0	0.00 %
55	12:35	0	0	0	0	
56	12:36	0	0	0	0	
57	12:37	0	0	0	0	
58	12:38	0	0	0	0	
59	12:39	0	0	0	0	
60	12:40	0	0	0	0	0.00 %
61	12:41	0	0	0	0	
62	12:42	0	0	0	0	
63	12:43	0	0	0	0	
64	12:44	0	0	0	0	
65	12:45	0	0	0	0	
66	12:46	0	0	0	0	0.00 %
67	12:47	0	0	0	0	
68	12:48	0	0	0	0	
69	12:49	0	0	0	0	
70	12:50	0	0	0	0	
71	12:51	0	0	0	0	
72	12:52	0	0	0	0	0.00 %
73	12:53	0	0	0	0	
74	12:54	0	0	0	0	
75	12:55	0	0	0	0	
76	12:56	0	0	0	0	
77	12:57	0	0	0	0	
78	12:58	0	0	0	0	0.00 %
79	12:59	0	0	0	0	
80	13:00	0	0	0	0	
81	13:01	0	0	0	0	
82	13:02	0	0	0	0	
83	13:03	0	0	0	0	
84	13:04	0	0	0	0	0.00 %
85	13:05	0	0	0	0	
86	13:06	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R2
 DATE: 06/12/99
 RUN START TIME: 11:41
 RUN STOP TIME: 14:16

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
87	13:07	0	0	0	0	
88	13:08	0	0	0	0	
89	13:09	0	0	0	0	
90	13:10	0	0	0	0	0.00 %
91	13:11	0	0	0	0	
92	13:12	0	0	0	0	
93	13:13	0	0	0	0	
94	13:14	0	0	0	0	
95	13:15	0	0	0	0	
96	13:16	0	0	0	0	0.00 %
97	13:17	0	0	0	0	
98	13:18	0	0	0	0	
99	13:19	0	0	0	0	
100	13:20	0	0	0	0	
101	13:21	0	0	0	0	
102	13:22	0	0	0	0	0.00 %
103	13:23	0	0	0	0	
104	13:24	0	0	0	0	
105	13:25	0	0	0	0	
106	13:26	0	0	0	0	
107	13:27	0	0	0	0	
108	13:28	0	0	0	0	0.00 %
109	13:29	0	0	0	0	
110	13:30	0	0	0	0	
111	13:31	0	0	0	0	
112	13:32	0	0	0	0	
113	13:33	0	0	0	0	
114	13:34	0	0	0	0	0.00 %
115	13:35	0	0	0	0	
116	13:36	0	0	0	0	
117	13:37	0	0	0	0	
118	13:38	0	0	0	0	
119	13:39	0	0	0	0	
120	13:40	0	0	0	0	0.00 %
121	13:41	0	0	0	0	
122	13:42	0	0	0	0	
123	13:43	0	0	0	0	
124	13:44	0	0	0	0	
125	13:45	0	0	0	0	
126	13:46	0	0	0	0	0.00 %
127	13:47	0	0	0	0	
128	13:48	0	0	0	0	
129	13:49	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R2
 DATE: 06/12/99
 RUN START TIME: 11:41
 RUN STOP TIME: 14:16

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	13:50	0	0	0	0	0.00 %
131	13:51	0	0	0	0	
132	13:52	0	0	0	0	
133	13:53	0	0	0	0	
134	13:54	0	0	0	0	0.00 %
135	13:55	0	0	0	0	
136	13:56	0	0	0	0	
137	13:57	0	0	0	0	
138	13:58	0	0	0	0	0.00 %
139	13:59	0	0	0	0	
140	14:00	0	0	0	0	
141	14:01	0	0	0	0	
142	14:02	0	0	0	0	0.00 %
143	14:03	0	0	0	0	
144	14:04	0	0	0	0	
145	14:05	0	0	0	0	
146	14:06	0	0	0	0	0.00 %
147	14:07	0	0	0	0	
148	14:08	0	0	0	0	
149	14:09	0	0	0	0	
150	14:10	0	0	0	0	0.00 %
151	14:11	0	0	0	0	
152	14:12	0	0	0	0	
153	14:13	0	0	0	0	
154	14:14	0	0	0	0	0.00 %
155	14:15	0	0	0	0	
Maximum 6-Minute Value =						0.00 %
Average for Total Run =						0.00 %

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R3
DATE: 06/13/99
RUN START TIME: 09:05
RUN STOP TIME: 11:30

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
1	09:05	20	15	15	10	
2	09:06	5	5	0	0	
3	09:07	0	0	5	5	
4	09:08	5	0	0	0	
5	09:09	0	0	0	0	
6	09:10	0	5	0	0	3.75 %
7	09:11	5	0	0	0	
8	09:12	0	0	0	0	
9	09:13	0	0	0	0	
10	09:14	0	0	0	0	
11	09:15	0	0	0	0	
12	09:16	0	0	0	0	0.21 %
13	09:17	0	0	0	0	
14	09:18	0	0	0	0	
15	09:19	0	0	0	0	
16	09:20	0	0	0	0	
17	09:21	0	0	0	0	
18	09:22	0	0	0	0	0.00 %
19	09:23	0	0	0	0	
20	09:24	0	0	0	0	
21	09:25	0	0	0	0	
22	09:26	0	0	0	0	
23	09:27	0	0	0	0	
24	09:28	0	0	0	0	0.00 %
25	09:29	0	0	0	0	
26	09:30	0	0	0	0	
27	09:31	0	0	0	0	
28	09:32	0	0	0	0	
29	09:33	0	0	0	0	
30	09:34	0	0	0	0	0.00 %
31	09:35	0	0	0	0	
32	09:36	0	0	5	5	
33	09:37	0	0	0	0	
34	09:38	0	0	0	0	
35	09:39	0	0	0	0	
36	09:40	0	0	0	0	0.42 %
37	09:41	0	0	0	5	
38	09:42	0	0	5	0	
39	09:43	0	0	0	0	
40	09:44	0	0	0	0	
41	09:45	0	0	0	0	
42	09:46	0	5	0	0	0.63 %
43	09:47	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R3
DATE: 06/13/99
RUN START TIME: 09:05
RUN STOP TIME: 11:30

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	09:48	0	0	0	0	
45	09:49	0	0	0	0	
46	09:50	0	0	0	0	
47	09:51	0	0	0	0	
48	09:52	0	0	0	0	0.00 %
49	09:53	0	0	0	0	
50	09:54	0	0	5	0	
51	09:55	0	0	0	0	
52	09:56	0	0	0	0	
53	09:57	5	0	0	0	
54	09:58	0	0	0	0	0.42 %
55	09:59	0	0	0	0	
56	10:00	0	0	0	0	
57	10:01	0	0	0	0	
58	10:02	0	0	0	0	
59	10:03	0	0	0	0	
60	10:04	0	0	0	0	0.00 %
61	10:05	0	0	0	0	
62	10:06	0	0	0	0	
63	10:07	0	0	0	0	
64	10:08	0	0	0	0	
65	10:09	0	0	0	0	
66	10:10	0	0	0	0	0.00 %
67	10:11	0	0	0	0	
68	10:12	0	0	0	5	
69	10:13	0	0	0	0	
70	10:14	5	0	0	0	
71	10:15	0	0	0	0	
72	10:16	0	0	0	0	0.42 %
73	10:17	0	0	0	5	
74	10:18	0	0	0	0	
75	10:19	0	0	0	0	
76	10:20	0	0	0	5	
77	10:21	5	0	0	0	
78	10:22	0	0	0	0	0.63 %
79	10:23	0	0	0	0	
80	10:24	0	0	0	0	
81	10:25	0	0	0	0	
82	10:26	0	0	0	0	
83	10:27	0	5	0	0	
84	10:28	0	0	0	0	0.21 %
85	10:29	0	0	0	0	
86	10:30	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R3
 DATE: 06/13/99
 RUN START TIME: 09:05
 RUN STOP TIME: 11:30

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
87	10:31	0	0	0	0	
88	10:32	0	0	0	0	
89	10:33	0	0	0	0	
90	10:34	0	0	0	0	0.00 %
91	10:35	0	0	0	0	
92	10:36	0	0	0	0	
93	10:37	0	0	0	0	
94	10:38	0	0	0	0	
95	10:39	0	0	0	0	
96	10:40	0	0	0	0	0.00 %
97	10:41	0	0	0	0	
98	10:42	0	0	0	0	
99	10:43	0	0	0	0	
100	10:44	0	0	0	0	
101	10:45	0	0	0	0	
102	10:46	0	0	0	0	0.00 %
103	10:47	0	0	0	0	
104	10:48	0	0	0	0	
105	10:49	0	0	0	0	
106	10:50	0	0	0	0	
107	10:51	0	0	0	0	
108	10:52	0	0	0	0	0.00 %
109	10:53	0	0	0	0	
110	10:54	0	0	0	0	
111	10:55	0	0	0	0	
112	10:56	0	0	0	0	
113	10:57	0	0	0	0	
114	10:58	0	0	0	0	0.00 %
115	10:59	0	0	0	0	
116	11:00	0	0	0	0	
117	11:01	0	0	0	0	
118	11:02	0	0	0	0	
119	11:03	0	0	5	5	
120	11:04	5	5	5	0	1.04 %
121	11:05	0	0	0	0	
122	11:06	0	0	0	0	
123	11:07	0	0	0	0	
124	11:08	0	0	0	0	
125	11:09	0	0	0	0	
126	11:10	0	5	0	0	0.21 %
127	11:11	0	0	0	0	
128	11:12	0	0	0	0	
129	11:13	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: **U4-M9-R3**
 DATE: **06/13/99**
 RUN START TIME: **09:05**
 RUN STOP TIME: **11:30**

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	11:14	0	0	0	0	0.00 %
131	11:15	0	0	0	0	
132	11:16	0	0	0	0	
133	11:17	0	0	0	0	
134	11:18	0	0	0	0	
135	11:19	0	0	0	0	0.00 %
136	11:20	0	0	0	0	
137	11:21	0	0	0	0	
138	11:22	0	0	0	0	
139	11:23	0	0	0	0	
140	11:24	0	0	0	0	0.00 %
141	11:25	0	0	0	0	
142	11:26	0	0	0	0	
143	11:27	0	0	0	0	
144	11:28	0	0	0	0	
145	11:29	0	0	0	0	
Maximum 6-Minute Value =						3.75 %
Average for Total Run =						0.33 %

Appendix C.2

VEE Data and Results Runs 4 - 6 (1600°F)

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R4
 DATE: 06/13/99
 RUN START TIME: 16:06
 RUN STOP TIME: 18:35

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
1	16:06	0	0	0	0	
2	16:07	0	0	0	0	
3	16:08	0	0	0	0	
4	16:09	0	0	0	0	
5	16:10	0	0	0	0	
6	16:11	0	0	0	0	0.00 %
7	16:12	0	0	0	0	
8	16:13	0	0	0	0	
9	16:14	0	0	0	0	
10	16:15	0	0	0	0	
11	16:16	0	0	0	0	
12	16:17	0	0	0	0	0.00 %
13	16:18	0	0	0	0	
14	16:19	0	0	0	0	
15	16:20	0	0	0	0	
16	16:21	0	0	0	0	
17	16:22	0	0	0	0	
18	16:23	0	0	0	0	0.00 %
19	16:24	0	0	0	0	
20	16:25	0	0	0	0	
21	16:26	0	0	0	0	
22	16:27	0	0	0	0	
23	16:28	0	0	0	0	
24	16:29	0	0	0	0	0.00 %
25	16:30	0	0	0	0	
26	16:31	0	0	0	0	
27	16:32	0	0	0	0	
28	16:33	0	0	0	0	
29	16:34	0	0	0	0	
30	16:35	0	0	0	0	0.00 %
31	16:36	0	0	0	0	
32	16:37	0	0	0	0	
33	16:38	0	0	0	0	
34	16:39	0	0	0	0	
35	16:40	0	0	0	0	
36	16:41	0	0	0	0	0.00 %
37	16:42	0	0	0	0	
38	16:43	0	0	0	0	
39	16:44	0	0	0	0	
40	16:45	0	0	0	0	
41	16:46	0	0	0	0	
42	16:47	0	0	0	0	0.00 %
43	16:48	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R4
DATE: 06/13/99
RUN START TIME: 16:06
RUN STOP TIME: 18:35

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	16:49	0	0	0	0	
45	16:50	0	0	0	0	
46	16:51	0	0	0	0	
47	16:52	0	0	0	0	
48	16:53	0	0	0	0	0.00 %
49	16:54	0	0	0	0	
50	16:55	0	0	0	0	
51	16:56	0	0	0	0	
52	16:57	0	0	0	0	
53	16:58	0	0	0	0	
54	16:59	0	0	0	0	0.00 %
55	17:00	0	0	0	0	
56	17:01	0	0	0	0	
57	17:02	0	0	0	0	
58	17:03	0	0	0	0	
59	17:04	0	0	0	0	
60	17:05	0	0	0	0	0.00 %
61	17:06	0	0	0	0	
62	17:07	0	0	0	0	
63	17:08	0	0	0	0	
64	17:09	0	0	0	0	
65	17:10	0	0	0	0	
66	17:11	0	0	0	0	0.00 %
67	17:12	0	0	0	0	
68	17:13	0	0	0	0	
69	17:14	0	0	0	0	
70	17:15	0	0	0	0	
71	17:16	0	0	0	0	
72	17:17	0	0	0	0	0.00 %
73	17:18	0	0	0	0	
74	17:19	0	0	0	0	
75	17:20	0	0	0	0	
76	17:21	0	0	0	0	
77	17:22	0	0	0	0	
78	17:23	0	0	0	0	0.00 %
79	17:24	0	0	0	0	
80	17:25	0	0	0	0	
81	17:26	0	0	0	0	
82	17:27	0	0	0	0	
83	17:28	0	0	0	0	
84	17:29	0	0	0	0	0.00 %
85	17:30	0	0	0	0	
86	17:31	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY - UNIT 4

RUN I.D.: U4-M9-R4
 DATE: 06/13/99
 RUN START TIME: 16:06
 RUN STOP TIME: 18:35

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
87	17:32	0	0	0	0	
88	17:33	0	0	0	0	
89	17:34	0	0	0	0	
90	17:35	0	0	0	0	0.00 %
91	17:36	0	0	0	0	
92	17:37	0	0	0	0	
93	17:38	0	0	0	0	
94	17:39	0	0	0	0	
95	17:40	0	0	0	0	
96	17:41	0	0	0	0	0.00 %
97	17:42	0	0	0	0	
98	17:43	0	0	0	0	
99	17:44	0	0	0	0	
100	17:45	0	0	0	0	
101	17:46	0	0	0	0	
102	17:47	0	0	0	0	0.00 %
103	17:48	0	0	0	0	
104	17:49	0	0	0	0	
105	17:50	0	0	0	0	
106	17:51	0	0	0	0	
107	17:52	0	0	0	0	
108	17:53	0	0	0	0	0.00 %
109	17:54	0	0	0	0	
110	17:55	0	0	0	0	
111	17:56	0	0	0	0	
112	17:57	0	0	0	0	
113	17:58	0	0	0	0	
114	17:59	0	0	0	0	0.00 %
115	18:00	0	0	0	0	
116	18:01	0	0	0	0	
117	18:02	0	0	0	0	
118	18:03	0	0	0	0	
119	18:04	0	0	0	0	
120	18:05	0	0	0	0	0.00 %
121	18:06	0	0	0	0	
122	18:07	0	0	0	0	
123	18:08	0	0	0	0	
124	18:09	0	0	0	0	
125	18:10	0	0	0	0	
126	18:11	0	0	0	0	0.00 %
127	18:12	0	0	0	0	
128	18:13	0	0	0	0	
129	18:14	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R4
DATE: 06/13/99
RUN START TIME: 16:06
RUN STOP TIME: 18:35

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	18:15	0	0	0	0	
131	18:16	0	0	0	0	
132	18:17	0	0	0	0	0.00 %
133	18:18	0	0	0	0	
134	18:19	0	0	0	0	
135	18:20	0	0	0	0	
136	18:21	0	0	0	0	
137	18:22	0	0	0	0	
138	18:23	0	0	0	0	0.00 %
139	18:24	0	0	0	0	
140	18:25	0	0	0	0	
141	18:26	0	0	0	0	
142	18:27	0	0	0	0	
143	18:28	0	0	0	0	
144	18:29	0	0	0	0	0.00 %
145	18:30	0	0	0	0	
146	18:31	0	0	0	0	
147	18:32	0	0	0	0	
148	18:33	0	0	0	0	
149	18:34	0	0	0	0	
Maximum 6-Minute Value =						0.00 %
Average for Total Run =						0.00 %

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: **U4-M9-R5**
DATE: **06/14/99**
RUN START TIME: **15:54**
RUN STOP TIME: **18:22**

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
1	15:54	5	10	5	15	
2	15:55	10	5	10	10	
3	15:56	5	5	10	5	
4	15:57	10	15	5	5	
5	15:58	10	5	10	5	
6	15:59	5	5	5	10	7.71 %
7	16:00	10	10	10	5	
8	16:01	5	5	5	5	
9	16:02	5	5	5	5	
10	16:03	5	5	5	10	
11	16:04	10	5	5	5	
12	16:05	5	5	5	5	6.04 %
13	16:06	5	5	5	5	
14	16:07	5	5	5	5	
15	16:08	5	5	5	10	
16	16:09	5	5	5	5	
17	16:10	5	5	0	5	
18	16:11	5	5	5	5	5.00 %
19	16:12	5	5	5	5	
20	16:13	5	5	10	5	
21	16:14	5	5	0	5	
22	16:15	5	5	0	0	
23	16:16	5	5	0	5	
24	16:17	0	5	5	5	4.17 %
25	16:18	5	5	0	0	
26	16:19	0	0	0	0	
27	16:20	5	5	5	5	
28	16:21	0	0	0	0	
29	16:22	5	0	0	0	
30	16:23	0	0	0	0	1.46 %
31	16:24	0	0	0	0	
32	16:25	0	0	0	0	
33	16:26	0	0	0	0	
34	16:27	0	0	0	0	
35	16:28	0	0	0	0	
36	16:29	0	0	0	0	0.00 %
37	16:30	0	0	0	0	
38	16:31	0	0	0	0	
39	16:32	0	0	0	0	
40	16:33	0	0	0	0	
41	16:34	0	0	0	0	
42	16:35	0	0	0	0	0.00 %
43	16:36	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R5
DATE: 06/14/99
RUN START TIME: 15:54
RUN STOP TIME: 18:22

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	16:37	0	0	0	0	
45	16:38	0	0	0	0	
46	16:39	0	0	0	0	
47	16:40	0	0	0	0	
48	16:41	0	0	0	0	0.00 %
49	16:42	0	0	0	0	
50	16:43	0	0	0	0	
51	16:44	0	0	0	0	
52	16:45	0	0	0	0	
53	16:46	0	0	0	0	
54	16:47	0	0	0	0	0.00 %
55	16:48	0	0	0	0	
56	16:49	0	0	0	0	
57	16:50	0	0	0	0	
58	16:51	0	0	0	0	
59	16:52	0	0	0	0	
60	16:53	0	0	0	0	0.00 %
61	16:54	0	0	0	0	
62	16:55	0	0	0	0	
63	16:56	0	0	0	0	
64	16:57	0	0	0	0	
65	16:58	0	0	0	0	
66	16:59	0	0	0	0	0.00 %
67	17:00	0	0	0	0	
68	17:01	0	0	0	0	
69	17:02	0	0	0	0	
70	17:03	0	0	0	0	
71	17:04	0	0	0	0	
72	17:05	0	0	0	0	0.00 %
73	17:06	0	0	0	0	
74	17:07	0	0	0	0	
75	17:08	0	0	0	0	
76	17:09	0	0	0	0	
77	17:10	0	0	0	0	
78	17:11	0	0	0	0	0.00 %
79	17:12	0	0	0	0	
80	17:13	0	0	0	0	
81	17:14	0	0	0	0	
82	17:15	0	0	0	0	
83	17:16	0	0	0	0	
84	17:17	0	0	0	0	0.00 %
85	17:18	0	0	0	0	
86	17:19	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R5
 DATE: 06/14/99
 RUN START TIME: 15:54
 RUN STOP TIME: 18:22

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
87	17:20	0	0	0	0	
88	17:21	0	0	0	0	
89	17:22	0	0	0	0	
90	17:23	0	0	0	0	0.00 %
91	17:24	0	0	0	0	
92	17:25	0	0	0	0	
93	17:26	0	0	0	0	
94	17:27	0	0	0	0	
95	17:28	0	0	0	0	
96	17:29	0	0	0	0	0.00 %
97	17:30	0	0	0	0	
98	17:31	0	0	0	0	
99	17:32	0	0	0	0	
100	17:33	0	0	0	0	
101	17:34	0	0	0	0	
102	17:35	0	0	0	0	0.00 %
103	17:36	0	0	0	0	
104	17:37	0	0	0	0	
105	17:38	0	0	0	0	
106	17:39	0	0	0	0	
107	17:40	0	0	0	0	
108	17:41	0	0	0	0	0.00 %
109	17:42	0	0	0	0	
110	17:43	0	0	0	0	
111	17:44	0	0	0	0	
112	17:45	0	0	0	0	
113	17:46	0	0	0	0	
114	17:47	0	0	0	0	0.00 %
115	17:48	0	0	0	0	
116	17:49	0	0	0	0	
117	17:50	0	0	0	0	
118	17:51	0	0	0	0	
119	17:52	0	0	0	0	
120	17:53	0	0	0	0	0.00 %
121	17:54	0	0	0	0	
122	17:55	0	0	0	0	
123	17:56	0	0	0	0	
124	17:57	0	0	0	0	
125	17:58	0	0	0	0	
126	17:59	0	0	0	0	0.00 %
127	18:00	0	0	0	0	
128	18:01	0	0	0	0	
129	18:02	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R5
DATE: 06/14/99
RUN START TIME: 15:54
RUN STOP TIME: 18:22

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	18:03	0	0	0	0	
131	18:04	0	0	0	0	
132	18:05	0	0	0	0	0.00 %
133	18:06	0	0	0	0	
134	18:07	0	0	0	0	
135	18:08	0	0	0	0	
136	18:09	0	0	0	0	
137	18:10	0	0	0	0	
138	18:11	0	0	0	0	0.00 %
139	18:12	0	0	0	0	
140	18:13	0	0	0	0	
141	18:14	0	0	0	0	
142	18:15	0	0	0	0	
143	18:16	0	0	0	0	
144	18:17	0	0	0	0	0.00 %
145	18:18	0	0	0	0	
146	18:19	0	0	0	0	
147	18:20	0	0	0	0	
148	18:21	0	0	0	0	
		Maximum 6-Minute Value =				7.71 %
		Average for Total Run =				0.99 %

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R6
DATE: 06/15/99
RUN START TIME: 10:44
RUN STOP TIME: 13:12

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
1	10:44	0	0	0	0	
2	10:45	0	0	0	0	
3	10:46	0	0	0	0	
4	10:47	0	0	0	0	
5	10:48	0	0	0	0	
6	10:49	0	0	0	0	0.00 %
7	10:50	0	0	0	0	
8	10:51	0	0	0	0	
9	10:52	0	0	0	0	
10	10:53	0	0	0	0	
11	10:54	0	0	0	0	
12	10:55	0	0	0	0	0.00 %
13	10:56	0	0	0	0	
14	10:57	0	0	0	0	
15	10:58	0	0	0	0	
16	10:59	0	0	0	0	
17	11:00	0	0	0	0	
18	11:01	0	0	0	0	0.00 %
19	11:02	0	0	0	0	
20	11:03	0	0	0	0	
21	11:04	0	0	0	0	
22	11:05	0	0	0	0	
23	11:06	0	0	0	0	
24	11:07	0	0	0	0	0.00 %
25	11:08	0	0	0	0	
26	11:09	0	0	0	0	
27	11:10	0	0	0	0	
28	11:11	0	0	0	0	
29	11:12	0	0	0	0	
30	11:13	0	0	0	0	0.00 %
31	11:14	0	0	0	0	
32	11:15	0	0	0	0	
33	11:16	0	0	0	0	
34	11:17	0	0	0	0	
35	11:18	0	0	0	0	
36	11:19	0	0	0	0	0.00 %
37	11:20	0	0	0	0	
38	11:21	0	0	0	0	
39	11:22	0	0	0	0	
40	11:23	0	0	0	0	
41	11:24	0	0	0	0	
42	11:25	0	0	0	0	0.00 %
43	11:26	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R6
DATE: 06/15/99
RUN START TIME: 10:44
RUN STOP TIME: 13:12

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	11:27	0	0	0	0	
45	11:28	0	0	0	0	
46	11:29	0	0	0	0	
47	11:30	0	0	0	0	
48	11:31	0	0	0	0	0.00 %
49	11:32	0	0	0	0	
50	11:33	0	0	0	0	
51	11:34	0	0	0	0	
52	11:35	0	0	0	0	
53	11:36	0	0	0	0	
54	11:37	0	0	0	0	0.00 %
55	11:38	0	0	0	0	
56	11:39	0	0	0	0	
57	11:40	0	0	0	0	
58	11:41	0	0	0	0	
59	11:42	0	0	0	0	
60	11:43	0	0	0	0	0.00 %
61	11:44	0	0	0	0	
62	11:45	0	0	0	0	
63	11:46	0	0	0	0	
64	11:47	0	0	0	0	
65	11:48	0	0	0	0	
66	11:49	0	0	0	0	0.00 %
67	11:50	0	0	0	0	
68	11:51	0	0	0	0	
69	11:52	0	0	0	0	
70	11:53	0	0	0	0	
71	11:54	0	0	0	0	
72	11:55	0	0	0	0	0.00 %
73	11:56	0	0	0	0	
74	11:57	0	0	0	0	
75	11:58	0	0	0	0	
76	11:59	0	0	0	0	
77	12:00	0	0	0	0	
78	12:01	0	0	0	0	0.00 %
79	12:02	0	0	0	0	
80	12:03	0	0	0	0	
81	12:04	0	0	0	0	
82	12:05	0	0	0	0	
83	12:06	0	0	0	0	
84	12:07	0	0	0	0	0.00 %
85	12:08	0	0	0	0	
86	12:09	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R6
 DATE: 06/15/99
 RUN START TIME: 10:44
 RUN STOP TIME: 13:12

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
87	12:10	0	0	0	0	
88	12:11	0	0	0	0	
89	12:12	0	0	0	0	
90	12:13	0	0	0	0	0.00 %
91	12:14	0	0	0	0	
92	12:15	0	0	0	0	
93	12:16	0	0	0	0	
94	12:17	0	0	0	0	
95	12:18	0	0	0	0	
96	12:19	0	0	0	0	0.00 %
97	12:20	0	0	0	0	
98	12:21	0	0	0	0	
99	12:22	0	0	0	0	
100	12:23	0	0	0	0	
101	12:24	0	0	0	0	
102	12:25	0	0	0	0	0.00 %
103	12:26	0	0	0	0	
104	12:27	0	0	0	0	
105	12:28	0	0	0	0	
106	12:29	0	0	0	0	
107	12:30	0	0	0	0	
108	12:31	0	0	0	0	0.00 %
109	12:32	0	0	0	0	
110	12:33	0	0	0	0	
111	12:34	0	0	0	0	
112	12:35	0	0	0	0	
113	12:36	0	0	0	0	
114	12:37	0	0	0	0	0.00 %
115	12:38	0	0	0	0	
116	12:39	0	0	0	0	
117	12:40	0	0	0	0	
118	12:41	0	0	0	0	
119	12:42	0	0	0	0	
120	12:43	0	0	0	0	0.00 %
121	12:44	0	0	0	0	
122	12:45	0	0	0	0	
123	12:46	0	0	0	0	
124	12:47	0	0	0	0	
125	12:48	0	0	0	0	
126	12:49	0	0	0	0	0.00 %
127	12:50	0	0	0	0	
128	12:51	0	0	0	0	
129	12:52	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R6
DATE: 06/15/99
RUN START TIME: 10:44
RUN STOP TIME: 13:12

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	12:53	0	0	0	0	0.00 %
131	12:54	0	0	0	0	
132	12:55	0	0	0	0	
133	12:56	0	0	0	0	
134	12:57	0	0	0	0	
135	12:58	0	0	0	0	
136	12:59	0	0	0	0	0.00 %
137	13:00	0	0	0	0	
138	13:01	0	0	0	0	
139	13:02	0	0	0	0	
140	13:03	0	0	0	0	
141	13:04	0	0	0	0	
142	13:05	0	0	0	0	0.00 %
143	13:06	0	0	0	0	
144	13:07	0	0	0	0	
145	13:08	0	0	0	0	
146	13:09	0	0	0	0	
147	13:10	0	0	0	0	
148	13:11	0	0	0	0	
Maximum 6-Minute Value =						0.00 %
Average for Total Run =						0.00 %

Appendix C.3

VEE Data and Results

Runs 7 - 9 (1800°F)

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R7
 DATE: 06/15/99
 RUN START TIME: 17:49
 RUN STOP TIME: 20:11

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
1	17:49	0	0	0	0	
2	17:50	0	0	0	0	
3	17:51	0	0	0	0	
4	17:52	0	0	0	0	
5	17:53	0	0	0	0	
6	17:54	0	0	0	0	0.00 %
7	17:55	0	0	0	0	
8	17:56	0	0	0	0	
9	17:57	0	0	0	0	
10	17:58	0	0	0	0	
11	17:59	0	0	0	0	
12	18:00	0	0	0	0	0.00 %
13	18:01	0	0	0	0	
14	18:02	0	0	0	0	
15	18:03	0	0	0	0	
16	18:04	0	0	0	0	
17	18:05	0	0	0	0	
18	18:06	0	5	5	5	0.63 %
19	18:07	5	5	5	5	
20	18:08	5	5	5	5	
21	18:09	5	10	10	5	
22	18:10	5	5	5	5	
23	18:11	5	5	5	5	
24	18:12	5	10	10	10	6.04 %
25	18:13	5	5	5	5	
26	18:14	5	5	5	5	
27	18:15	10	10	5	5	
28	18:16	5	5	5	5	
29	18:17	5	5	5	5	
30	18:18	5	0	5	0	5.00 %
31	18:19	5	5	5	5	
32	18:20	5	5	5	5	
33	18:21	5	5	5	5	
34	18:22	5	5	5	5	
35	18:23	5	0	0	5	
36	18:24	5	5	5	0	4.38 %
37	18:25	5	5	0	0	
38	18:26	0	0	0	0	
39	18:27	0	0	0	0	
40	18:28	0	0	0	5	
41	18:29	0	0	0	0	
42	18:30	0	0	0	5	0.83 %
43	18:31	0	0	0	0	

†
B
†8

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R7
DATE: 06/15/99
RUN START TIME: 17:49
RUN STOP TIME: 20:11

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	18:32	0	0	0	5	
45	18:33	5	0	0	0	
46	18:34	0	0	0	0	
47	18:35	0	0	0	0	
48	18:36	0	0	0	0	0.42 %
49	18:37	0	0	0	0	
50	18:38	0	0	0	0	
51	18:39	0	0	0	0	
52	18:40	0	0	0	0	
53	18:41	0	0	0	0	
54	18:42	0	0	0	0	0.00 %
55	18:43	0	0	0	0	
56	18:44	0	0	0	0	
57	18:45	0	0	0	0	
58	18:46	0	0	0	0	
59	18:47	0	0	0	0	
60	18:48	0	0	0	0	0.00 %
61	18:49	0	0	0	0	
62	18:50	0	0	0	0	
63	18:51	0	0	0	0	
64	18:52	0	0	0	0	
65	18:53	0	0	0	0	
66	18:54	0	0	0	0	0.00 %
67	18:55	0	0	0	0	
68	18:56	0	0	0	0	
69	18:57	0	0	0	0	
70	18:58	0	0	0	0	
71	18:59	0	0	0	0	
72	19:00	0	0	0	0	0.00 %
73	19:01	0	0	0	0	
74	19:02	0	0	0	0	
75	19:03	0	0	0	0	
76	19:04	0	0	0	0	
77	19:05	0	0	0	0	
78	19:06	0	0	0	0	0.00 %
79	19:07	0	0	0	0	
80	19:08	0	0	0	0	
81	19:09	0	0	0	0	
82	19:10	0	0	0	0	
83	19:11	0	0	0	0	
84	19:12	0	0	0	0	0.00 %
85	19:13	0	0	0	0	
86	19:14	0	5	5	5	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R7
 DATE: 06/15/99
 RUN START TIME: 17:49
 RUN STOP TIME: 20:11

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
87	19:15	5	0	0	0	
88	19:16	0	0	5	0	
89	19:17	0	0	0	0	
90	19:18	0	0	0	0	1.04 %
91	19:19	0	0	0	0	
92	19:20	0	0	0	0	
93	19:21	0	0	0	0	
94	19:22	0	0	0	0	
95	19:23	0	0	0	0	
96	19:24	0	0	0	0	0.00 %
97	19:25	0	0	0	0	
98	19:26	0	0	0	0	
99	19:27	0	0	5	0	
100	19:28	0	0	0	0	
101	19:29	0	0	0	0	
102	19:30	0	0	0	0	0.21 %
103	19:31	0	0	0	0	
104	19:32	0	0	0	0	
105	19:33	0	0	0	0	
106	19:34	0	0	0	0	
107	19:35	0	0	0	0	
108	19:36	0	0	0	0	0.00 %
109	19:37	0	0	0	0	
110	19:38	0	0	0	0	
111	19:39	0	0	0	0	
112	19:40	0	0	0	0	
113	19:41	0	0	0	0	
114	19:42	0	0	0	0	0.00 %
115	19:43	0	0	0	0	
116	19:44	0	0	0	0	
117	19:45	0	0	0	0	
118	19:46	0	0	0	0	
119	19:47	0	0	0	0	
120	19:48	0	0	0	0	0.00 %
121	19:49	0	0	0	0	
122	19:50	0	0	0	0	
123	19:51	0	0	0	0	
124	19:52	0	0	0	0	
125	19:53	0	0	0	0	
126	19:54	0	0	0	0	0.00 %
127	19:55	0	0	0	0	
128	19:56	0	0	0	0	
129	19:57	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R7
 DATE: 06/15/99
 RUN START TIME: 17:49
 RUN STOP TIME: 20:11

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	19:58	0	0	0	0	
131	19:59	0	0	0	0	
132	20:00	0	0	0	0	0.00 %
133	20:01	0	0	0	0	
134	20:02	0	0	0	0	
135	20:03	0	0	0	0	
136	20:04	0	0	0	0	
137	20:05	0	0	0	0	
138	20:06	0	0	0	0	0.00 %
139	20:07	0	0	0	0	
140	20:08	0	0	0	0	
141	20:09	0	0	0	0	
142	20:10	0	0	0	0	
Maximum 6-Minute Value =						6.04 %
Average for Total Run =						0.78 %

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R8
 DATE: 06/16/99
 RUN START TIME: 15:40
 RUN STOP TIME: 18:19

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
1	15:40	0	25	20	15	
2	15:41	20	20	15	15	
3	15:42	15	20	15	15	
4	15:43	15	15	20	20	
5	15:44	15	10	15	10	
6	15:45	5	5	5	5	13.96 %
7	15:46	5	10	5	10	
8	15:47	10	5	5	5	
9	15:48	5	5	5	5	
10	15:49	5	0	0	0	
11	15:50	0	0	0	0	
12	15:51	0	0	0	0	3.33 %
13	15:52	0	0	0	0	
14	15:53	0	0	0	0	
15	15:54	5	5	5	5	
16	15:55	5	5	5	5	
17	15:56	5	20	15	5	
18	15:57	5	5	5	5	4.38 %
19	15:58	0	0	5	0	
20	15:59	0	0	0	0	
21	16:00	0	0	0	0	
22	16:01	0	0	0	0	
23	16:02	0	0	0	0	
24	16:03	0	0	0	0	0.21 %
25	16:04	0	0	0	0	
26	16:05	0	0	0	0	
27	16:06	0	0	0	0	
28	16:07	0	0	0	0	
29	16:08	0	0	0	0	
30	16:09	0	0	0	0	0.00 %
31	16:10	0	0	0	0	
32	16:11	0	0	0	0	
33	16:12	0	0	0	0	
34	16:13	0	0	0	0	
35	16:14	0	0	0	0	
36	16:15	0	0	0	0	0.00 %
37	16:16	0	0	0	0	
38	16:17	0	0	0	0	
39	16:18	0	0	0	0	
40	16:19	0	0	0	0	
41	16:20	0	5	5	5	
42	16:21	5	0	5	5	1.25 %
43	16:22	5	5	5	5	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R8
DATE: 06/16/99
RUN START TIME: 15:40
RUN STOP TIME: 18:19

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
44	16:23	0	5	5	0	
45	16:24	0	0	0	0	
46	16:25	0	0	0	0	
47	16:26	0	0	0	0	
48	16:27	0	0	0	0	1.25 %
49	16:28	0	0	0	0	
50	16:29	0	0	0	0	
51	16:30	0	0	0	0	
52	16:31	0	0	0	0	
53	16:32	0	0	0	0	
54	16:33	0	0	0	0	0.00 %
55	16:34	0	0	0	0	
56	16:35	0	0	0	0	
57	16:36	0	0	0	0	
58	16:37	0	0	0	0	
59	16:38	0	0	0	0	
60	16:39	0	0	0	0	0.00 %
61	16:40	0	0	0	0	
62	16:41	0	0	0	0	
63	16:42	0	0	0	0	
64	16:43	0	0	0	0	
65	16:44	0	0	0	0	
66	16:45	0	0	0	0	0.00 %
67	16:46	0	0	0	0	
68	16:47	0	0	0	0	
69	16:48	0	0	0	0	
70	16:49	0	0	0	0	
71	16:50	0	0	0	0	
72	16:51	0	0	0	0	0.00 %
73	16:52	0	0	0	0	
74	16:53	0	0	0	0	
75	16:54	0	0	0	0	
76	16:55	0	0	0	0	
77	16:56	0	0	0	0	
78	16:57	0	0	0	0	0.00 %
79	16:58	0	0	0	0	
80	16:59	0	0	0	0	
81	17:00	0	0	0	0	
82	17:01	0	0	0	0	
83	17:02	0	0	0	0	
84	17:03	0	0	0	0	0.00 %
85	17:04	0	0	0	0	
86	17:05	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R8
 DATE: 06/16/99
 RUN START TIME: 15:40
 RUN STOP TIME: 18:19

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
87	17:06	0	0	0	0	
88	17:07	0	0	0	0	
89	17:08	0	0	0	0	
90	17:09	0	0	0	0	0.00 %
91	17:10	0	0	0	0	
92	17:11	0	0	0	0	
93	17:12	0	0	0	0	
94	17:13	0	0	0	0	
95	17:14	0	0	0	0	
96	17:15	0	0	0	0	0.00 %
97	17:16	0	0	0	0	
98	17:17	0	0	0	0	
99	17:18	0	0	0	0	
100	17:19	0	0	0	0	
101	17:20	0	0	0	0	
102	17:21	0	0	0	0	0.00 %
103	17:22	0	0	0	0	
104	17:23	0	0	0	0	
105	17:24	0	0	0	0	
106	17:25	0	0	0	0	
107	17:26	0	0	0	0	
108	17:27	0	0	0	0	0.00 %
109	17:28	0	0	0	0	
110	17:29	0	0	0	0	
111	17:30	0	0	0	0	
112	17:31	0	0	0	0	
113	17:32	0	0	0	0	
114	17:33	0	0	0	0	0.00 %
115	17:34	0	0	0	0	
116	17:35	0	0	0	0	
117	17:36	0	0	0	0	
118	17:37	0	0	0	0	
119	17:38	0	0	0	0	
120	17:39	0	0	0	0	0.00 %
121	17:40	0	0	0	0	
122	17:41	0	0	0	0	
123	17:42	0	0	0	0	
124	17:43	0	0	0	0	
125	17:44	0	0	0	0	
126	17:45	0	0	0	0	0.00 %
127	17:46	0	0	0	0	
128	17:47	0	0	0	0	
129	17:48	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R8
DATE: 06/16/99
RUN START TIME: 15:40
RUN STOP TIME: 18:19

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	17:49	0	0	0	0	
131	17:50	0	0	0	0	
132	17:51	0	0	0	0	0.00 %
133	17:52	0	0	0	0	
134	17:53	0	0	0	0	
135	17:54	0	0	0	0	
136	17:55	0	0	0	0	
137	17:56	0	0	0	0	
138	17:57	0	0	0	0	0.00 %
139	17:58	0	0	0	0	
140	17:59	0	0	0	0	
141	18:00	0	0	0	0	
142	18:01	0	0	0	0	
143	18:02	0	0	0	0	
144	18:03	0	0	0	0	0.00 %
145	18:04	0	0	0	0	
146	18:05	0	0	0	0	
147	18:06	0	0	0	0	
148	18:07	0	0	0	0	
149	18:08	0	0	0	0	
150	18:09	0	0	0	0	0.00 %
151	18:10	0	0	0	0	
152	18:11	0	0	0	0	
153	18:12	0	0	0	0	
154	18:13	0	0	0	0	
155	18:14	0	0	0	0	
156	18:15	0	0	0	0	0.00 %
157	18:16	0	0	0	0	
158	18:17	0	0	0	0	
159	18:18	0	0	0	0	
Maximum 6-Minute Value =						13.96 %
Average for Total Run =						0.92 %

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: U4-M9-R9
DATE: 06/17/99
RUN START TIME: 10:05
RUN STOP TIME: 12:19

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
1	10:05	0	0	0	0	
2	10:06	5	10	15	20	
3	10:07	15	20	15	15	
4	10:08	25	25	30	25	
5	10:09	20	15	15	10	
6	10:10	5	5	5	5	12.50 %
7	10:11	5	5	10	5	
8	10:12	5	5	0	5	
9	10:13	5	5	5	5	
10	10:14	0	0	5	0	
11	10:15	0	0	0	0	
12	10:16	0	0	0	0	2.71 %
13	10:17	0	0	0	0	
14	10:18	0	0	0	0	
15	10:19	0	0	0	0	
16	10:20	0	0	0	0	
17	10:21	0	0	0	0	
18	10:22	0	0	0	0	0.00 %
19	10:23	0	0	0	0	
20	10:24	0	0	0	0	
21	10:25	0	0	0	0	
22	10:26	0	0	0	0	
23	10:27	0	0	0	0	
24	10:28	0	0	0	0	0.00 %
25	10:29	0	0	0	0	
26	10:30	0	0	0	0	
27	10:31	0	0	0	0	
28	10:32	0	0	0	0	
29	10:33	0	0	0	0	
30	10:34	5	5	0	5	0.63 %
31	10:35	0	0	0	0	
32	10:36	0	0	0	0	
33	10:37	0	0	0	0	
34	10:38	0	0	0	5	
35	10:39	0	0	0	0	
36	10:40	0	0	0	0	0.21 %
37	10:41	0	0	0	0	
38	10:42	0	0	0	0	
39	10:43	0	0	0	0	
40	10:44	0	0	0	0	
41	10:45	0	0	0	0	
42	10:46	0	0	0	0	0.00 %
43	10:47	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R9
DATE: 06/17/99
RUN START TIME: 10:05
RUN STOP TIME: 12:19

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
44	10:48	0	0	0	0	
45	10:49	0	0	0	0	
46	10:50	0	0	0	0	
47	10:51	0	0	0	0	
48	10:52	0	0	0	0	0.00 %
49	10:53	0	0	0	0	
50	10:54	0	0	0	0	
51	10:55	0	0	0	0	
52	10:56	0	0	0	0	
53	10:57	0	0	0	0	
54	10:58	0	0	0	0	0.00 %
55	10:59	0	0	0	0	
56	11:00	0	0	0	0	
57	11:01	0	0	0	0	
58	11:02	0	0	0	0	
59	11:03	0	0	0	0	
60	11:04	0	0	0	0	0.00 %
61	11:05	0	0	0	0	
62	11:06	0	0	0	0	
63	11:07	0	0	0	0	
64	11:08	0	0	0	0	
65	11:09	0	0	0	0	
66	11:10	0	0	0	0	0.00 %
67	11:11	0	0	0	0	
68	11:12	0	0	0	0	
69	11:13	0	0	0	0	
70	11:14	0	0	0	0	
71	11:15	0	0	0	0	
72	11:16	0	0	0	0	0.00 %
73	11:17	0	0	0	0	
74	11:18	0	0	0	0	
75	11:19	0	0	0	0	
76	11:20	0	0	0	0	
77	11:21	0	0	0	0	
78	11:22	0	0	0	0	0.00 %
79	11:23	0	0	0	0	
80	11:24	0	0	0	0	
81	11:25	0	0	0	0	
82	11:26	0	0	0	0	
83	11:27	0	0	0	0	
84	11:28	0	0	0	0	0.00 %
85	11:29	0	0	0	0	
86	11:30	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY – UNIT 4

RUN I.D.: U4-M9-R9
DATE: 06/17/99
RUN START TIME: 10:05
RUN STOP TIME: 12:19

	TIME	SECONDS				6-MIN. AVG.
		0	15	30	45	
87	11:31	0	0	0	0	
88	11:32	0	0	0	0	
89	11:33	0	0	0	0	
90	11:34	0	0	0	0	0.00 %
91	11:35	0	0	0	0	
92	11:36	0	0	0	0	
93	11:37	0	0	0	0	
94	11:38	0	0	0	0	
95	11:39	0	0	0	0	
96	11:40	0	0	0	0	0.00 %
97	11:41	0	0	0	0	
98	11:42	0	0	0	0	
99	11:43	0	0	0	0	
100	11:44	0	0	0	0	
101	11:45	0	0	0	0	
102	11:46	0	0	0	0	0.00 %
103	11:47	0	0	0	0	
104	11:48	0	0	0	0	
105	11:49	0	0	0	0	
106	11:50	0	0	0	0	
107	11:51	0	0	0	0	
108	11:52	0	0	0	0	0.00 %
109	11:53	0	0	0	0	
110	11:54	0	0	0	0	
111	11:55	0	0	0	0	
112	11:56	0	0	0	0	
113	11:57	0	0	0	0	
114	11:58	0	0	0	0	0.00 %
115	11:59	0	0	0	0	
116	12:00	0	0	0	0	
117	12:01	0	0	0	0	
118	12:02	0	0	0	0	
119	12:03	0	0	0	0	
120	12:04	0	0	0	0	0.00 %
121	12:05	0	0	0	0	
122	12:06	0	0	0	0	
123	12:07	0	0	0	0	
124	12:08	0	0	0	0	
125	12:09	0	0	0	0	
126	12:10	0	0	0	0	0.00 %
127	12:11	0	0	0	0	
128	12:12	0	0	0	0	
129	12:13	0	0	0	0	

SUMMARY OF METHOD 9 DATA
MRI/WOODLAWN CEMETERY -- UNIT 4

RUN I.D.: **U4-M9-R9**
 DATE: **06/17/99**
 RUN START TIME: **10:05**
 RUN STOP TIME: **12:19**

		SECONDS				6-MIN. AVG.
	TIME	0	15	30	45	
130	12:14	0	0	0	0	
131	12:15	0	0	0	0	
132	12:16	0	0	0	0	0.00 %
133	12:17	0	0	0	0	
134	12:18	0	0	0	0	
Maximum 6-Minute Value =						12.50 %
Average for Total Run =						0.72 %

Appendix D

Equations

INSTRUMENT ANALYZER CALCULATIONS

1. Analyzer Calibration Error is determined by:

$$E_c = \frac{A_c - C_g}{V_s} \times 100$$

2. System Bias is determined by:

$$B_s = \frac{C_s - A_c}{V_s} \times 100$$

3. Calibration Drift is determined by:

$$D_c = \frac{F_c - I_c}{V_s} \times 100$$

4. The Adjusted Data Value is determined by:

$$C_{gas} = (\bar{C} - C_0) \times \frac{C_{ma}}{C_m - C_0}$$

Nomenclature:

A_c	=	the analyzer response for calibration gas standard
B_s	=	Sampling system bias, % analyzer span
$\bar{C}$	=	the average gas concentration of the analyte indicated by the gas analyzer
C_g	=	the actual gas cylinder concentration value
C_{gas}	=	the adjusted gas concentration of the analyte
C_m	=	the average of initial and final system calibration responses for the upscale calibration gas
C_{ma}	=	the actual concentration of the upscale calibration gas used for system calibration
C_o	=	the average of initial and final system calibration responses for the zero gas
C_s	=	the system response for calibration gas introduced remotely at the sample probe (zero or upscale)
D_c	=	Calibration drift, % analyzer span
E_c	=	Analyzer calibration error, % analyzer span
F_c	=	Final system calibration response value
I_c	=	Initial system calibration response value
V_s	=	Span value of analyzer

Appendix E

Raw Field Data for EPA Method 9

VISIBLE EMISSIONS EVALUATION

This is to certify that

Pete Brown

did complete a course in the methods of determining opacity of visible emissions from sources as specified by Federal Reference Method 9 conducted by Eastern Technical Associates of Raleigh, North Carolina.

Evan Wainright

Course Moderator

Roanoke, Virginia

Location

March 16, 1999

Date

VISIBLE EMISSIONS EVALUATOR

This is to certify that

Pete Brown

met the specifications of Federal Reference Method 9 and qualified as a visible emissions evaluator.

Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, North Carolina. This certificate is valid for six months from date of issue.

269024

Certificate Number

Roanoke, Virginia

Location

March 18, 1999

Date of Issue



President



Director of Training

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9	2001	2008	Other

Company Name MRI/Woodlawn Cemetery		
Facility Name Woolworth Chapel Crematorium		
Street Address Jerome		
City Bronx	State NY	Zip

Process Crematorium	Unit # 4	Operating Mode 1400°F
Control Equipment Wet Scrubber	Operating Mode on	

Describe Emission Point Stone stack topped by black wire cage.			
About 6' from chapel tower.			
Height of Emiss. Pt. Start ~30' End ~30'	Height of Emiss. Pt. Rel. to Observer Start ~30' End ~30'		
Distance to Emiss. Pt. Start ~100' End ~100'	Direction to Emiss. Pt. (Degrees) Start 80° End 80°		

Vertical Angle to Obs. Pt. Start 14° End 14°	Direction to Obs. Pt. (Degrees) Start 80° End 80°
Distance and Direction to Observation Point from Emission Point Start SAME End SAME	

Describe Emissions			
Start NO VISIBLE EMISSIONS	End SAME		
Emission Color	Water Droplet Plume		
Start NONE	End NONE	Attached ☐	Detached ☐
		None ☒	

Describe Plume Background			
Start sky	End SKY		
Background Color	Sky Conditions		
Start blue	End blue	Start zero cloud	End zero cloud
Wind Speed	Wind Direction		
Start 0-3 mph	End 0-3 mph	Start E-variable	End same
Ambient Temp.	Wet Bulb Temp.	Rel. Humidity	
Start 74°F	End 74°F	Start 60°F	End 45%

Source Layout Sketch		Draw North Arrow
		☐ TN ☒ MN
Longitude	Latitude	Declination

Additional Information

Form Number J4-M-9-R-1	Page 1 of 3
Continued on VEO Form Number	

Observation Date 6-11-99	Time Zone EST	Start Time 1523	End Time 1806

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	0	NUMBER OF READINGS ABOVE 0 % WERE	A
RANGE OF OPACITY READINGS	0 MINIMUM	0 MAXIMUM	

Observer's Name (Print) PETER N BROWN (269024)
Observer's Signature P. Brown
Date 6/11/99
Organization ETS Inc
Controlled by ETA
Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Use Only One) Method 9 203A 203B Other _____

Company Name MKI/Woodlawn Cemetery
 Facility Name Woodworth Chapel ~~Tower~~ Crematorium
 Street Address Jerome
 City Bronx State NY Zip _____

Process Crematorium Unit # 4 Operating Mode 1400°F
 Control Equipment Wet scrubber Operating Mode on

Describe Emission Point
Stone stack topped by black wire cage - about 6' from chapel tower
 Height of Emiss. Pt. _____ Height of Emiss. Pt. Rel. to Observer _____
 Start ~30' End ~30' Start _____ End _____
 Distance to Emiss. Pt. _____ Direction to Emiss. Pt. (Degrees) _____
 Start _____ End _____ Start _____ End _____

Vertical Angle to Obs. Pt. _____ Direction to Obs. Pt. (Degrees) _____
 Start _____ End _____ Start _____ End _____
 Distance and Direction to Observation Point from Emission Point
 Start _____ End _____

Describe Emissions
 Start _____ End _____
 Emission Color _____ Water Droplet Plume
 Start _____ End _____ Attached ☐ Detached ☐ None ☐

Describe Plume Background
 Start _____ End _____
 Background Color _____ Sky Conditions _____
 Start _____ End _____ Start _____ End _____
 Wind Speed _____ Wind Direction _____
 Start _____ End _____ Start _____ End _____
 Ambient Temp. _____ Wet Bulb Temp. _____ RH Percent _____
 Start _____ End _____

Source Layout Sketch

Draw North Arrow
☐ N ☐ W

X Observation Point

Observer's Position

Sun Location Line

140°

FEET

FEET

Side View

Stack With Plume

Sun

Wind

Longitude _____ Latitude _____ Declination _____

Additional Information

Form Number 04-1M/9+R/1 Page 2 of 3
 Continued on VEO Form Number _____

Observation Date 6-11-99 Time Zone EST Start Time 1523 End Time 1806

SEC	0	15	30	45	SEC	0	15	30	45
61	0	0	0	0	91	0	0	0	0
62	0	0	0	0	92	0	0	0	0
63	0	0	0	0	93	0	0	0	0
64	0	0	0	0	94	0	0	0	0
65	0	0	0	0	95	0	0	0	0
66	0	0	0	0	96	0	0	0	0
67	0	0	0	0	97	0	0	0	0
68	0	0	0	0	98	0	0	0	0
69	0	0	0	0	99	0	0	0	0
70	0	0	0	0	100	0	0	0	0
71	0	0	0	0	101	0	0	0	0
72	0	0	0	0	102	0	0	0	0
73	0	0	0	0	103	0	0	0	0
74	0	0	0	0	104	0	0	0	0
75	0	0	0	0	105	0	0	0	0
76	0	0	0	0	106	0	0	0	0
77	0	0	0	0	107	0	0	0	0
78	0	0	0	0	108	0	0	0	0
79	0	0	0	0	109	0	0	0	0
80	0	0	0	0	110	0	0	0	0
81	0	0	0	0	111	0	0	0	0
82	0	0	0	0	112	0	0	0	0
83	0	0	0	0	113	0	0	0	0
84	0	0	0	0	114	0	0	0	0
85	0	0	0	0	115	0	0	0	0
86	0	0	0	0	116	0	0	0	0
87	0	0	0	0	117	0	0	0	0
88	0	0	0	0	118	0	0	0	0
89	0	0	0	0	119	0	0	0	0
90	0	0	0	0	120	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD 0 NUMBER OF READINGS ABOVE 0 % WERE 0
 RANGE OF OPACITY READINGS 0 MINIMUM 0 MAXIMUM

Observer's Name (Print) PETER N BROWN (269024)
 Observer's Signature PBrown Date 6/11/99
 Organization ETS Inc
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9 203A 203B Other

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome St
 City Bronx State NY Zip

Process Crematorium Unit 4 Operating Mode 1465°F
 Control Equipment Wet scrubber Operating Mode on

Describe Emission Point
Stone stack topped by black wire cage.
About 6' from chapel tower
 Height of Emiss. Pt. Start ~30' End ~30' Height of Emiss. Pt. Rel. to Observer
 Distance to Emiss. Pt. Start End Direction to Emiss. Pt. (Degrees)
 Start End Start End

Vertical Angle to Obs. Pt. Start End Direction to Obs. Pt. (Degrees)
 Start End Start End
 Distance and Direction to Observation Point from Emission Point
 Start End

Describe Emissions
 Start End
 Emission Color Water Droplet Plume
 Start End Attached ☐ Detached ☐ None ☐

Describe Plume Background
 Start End
 Background Color Sky Conditions
 Start End Start End
 Wind Speed Wind Direction
 Start End Start End
 Ambient Temp. Wet Bulb Temp. RH Percent
 Start End Start End

Source Layout Sketch
 Draw North Arrow
☐ TN ☐ MN

 Observer's Position
 Observation Point
 Sun Location Line
 Wind
 Longitude Latitude Declination

Additional Information

Form Number U4-M19-R1 Page 3 of 3
 Continued on VEO Form Number

Observation Date 6-11-99 Time Zone EST Start Time 1523 End Time 1806

SEC	0	15	30	45	SEC	0	15	30	45
121	0	0	0	0	131	0	0	0	0
122	0	0	0	0	132	0	0	0	0
123	0	0	0	0	133	0	0	0	0
124	0	0	0	0	134	0	0	0	0
125	0	0	0	0	135	0	0	0	0
126	0	0	0	0	136	0	0	0	0
127	0	0	0	0	137	0	0	0	0
128	0	0	0	0	138	0	0	0	0
129	0	0	0	0	139	0	0	0	0
130	0	0	0	0	140	0	0	0	0
131	0	0	0	0	41	0	0	0	0
132	0	0	0	0	42	0	0	0	0
133	0	0	0	0	43	0	0	0	0
134	0	0	0	0	44				
135	0	0	0	0	45				
136	0	0	0	0	46				
137	0	0	0	0	47				
138	0	0	0	0	48				
139	0	0	0	0	49				
140	0	0	0	0	50				
141	0	0	0	0	51				
142	0	0	0	0	52				
143	0	0	0	0	53				
144	0	0	0	0	54				
145	0	0	0	0	55				
146	0	0	0	0	56				
147	0	0	0	0	57				
148	0	0	0	0	58				
149	0	0	0	0	59				
150	0	0	0	0	60				

AVERAGE OPACITY FOR HIGHEST PERIOD 0 NUMBER OF READINGS ABOVE 0 % WERE 0
 RANGE OF OPACITY READINGS 0 MINIMUM 0 MAXIMUM

Observer's Name (Print) PETER N BROWN (269824)
 Observer's Signature P. Brown Date 6/11/99
 Organization ETS Inc
 Created by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

 Method Used (Circle One)
 Method 9 203A 203B Other

 Company Name
 URI/Woodlawn Cemetery
 Facility Name
 Woodworth Chapel Crematorium
 Street Address
 Jerome St
 City
 Bronx State
 NY Zip

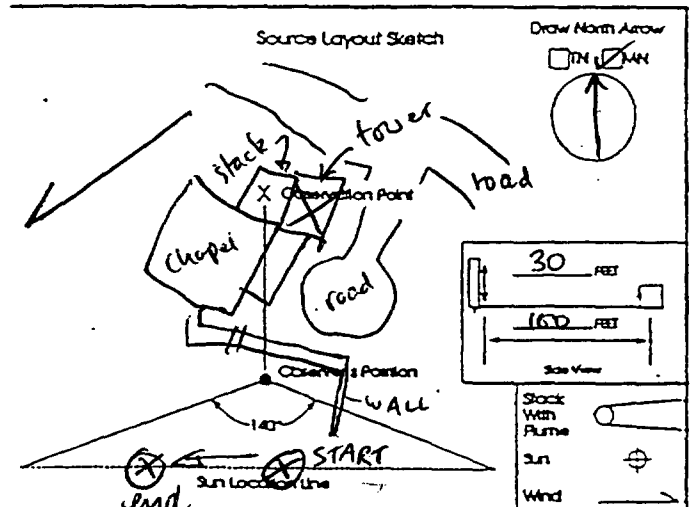
 Process
 Crematorium Unit # 4 Operating Mode 1400°F
 Control Equipment
 Wet scrubber Operating Mode on

 Describe Emission Point
 Stone chimney topped by black wire cage.
 Approx 6' from chapel tower

 Height of Emiss. Pt.
 Start ~30' End ~30' Height of Emiss. Pt. Rel. to Observer
 Start ~28' End ~28'
 Distance to Emiss. Pt.
 Start ~160' End ~160' Direction to Emiss. Pt. (Degrees)
 Start 5° End 5°

 Vertical Angle to Obs. Pt.
 Start 12° End 12° Direction to Obs. Pt. (Degrees)
 Start 5° End 5°
 Distance and Direction to Observation Point from Emission Point
 Start SAME End SAME

 Describe Emissions
 Start NONE End NONE
 Emission Color
 Start NONE End NONE
 Water Droplet Plume
 Attached ☐ Detached ☐ None ☒

 Describe Plume Background
 Start cloud End sky
 Background Color
 Start gray/white End blue
 Sky Conditions
 Start 100% cloud End 10% cloud
 Wind Speed
 Start 0-Smph End same
 Wind Direction
 Start E/NE-Variable End
 Ambient Temp.
 Start 74°F End 81°F
 Wet Bulb Temp.
 Start 61°F End 68°F
 RH Percent
 Start 48% End 49%


Longitude Latitude Elevation

Additional Information

 Form Number
 04-1M9R2 Page 1 of 3
 Continued on VEO Form Number

 Observation Date
 6-12-99 Time Zone
 EAST Start Time
 1141 End Time
 1416

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

 AVERAGE OPACITY FOR HIGHEST PERIOD 0 NUMBER OF READINGS ABOVE 0 % WERE 0
 RANGE OF OPACITY READINGS MINIMUM 0 MAXIMUM 0

 Observer's Name (Print)
 PETER BROWN
 Observer's Signature
 P. BROWN Date
 6/12/99
 Organization
 ETS Inc
 Certified by
 ETA Date
 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)	202A	202B	Other
Method 9			

Company Name MRI/Woodlawn Cemetery		
Facility Name Woodlawn Chapel Crematorium		
Street Address Jerome St		
City Bronx	State NY	Zip

Process Crematorium	Unit # 4	Operating Mode 1400°F
Control Equipment Wet scrubber		Operating Mode on

Describe Emission Point Stone chimney topped by black wire cage - approx. 6' from chapel tower	
Height of Emiss. Pt. Start ~30' End ~30'	Height of Emiss. Pt. Rel. to Observer Start ~28' End ~28'
Distance to Emiss. Pt. Start ~100FT End ~100'	Direction to Emiss. Pt. (Degrees) Start 5° End 5°

Vertical Angle to Obs. Pt. Start 12° End 12°	Direction to Obs. Pt. (Degrees) Start 5° End 5°
Distance and Direction to Observation Point from Emission Point Start End	

Describe Emissions	
Start	End
Emission Color	Water Droplet Plume
Start End	Attached ☐ Detached ☐ None ☐

Describe Plume Background	
Start	End
Background Color	Sky Conditions
Start End	Start End
Wind Speed	Wind Direction
Start End	Start End
Ambient Temp.	Wet Bulb Temp.
Start End	RH Percent

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information	

Form Number 04 M9-R2	Page 2 of 3
Continued on VEO Form Number	

Observation Date 6-12-99	Time Zone East	Start Time 1141	End Time 1416

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	0	NUMBER OF READINGS ABOVE 0 % WERE	0
RANGE OF OPACITY READINGS		0 MINIMUM 0 MAXIMUM	

Observer's Name (Print)	PETER BROWN
Observer's Signature	P. Brown
Organization	ETS Inc
Certified by	ETA
Date	6/12/99
Date	3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Check One) Method 9 203A 203B Other _____

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodlawn Chapel Crematorium
 Street Address Jerome Av
 City Bronx State NY Zip _____

Process Crematorium Unit # 4 Operating Mode 1400°F
 Control Equipment Wet scrubber Operating Mode ON

Describe Emission Point
Stone stack topped by black wire
cage - approx. 6' from chapel tower
 Height of Emiss. Pt. Start ~30' End ~30' Height of Emiss. Pt. Rel. to Observer Start ~30' End ~30'
 Distance to Emiss. Pt. Start ~180' End ~180' Direction to Emiss. Pt. (Degrees) Start 225° End 225°

Vertical Angle to Obs. Pt. Start 10° End 10° Direction to Obs. Pt. (Degrees) Start 225° End 225°
 Distance and Direction to Observation Point from Emission Point
 Start SAME End SAME

Describe Emissions
 Start (GREY) FUMIGATING End NONE
 Emission Color Start GREY/BROWN End NONE Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background
 Start GREEN TREES End GREEN TREES
 Background Color Start GREEN End GREEN Sky Conditions Start 100% cloud End 100%
 Wind Speed Start 0-5 mph End 0-3 mph Wind Direction Start NE/E End SAME
 Ambient Temp. Start 68°F End 70°F Wet Bulb Temp. Start 63°F End 75%

Source Layout Sketch

 Longitude _____ Latitude _____ Declination _____

Additional Information
Sun position is estimated due to overcast weather conditions (+ FOG!)

VEGET 1

CLEAR VISIBILITY = 100-200 YARDS

Form Number U4 M19-R3 Page 1 of 3
 Continued on VEO Form Number _____

Observation Date 6/13/99 Time Zone EST Start Time 0905 End Time 1130

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	20	15	15	10	31	0	0	0	0
2	5	5	0	0	32	0	0	5	5
3	0	0	5	5	33	0	0	0	0
4	5	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	5	0	0	36	0	0	0	0
7	5	0	0	0	37	0	0	0	5
8	0	0	0	0	38	0	0	5	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	5	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	5	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	5	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE _____ % WERE _____
 RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

Observer's Name (Print) PETE BROWN
 Observer's Signature P. BROWN Date 6/13/99
 Organization ETS INC
 Certified by ETA Date 3/15/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Circle One) Method 9 201A 201B Other _____

Company Name MRI / Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome St
 City Bronx State NY Zip _____

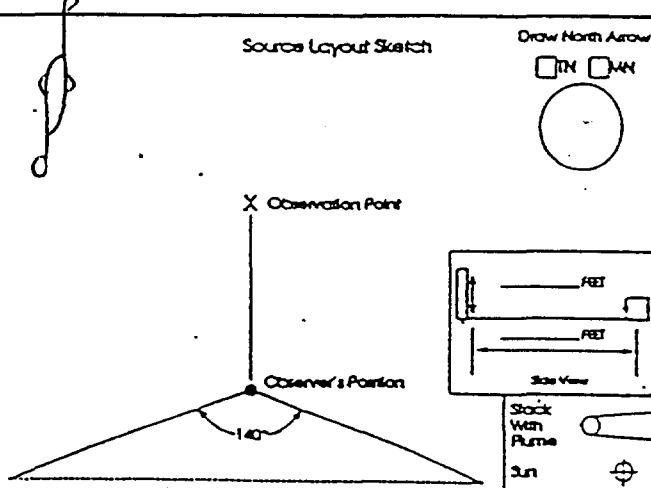
Process Crematorium Unit # 4 Operating Mode 1400°F
 Control Equipment Wet scrubber Operating Mode on

Describe emission point
Stone chimney topped by black wire cage - approx. 6' from chapel tower.
 Height of Emiss. Pt. Start ~30' End ~30' Height of Emiss. Pt. Rel. to Observer
 Start _____ End _____ Start _____ End _____
 Distance to Emiss. Pt. _____ Direction to Emiss. Pt. (Degrees) _____
 Start _____ End _____ Start _____ End _____

Vertical Angle to Obs. Pt. _____ Direction to Obs. Pt. (Degrees) _____
 Start _____ End _____ Start _____ End _____
 Distance and Direction to Observation Point from Emission Point
 Start _____ End _____

Describe emissions
 Start _____ End _____
 Emission Color _____ Water Droplet Plume
 Start _____ End _____ Attached ☐ Detached ☐ None ☐

Describe Plume Background
 Start _____ End _____
 Background Color _____ Sky Conditions
 Start _____ End _____
 Wind Speed _____ Wind Direction
 Start _____ End _____ Start _____ End _____
 Ambient Temp. _____ Wet Bulb Temp. _____ RH Percent
 Start _____ End _____ Start _____ End _____

Source Layout Sketch

 Draw North Arrow ☐ TN ☐ MN
 X Observation Point
 Observer's Position
 140°
 Sun Location Line
 angle _____ Latitude _____ Declination _____

Additional Information

Form Number U4 M19-1R3 Page 2 of 3
 Continued on VEO Form Number _____

Observation Day 6/13/99 Time Zone EST Start Time 0905 End Time 1130

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	5	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	5	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	5	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	5	46	0	0	0	0
17	5	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	5	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	5	5
30	0	0	0	0	60	5	5	5	0

AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE _____ % WERE _____
 RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

Observer's Name (Print) PETER BROWN
 Observer's Signature P. Brown Date 6/13/99
 Organization ETS/ML
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9 203A 203B Other _____

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome St
 City Bronx State NY Zip _____

Process Crematorium Unit # 4 Operating Mode 1400°F
 Control Equipment Wet scrubber Operating Mode on

Describe Emission Port
Stone chimney topped by black wire cage.
About six feet from chapel tower.
 Height of Emiss. Pt. Start ~ 30' End ~ 30' Height of Emiss. Pt. Rel. to Observer
 Start ~ 30' End ~ 30' Direction to Emiss. Pt. (Degrees)
 Start _____ End _____

Vertical Angle to Obs. Pt. _____ Direction to Obs. Pt. (Degrees) _____
 Start _____ End _____
 Distance and Direction to Observation Point from Emission Port
 Start _____ End _____

Describe Emissions
 Start _____ End _____
 Emission Color _____
 Start _____ End _____
 Attached ☐ Detached ☐ None ☐

Describe Plume Background
 Start _____ End _____
 Background Color _____
 Start _____ End _____
 Wind Speed _____ Wind Direction _____
 Start _____ End _____
 Ambient Temp. _____ Wet Bulb Temp. _____ RH Percent _____
 Start _____ End _____

Source Layout Sketch

Draw North Arrow
☐ TN ☐ NH

X Observation Point

Observer's Position

140°

Sun Location Line

longitude _____ Latitude _____ Declination _____

additional information _____

Form Number 04 M19-R3 Page 3 of 3
 Continued on VEO Form Number _____

Observation Date 6/13/99 Time Zone EST Start Time 0905 End Time 1130

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	5	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26					56				
27					57				
28					58				
29					59				
30					60				

AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE % WERE _____
 RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

Observer's Name (Print) PETE BROWN
 Observer's Signature P. BROWN Date 6/13/99
 Organization ETS INC
 Created by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Circle One)	203A	203B	Other
Method 9			

Company Name	MRI/Woodlawn Cemetery
Facility Name	Woodworth Chapel Crematorium
Street Address	Jerome Ave
City	Bronx
State	NY
Zip	

Process	Crematorium	Unit #	4	Operating Mode	1600°F
Control Equipment	Wet scrubber	Operating Mode	ON		

Describe Emission Point	
Stone chimney topped by black wire cage - approx. 6' from chapel tower	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~ 30' End ~ 30'	Start ~ 30' End ~ 30'
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 100' End 100'	Start 90° End 90°

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start 14° End 14°	Start 90° End 90°
Distance and Direction to Observation Point from Emission Point	
Start SAME	End SAME

Describe Emissions	
Start NONE	End NONE
Emission Color	Water Droplet Plume
Start NONE End NONE	Attached ☐ Detached ☐ None ☒

Describe Plume Background	
Start SKY	End SKY
Background Color	Sky Conditions
Start Blue/white (grey)	Start 75% End 30%
Wind Speed	Wind Direction
Start 0-5 mph End SAME	Start N/E End SAME
Ambient Temp.	Wet Bulb Temp.
Start 79°F End 74°F	Start 71°F End 70%

Source Layout Sketch		Draw North Arrow
		☐ IN ☒ OUT
		Stack With Plume Sun Wind
Longitude	Latitude	Declination

Additional Information

Form Number	1191-124	Page	1	of	3
Continued on VEO Form Number					

Observation Date	6/13/99	Time Zone		Start Time	1606	End Time	1835

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS	MINIMUM MAXIMUM

Observer's Name (Print)	PETE BROWN
Observer's Signature	P. Brown
Organization	ETS Inc
Certified by	ETA
Date	6/13/99
Date	3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Circle One) Method 9 201A 201B Other _____

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome Street
 City Bronx State NY Zip 104

Process Crematorium Unit 4 Operating Mode 1600°C
 Control Equipment Wet scrubber Operating Mode on

Describe Emission Point
Stone chimney topped by black wire cage
About six feet from chapel tower.
 Height of Emiss. Pt. Start ~ 30' End ~ 30' Height of Emiss. Pt. Rel. to Observer
 Distance to Emiss. Pt. Start _____ End _____ Direction to Emiss. Pt. (Degrees)
Start _____ End _____

Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees)
Start _____ End _____
 Distance and Direction to Observation Point from Emission Point
Start _____ End _____

Describe Emissions
Start _____ End _____
 Emission Color Water Droplet Plume
Start _____ End _____ Attached ☐ Detached ☐ None ☐

Describe Plume Background
Start _____ End _____
 Background Color Sky Conditions
Start _____ End _____
 Wind Speed Start _____ End _____ Wind Direction
Start _____ End _____
 Ambient Temp. Start _____ End _____ Wet Bulb Temp. Start _____ End _____ RH Percent

Source Layout Sketch
 Draw North Arrow ☐ TN ☐ MN

 angle _____ Latitude _____ Declination _____

Additional Information

Form Number 04 M19-1R4 Page 2 of 3
 Continued on VEO Form Number _____

Observation Date 6/13/99 Time Zone EST Start Time 1606 End Time 1835

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE % WERE _____
 RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

Observer's Name (Print) PETE BROWN
 Observer's Signature P. Brown Date 6/13/99
 Organization ETS Inc
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Use or Circle One)	203A	203B	Other
Method 9			

Company Name	MRI/ Woodlawn Cemetery
Facility Name	Woodworth Chapel Crematorium 2 hrs plus
Street Address	Jerome Street
City	Bronx
State	NY
Zip	

Process	Crematorium	Unit #	4	Operating Mode	1600°F
Control Equipment	Wet Scrubber			Operating Mode	ON

Describe Emission Port	
Stone chimney topped by black wire cage - approx. 6' from chapel tower.	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~ 30' End ~ 30'	Start End
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start End	Start End

Vertical Angle to Obs. Pt.		Direction to Obs. Pt. (Degrees)	
Start End	Start End	Start End	Start End
Distance and Direction to Observation Point from Emission Point			
Start	End	Start	End

Describe Emissions		
Start	End	
Emission Color	Water Droplet Plume	
Start	End	
Attached	Detached	None

Describe Plume Background		
Start	End	
Background Color	Sky Conditions	
Start End	Start End	
Wind Speed	Wind Direction	
Start End	Start End	
Ambient Temp.	Wet Bulb Temp.	RH Percent
Start	End	Start

Source Layout Sketch		Draw North Arrow
		☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information

Form Number	04 119-1R4	Page	3 of 3
Continued on VEO Form Number			

Observation Date	6/13/99	Time Zone	EST	Start Time	1606	End Time	1835

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30					60				

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS	
MINIMUM	MAXIMUM

Observer's Name (Print)	PETE BROWN
Observer's Signature	P. Brown
Organization	ETS Inc.
Certified by	ETA
Date	6/13/99
Date	3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Selected (Circle One) Method 9 203A 203B Other _____

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome AVE
 City Bronx State NY Zip _____

Process Crematorium Unit # 4 Operating Mode 1600° F
 Control Equipment Wet scrubber Operating Mode ON

Describe Emission Point
Stone chimney topped by black wire
cage - approx. 6' from chapel tower.
 Height of Emiss. Pt. Start ~30' End ~30' Height of Emiss. Pt. Rel. to Observer Start ~30° End ~30°
 Distance to Emiss. Pt. Start ~90' End ~90' Direction to Emiss. Pt. (Degrees) Start 130° End 130°

Vertical Angle to Obs. Pt. Start 17° End 17° Direction to Obs. Pt. (Degrees) Start 130° End 130°
 Distance and Direction to Observation Point from Emission Point Start SAME End SAME

Describe Emissions
 Start smoking End NONE
 Emission Color Start GRAY End NONE Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background
 Start CHapel STONEWORK End SAME
 Background Color Start TAN/BLACK End SAME Sky Conditions Start 30% End 100%
 Wind Speed Start 0-5 mph End SAME Wind Direction Start SSE End _____
 Ambient Temp. Start 79°F End 76°F Wet Bulb Temp. Start 71°F RH Percent Start 66%

Source Layout Sketch

 Declination _____

Additional Information
Burn in Unit #1 already under way
@ start of R5 (VES ~ 5-10%) [wood basket]

Form Number 04 | M | 9 | - | R | 5 | Page 1 of 3
 Continued on VES Form Number _____

Observation Date 6/14/99 Time Zone EST Start Time 5:54 End Time 7:22

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	5	10	5	15	31	0	0	0	0
2	10	5	10	10	32	0	0	0	0
3	5	5	10	5	33	0	0	0	0
4	10	15	5	5	34	0	0	0	0
5	10	5	10	5	35	0	0	0	0
6	5	5	5	10	36	0	0	0	0
7	10	10	10	5	37	0	0	0	0
8	5	5	5	5	38	0	0	0	0
9	5	5	5	5	39	0	0	0	0
10	5	5	5	10	40	0	0	0	0
11	10	5	5	5	41	0	0	0	0
12	5	5	5	5	42	0	0	0	0
13	5	5	5	5	43	0	0	0	0
14	5	5	5	5	44	0	0	0	0
15	5	5	5	10	45	0	0	0	0
16	5	5	5	5	46	0	0	0	0
17	5	5	0	5	47	0	0	0	0
18	5	5	5	5	48	0	0	0	0
19	5	5	5	5	49	0	0	0	0
20	5	5	10	5	50	0	0	0	0
21	5	5	0	5	51	0	0	0	0
22	5	5	0	0	52	0	0	0	0
23	5	5	0	5	53	0	0	0	0
24	0	5	5	5	54	0	0	0	0
25	5	5	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	5	5	5	5	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	5	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE _____
 RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

Observer's Name (Print) PETE BROWN
 Observer's Signature PBrown Date 6/14/99
 Organization ETS Inc
 Checked By ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Memphis (Circle One)	203A	203B	Other
Method 9			

Company Name	MRI/Woodlawn Cemetery		
Facility Name	Woodworth Chapel Crematorium		
Street Address	Jerome AVE		
City	State	Zip	
Bronx	NY	104	

Process	Unit	Operating Mode
Crematorium	4	1600 F
Control Equipment	Operating Mode	
Wet scrubber	on	

Describe Emission Point	
Stone chimney topped by black wire cage - approx. 6' from chapel tower	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~30' End ~30'	Start End
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start End	Start End

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start End	Start End
Distance and Direction to Observation Point from Emission Point	
Start	End

Describe emissions	
Start	End
Emission Color	Water Droplet Plume
Start End	Attached ☐ Detached ☐ None ☐

Describe Plume Background	
Start	End
Background Color	Sky Conditions
Start End	Start End
Wind Speed	Wind Direction
Start End	Start End
Ambient Temp.	Wet Bulb Temp.
Start End	RH Percent

Source Layout Sketch		Draw North Arrow
		☐ TN ☐ MN
		Stack With Plume Sun Wind
longitude	Latitude	Declination
Additional Information		

Form Number	04 M 9 - R 5	Page	2 of 3
Continued on VEO Form Number			

Observation Date	Time Zone	Start Time	End Time
6/14/99	EST	1554	1822

SEC	0	15	30	45	SEC	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS	
MINIMUM	MAXIMUM

Observer's Name (Print)	PETE BROWN	
Observer's Signature	Done	6/14/99
Organization	ETS Inc	
Checked by	Done	3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9	203A	203B	Other

Company Name MRI/Woodlawn Cemetery		
Facility Name Woodworth Chapel Crematorium		
Street Address Jerome St		
City Bronx	State NY	Zip

Process Crematorium	Unit # 4	Operating Mode 1600°F
Control Equipment Wet Scrubber	Operating Mode ON	

Describe Emission Port Stone chimney topped by black wire cage - approx. 6' from chapel tower	
Height of Emiss. Pt. Start ~ 30' End ~ 30'	Height of Emiss. Pt. Rel. to Observer Start End
Distance to Emiss. Pt. Start End	Direction to Emiss. Pt. (Degrees) Start End

Vertical Angle to Obs. Pt. Start End		Direction to Obs. Pt. (Degrees) Start End	
Distance and Direction to Observation Point from Emission Point Start End			

Describe Emissions	
Start Emission Color	End Water Droplet Plume
Start End	Attached ☐ Detached ☐ None ☐

Describe Plume Background	
Start Background Color	End Sky Conditions
Start End	Start End
Wind Speed	Wind Direction
Start End	Start End
Ambient Temp.	Wet Bulb Temp.
Start End	RH Percent

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN
Longitude	Latitude	Declination

Additional Information	

Form Number 04 M/A - R 5	Page 3 of 3
Continued on VEO Form Number	

Observation Date 6/14/99	Time Zone EST	Start Time 1554	End Time 1822

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29					59				
30					60				

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM

Observer's Name (Print) PETE BROWN	Date 6/14/99
Observer's Signature P. Brown	
Organization ETS Inc	
Certified by ETA	Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) Method 9 203A 203B Other _____

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome AVE
 City Bronx State NY Zip _____

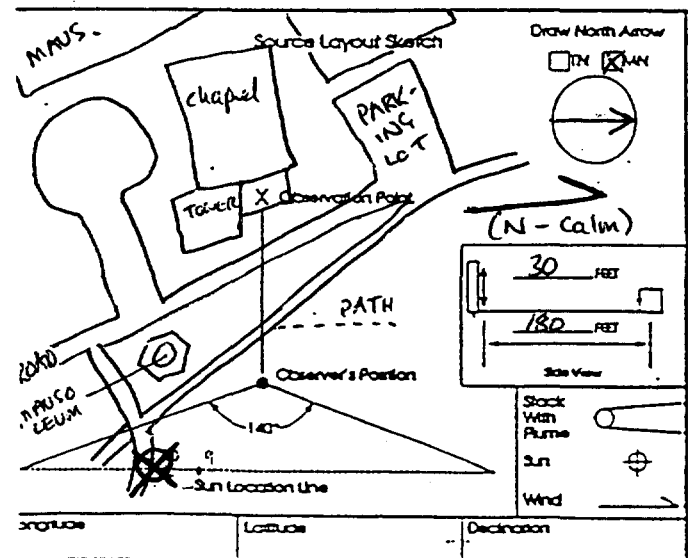
Process Crematorium Unit 4 Operating Mode 1600°F
 Control Equipment Wet Scrubber Operating Mode ON

Describe Emission Point
Stone Chimney topped by black wire
 cage - approx. 6' from chapel tower
 Height of Emiss. Pt. Start 30' End ~30' Height of Emiss. Pt. Rel. to Observer Start ~30' End ~30'
 Distance to Emiss. Pt. Start 180' End 180' Direction to Emiss. Pt. (Degrees) Start 250° End 250°

Altitude Angle to Obs. Pt. Start 10° End 10° Direction to Obs. Pt. (Degrees) Start 250° End 250°
 Distance and Direction to Observation Point from Emission Point
 Start SAME End SAME

Describe Emissions
 Start NONE End NONE
 Emission Color Start NONE End NONE Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background
 Start TREES End TREES
 Background Color Start GREEN End SAME Sky Conditions Start 50% End 30%
 Wind Speed Start 0-3 mph End SAME Wind Direction + UN Start N (Variable) End SAME
 Moisture Temp. Start 71°F End 78°F Wet Bulb Temp. 61°F RH Percent 57%



Additional Information _____

Form Number 04 mid-R6 Page 1 of 3
 Continued on VEO Form Number _____

Observation Date 6/15/99 Time Zone EST Start Time 1044 End Time 1312

SEC	0	15	30	45	SEC	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE _____ % WERE _____

RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

Observer's Name (Print) PETE BROWN
 Observer's Signature PBrown Date 6/15/99
 Organization ETS Inc
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	U4	M	9	-	R	6	Page	2	of	3
Continued on VEO Form Number										

Method Used (Circle One)	203A	203B	Other
Method 9			

Observation Date	6/15/99	Time Zone	EST	Start Time	1044	End Time	1312

Company Name	MRI/Woodlawn Cemetery		
Facility Name	Woodworth Chapel Crematorium		
Street Address	Jerome Ave		
City	Bronx	State	NY
Zip			

Process	Crematorium	Unit #	4	Operating Mode	1600°F
Control Equipment	Wet Scrubber	Operating Mode	ON		

Describe Emission Point	
Stone Chimney topped by black wire cage - approx. 6' from chapel tower	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~30' End ~30'	Start End
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start End	Start End

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start End	Start End
Distance and Direction to Observation Point from Emission Point	
Start	End

Describe Emissions	
Start	End
Emission Color	Water Droplet Plume
Start End	Attached ☐ Detached ☐ None ☐

Describe Plume Background	
Start	End
Background Color	Sky Conditions
Start End	Start End
Wind Speed	Wind Direction
Start End	Start End
Ambient Temp.	Wet Bulb Temp.
Start End	RH Percent

Source Layout Sketch		Draw North Arrow
		☐ TM ☐ MM
		Stack With Plume Sun Wind
Longitude	Latitude	Declination

SEC	MIN	0	15	30	45	SEC	MIN	0	15	30	45
1	0	0	0	0	0	31	0	0	0	0	0
2	0	0	0	0	0	32	0	0	0	0	0
3	0	0	0	0	0	33	0	0	0	0	0
4	0	0	0	0	0	34	0	0	0	0	0
5	0	0	0	0	0	35	0	0	0	0	0
6	0	0	0	0	0	36	0	0	0	0	0
7	0	0	0	0	0	37	0	0	0	0	0
8	0	0	0	0	0	38	0	0	0	0	0
9	0	0	0	0	0	39	0	0	0	0	0
10	0	0	0	0	0	40	0	0	0	0	0
11	0	0	0	0	0	41	0	0	0	0	0
12	0	0	0	0	0	42	0	0	0	0	0
13	0	0	0	0	0	43	0	0	0	0	0
14	0	0	0	0	0	44	0	0	0	0	0
15	0	0	0	0	0	45	0	0	0	0	0
16	0	0	0	0	0	46	0	0	0	0	0
17	0	0	0	0	0	47	0	0	0	0	0
18	0	0	0	0	0	48	0	0	0	0	0
19	0	0	0	0	0	49	0	0	0	0	0
20	0	0	0	0	0	50	0	0	0	0	0
21	0	0	0	0	0	51	0	0	0	0	0
22	0	0	0	0	0	52	0	0	0	0	0
23	0	0	0	0	0	53	0	0	0	0	0
24	0	0	0	0	0	54	0	0	0	0	0
25	0	0	0	0	0	55	0	0	0	0	0
26	0	0	0	0	0	56	0	0	0	0	0
27	0	0	0	0	0	57	0	0	0	0	0
28	0	0	0	0	0	58	0	0	0	0	0
29	0	0	0	0	0	59	0	0	0	0	0
30	0	0	0	0	0	60	0	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS	
MINIMUM	MAXIMUM

Observer's Name (Print)	PETE BROWN
Observer's Signature	Phown
Organization	ETS Inc
Certified by	ETA
Date	6/15/99
Date	3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

 Method (Check One)
 Method 9 ☒ 2034 ☐ 2038 ☐ Other
Company Name
MRI/Woodlawn CemeteryFacility Name
Woodworth Chapel CrematoriumStreet Address
Jerome AVECity
BronxState
NY

Zip

Process
CrematoriumUnit #
4Operating Mode
1600°FControl Equipment
Wet ScrubberOperating Mode
GTN

Describe Emission Point

Stone chimney topped by black wire cage - approx. 6 ft. from chapel tower

Height of Emiss. Pt.

Start ~ 30' End ~ 30'

Height of Emiss. Pt. Rel. to Observer

Start End

Distance to Emiss. Pt.

(Direction to Emiss. Pt. (Degrees))

Start End

Start End

Vertical Angle to Obs. Pt.

(Direction to Obs. Pt. (Degrees))

Start End

Start End

Distance and Direction to Observation Point from Emission Point

Start End

Start End

Describe Emissions

Start

End

Emission Color

Water Droplet Plume

Start End

Attached ☐ Detached ☐ None ☐

Describe Plume Background

Start

End

Background Color

Sky Conditions

Start End

Start End

Wind Speed

Wind Direction

Start End

Start End

Wet Bulb Temp.

Wet Bulb Temp.

RH Percent

Start End

Start End

Source Layout Sketch

Draw North Arrow

☐ TN ☐ MN

X Observation Point

Observer's Position

Sun Location Line

Longitude

Latitude

Declination

Additional Information

 Form Number
 04 M 9 - R 6 Page 3 of 3
 Continued on VEO Form Number

 Observation Date
 6/15/99 Time Zone
 EST Start Time
 1044 End Time
 1312

SEC	MIN	0	15	30	45	SEC	MIN	0	15	30	45
1	0	0	0	0	0	31					
2	0	0	0	0	0	32					
3	0	0	0	0	0	33					
4	0	0	0	0	0	34					
5	0	0	0	0	0	35					
6	0	0	0	0	0	36					
7	0	0	0	0	0	37					
8	0	0	0	0	0	38					
9	0	0	0	0	0	39					
10	0	0	0	0	0	40					
11	0	0	0	0	0	41					
12	0	0	0	0	0	42					
13	0	0	0	0	0	43					
14	0	0	0	0	0	44					
15	0	0	0	0	0	45					
16	0	0	0	0	0	46					
17	0	0	0	0	0	47					
18	0	0	0	0	0	48					
19	0	0	0	0	0	49					
20	0	0	0	0	0	50					
21	0	0	0	0	0	51					
22	0	0	0	0	0	52					
23	0	0	0	0	0	53					
24	0	0	0	0	0	54					
25	0	0	0	0	0	55					
26	0	0	0	0	0	56					
27	0	0	0	0	0	57					
28	0	0	0	0	0	58					
29	0	0	0	0	0	59					
30						60					

AVERAGE OPACITY FOR
HIGHEST PERIODNUMBER OF READINGS ABOVE
% WERERANGE OF OPACITY READINGS
MINIMUM

MAXIMUM

Observer's Name (Print)

PETE BROWN

Observer's Signature

PBROWN

Date

6/15/99

Organization

ETS Inc.

Certified by

ETA

Date

3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Memorandum (Check One)	203A	203B	Other
Method 9			

Company Name	MRI/Woodlawn Cemetery		
Facility Name	Woodworth Chapel Crematorium		
Street Address	Jerome AVE		
City	State	Zip	
Bronx	NY	104	

Process	Unit #	Operating Mode
Crematorium	4	1800°F
Control Equipment	Operating Mode	
Wet scrubber	on	

Describe Emission Point	
Stone stack with black wire cage on top - about 6' from chapel tower	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~30' End ~30'	Start ~30' End ~30'
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start ~90' End ~90'	Start 130° End 130°

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start 17° End 17°	Start 130° End 130°
Distance and Direction to Observation Point from Emission Point	
Start SAME	End SAME

Describe Emissions	
Start NONE	End NONE
Emission Color	Water Droplet Plume
Start NONE	Attached ☐ Detached ☐ None ☒

Describe Plume Background	
Start CHAPEL TOWER STONEWORK	End SAME
Background Color	Sky Conditions
Start TAN/BLACK	Start 30% End 60%
End SAME	Wind Direction
Start 0-3 mph	Start Calm End Calm
End SAME	Wind Speed
Start 80°F	Start 64°F
End 73°F	End 42%

Source Layout Sketch		Draw North Arrow
		☐ IN ☒ OUT
Tower CHAPEL Observation Point Observer's Position Sun Location Line 140°		PATH MAUSOLEUM 30 FEET 90 FEET Scale View Stack With Plume Sun Wind
Longitude	Latitude	Declination

Additional Information	

Form Number	04	1191-127	Page	1 of 3
Continued on VEO Form Number				

Observation Date	Time Zone	Start Time	End Time
6/15/99	EST	1749	200

SEC	0	15	30	45	SEC	0	15	30	45
MIN					MIN				
1	0	0	0	0	31	5	5	5	5
2	0	0	0	0	32	5	5	5	5
3	0	0	0	0	33	5	5	5	5
4	0	0	0	0	34	5	5	5	5
5	0	0	0	0	35	5	0	0	5
6	0	0	0	0	36	5	5	5	0
7	0	0	0	0	37	5	5	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	5
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	5
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	5
15	0	0	0	0	45	5	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	5	5	5	48	0	0	0	0
19	5	5	5	5	49	0	0	0	0
20	5	5	5	5	50	0	0	0	0
21	5	10	10	5	51	0	0	0	0
22	5	5	5	5	52	0	0	0	0
23	5	5	5	5	53	0	0	0	0
24	5	10	10	10	54	0	0	0	0
25	5	5	5	5	55	0	0	0	0
26	5	5	5	5	56	0	0	0	0
27	10	10	5	5	57	0	0	0	0
28	5	5	5	5	58	0	0	0	0
29	5	5	5	5	59	0	0	0	0
30	5	0	5	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS	MINIMUM
MAXIMUM	

Observer's Name (Print)	PETE BROWN
Observer's Signature	P. BROWN
Organization	ETS Inc.
Certified by	ETA
Date	6/15/99
Date	3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)	2001	2008	Other
Method 9			

Company Name MRI/ Woodlawn Cemetery		
Facility Name Woodworth Chapel Crematorium		
Street Address Jerome St		
City Bronx	State NY	Zip

Process Crematorium	Unit # 4	Operating Mode 1800°F
Control Equipment Wet Scrubber	Operating Mode GN	

Describe Emission Point Stone chimney topped by black wire cage - approx. 6 ft. from chapel tower.	
Height of Emiss. Pt. Start ~ 30' End ~ 30'	Height of Emiss. Pt. Rel. to Observer Start End
Distance to Emiss. Pt. Start End	Direction to Emiss. Pt. (Degrees) Start End

Vertical Angle to Obs. Pt. Start End		Direction to Obs. Pt. (Degrees) Start End	
Distance and Direction to Observation Point from Emission Point Start End			

Describe emissions			
Start Emission Color		End Water Droplet Plume	
Start End		Attached ☐ Detached ☐ None ☐	

Describe Plume Background			
Start Background Color		End Sky Conditions	
Start End		Start End	
Wind Speed		Wind Direction	
Start End		Start End	
Ambient Temp.		Wet Bulb Temp.	
Start End		RH Percent	

Source Layout Sketch		Draw North Arrow ☐ TN ☐ MN	
longitude _____ latitude _____ declination _____		Stack with Plume ☐ Sun ☐ Wind ☐	

Additional Information	

Form Number 04/19/12/17	Page 2 of 3
Continued on VEO Form Number	

Observation Date 6/15/99	Time Zone EST	Start Time 1749	End Time 2011

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	5	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	5	5	5	56	0	0	0	0
27	5	0	0	0	57	0	0	0	0
28	0	0	5	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS	MINIMUM MAXIMUM

Observer's Name (Print) PETE BROWN	Date 6/15/99
Observer's Signature PBROWN	Organization ETS Inc.
Certified by ETA	Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

 Method (Circle One) Method 9 201A 201B Other _____

 Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome St
 City Bronx State NY Zip _____

 Process Crematorium Unit # 144 Operating Mode 1800°F
 Control Equipment Wet Scrubber Operating Mode _____

 Describe Emission Point
Stone chimney topped by black wire cage ~ about 6 ft. from chapel tower
 Height of Emiss. Pt. Start ~30' End ~30' Height of Emiss. Pt. Rel. to Observer Start _____ End _____
 Distance to Emiss. Pt. Start _____ End _____ Direction to Emiss. Pt. (Degrees) Start _____ End _____

 Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start _____ End _____
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

 Describe emissions
 Start _____ End _____ Water Droplet Plume Attached ☐ Detached ☐ None ☐

 Describe Plume Background
 Start _____ End _____ Sky Conditions Start _____ End _____
 Background Color Start _____ End _____ Wind Speed Start _____ End _____
 Wind Direction Start _____ End _____ Ambient Temp. Start _____ End _____
 Wet Bulb Temp. Start _____ End _____ RH Percent Start _____ End _____

 Source Layout Sketch
 Draw North Arrow ☐ TH ☐ MH

 Longitude _____ Latitude _____ Declination _____

 Additional Information _____

 Form Number V4 M19-R7 Page 3 of 3
 Continued on VEO Form Number _____

 Observation Date 6/15/99 Time Zone EST Start Time 1749 End Time 2011

SEC	0	15	30	45	SEC	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

 AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE _____ % WERE _____
 RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

 Observer's Name (Print) PETE BROWN
 Observer's Signature P. BROWN Date 6/15/99
 Organization ETS Inc.
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Check One) Method 9 203A Other _____

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome Street
 City Bronx State NY Zip _____

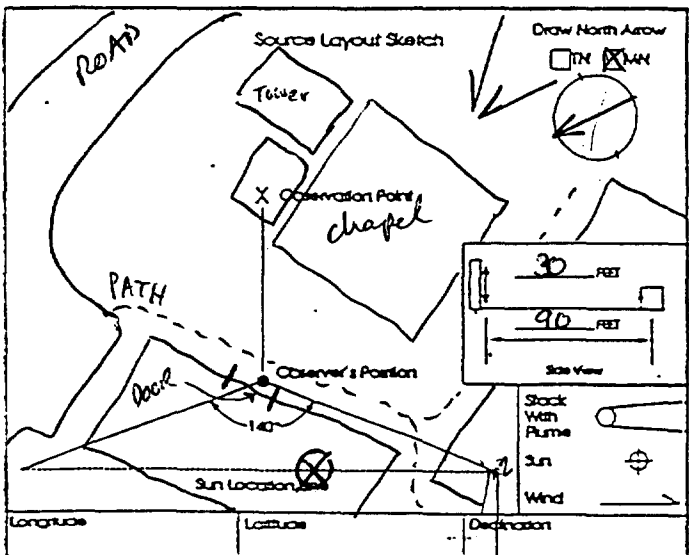
Process Crematorium Unit Unit 4 Operating Mode 1800°F
 Control Equipment Wet Scrubber Operating Mode ON

Describe emission point
Stone chimney topped w/black
wire cage - about 6 ft from chapel tower
 Height of Emiss. Pt. Start ~30' End ~30'
 Distance to Emiss. Pt. Start ~100' End ~90'
 Direction to Emiss. Pt. (Degrees) Start 130° End 130°

Vertical Angle to Obs. Pt. Start 17° End 17°
 Direction to Obs. Pt. (Degrees) Start 130° End 130°
 Distance and Direction to Observation Point from Emission Point
 Start Same End Same

Describe emissions
 Start FUMIGATING End NONE
 Emission Color Start GRAY End NONE
 Attached ☐ Detached ☐ None ☒

Describe Plume Background
 Start Chapel tower stonework End Same
 Background Color Start tan/black End same
 Wind Speed Start 0-5 mph End SAME
 Ambient Temp Start 73°F End 70°F
 Sky Conditions Start 10% End 70%
 Wind Direction Start SE/S End SAME
 Wet Bulb Temp Start 58°F RH Percent End 40%



Additional Information

Form Number U4 M 9 - R 8 Page 1 of 3
 Continued on VEO Form Number _____

Observation Date 6/16/99 Time Zone EST Start Time 1540 End Time 1819

SEC	0	15	30	45	SEC	0	15	30	45
MIN					MIN				
1	0	25	20	15	31	0	0	0	0
2	20	20	15	15	32	0	0	0	0
3	15	20	15	15	33	0	0	0	0
4	15	15	20	20	34	0	0	0	0
5	15	10	15	10	35	0	0	0	0
6	5	5	5	5	36	0	0	0	0
7	5	10	5	10	37	0	0	0	0
8	10	5	5*	5	38	0	0	0	0
9	5	5	5	5	39	0	0	0	0
10	5	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	5	5	5
12	0	0	0	0	42	5	0	5	5
13	0	0	0	0	43	5	5	5	5
14	0	0	0	0	44	0	5	5	0
15	5	5	5	5	45	0	0	0	0
16	5	5	5	5	46	0	0	0	0
17	5	20	15	5	47	0	0	0	0
18	5	5	5	5	48	0	0	0	0
19	0	0	5	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

*5%

AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE _____ % WERE _____

RANGE OF OPACITY READINGS
 MINIMUM _____ MAXIMUM _____

Observer's Name (Print) PETE BROWN
 Observer's Signature PBrown Date 6/16/99
 Organization ETS Inc
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Check One)	2001	2008	Other
Method 9			

Company Name	MRI / Woodlawn Cemetery		
Facility Name	Woodlawn Chapel Crematorium		
Street Address	Jerome Ave		
City	State	Zip	
Bronx	NY		

Process	Unit #	Operating Mode
Crematorium	1A	1800°F
Control Equipment		Operating Mode
Wet Scrubber		ON

Describe Emission Point	
Stone chimney w/black wire cage on top - next to chapel tower	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~30' End ~30'	Start End
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 11:30 End 11:45	Start End

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start End	Start End
Distance and Direction to Observation Point from Emission Point	
Start End	

Describe Emissions	
Start	End
Emission Color	Water Droplet Plume
Start End	Attached ☐ Detached ☐ None ☐

Describe Plume Background	
Start	End
Background Color	Sky Conditions
Start End	Start End
Wind Speed	Wind Direction
Start End	Start End
Ambient Temp.	Wet Bulb Temp.
Start End	RH Percent

Source Layout Sketch		Draw North Arrow
		☐ TN ☐ NH
		Stock With Plume ☐ Sun ☐ Wind ☐
Longitude	Latitude	Declination
Additional Information		

Form Number	U4 M 9 - R 8	Page	2 of 3
Continued on VEO Form Number			

Observation Date	Time Zone	Start Time	End Time
6/16/99	EST	1540	1819

SEC	0	15	30	45	SEC	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS	
MINIMUM	MAXIMUM

Observer's Name (Print)	PETE BROWN
Observer's Signature	P. Brown Date 6/16/99
Organization	ETS Inc
Certified by	ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

 Method (Check One) Method 9 2001 2008 Other _____

 Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome St
 City Bronx State NY Zip _____

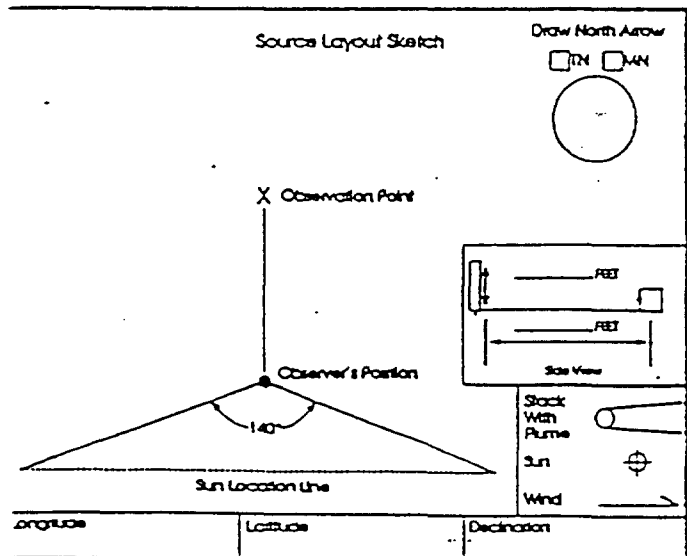
 Process Crematorium Unit GA Operating Mode 1800°F
 Control Equipment Wet Scrubber Operating Mode ON

 Describe Emission Point
Stone stack w/black wire cage on top - next to chapel tower.

 Height of Emiss. Pt. Start ~30ft End ~30ft
 Distance to Emiss. Pt. Start _____ End _____
 Direction to Emiss. Pt. (Degrees) Start _____ End _____

 Vertical Angle to Obs. Pt. Start _____ End _____
 Direction to Obs. Pt. (Degrees) Start _____ End _____
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

 Describe Emissions
 Start _____ End _____
 Emission Color Water Droplet Plume
 Attached ☐ Detached ☐ None ☐

 Describe Plume Background
 Start _____ End _____
 Background Color Sky Conditions
 Start _____ End _____
 Wind Speed Wind Direction
 Start _____ End _____
 Ambient Temp. Wet Bulb Temp. RH Percent
 Start _____ End _____

 Additional Information _____

 Form Number U4 - m19 - R8 Page 3 of 3
 Continued on VEO Form Number _____

 Observation Date 6/16/99 Time Zone EST Start Time 1540 End Time 1819

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	●			
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

 AVERAGE OPACITY FOR
 HIGHEST PERIOD

 NUMBER OF READINGS ABOVE
 % WERE

 RANGE OF OPACITY READINGS
 MINIMUM

MAXIMUM

 Observer's Name (Print) PETE BROWN
 Observer's Signature PBrown Date 6/16/99
 Organization ETS Inc
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)	202A	202B	Other

Company Name MRI/Woodlawn Cemetery		
Facility Name Woodworth Chapel Crematorium		
Street Address Jerome AVE		
City Bronx	State NY	Zip

Process Crematorium	Unit # 44	Operating Mode 1800°F
Control Equipment Wet Scrubber		Operating Mode ON

Describe Emission Point Stone stack adjacent to crematorium tower. Stack has black wire cage over outlet	
Height of Emiss. Pt. Start ~ 30' End ~ 30'	Height of Emiss. Pt. Rel. to Observer Start ~ 30' End ~ 30'
Distance to Emiss. Pt. Start ~ 180' End ~ 180'	Direction to Emiss. Pt. (Degrees) Start 250° End 250°

Vertical Angle to Obs. Pt. Start 10° End 10°	Direction to Obs. Pt. (Degrees) Start 250° End 250°
Distance and Direction to Observation Point from Emission Point Start SAME End SAME	

Describe Emissions Start FUMIGATING End NONE	
Emission Color Start GRAY End NONE	Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background Start TREES End SAME	
Background Color Start GREEN End SAME	Sky Conditions Start 100% End 100%
Wind Speed Start 0 End 0	Wind Direction Start CALM End SAME
Ambient Temp. Start 63°F End 70°F	Wet Bulb Temp. Start 61°F End 89%

Source Layout Sketch		Draw North Arrow ☐ TN ☒ MN
		Stack With Plume ☐ Sun ☒ Wind None ☒
Latitude	Longitude	Declination

Form Number U4	MIQ - R9	Page 1 of 3
Continued on VEO Form Number		

Observation Date 6/17/99	Time Zone EST	Start Time 1005	End Time 1219

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	5	10	15	20	32	0	0	0	0
3	15	20	15	15	33	0	0	0	0
4	25	25	30	25	34	0	0	0	5
5	20	15	15	10	35	0	0	0	0
6	5	5	5	5	36	0	0	0	0
7	5	5	10	5	37	0	0	0	0
8	5	5	0	5	38	0	0	0	0
9	5	5	5	5	39	0	0	0	0
10	0	0	5	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	5	5	0	5	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM

Observer's Name (Print) PETE BROWN	Date 6/17/99
Observer's Signature P. Brown	Organization ETS Inc.
Certified by ETA	Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method (Check One)
Method 9 203A 203B Other

Company Name MRI/Woodlawn Cemetery
 Facility Name Woodworth Chapel Crematorium
 Street Address Jerome Ave
 City Bronx State NY Zip

Process Crematorium Unit # 4 Operating Mode 1800°F
 Control Equipment Wet Scrubber Operating Mode

Describe Emission Port
 Height of Emiss. Pt. Start End Height of Emiss. Pt. Rel. to Observer Start End
 Distance to Emiss. Pt. Start End Direction to Emiss. Pt. (Degrees) Start End

Vertical Angle to Obs. Pt. Start End Direction to Obs. Pt. (Degrees) Start End
 Distance and Direction to Observation Point from Emission Port Start End

Describe Emissions
 Start End
 Emission Color Water Droplet Plume
 Start End Attached ☐ Detached ☐ None ☐

Describe Plume Background
 Start End
 Background Color Sky Conditions Start End
 Wind Speed Start End Wind Direction Start End
 Ambient Temp. Start End Wet Bulb Temp. RH Percent Start End

Source Layout Sketch
 Draw North Arrow ☐ TN ☐ MN
 X Observation Point
 Observer's Position
 140°
 Sun Location Line
 Stack With Plume
 Sun
 Wind
 Longitude Latitude Declination

Additional Information

Form Number U4 | M/9 - | R/9 | Page 2 of 3
 Certified on VEO Form Number

Observation Date 6/17/99 Time Zone EST Start Time 1005 End Time 1219

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR
HIGHEST PERIODNUMBER OF READINGS ABOVE
% WERERANGE OF OPACITY READINGS
MINIMUM

MAXIMUM

Observer's Name (Print) PETE BROWN
 Observer's Signature P. Brown Date 6/17/99
 Organization ETS Inc.
 Certified by ETA Date 3/18/99

EPA

VISIBLE EMISSION OBSERVATION FORM 1

 Method Used (Circle One) Method 9 200A 200B Other _____

 Company Name MRI/Woodlawn Cemetery
 Facility Name Woolworth Chapel Crematorium
 Street Address Jerome Ave
 City Bronx State NY Zip _____

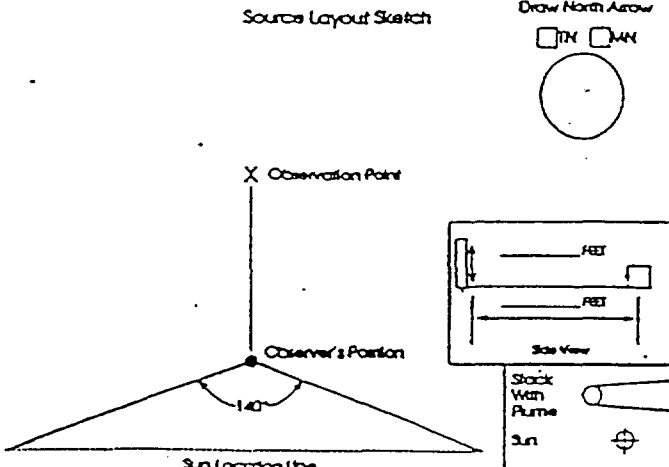
 Process Crematorium Unit # 4 Operating Mode _____
 Control Equipment Wet Scrubber Operating Mode 1800°F

 Describe Emission Point
 Height of Emiss. Pt. _____ Height of Emiss. Pt. Rel. to Observer _____
 Start _____ End _____ Start _____ End _____
 Distance to Emiss. Pt. _____ Direction to Emiss. Pt. (Degrees) _____
 Start _____ End _____ Start _____ End _____

 Vertical Angle to Obs. Pt. _____ Direction to Obs. Pt. (Degrees) _____
 Start _____ End _____ Start _____ End _____
 Distance and Direction to Observation Point from Emission Point _____
 Start _____ End _____

 Describe Emissions
 Start _____ End _____
 Emission Color _____
 Start _____ End _____
 Attached ☐ Detached ☐ None ☐

 Describe Plume Background
 Start _____ End _____
 Background Color _____ Sky Conditions _____
 Start _____ End _____ Start _____ End _____
 Wind Speed _____ Wind Direction _____
 Start _____ End _____ Start _____ End _____
 Ambient Temp. _____ Wet Bulb Temp. _____ RH Percent _____
 Start _____ End _____

 Source Layout Sketch
 Draw North Arrow ☐ TN ☐ MN

 angle _____ Latitude _____ Declination _____

 Form Number 04 | M/9 - R/9 | Page 3 of 3
 Continued on VEO Form Number _____

 Observation Date 6/17/99 Time Zone EST Start Time 1005 End Time 1214

SEC MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

 AVERAGE OPACITY FOR HIGHEST PERIOD _____ NUMBER OF READINGS ABOVE _____
 RANGE OF OPACITY READINGS MINIMUM _____ MAXIMUM _____

 Observer's Name (Print) PETE BROWN
 Observer's Signature PBrown Date 6/18/99
 Organization ETS Inc.
 Certified by ETA Date 3/18/99

Appendix F

Equipment Calibration Data

Marker Description

Display Average

A	Data was Absent from original raw data file.
H	HIGH CAL GAS
L	LOW CAL GAS
M	MID CAL GAS
P	PORT CHANGE
Z	ZERO CAL GAS
h	HIGH CAL GAS FROM HIGHER SPAN
m	MID CAL GAS FROM HIGHER SPAN
*	Data was not used in calculated parameter averages.

✓
✓
✓
✓
✓
✓
✓
✓

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET AND OUTLET MONITORS
POST-TEST LINEARITY CHECKS

Starting
06-23-99

Time	SO2 IN ppmdv	SO2 OUT ppmdv	CO IN ppmdv	CO OUT ppmdv	NOx IN ppmdv	NOx OUT ppmdv
09:01	0.33	-0.47	0.45	0.33	0.90	0.22
09:02	0.33Z	0.26Z	0.45Z	0.33Z	0.78Z	0.24Z
09:03	74.20	72.40	0.45	0.33	0.77	0.24
09:04	85.20H	85.10H	0.45	0.33	0.79	0.23
09:05	56.10	54.90	0.45	0.33	0.78	0.22
09:06	49.50M	49.49M	0.45	0.33	0.79	0.23
09:07	368.00	361.00	0.45	0.33	0.78	0.25
09:08	544.00h	546.00h	0.38	0.33	0.76	0.24
09:09	381.00	395.00	0.45	0.33	0.78	0.25
09:10	253.00	255.00	0.45	0.33	0.76	0.25
09:11	253.00m	255.00m	0.38	0.33	0.75	0.25
09:12	91.20	94.10	0.45	0.33	0.74	0.25
09:13	3.45	4.45	0.38	0.33	0.78	0.24
09:14	1.91	2.55	0.45	0.33	0.74	0.25
09:15	1.70	1.98	185.00	183.00	0.73	0.24
09:16	1.60	1.54	310.10H	308.00H	0.71	0.23
09:17	1.20	1.50	244.60	249.00	0.68	0.24
09:18	1.12	1.47	186.30M	184.40M	0.69	0.24
09:19	0.99	1.20	124.50	128.40	0.69	0.25
09:20	0.92	1.10	95.60L	93.40L	0.71	0.24
09:21	0.85	0.95	892.00	884.00	0.71	0.23
09:22	0.82	0.93	5136.00	5087.00	0.68	0.25
09:23	0.76	0.89	5924.00h	5935.00h	0.67	0.25
09:24	0.75	0.85	4133.00	4022.00	0.68	0.26
09:25	0.69	0.82	3014.00m	3008.00m	0.69	0.23
09:26	0.63	0.79	1142.00	1111.00	0.69	0.25
09:27	0.61	0.75	447.00	421.00	0.73	0.24
09:28	0.58	0.74	0.42	0.33	0.79	0.23
09:29	0.55	0.72	0.42	0.33	225.50	222.10
09:30	0.54	0.71	0.45	0.33	250.10H	249.80H
09:31	0.54	0.68	0.42	0.33	126.60	125.90
09:32	0.52	0.66	0.42	0.33	100.70M	101.20M
09:33	0.51	0.63	0.42	0.33	520.00	535.00
09:34	0.49	0.62	0.42	0.33	905.50h	906.10h
09:35	0.48	0.61	0.45	0.33	720.20	699.80
09:36	0.48	0.59	0.42	0.33	553.50m	555.70m
09:37	0.45	0.57	0.42	0.33	232.10	267.60
09:38	0.45Z	0.55Z	0.45Z	0.33Z	1.30Z	0.44Z

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET MONITORS

Starting
06-11-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
07:49	-0.03Z	0.00Z	0.63Z	0.05Z	-0.33Z
07:50	-0.02	0.00	0.66	0.06	-0.26
07:51	1.97	0.00	47.20	0.40	-0.22
07:52	-0.00	0.00	85.40H	0.60	-0.31
07:53	-0.02	0.00	85.70	0.61	-0.31
07:54	0.63	0.00	57.27	0.38	-0.25
07:55	-0.02	0.00	49.54M	0.34	-0.31
07:56	16.19	11.83	14.61	0.14	-0.32
07:57	22.02H	16.79H	0.76	0.09	-0.40
07:58	13.32	11.22	0.85	0.10	-0.45
07:59	10.04M	10.03M	0.67	0.12	-0.73
08:00	8.55	7.44	0.84	65.16	-0.51
08:01	-0.01	0.06	0.72	247.00	-0.02
08:02	-0.01	0.04	0.35	248.30	-0.05
08:03	-0.01	0.03	0.13	241.60	-0.01
08:04	-0.01	0.01	0.06	245.10	0.00
08:05	0.13	0.01	0.05	248.50H	0.00
08:06	0.81	0.01	0.14	120.60	0.00
08:07	-0.02	0.00	-0.03	101.40M	0.00
08:08	1.02	0.00	0.06	14.05	127.80
08:09	-0.03	0.00	0.04	0.33	311.60
08:10	-0.03	0.00	-0.05	0.26	307.10H
08:11	2.98	0.00	0.04	0.25	235.40
08:12	-0.04	0.00	0.02	0.25	183.80
08:13	-0.03	0.00	0.15	0.25	184.10
08:14	-0.03	0.00	-0.01	0.27	184.20M
08:15	0.96	0.00	0.02	0.29	140.20
08:16	-0.03	0.00	0.01	0.28	93.20
08:17	-0.03	0.00	-0.03	0.29	92.90L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - OUTLET MONITORS

Starting
06-11-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
07:49	0.04Z	-0.01Z	0.13Z	0.05Z	0.11Z
07:50	0.04	-0.01	0.14	0.00	0.04
07:51	0.13	-0.01	31.49	0.23	0.08
07:52	0.03	-0.01	85.10	0.51	0.12
07:53	0.03	-0.01	85.40H	0.74	0.06
07:54	0.06	-0.01	62.37	0.75	0.06
07:55	0.01	-0.01	49.76M	0.05	0.17
07:56	15.11	12.69	21.04	0.09	-0.10
07:57	21.91H	16.89H	0.26	-0.05	-0.55
07:58	13.45	11.43	0.08	0.07	-0.61
07:59	10.00M	10.05M	0.05	0.38	-0.55
08:00	8.10	7.26	0.17	66.21	-0.58
08:01	0.05	-0.00	0.08	251.50	-0.10
08:02	0.02	-0.00	0.00	249.30	0.09
08:03	0.01	-0.00	0.03	244.80	0.04
08:04	0.01	-0.01	0.00	246.50	0.06
08:05	0.01	-0.01	0.01	249.60H	-0.02
08:06	0.01	-0.01	0.04	117.10	0.14
08:07	0.00	-0.01	0.01	102.20M	0.04
08:08	0.06	-0.01	0.00	14.97	122.00
08:09	0.00	-0.01	0.01	0.30	296.60
08:10	0.00	-0.01	-0.02	0.14	306.40H
08:11	0.08	-0.01	-0.03	0.17	277.50
08:12	-0.01	-0.01	0.01	0.10	192.60
08:13	-0.01	-0.01	-0.03	0.38	189.20
08:14	-0.00	-0.01	-0.03	0.48	186.10M
08:15	0.01	-0.01	-0.03	0.39	151.70
08:16	-0.01	-0.02	-0.07	0.37	96.50
08:17	-0.00	-0.01	-0.04	0.34	94.60L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET MONITORS

Starting
06-12-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
08:36	0.13Z	0.02Z	0.54Z	-0.04Z	0.01Z
08:37	1.54	0.04	53.50	0.10	0.00
08:38	0.14	0.03	87.00	0.13	0.00
08:39	0.14	0.03	86.00H	0.15	0.00
08:40	0.60	0.03	62.49	0.13	0.00
08:41	0.03	0.03	49.33M	0.13	0.01
08:42	15.08	11.64	13.88	0.09	0.00
08:43	21.93	16.65	0.83	0.08	-0.33
08:44	22.00H	16.95H	0.83	0.08	-0.42
08:45	21.34	16.15	0.89	0.04	-0.42
08:46	11.16	9.41	0.85	0.07	-0.42
08:47	10.07M	10.07M	0.76	0.05	-0.41
08:48	3.57	2.34	1.08	179.40	-0.22
08:49	0.05	0.08	0.77	245.70	0.00
08:50	0.05	0.06	0.74	248.40H	0.01
08:51	0.05	0.05	0.69	120.20	0.01
08:52	0.04	0.04	0.67	101.50M	0.01
08:53	0.13	0.04	0.72	27.01	96.50
08:54	0.04	0.04	0.70	0.21	309.00H
08:55	0.03	0.04	0.63	0.13	242.70
08:56	0.13	0.04	0.63	0.13	264.60
08:57	0.03	0.04	0.61	0.11	185.20
08:58	0.03	0.04	0.61	0.13	184.70M
08:59	0.05	0.04	0.64	0.16	149.70
09:00	0.03	0.04	0.70	0.15	93.20
09:01	0.03	0.03	0.67	0.15	92.90L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - OUTLET MONITORS

Starting
06-12-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
08:36	0.03Z	-0.01Z	0.10Z	-0.14Z	0.12Z
08:37	0.27	-0.00	28.25	-0.03	0.17
08:38	0.02	-0.01	88.00	0.00	0.11
08:39	0.02	-0.01	86.00H	-0.00	0.17
08:40	0.24	-0.01	69.72	0.00	0.17
08:41	0.01	-0.01	49.24M	-0.01	0.17
08:42	15.16	12.48	20.41	-0.01	-0.09
08:43	22.02	16.78	0.39	-0.02	-0.60
08:44	21.98H	16.96H	0.37	-0.05	-0.59
08:45	20.76	15.70	0.34	-0.04	-0.60
08:46	10.77	9.99	0.37	-0.08	-0.60
08:47	10.10M	10.10M	0.36	-0.04	-0.69
08:48	3.55	2.46	0.64	176.50	-0.39
08:49	0.03	-0.00	0.35	245.90	0.10
08:50	0.03	-0.00	0.36	248.60H	0.17
08:51	0.09	-0.00	0.36	118.60	0.17
08:52	0.01	-0.01	0.37	101.30M	0.17
08:53	0.07	-0.00	0.38	27.35	84.50
08:54	0.00	-0.00	0.38	0.00	308.00H
08:55	0.00	-0.01	0.36	0.01	231.80
08:56	0.06	-0.01	0.36	0.00	270.10
08:57	0.00	-0.01	0.38	0.00	191.20
08:58	-0.00	-0.00	0.38	0.02	187.90M
08:59	0.02	-0.00	0.37	0.01	153.20
09:00	-0.01	-0.01	0.37	0.00	97.10
09:01	-0.00	-0.01	0.36	-0.03	96.30L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET MONITORS

Starting
06-13-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
07:47	0.19Z	0.02Z	0.00Z	0.07Z	0.01Z
07:48	1.76	0.03	33.24	0.05	0.01
07:49	0.20	0.03	85.30H	0.07	0.01
07:50	0.77	0.03	54.58	0.11	0.00
07:51	0.20	0.02	49.43M	0.07	0.01
07:52	4.23	3.18	38.51	0.06	0.04
07:53	20.14	16.56	0.18	0.02	0.00
07:54	18.58	16.99	0.03	0.00	0.01
07:55	21.97H	17.03H	-0.07	-0.03	-4.01
07:56	14.16	12.10	-0.02	-0.05	-0.18
07:57	10.02M	10.01M	-0.04	-0.09	-0.68
07:58	8.38	2.69	0.29	85.80	-0.36
07:59	0.49	0.14	0.01	153.80	0.01
08:00	0.48	0.10	-0.10	172.60	0.00
08:01	0.46	0.07	-0.05	207.60	0.01
08:02	0.47	0.05	-0.02	248.20H	0.00
08:03	0.47	0.04	-0.05	127.20	0.01
08:04	0.45	0.04	-0.05	99.60M	0.00
08:05	0.35	0.04	0.05	99.10	109.60
08:06	0.23	0.04	-0.05	95.70	308.70
08:07	0.23	0.04	-0.03	15.06	310.30H
08:08	0.34	0.04	0.03	6.03	243.60
08:09	0.23	0.03	-0.03	4.62	184.90M
08:10	0.26	0.04	-0.02	4.15	154.40
08:11	0.23	0.04	0.12	3.85	93.10L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - OUTLET MONITORS

Starting
06-13-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
07:47	0.07Z	-0.00Z	-0.12Z	-0.17Z	0.00Z
07:48	0.37	0.00	17.57	-0.15	0.01
07:49	0.06	0.00	86.20H	-0.12	0.01
07:50	0.27	0.00	63.34	-0.12	0.00
07:51	0.04	0.00	49.38M	-0.15	0.01
07:52	3.54	3.78	46.01	-0.15	0.01
07:53	21.95	16.68	1.58	-0.17	0.00
07:54	21.93	16.88	-0.10	-0.20	0.01
07:55	21.93H	16.97H	-0.10	-0.18	0.01
07:56	14.10	11.77	-0.10	-0.22	0.01
07:57	10.04M	10.01M	-0.13	-0.25	0.00
07:58	9.92	9.68	-0.07	134.90	0.00
07:59	10.05	9.67	0.01	230.30	0.01
08:00	10.18	9.66	0.11	232.00	0.00
08:01	10.30	9.66	0.44	248.80	0.01
08:02	10.41	9.68	0.54	248.10H	0.00
08:03	10.52	9.67	0.67	123.30	0.01
08:04	10.62	9.65	0.83	100.60M	0.00
08:05	4.34	3.18	0.50	49.44	-0.06
08:06	0.04	0.00	-0.14	56.82	4.85
08:07	0.03	0.00	-0.10	57.35	307.90H
08:08	0.09	0.00	-0.12	42.39	215.40
08:09	0.02	-0.00	-0.08	4.63	184.70M
08:10	0.04	-0.00	-0.04	2.12	152.70
08:11	0.01	-0.00	-0.04	1.17	94.60L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET MONITORS

Starting
06-14-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
12:41	0.02Z	0.04Z	0.13Z	-0.52Z	0.01Z
12:42	0.23	0.04	64.35	0.49	-2.11
12:43	0.05	0.05	85.90H	0.55	0.01
12:44	0.05	0.04	54.96	0.33	0.01
12:45	0.05	0.05	49.40M	0.30	-3.86
12:46	16.83	13.76	10.20	0.13	0.01
12:47	22.01H	17.01H	1.11	0.06	-0.14
12:48	11.63	11.27	1.05	0.12	1.22
12:49	9.94M	10.02M	1.12	0.13	-0.75
12:50	2.70	2.24	1.37	207.70	-0.21
12:51	0.06	0.22	1.07	247.70H	0.01
12:52	0.08	0.16	1.31	105.70	0.19
12:53	0.06	0.12	1.00	99.80M	0.00
12:54	0.15	0.10	1.06	15.66	126.60
12:55	0.05	0.08	0.97	0.18	306.70H
12:56	0.16	0.07	1.03	0.11	247.70
12:57	0.05	0.06	0.83	0.09	184.50M
12:58	0.16	0.06	1.03	0.10	110.80
12:59	0.05	0.05	0.92	0.07	92.70L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - OUTLET MONITORS

Starting
06-14-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
12:41	0.05Z	0.00Z	0.18Z	0.01Z	0.50Z
12:42	0.10	-0.00	47.44	0.32	0.78
12:43	0.04	-0.00	85.10H	0.39	0.82
12:44	0.04	-0.00	62.03	0.20	0.83
12:45	0.02	-0.01	49.30M	0.17	0.61
12:46	16.46	14.05	17.95	0.03	0.23
12:47	21.96H	16.92H	0.85	0.01	0.16
12:48	12.99	11.01	0.83	0.02	0.17
12:49	10.06M	10.06M	0.68	0.04	0.16
12:50	2.84	1.91	0.85	202.30	0.16
12:51	0.04	-0.00	0.68	248.90H	0.52
12:52	0.03	-0.01	0.83	106.50	0.84
12:53	0.01	-0.01	0.67	101.50M	0.80
12:54	0.08	-0.00	0.68	16.34	122.00
12:55	0.01	-0.01	0.60	0.38	306.30H
12:56	0.06	-0.01	0.68	0.29	247.50
12:57	0.00	-0.00	0.68	0.29	185.50M
12:58	0.14	-0.01	0.67	0.24	147.50
12:59	-0.00	-0.01	0.68	0.24	96.80L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET MONITORS

Starting
06-15-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
08:37	0.03Z	0.01Z	0.39Z	0.38Z	0.01Z
08:38	0.11	0.01	66.61	1.25	0.01
08:39	0.04	0.02	84.40H	0.46	0.01
08:40	0.10	0.02	58.20	0.47	0.02
08:41	0.03	0.03	49.48M	0.43	0.01
08:42	14.91	12.36	14.13	0.41	138.90
08:43	22.01H	17.06H	0.48	0.35	0.01
08:44	11.42	11.44	0.49	0.34	-0.38
08:45	10.01M	10.11M	0.37	0.33	-1.03
08:46	2.77	2.25	0.55	223.20	-0.42
08:47	0.05	0.15	0.32	264.90	0.00
08:48	0.05	0.10	0.33	247.60H	0.34
08:49	0.05	0.08	0.31	126.20	0.01
08:50	0.04	0.06	0.31	99.20M	0.00
08:51	0.12	0.05	0.25	12.44	136.50
08:52	0.03	0.04	0.20	-0.30	308.90H
08:53	0.04	0.04	0.05	-0.42	210.70
08:54	0.11	0.03	0.19	-0.46	183.30M
08:55	0.04	0.03	0.17	-0.46	141.20
08:56	0.04	0.03	0.11	-0.52	92.90L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - OUTLET MONITORS

Starting
06-15-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
08:37	0.03Z	-0.00Z	0.38Z	0.60Z	0.16Z
08:38	0.10	-0.00	55.06	0.98	0.15
08:39	0.02	-0.00	85.00H	0.80	0.15
08:40	0.11	-0.00	65.51	0.84	0.17
08:41	0.01	-0.00	49.44M	1.00	0.16
08:42	14.81	12.85	21.50	0.98	-0.42
08:43	21.86H	17.05H	0.67	0.99	-0.85
08:44	12.88	11.05	0.65	0.87	-0.56
08:45	10.11M	10.03M	0.57	0.83	-0.86
08:46	5.91	3.37	1.05	163.10	-0.62
08:47	0.04	-0.00	0.67	228.30	0.15
08:48	0.02	-0.01	0.67	249.30H	0.26
08:49	0.03	-0.01	0.60	127.30	0.15
08:50	0.00	-0.01	0.63	100.20M	0.15
08:51	0.06	-0.01	0.68	15.46	122.90
08:52	0.00	-0.01	0.66	1.61	304.30H
08:53	0.01	-0.01	0.50	1.55	206.50
08:54	0.04	-0.00	0.66	1.46	182.40M
08:55	0.01	-0.01	0.65	1.44	143.30
08:56	-0.01	-0.01	0.69	1.40	95.10L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET MONITORS

Starting
06-16-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
12:33	0.01Z	0.03Z	0.00Z	0.10Z	0.03Z
12:34	0.15	0.04	66.68	0.54	0.02
12:35	0.01	0.03	85.30H	0.60	0.00
12:36	0.13	0.03	58.01	0.61	0.02
12:37	0.01	0.03	49.44M	0.55	0.02
12:38	16.01	13.09	10.52	0.25	0.01
12:39	22.06H	16.95H	0.18	0.26	0.00
12:40	12.59	11.52	0.18	0.27	0.47
12:41	10.03M	10.08M	0.14	0.28	-0.44
12:42	8.12	2.60	1.52	141.90	-0.29
12:43	0.42	0.13	0.06	248.00H	0.02
12:44	0.41	0.08	0.04	124.90	0.00
12:45	0.38	0.07	-0.00	101.40M	0.02
12:46	1.87	0.24	0.21	100.90	62.21
12:47	0.01	0.04	0.10	90.70	310.20H
12:48	0.17	0.04	0.06	13.56	262.50
12:49	0.01	0.04	-0.04	8.11	184.20M
12:50	0.06	0.03	-0.00	7.20	145.30
12:51	0.00	0.03	0.02	6.94	93.70L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - OUTLET MONITORS

Starting
06-16-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
12:33	0.04Z	-0.01Z	0.33Z	-0.04Z	0.17Z
12:34	0.12	-0.01	50.89	0.16	0.17
12:35	0.03	-0.01	85.00H	0.17	0.15
12:36	0.25	-0.01	62.73	0.26	0.17
12:37	0.02	-0.01	49.48M	0.26	0.17
12:38	16.19	13.77	18.19	0.00	0.15
12:39	22.01H	16.96H	0.45	0.00	0.15
12:40	12.91	11.04	0.50	0.01	-0.01
12:41	10.04M	10.09M	0.40	0.02	0.17
12:42	9.88	9.66	0.39	159.30	0.17
12:43	9.94	9.66	0.81	248.10H	0.17
12:44	10.00	9.66	1.00	120.70	0.08
12:45	10.08	9.66	1.02	101.10M	0.07
12:46	4.82	3.49	0.80	100.00	65.29
12:47	0.04	-0.01	0.39	95.40	302.30H
12:48	0.12	-0.01	0.40	10.52	257.80
12:49	0.01	-0.01	0.38	5.37	184.40M
12:50	0.03	-0.01	0.41	4.24	146.40
12:51	0.00	-0.01	0.40	3.79	95.20L

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - INLET MONITORS

Starting
06-17-99

Time	O2 IN %dv	CO2 IN %dv	SO2 IN ppmdv	NOx IN ppmdv	CO IN ppmdv
08:08	0.03Z	0.03Z	0.42Z	0.05Z	0.03Z
08:09	0.18	0.03	24.13	0.05	0.01
08:10	0.05	0.03	85.40H	0.06	0.01
08:11	0.11	0.03	57.42	0.08	0.02
08:12	0.05	0.03	49.60M	0.09	0.01
08:13	10.61	8.26	24.31	0.09	0.02
08:14	21.92	16.81	0.48	0.05	0.01
08:15	21.98H	16.92H	0.51	0.03	0.01
08:16	17.09	13.69	0.51	0.02	0.01
08:17	10.08M	9.98M	0.38	0.00	0.01
08:18	6.13	5.22	0.41	-0.03	30.39
08:19	0.06	0.19	0.35	-0.01	304.40H
08:20	0.19	0.14	0.36	-0.10	303.00
08:21	0.06	0.10	0.38	-0.08	186.20M
08:22	0.09	0.09	0.30	-0.16	148.80
08:23	0.06	0.06	0.33	-0.15	93.30L
08:24	2.04	0.06	0.58	100.60	68.38
08:25	0.07	0.05	0.35	234.70	0.33
08:26	0.07	0.04	0.29	248.30H	0.01
08:27	0.07	0.04	0.31	130.90	0.01
08:28	0.06	0.03	0.38	100.80M	0.01

WOODLAWN CEMETERY
CREMATION INCINERATOR UNIT
REFERENCE METHOD DATA
CEMS CALIBRATIONS - OUTLET MONITORS

Starting
06-17-99

Time	O2 OUT %dv	CO2 OUT %dv	SO2 OUT ppmdv	NOx OUT ppmdv	CO OUT ppmdv
08:08	0.02Z	-0.01Z	0.20Z	-0.19Z	0.17Z
08:09	0.17	-0.01	10.77	-0.10	0.16
08:10	0.01	-0.01	84.60H	0.26	0.15
08:11	0.05	-0.01	62.16	0.05	0.17
08:12	0.00	-0.01	49.59M	0.01	0.16
08:13	9.00	8.31	32.66	0.01	0.17
08:14	21.77	17.06	0.58	-0.11	0.15
08:15	22.05H	16.90H	0.38	-0.15	0.16
08:16	17.07	13.41	0.42	-0.18	0.02
08:17	10.09M	10.09M	0.39	-0.20	-0.85
08:18	6.29	5.13	0.40	-0.22	26.90
08:19	0.04	-0.00	0.41	-0.24	306.30H
08:20	0.10	-0.01	0.40	-0.34	294.60
08:21	0.01	-0.01	0.38	-0.22	186.20M
08:22	0.03	-0.01	0.39	-0.15	150.50
08:23	0.00	-0.01	0.40	-0.15	96.80L
08:24	0.12	-0.01	0.39	143.10	97.00
08:25	0.33	-0.00	0.48	238.60	96.80
08:26	0.46	0.00	0.68	248.40H	96.80
08:27	0.55	0.01	0.69	128.10	96.80
08:28	0.62	0.02	0.75	100.80M	96.80



SPECTRA GASES INC.

5903



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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G2

CUSTOMER: ETS, INC
SGI ORDER #: 135096
ITEM#: 2
P.O.#: 6873

CYLINDER #: CC53292
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 350

CERTIFICATION DATE: 8/18/98
EXPIRATION DATE: 8/18/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	8/11/98 8/18/98	2999 ppm 3011 ppm	3005 ppm	+/- 1%

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	NTRM-81681	CC55773	994 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Horiba VIA-510	570423011	NDIR	7/30/98

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Fred Pikula
FRED PIKULA

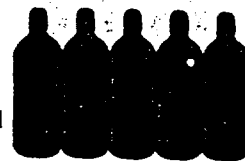
DATE: 8/18/98



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5904



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G2

CUSTOMER: ETS, INC
SGI ORDER #: 135096
ITEM#: 3
P.O.#: 6873

CYLINDER #: CC75430
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 350

CERTIFICATION DATE: 8/18/98
EXPIRATION DATE: 8/18/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	8/11/98 8/18/98	5962 ppm 5979 ppm	5971 ppm	+/- 1%

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	NTRM-81681	CC55773	994 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Horiba VIA-510	570423011	NDIR	7/30/98

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Fred Pikula
FRED PIKULA

DATE: 8/18/98



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2501

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: ETS, INC
SGI ORDER #: 129188
ITEM#: 2
P.O.#: 6759

CYLINDER #: CC65845
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 11/20/97
EXPIRATION DATE: 11/20/2000

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Sulfur Dioxide	5/23/97	549.3 ppm	550 ppm	+/- 1%
	11/20/97	550.9 ppm		

BALANCE Nitrogen

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Sulfur Dioxide	NTRM-R81662	CC55778	1040 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Sulfur Dioxide	Horiba VIA-510	851221093	NDIR	11/20/97

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Fred Pikula
FRED PIKULA

DATE: 11/20/97



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2209



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G2

CUSTOMER: ETS, INC
SGI ORDER #: 141673
ITEM#: 2
P.O.#: 7144

CYLINDER #: CC106908
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 4/20/99
EXPIRATION DATE: 4/20/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Sulfur Dioxide	4/13/99 4/20/99	257.4 ppm 256.9 ppm	257 ppm	+/- 1%

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Sulfur Dioxide	GMIS-1	CC85046	192.9 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Sulfur Dioxide	Horiba VIA-510	851221093	NDIR	4/9/99

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: DP
FRED PIKULA

DATE: 4/20/99



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3910



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE #: G1

CUSTOMER: ETS, Inc.
SGI ORDER #: 127471
ITEM#: 4
P.O.#: 6600

CYLINDER #: CC80901
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 9/5/97

EXPIRATION DATE: 9/5/99

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	8/29/97	906.6 ppm	908 ppm	+/- 1%
NOx	9/5/97	909.3 ppm	908 ppm	Reference Value Only

BALANCE

Nitrogen

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81687	CC38316	1009 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Teco-10	10AR-34979-249	CHEMI	8/29/97

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST:

TED NEEME

DATE: 9/5/97



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3500



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: ETS, INC
SGI ORDER #: 129188
ITEM#: 3
P.O.#: 6759

CYLINDER #: CC75736
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 11/18/97
EXPIRATION DATE: 11/18/99

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	5/16/97	557.6 ppm	558 ppm	+/- 1%
NOx	11/18/97	557.9 ppm	558 ppm	Reference Value Only

BALANCE

Nitrogen

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81687	CC38316	1009 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Teco 10	10AR-34979-249	Cheml	11/17/97

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST:

Fred Pikula
FRED PIKULA

DATE: 11/20/97



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5012



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: ETS, INC
SGI ORDER #: 142592
ITEM#: 6
P.O.#: 7212

CYLINDER #: CC98876
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 350

CERTIFICATION DATE: 5/21/99
EXPIRATION DATE: 5/21/2002

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	5/14/99 5/21/99	92.61 ppm 92.67 ppm	92.6 ppm	+/- 1%

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	NTRM-81679	CC88366	97.4 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Horiba VIA-510	570423011	NDIR	5/14/99

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: FRED PIKULA

DATE: 5/21/99



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5301

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: ETS, Inc.
SGI ORDER #: 127593
ITEM#: 1
P.O.#: 6607

CYLINDER #: CC65921
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 350

CERTIFICATION DATE: 9/10/97
EXPIRATION DATE: 9/10/2000

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	8/28/97	307.8 ppm	308 ppm	+/- 1%
	9/10/97	307.8 ppm		

BALANCE Nitrogen

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	SRM-1680b	CLM-010013	490.4 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Horiba-VIA-510	570423011	NDIR	8/26/97

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 160 PSIG.

ANALYST: Lyn Gameson
LYN GAMESON

DATE: 9/10/97



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3115

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE #: G1

CUSTOMER: ETS, INC
SGI ORDER #: 143365
ITEM#: 2
P.O.#: 7250

CYLINDER #: CC99123
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 4/30/99
EXPIRATION DATE: 4/30/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	4/21/99	101.2 ppm	101.7 ppm	+/- 1%
	4/30/99	102.2 ppm		
NOx			102.4 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	GMIS-1	CC60240	254.6 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Teco 10	10AR-34979-249	Cheml	4/13/99

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST:

FP

FRED PIKULA

DATE: 6/3/99



SPECTRA GASES INC.

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3212



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE #: G1

CUSTOMER: ETS, INC
SGI ORDER #: 139104
ITEM#: 1
P.O.#: 7305

CYLINDER #: CC65953
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 1/25/99
EXPIRATION DATE: 1/25/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	1/18/99 1/25/99	248.4 ppm 249.5 ppm	249 ppm	+/- 1%
NOx			249 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	NTRM-81685	LL2994	245.2 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Teco 10	10AR-34979-249	Cheml	1/4/99

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: FRED PIKULA

DATE: 1/25/99



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4063



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: ETS, INC
SGI ORDER #: 142592
ITEM#: 7
P.O.#: 7212

CYLINDER #: CC91039
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 5/14/99
EXPIRATION DATE: 5/14/2002

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	5/14/99	10.06 %	10.06 %	+/- 1%
Oxygen	5/14/99	10.01 %	10.01 %	+/- 1%

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	NTRM-82745x	CC79944	20.00 %
Oxygen	NTRM-82659X	CC83900	22.80 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	Horiba VIA-510	571417045	NDIR	5/3/99
Oxygen	Horiba MPA-510	570694081	PM	5/3/99

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: FRED PIKULA

DATE: 5/14/99



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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: ETS, INC
SGI ORDER #: 130859
ITEM#: 2
P.O.#: 6670

CYLINDER #: CC84968
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 2/9/98
EXPIRATION DATE: 2/9/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Oxygen	2/9/98	22.0 %	22.0 %	+/- 1%
Carbon Dioxide	2/9/98	16.93 %	16.93 %	+/- 1%

BALANCE

Nitrogen

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Oxygen	SRM-2659a	CLM006747	20.72 %
Carbon Dioxide	SRM-2745	CAL010437	15.69 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Oxygen	Horiba MPA-510	570694081	PM	2/9/98
Carbon Dioxide	Horiba VIA-510	571417045	NDIR	1/15/98

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST:

Fred Pikula
FRED PIKULA

DATE: 2/9/98

METHOD 20
INTERFERENCE RESPONSE TABLE

DATE: 10/11/94

ANALYZER TYPE: NOX #4

SERIAL NUMBER: 10AIR-50044-284

TEST GAS TYPE	CONCENTRATION (ppmdv)	ANALYZER OUTPUT	% OF SPAN
SO ₂	250.8	2.4691	0.25
CO	~~250~~ 594	3.1275	0.31
CO ₂	~~5.14~~ 9.88%	3.292	0.33
O ₂	22.0%	3.457	0.35
TOTAL			1.25

% OF SPAN = (ANALYZER OUTPUT RESPONSE / INSTRUMENT SPAN) X 100

The sum of the (% of Span) values should not exceed 2%.

PAGE OF

ANALYZER CALIBRATION					
RANGE	GAS CYLINDER ID	GAS VALUE	ANALYZER RESPONSE	ERROR % SPAN	TIME
ZERO	N ₂ AX-18304	0	0.000	0.0	11:43
LOW	NO _x ALM 029351	223.0	221.2	0.4	12:00
HIGH	NO _x ALM 17303	449	449.1	0.0	11:58
OTHER					

[illegible]

ETS, Inc

NOx ANALYZER CONVERTER CHECK # 4

TEST INFORMATION

Analyzer Manufacturer:
 Model No.:
 Serial No.:
 Span Setting (ppm):
 NO Gas Value:
 NO2 Gas Value:
 Date:
 Technician:

TECO
10 AIR
50044-284
250
112
55
4 JUN 99
V.C. Hryl = S

ANALYZER RESPONSE

Prepared Sample

time (min)	response (ppm)	time (min)	response (ppm)
1	55	16	55
2	55	17	55
3	55	18	55
4	55	19	55
5	55	20	55
6	55	21	55
7	55	22	55
8	55	23	55
9	55	24	55
10	55	25	55
11	55	26	55
12	55	27	55
13	55	28	55
14	55	29	55
15	55	30	55

Highest
Response
(ppm)

55

Final
Response
(ppm)

55

Reduction
(%)

0

NO2 Gas

NO2 Gas (ppm):
 Stable Response (ppm):
 Conversion Eff. (%):

55
55
100

ETS, Inc

NO_x ANALYZER CONVERTER CHECK #2

TEST INFORMATION

Analyzer Manufacturer:

Model No.:

Serial No:

Span Setting (ppm):

NO Gas Value:

NO₂ Gas Value:

Date:

Technician:

Thermo Environmental
N/A
26856-029 227
250
112
56
4 JUN 99
W.C. HAYES

ANALYZER RESPONSE

Prepared Sample

time (min)	response (ppm)	time (min)	response (ppm)
1	56	16	56
2	56	17	56
3	56	18	56
4	56	19	56
5	56	20	56
6	56	21	56
7	56	22	56
8	56	23	56
9	56	24	56
10	56	25	56
11	56	26	56
12	56	27	56
13	56	28	56
14	56	29	56
15	56	30	56

Highest Response (ppm)
56

Final Response (ppm)
56

Reduction (%)
0

NO₂ Gas

NO₂ Gas (ppm):

Stable Response (ppm):

Conversion Eff. (%):

56
56
100

(1203)

CAL

NO

END BAG

MOX CONVERTER
MOL 10 A/R
SNs 27458-227
CANISTER 26856-227

API Switch - MEID
Suppression - 20
API 112 @ 451
ZERO @ 167
Range 250
Rx Temp 650°C
Rx Vire 29" Hg
Flow 110 SCFH
Chart 0.5 cm/min

Reduction 0%
Efficiency 100%

4 JUN 99
W.C. HAYES

START BAG

MOX

CAL NO

ZERO

METHOD 20
INTERFERENCE RESPONSE TABLE

DATE: 5/28/96

ANALYZER TYPE: CO #1

SERIAL NUMBER: 48-25815-222

TEST GAS TYPE	CONCENTRATION (ppmdv)	ANALYZER OUTPUT	% OF SPAN
O ₂ ALM 017478	21.9 %	0.080	,008
CO ₂ ALM 028812	10.14 %	-0.035	-.0035
SO ₂ ALM 045690	224	0.0	0.0
NO _x AAL 3884	226	-0.130	-0.013
TOTAL		-.085	-0.0085

% OF SPAN = (ANALYZER OUTPUT RESPONSE / INSTRUMENT SPAN) X 100

The sum of the (% of Span) values should not exceed 2%.

REFERENCE METHOD ALIBRATION DATA

PAGE 1 OF 1

ANALYZER ID: 0#1 48-25815-222	
UNITS: /PPM _{LEV}	SPAN: 1,000
SOURCE ID: Interference check	
LOCATION: ETS Shop T III	
TECHNICIAN: C.S.	
DATE(S): 5 1 28 1 96	

ANALYZER CALIBRATION					
RANGE	GAS CYLINDER ID	GAS VALUE	ANALYZER RESPONSE	ERROR % SPAN	TIM
ZERO	N ₂ AX 29114	0	0.001	0.001	9:15
LOW	CO ALM 019286	298.2	300.0	.18	9:17
HIGH	CO ALM 044198	594	596.36	.236	9:19
OTHER	CO ALM 039316	845	841.8	.32	9:21

SYSTEM BIAS AND DRIFT			SYSTEM BIAS				SYSTEM DRIFT			
RUN ID	RANGE	ANALYZER RESPONSE	SYSTEM RESPONSE	ABSOLUTE ERROR	ERROR % SPAN	TIME	SYSTEM RESPONSE	ABSOLUTE ERROR	ERROR % SPAN	TIM
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									

METHOD 20
INTERFERENCE RESPONSE TABLE

DATE: 10/06/94

ANALYZER TYPE: CO₂ #4

SERIAL NUMBER: 901012

TEST GAS TYPE	CONCENTRATION (ppmdv)	ANALYZER OUTPUT	% OF SPAN
O ₂	21.7	0.623	0.115
NO	223	0.016	0.080
CO	504	0.176	0.850
SO ₂	224	0.150	0.750
TOTAL		0.359	1.795

% OF SPAN = (ANALYZER OUTPUT RESPONSE/INSTRUMENT SPAN) X 100

The sum of the (% of Span) values should not exceed 2%.

REFERENCE MET

CALIBRATION DATA

PAGE OF

ANALYZER ID: <i>CO₂ 901012 #4</i>	
UNITS: <i>%</i>	SPAN: <i>20</i>
SOURCE ID:	
LOCATION: <i>ETS</i>	
TECHNICIAN: <i>D.V.</i>	
DATE(S): <i>10 106 194</i>	

ANALYZER CALIBRATION					
RANGE	GAS CYLINDER ID	GAS VALUE	ANALYZER RESPONSE	ERROR % SPAN	TIME
ZERO	<i>AY-24336</i>	<i>0</i>	<i>0.003</i>	<i>0.015</i>	<i>16:0</i>
LOW	<i>ALM-034721</i>	<i>9.98</i>	<i>9.99</i>	<i>0.050</i>	<i>16:1</i>
HIGH	<i>ALM-044162</i>	<i>12.04</i>	<i>12.10</i>	<i>0.300</i>	<i>16:1</i>
OTHER					

SYSTEM BIAS AND DRIFT			SYSTEM BIAS				SYSTEM DRIFT			
RUN ID	RANGE	ANALYZER RESPONSE	SYSTEM RESPONSE	ABSOLUTE ERROR	ERROR % SPAN	TIME	SYSTEM RESPONSE	ABSOLUTE ERROR	ERROR % SPAN	TIME
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									

EPA METHOD 20
INTERFERENCE RESPONSE TABLE

Date: 04/19/93
Analyzer Type: Carbon Dioxide
Serial Number: 91-20-16 #2
Span Value: 20 %

Test Gas Type	Concentration (ppmdv)	Analyzer Output	% of Span
CO	488	0.291	0.0146
O2	21.9	0.051	0.0026
SO2	231	0.034	0.0017
NOx	232	-0.067	0.0034
Total			0.0222

% of Span = (Analyzer output response / Instrument span) x 100
The sum of the (% of Span) values should not exceed 2%.

METHOD 20
INTERFERENCE RESPONSE TABLE

DATE: 1/3/95

ANALYZER TYPE: O₂ #5

SERIAL NUMBER: 115914

TEST GAS TYPE	CONCENTRATION (ppmdv)	ANALYZER OUTPUT	% OF SPAN
SO ₂ cyl. # SGAL 2156	224	0.08	0.3
NO _x cyl. # ALM 009351	223	0.00	0.0
CO cyl. # SGAL 1966	442	0.01	0.0
CO ₂ cyl. # ALM 028817	10.4%	0.01	0.0
TOTAL			0.3

% OF SPAN = (ANALYZER OUTPUT RESPONSE/INSTRUMENT SPAN) X 100

The sum of the (% of Span) values should not exceed 2%.

REFERENCE METHOD CALIBRATION DATA

PAGE OF

ANALYZER ID: O_2 115 914 #5	
UNITS: %	SPAN: 25%
SOURCE ID:	
LOCATION: ETS	
TECHNICIAN: D. Vecellio	
DATE(S): 01 / 03 / 95	

ANALYZER CALIBRATION					
RANGE	GAS CYLINDER ID	GAS VALUE	ANALYZER RESPONSE	ERROR % SPAN	TIME
ZERO	N_2 - AX18304	0	0.09	0.36	15:00
LOW	O_2 - ALM045637	9.97	10.05	0.32	15:14
HIGH	O_2 - ALM044169	~~17.07~~ 21.7	21.7	0	15:10
OTHER					~~15:10~~

SYSTEM BIAS AND DRIFT			SYSTEM BIAS				SYSTEM DRIFT			
RUN ID	RANGE	ANALYZER RESPONSE	SYSTEM RESPONSE	ABSOLUTE ERROR	ERROR % SPAN	TIME	SYSTEM RESPONSE	ABSOLUTE ERROR	ERROR % SPAN	TIME
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									
	ZERO									
	UPSCALE									

EPA METHOD 6C INTERFERENCE CHECK RESULTS

SO₂
analyzer # 2

Source Type: MSW-Fired Incinerator
Location: York Resource Energy Systems - Unit 3
Analyzer Type: SO₂
Manufacturer/Model: Western Research Model 721AT2
Serial Number: 89-721AT2-7615-1

RUN ID	U3-M6-R1	U3-M6-R2	U3-M6-R3	Average
DATE	05/10/94	05/10/94	05/10/94	
TIME STARTED	10:03	11:48	13:48	
TIME ENDED	11:03	12:48	14:48	

GAS PARAMETERS

DGM Calibration Factor	0.9935	0.9935	0.9935	0.9935
Avg. DGM Temp. - °F	78	86.5	87	83.8
Barometric Press. - in. Hg.	29.52	29.52	29.52	29.5
Initial Sample Volume - liters	566.93	689.97	802.09	686.33
Final Sample Volume - liters	688.24	801.61	928.77	806.21
Volume Sampled - liters	121.31	111.64	126.68	119.9
Corrected Sample Volume - dscm	0.117	0.106	0.120	0.114
Corrected Sample Volume - dscf	4.120	3.732	4.231	4.028

SO₂ ANALYTICAL DATA

Sample Solution Volume - ml	100	100	100	100
Titrant Normality - meq/ml	0.0087	0.0087	0.0087	0.0087
Aliquot Volume - ml	20	20	20	20
Sample Titrant Volume - ml	0.55	2.3	0.7	1.2
Blank Titrant Volume - ml	0.1	0.1	0.1	0.10

METHOD 6 - SO₂ EMISSIONS

Concentration - lb/dscf	3.34E-07	1.80E-06	4.33E-07	8.56E-07
Concentration - ppm _{dv}	2.007	10.828	2.605	5.146

METHOD 6C - SO₂ EMISSIONS

Concentration - ppm _{dv}	2.37	2.96	0.44	1.92

INTERFERENCE CHECK RESULTS

Absolute Difference - ppm _{dv}	0.36	7.87	2.16	3.47
Percent Difference - % M6 Results	18.01	72.71	83.11	57.94

6C
METHOD ~~26~~ SAMPLING DATA SHEET

02/17/94

PROJECT: York NOMINAL SAMPLING RATE (l/min): 2
 LOCATION: ARES NOMINAL SAMPLING dH (in. W.C.): _____
 DATE: 10 May 94 BAROMETRIC PRESSURE (in. Hg): 29.52 - 5/10/94
 METER BOX I.D.: 17 OPERATOR: Underwood 29.34 - 5/12/94
 METER BOX GAMMA: 0.9935

RUN NUMBER	START TIME	END TIME	liters	liters	deg.F	deg.F	SAMPLE I.D.
			INITIAL METER VOLUME	FINAL METER VOLUME	INITIAL METER TEMP.	FINAL METER TEMP.	
10-94 U3-M6-R1	10:03	11:03	0566.93	0688.24	67	89	200 201 202
U3-M6-R2	11:48	12:48	0689.97	0801.61	80	93	203 204 205
U3-M6-R3	1348	1448	0802.09	0928.77	83	91	206 207 208
12-94 U1-M6-R4	07:33	08:33	0971.76	1074.48	66	86	209 210 211
U1-M6-R5	0903	1003	1095.01	1226.55	82	92	212 213 214
U1-M6-R6	1033	1133	1238.81	1356.34	91	94	215 216 217

MGC

2.37

2.96

0.44

1.60

2.11

6.48

ETS, INC.

FIELD SAMPLE LOG

Contract No. 94-137

Job I.D.

Test Method SO2

Print Date 05/16/94 Time 16:28:21

Page 1

Sample No.	Container No.	Other I.D.	Run I.D.	Sample Type	Volume,ml no Rinses	Volume,ml w/ Rinses	Analyst	Date	Comments
00200	F1		U3 -SO2-R1	IMPINGER 1 CONTENTS			pjb	05/16/94	
00201	F2		U3 -SO2-R1	IMP 2 & 3 CONTENTS			pjb	05/16/94	
00202	F3		U3 -SO2-R1	SILICA GEL			pjb	05/16/94	
00203	F1		U3 -SO2-R2	IMPINGER 1 CONTENTS			pjb	05/16/94	
00204	F2		U3 -SO2-R2	IMP 2 & 3 CONTENTS			pjb	05/16/94	
00205	F3		U3 -SO2-R2	SILICA GEL			pjb	05/16/94	
00206	F1		U3 -SO2-R3	IMPINGER 1 CONTENTS			pjb	05/16/94	
00207	F2		U3 -SO2-R3	IMP 2 & 3 CONTENTS			pjb	05/16/94	
00208	F3		U3 -SO2-R3	SILICA GEL			pjb	05/16/94	
00209	F1		U1 -SO2-R4	IMPINGER 1 CONTENTS			pjb	05/16/94	
00210	F2		U1 -SO2-R4	IMP 2 & 3 CONTENTS			pjb	05/16/94	
00211	F3		U1 -SO2-R4	SILICA GEL			pjb	05/16/94	
00212	F1		U1 -SO2-R5	IMPINGER 1 CONTENTS			pjb	05/16/94	
00213	F2		U1 -SO2-R5	IMP 2 & 3 CONTENTS			pjb	05/16/94	
00214	F3		U1 -SO2-R5	SILICA GEL			pjb	05/16/94	
00215	F1		U1 -SO2-R6	IMPINGER 1 CONTENTS			PJB	05/16/94	
00216	F2		U1 -SO2-R6	IMPINGER 2 & 3			pjb	05/16/94	
00217	F3		U1 -SO2-R6	SILICA GEL			PJB	05/16/94	
00218	F1		BLANK-SO2-R0	IMPINGER 1 CONTENTS			PJB	05/16/94	
00219	F2		BLANK-SO2-R0	IMPINGER 2 & 3			PJB	05/16/94	
00220	F3		BLANK-SO2-R0	SILICA GEL			PJB	05/16/94	

METHOD 8 ANALYSIS

Project YORK

Page 1 of 1

Contract 93-137

Date of Analysis: 6-14-94

Run ID	V _{soln}	V _a	N	Titrant Used ml		
	Total Liquid Volume ml	Aliquot Volume ml	Titrant Normality	Initial	Final	Net
U3-M6C-R1	100 ~~27.5~~	20	0.00865	6.7	7.4	0.7
U3-M6C-R1 dup	100	20	1	9.7	10.1	0.4
U3-M6C-R2	100 43	20		10.1	12.5	2.4
U3-M6C-R2 dup	100	20		12.5	14.7	2.2
U3-M6C-R3	100 44	20		14.7	15.4	0.7
U3-M6C-R3 dup	100	20		15.4	16.1	0.7
U1-M6C-R1	100 43	20		16.1	16.8	0.7
U1-M6C-R1 DUP	100	20		16.8	17.2	0.4
U1-M6C-R2	100 45	20		17.2	17.5 17.6 → 18.2	0.9
U1-M6C-R2 DUP	100	20		18.2	19.0	0.8
U1-M6C-R3	100 29	20		19.0	22.7	3.7
U1-M6C-R3 DUP	100	20		22.7	26.5	3.8
BLANK	100	20		26.5	26.6	0.1
BLANK DUP	100 39.5	20	✓	26.6	26.7	0.1

INITIALS DLS

TITRANT STANDARDIZATION

Project: YORK

Contract: 93-137

Date of Analysis: 10-14-94

Stock Number _____

N ₁	V ₁	V ₂	N ₂
Normality of Standard	Volume of Standard - ml	Volume of Titrant - ml	Normality of Titrant *
.01N H ₂ SO ₄	25	28.7	0.0087
.01N H ₂ SO ₄	25	28.9	0.0086
AVERAGE			0.00865

$$* N_2 = \frac{N_1 V_1}{V_2}$$

Initials DLB

DATA AND RESULTS FOR
EPA METHOD 6C
UNIT 3 OUTLET

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A, 6C, 7E-R1

Starting
05-10-94

Time	O2 % dv	SO2 ppmdv	NOx ppmdv
10:04	9.910	4.287	87.200
10:05	9.500	4.187	84.900
10:06	9.380	4.421	97.300
10:07	10.060	4.599	102.500
10:08	10.170	4.632	91.900
10:09	9.780	4.655	85.100
10:10	9.160	4.610	70.000
10:11	9.150	4.098	71.900
10:12	9.580	4.276	70.900
10:13	9.180	4.465	63.740
10:14	9.820	4.555	76.300
10:15	10.940	4.410	92.000
10:16	11.190	4.321	91.800
10:17	9.980	4.042	82.200
10:18	8.970	4.209	69.780
10:19	7.810	4.187	63.500
10:20	7.710	4.365	68.640
10:21	7.090	4.298	53.900
10:22	7.910	4.120	46.820
10:23	8.270	4.254	58.010
10:24	8.150	4.076	70.700
10:25	8.830	4.009	80.200
10:26	9.490	4.009	78.200
10:27	9.530	4.020	84.600
10:28	9.310	4.031	79.600
10:29	9.810	4.009	79.700
10:30	9.660	4.165	87.200
10:31	9.990	4.265	90.100
10:32	10.350	4.054	91.800
10:33	10.780	4.009	97.800
10:34	11.150	4.098	97.500
10:35	10.500	4.054	95.400
10:36	9.600	4.065	89.200
10:37	8.580	4.065	80.400
10:38	7.820	4.054	71.000
10:39	8.450	4.209	79.400
10:40	8.990	4.009	77.300
10:41	9.330	4.020	74.800
10:42	10.290	4.131	85.800
10:43	10.550	4.376	87.500
10:44	10.810	4.365	85.300

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A, 6C, 7E-R1

Starting
05-10-94

Time	O2 % dv	SO2 ppmdv	NOx ppmdv
10:45	10.910	4.566	89.400
10:46	10.370	4.599	76.000
10:47	10.690	4.443	80.400
10:48	11.360	4.332	86.700
10:49	11.180	4.399	92.400
10:50	10.740	4.287	87.600
10:51	10.190	4.365	93.800
10:52	9.900	4.465	91.700
10:53	10.380	4.265	90.000
10:54	9.940	4.588	93.100
10:55	9.840	4.588	86.500
10:56	9.470	4.599	101.500
10:57	9.530	4.577	107.200
10:58	10.210	4.566	102.200
10:59	10.790	4.477	100.500
11:00	10.460	4.677	100.500
11:01	10.300	6.454	99.300
11:02	10.840	6.131	91.300
11:03	11.350	6.120	85.300
60 MinAvg	9.766	4.393	84.121

Data Corrected for Calibrations

60 MinAvg	9.819	2.368	80.608

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A, 6C, 7E-R1

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 9.96
INITIAL CALIBRATION TIME --> 901
LOW Cal. Response = 0.10 HIGH Cal. Response = 9.82
FINAL CALIBRATION TIME ----> 1133
LOW Cal. Response = 0.03 HIGH Cal. Response = 9.99

LOW System Drift = -0.29 % HIGH System Drift = 0.70 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 125.00
INITIAL CALIBRATION TIME --> 901
LOW Cal. Response = 0.08 HIGH Cal. Response = 128.37
FINAL CALIBRATION TIME ----> 1133
LOW Cal. Response = 0.15 HIGH Cal. Response = 132.40

LOW System Drift = 0.03 % HIGH System Drift = 1.61 %

[SO2 OUT] Span Value = 150
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 250.00
INITIAL CALIBRATION TIME --> 901
LOW Cal. Response = -0.29 HIGH Cal. Response = 238.65
FINAL CALIBRATION TIME ----> 1133
LOW Cal. Response = 1.46 HIGH Cal. Response = 230.33

LOW System Drift = 1.17 % HIGH System Drift = -5.55 %

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A, 6C, 7E-R2

Starting
05-10-94

Time	O2 % dv	SO2 ppmdv	NOx ppmdv
11:49	9.650	5.340	88.300
11:50	8.970	5.340	79.800
11:51	8.690	5.340	86.900
11:52	8.990	5.340	91.600
11:53	9.430	5.340	100.300
11:54	9.950	5.340	95.800
11:55	9.820	5.340	89.900
11:56	10.040	5.380	93.500
11:57	10.240	5.630	105.600
11:58	10.230	5.370	100.100
11:59	9.900	5.370	95.700
12:00	10.190	5.370	80.200
12:01	9.130	5.340	89.800
12:02	8.490	5.360	73.700
12:03	9.080	5.340	83.200
12:04	9.210	5.360	83.400
12:05	9.320	5.500	102.000
12:06	9.940	5.410	98.900
12:07	10.690	5.050	98.200
12:08	10.470	5.860	95.400
12:09	10.190	5.660	95.000
12:10	9.780	5.360	81.100
12:11	10.050	5.380	85.900
12:12	9.700	5.410	87.200
12:13	9.450	5.340	95.100
12:14	9.570	5.480	89.100
12:15	10.200	5.370	82.100
12:16	10.470	5.360	95.200
12:17	10.270	5.340	89.500
12:18	9.010	5.370	95.900
12:19	8.050	5.380	85.200
12:20	8.490	5.340	97.700
12:21	7.790	5.340	91.700
12:22	7.720	5.340	86.900
12:23	8.600	5.340	96.100
12:24	10.360	5.340	100.500
12:25	11.440	5.340	103.000
12:26	11.530	5.360	100.700
12:27	11.260	5.360	99.300
12:28	10.870	5.320	91.400
12:29	10.360	5.200	91.000

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A, 6C, 7E-R2

Starting
05-10-94

Time	O2 % dv	SO2 ppmdv	NOx ppmdv
12:30	9.770	4.977	95.500
12:31	9.300	5.170	74.000
12:32	9.000	5.340	64.770
12:33	9.380	5.340	92.800
12:34	9.810	5.320	106.300
12:35	10.260	5.180	96.800
12:36	9.620	5.210	80.500
12:37	8.550	5.210	74.200
12:38	8.530	5.070	78.400
12:39	8.670	5.240	76.100
12:40	8.750	5.260	69.300
12:41	9.530	5.110	70.600
12:42	9.630	6.810	79.100
12:43	9.870	6.677	78.200
12:44	10.440	6.677	81.500
12:45	10.400	6.799	73.300
12:46	9.060	7.100	77.700
12:47	8.290	6.822	73.900
12:48	7.700	6.810	66.720
60 MinAvg	9.569	5.510	88.026

Data Corrected for Calibrations

60 MinAvg	9.656	2.955	83.970

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A, 6C, 7E-R2

Calibrations:

[O2 OUT] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 9.96
INITIAL CALIBRATION TIME --> 1133
LOW Cal. Response = 0.03 HIGH Cal. Response = 9.99
FINAL CALIBRATION TIME ----> 1323
LOW Cal. Response = 0.03 HIGH Cal. Response = 9.75

LOW System Drift = 0.01 % HIGH System Drift = -0.98 %

[NOx OUT] Span Value = 250
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 125.00
INITIAL CALIBRATION TIME --> 1133
LOW Cal. Response = 0.15 HIGH Cal. Response = 132.40
FINAL CALIBRATION TIME ----> 1323
LOW Cal. Response = 0.07 HIGH Cal. Response = 129.57

LOW System Drift = -0.03 % HIGH System Drift = -1.13 %

[SO2 OUT] Span Value = 150
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 250.00
INITIAL CALIBRATION TIME --> 1133
LOW Cal. Response = 1.46 HIGH Cal. Response = 230.33
FINAL CALIBRATION TIME ----> 1323
LOW Cal. Response = 1.02 HIGH Cal. Response = 232.41

LOW System Drift = -0.29 % HIGH System Drift = 1.39 %

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A, 6C, 7E-R3

Starting
05-10-94

Time	O2 % dv	SO2 ppmdv	NOx ppmdv
13:49	10.320	4.020	89.200
13:50	10.940	4.020	96.500
13:51	10.400	4.030	88.600
13:52	9.670	4.020	80.800
13:53	8.830	4.020	72.300
13:54	8.650	3.780	79.300
13:55	8.630	3.090	74.300
13:56	8.310	3.650	71.900
13:57	8.990	3.360	84.300
13:58	10.020	3.810	94.800
13:59	10.890	3.550	97.700
14:00	9.940	3.970	101.000
14:01	8.590	4.010	81.100
14:02	8.170	4.020	68.760
14:03	9.640	4.020	78.900
14:04	9.840	4.030	83.300
14:05	10.220	4.060	86.800
14:06	11.020	4.070	100.300
14:07	10.890	4.070	93.000
14:08	9.660	4.060	93.000
14:09	8.520	4.290	76.300
14:10	8.340	4.120	69.390
14:11	8.240	4.290	64.860
14:12	8.430	4.110	67.660
14:13	8.780	4.060	80.300
14:14	9.250	4.020	85.400
14:15	9.300	4.030	91.600
14:16	9.190	4.310	92.000
14:17	9.730	4.810	101.100
14:18	10.070	4.350	101.500
14:19	10.290	4.350	97.800
14:20	9.780	4.350	94.600
14:21	9.200	4.530	84.500
14:22	8.700	4.660	80.100
14:23	8.370	4.650	73.200
14:24	7.560	4.430	70.200
14:25	7.960	4.580	87.700
14:26	8.910	4.900	100.700
14:27	10.510	4.980	96.400
14:28	10.590	4.680	93.500
14:29	9.430	4.690	86.900

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U3O-M3A,6C,7E-R3

Starting
05-10-94

Time	O2 % dv	SO2 ppmdv	NOx ppmdv
14:30	9.320	4.600	82.400
14:31	9.480	4.900	81.100
14:32	9.240	4.250	87.600
14:33	9.930	4.700	92.300
14:34	9.620	4.730	87.900
14:35	9.900	4.010	89.700
14:36	9.590	4.000	87.500
14:37	8.180	4.880	78.200
14:38	7.290	4.380	70.900
14:39	7.620	4.470	75.800
14:40	8.550	4.800	69.830
14:41	8.650	4.760	71.100
14:42	8.670	4.690	74.600
14:43	9.860	4.150	80.600
14:44	10.960	4.450	87.800
14:45	11.190	4.090	88.300
14:46	11.400	4.100	97.300
14:47	11.410	4.100	95.800
14:48	10.640	4.180	99.700
60 MinAvg	9.438	4.251	85.167

Data Corrected for Calibrations

60 MinAvg	9.797	0.440	81.886

YORK WRES
PART 60 COMPLIANCE
REFERENCE METHOD
U30-M3A,6C,7E-R3

Calibrations:

[O2 OUT]	Span Value = 25		
LOW Calibration Gas =	0.00	HIGH Calibration Gas =	9.96
INITIAL CALIBRATION TIME -->	1323		
LOW Cal. Response =	0.03	HIGH Cal. Response =	9.75
FINAL CALIBRATION TIME ---->	1520		
LOW Cal. Response =	-0.00	HIGH Cal. Response =	9.44
LOW System Drift =	-0.13 %	HIGH System Drift =	-1.22 %

[NOx OUT]	Span Value = 250		
LOW Calibration Gas =	0.00	HIGH Calibration Gas =	125.00
INITIAL CALIBRATION TIME -->	1323		
LOW Cal. Response =	0.07	HIGH Cal. Response =	129.57
FINAL CALIBRATION TIME ---->	1520		
LOW Cal. Response =	-0.02	HIGH Cal. Response =	130.42
LOW System Drift =	-0.04 %	HIGH System Drift =	0.34 %

[SO2 OUT]	Span Value = 150		
LOW Calibration Gas =	0.00	HIGH Calibration Gas =	250.00
INITIAL CALIBRATION TIME -->	1323		
LOW Cal. Response =	1.02	HIGH Cal. Response =	232.41
FINAL CALIBRATION TIME ---->	1520		
LOW Cal. Response =	0.36	HIGH Cal. Response =	232.58
LOW System Drift =	-0.44 %	HIGH System Drift =	0.11 %

EPA METHOD 6C INTERFERENCE CHECK RESULTS

Source Type: Coal-fired Boiler
Location: PEPCO - Dickerson Generating Plant - Unit 2
Analyzer type: SO2
Manufacturer / Model: Western Research Model 721M #3
Serial Number: 94-721M-8178-3

RUN NUMBER	U2-M26-R1	U2-M26-R2	U2-M26-R3	AVERAGE
DATE	12/29/95	12/29/95	12/29/95	
START TIME	18:22	19:46	21:09	
END TIME	18:52	20:16	21:39	

SAMPLING DATA

Initial Meter Volume - l	3023.620	3065.920	3111.000	
Final Meter Volume - l	3054.000	3095.350	3142.120	
Net Meter Volume - l	30.380	29.430	31.120	30.310
Average Meter Temp. - F	66.7	72.5	72.6	70.6
Barometric Pres. - in.Hg	30.26	30.26	30.26	30.26
Avg. Meter Pres. - in.W.C.	2.0	2.0	2.0	2.0
Meter Cal. Factor - Gamma	1.0384	1.0384	1.0384	
Corr. Meter Volume - dscf	1.134	1.087	1.149	1.124
Oxygen - %dv	10.32	10.56	10.61	10.50

SO2 ANALYTICAL DATA

Sample Solution Volume - ml	37.00	38.00	40.00	38.33
Titrant Normality - Eq/lit	0.10000	0.10000	0.10000	0.10000
Aliquot Volume - ml	10.00	10.00	10.00	10.00
Sample Titrant Volume - ml	3.95	3.50	3.60	3.68
Blank Titrant Volume - ml	0.025	0.025	0.025	0.025

SO2 EMISSIONS

Concentration - lb/dscf	9.04E-05	8.58E-05	8.79E-05	8.80E-05
Concentration - ppmdv	543.672	515.912	528.495	529.360

METHOD 6C - SO2 EMISSIONS

Concentration - ppmdv	561.68	544.41	544.67	550.25

INTERFERENCE CHECK RESULTS

Absolute Difference - ppmdv	18.01	28.50	16.18	20.89
Percent Difference - % M6 Results	3.31	5.52	3.06	3.97

EPA REFERENCE METHOD 6C

Job No. 95-658-T

Sampling Loc. UNIT Z

Date Analyzed 1/2/95

Analytical Media 140

★ _____

★★ _____

H ₂ SO ₄ Volume	BaCl ₂ Volume	BaCl ₂ Normality
5 ml	1.0	0.1
5 ml	1.0	0.1
5 ml	1.0	0.1
Average		0.1

$$MSO_2 = 32.03 \cdot (T_{avg} - T_{bavg}) \cdot N \cdot F$$

Note : Report results to three (3) significant digits.

METHOD ANALYSIS

Project NIH/LAIDLAWPage 1 of 1Contract 94-191Date of Analysis: 4/26/94

Run ID	Ysoln	V _a Aliquot Volume ml	N Titrant Normality	Titration Used ml		
	ORIGINAL Total Liquid Volume ml + DILUTION			Initial	Final	Net
U4670-R2 Sample #401	44 ml → 100 ml	20 ml SOLN 30 ml IPA 100 ml	.010	0	1.3	1.3
#401 DUP.	" "			7.4	8.8	1.4
U4670-R3 #403	47.5 ml → 100 ml			1.3	1.8	.5
#403 DUP.	" "			1.8	2.5	.7
U2690-R1 #406	46.5 ml → 100 ml			6.5	10.2	3.7
#406 DUP.	" "			10.2	14.1	3.9
U2690-R2 #409	40 ml → 100 ml			14.1	15.0	.9
#409 DUP.	" "			15.0	16.0	1.0
U2070-R1 #400	66 ml → 100 ml			0	48.9	48.9
#400 DUP #1	" "			0 → 50 0 → 1.3		51.3
#400 DUP #2	" "			1.3 → 50 40 → 42.4		51.1
U4090-R2 #412	48.5 ml → 100 ml			15.0 → 50 0 → 50 0 → 18.4		103.4
#412 DUP	" "			12.6 → 50 0 → 50 0 → 16.1		103.5
U4090-R3 #415	46.5 ml → 100 ml			18.4 → 50 0 → 50 0 → 10.9		92.5
#415 DUP.	" "			16.1 → 50 0 → 50 0 → 7.4		92.3
BLANK	30 ml → 100 ml			10.9	11.1	.2
BLANK DUP.	" "			11.1	11.2	.1

INITIALS

TITRANT STANDARDIZATION

Project: NIH / LAIDLAW

Contract: 94-191

Date of Analysis: 4/26/94

Stock Number _____

N ₁	V ₁	V ₂	N ₂
Normality of Standard	Volume of Standard - ml	Volume of Titrant - ml	Normality of Titrant *
.01 N H ₂ SO ₄	25 ml.	24.2	0.010
.01 N H ₂ SO ₄	25 ml.	24.1	0.010
AVERAGE			0.010

$$* N_2 = \frac{N_1 V_1}{V_2}$$

Initials RB



Proudly serving industry and government since 1973.

ETS Analytical Services, Inc.

A USEPA Contract Laboratory

A subsidiary of ETS International, Inc.

RECEIVED MAY 23 1994

ETS, Inc.
1401 Municipal Road N.W.
Roanoke, VA 24012
ATTN: Dr. Ted Handel

Re: Laboratory Analysis
ETSAS Client No. 6593
Project #94-194

REPORT DATE/NUMBER: May 13, 1994 / 273

ANALYSIS FOR: Sulfate

METHOD OF ANALYSIS: Ion Chromatography

SAMPLE ANALYSIS DATA

CLIENT ID: 400
MATRIX: AQUEOUS
COLLECTION DATE: / /
OTHER ID: 94-194
DESCRIPTION: LG&E

LAB ID: 157262
COLLECTED BY: ETS, INC.
DATE RECEIVED: 05/11/94
TIME COLLECTED:

Sulfate 1890 mg/l

>Analysis Date: 12-MAY-1994 by: GAM Run ID: 0511K1

>Method: Ion Chromatography; Det Limit= 200 mg/l

CLIENT ID: STD
MATRIX: AQUEOUS
COLLECTION DATE: / /
OTHER ID: 94-194
DESCRIPTION: LG&E

LAB ID: 157265
COLLECTED BY: ETS, INC.
DATE RECEIVED: 05/11/94
TIME COLLECTED:

Sulfate 23 mg/l

>Analysis Date: 11-MAY-1994 by: GAM Run ID: 0511K1

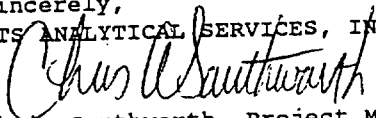
>Method: Ion Chromatography; Det Limit= 2.0 mg/l

REPORT CONTINUED ON NEXT PAGE



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If we may be of further assistance, please contact us at any time.

Sincerely,
ETS ANALYTICAL SERVICES, INC.

Chris Southworth, Project Manager

QUALITY ASSURANCE SUMMARY

CALIBRATION VERIFICATION

ANALYTE	UNITS	TYPE	TRUE	FOUND	% REC	QAO	RUN ID
Fluoride	mg/l	ICV1	1.83	1.73	94.4	75-125%	0511K1
Chloride	mg/l	ICV2	2.35	2.22	91.7	75-125%	0511K1
Sulfate	mg/l	ICV2	3.06	2.92	95.4	75-125%	0511K1
Fluoride	mg/l	CCV1	2.00	1.98	100.0	75-125%	0511K1
Chloride	mg/l	CCV1	2.00	1.85	95.0	75-125%	0511K1
Sulfate	mg/l	CCV1	2.00	1.88	95.0	75-125%	0511K1
Fluoride	mg/l	CCV3	2.00	1.98	100.0	75-125%	0511K1
Chloride	mg/l	CCV3	2.00	1.87	95.0	75-125%	0511K1
Sulfate	mg/l	CCV3	2.00	1.88	95.0	75-125%	0511K1
Fluoride	mg/l	CCV4	2.00	1.99	100.0	75-125%	0511K1
Chloride	mg/l	CCV4	2.00	1.89	95.0	75-125%	0511K1
Sulfate	mg/l	CCV4	2.00	1.90	95.0	75-125%	0511K1
Fluoride	mg/l	CCV5	2.00	2.00	100.0	75-125%	0511K1
Chloride	mg/l	CCV5	2.00	1.90	95.0	75-125%	0511K1
Sulfate	mg/l	CCV5	2.00	1.90	95.0	75-125%	0511K1
Fluoride	mg/l	CCV6	2.00	2.02	100.0	75-125%	0511K1
Chloride	mg/l	CCV6	2.00	1.96	100.0	75-125%	0511K1
Sulfate	mg/l	CCV6	2.00	1.90	95.0	75-125%	0511K1
Fluoride	mg/l	CCV7	2.00	2.02	100.0	75-125%	0511K1
Chloride	mg/l	CCV7	2.00	1.89	95.0	75-125%	0511K1
sulfate	mg/l	CCV7	2.00	1.88	95.0	75-125%	0511K1
Fluoride	mg/l	CCV8	2.00	2.03	100.0	75-125%	0511K1
Chloride	mg/l	CCV8	2.00	2.12	105.0	75-125%	0511K1
Sulfate	mg/l	CCV8	2.00	1.88	95.0	75-125%	0511K1
Fluoride	mg/l	CCV9	2.00	2.04	100.0	75-125%	0511K1
Chloride	mg/l	CCV9	2.00	1.95	100.0	75-125%	0511K1
Sulfate	mg/l	CCV9	2.00	1.89	95.0	75-125%	0511K1
Fluoride	mg/l	CCV10	2.00	2.00	100.0	75-125%	0511K1
Chloride	mg/l	CCV10	2.00	1.92	95.0	75-125%	0511K1

QA Report Continued on Next Page

ETS

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QUALITY ASSURANCE SUMMARY
Continued

CALIBRATION VERIFICATION

ANALYTE	UNITS	TYPE	TRUE	FOUND	% REC	QAO	RUN ID
Sulfate	mg/l	CCV10	2.00	2.17	110.0	75-125%	0511K1

BLANKS

ANALYTE	UNITS	TYPE	FOUND	QAO	RUN ID
Chloride	mg/l	ICB1	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	ICB1	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	ICB1	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB1	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB1	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB1	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB3	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB3	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB3	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB4	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB4	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB4	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB5	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB5	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB5	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB6	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB6	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB6	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB7	<0.50	<0.5 mg/l	0511K1

QA Report Continued on Next Page

ETS

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QUALITY ASSURANCE SUMMARY
Continued

BLANKS

ANALYTE	UNITS	TYPE	FOUND	QAO	RUN ID
Fluoride	mg/l	CCB7	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB7	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB8	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB8	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB8	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB9	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB9	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB9	<0.20	<0.2 mg/l	0511K1
Chloride	mg/l	CCB10	<0.50	<0.5 mg/l	0511K1
Fluoride	mg/l	CCB10	<0.20	<0.2 mg/l	0511K1
Sulfate	mg/l	CCB10	<0.20	<0.2 mg/l	0511K1

DUPLICATES

LAB ID	ANALYTE	TYPE	SAMPLE	DUP	UNITS	RPD	QAO	RUN ID
156906	Chloride	DUP	0.810	0.810	mg/l	0.0	≤25 RPD	0511K1
156906	Sulfate	DUP	3.4	3.4	mg/l	0.0	≤25 RPD	0511K1

SPIKES

LAB ID	ANALYTE	TYPE	SAMPLE	SPK	ADDED	%REC	QAO	RUN ID
156906	Sulfate	MS	3.41	5.03	2.00	81.0	75-125%	0511K1

QA Report Continued on Next Page

ETS

ETS, Inc.

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QUALITY ASSURANCE SUMMARY

Continued

SPIKES

LAB ID	ANALYTE	TYPE	SAMPLE	SPK	ADDED	%REC	QAO	RUN ID
156567	Fluoride	MS	8.23	24.0	2.00	79.0	75-125%	0511K1

QAO: Quality Assurance Objective; REC: Recovery; RPD: Relative Percent Difference; NC: Not Calculatable.

DUP: Duplicate Analysis Result; SPK: Spiked Analysis Result; MS: Matrix SPK; MSD: Matrix SPK Duplicate.

For Duplicates <5X the Detection Limit (DL), $\pm$ DL shall apply for the QAO unless otherwise specified.

ETS

Data

	CO ppmdv	NOx ppmdv	THC ppmwv
20	-0.03	200.00	0.32
.90	0.22	201.50	0.26
.90	0.28	204.40	0.22
.50	-0.34	204.60	0.22
.00	-0.56	204.10	0.14
.10	-0.20	203.80	0.11
.20	-0.32	202.30	0.32
.80	-0.33	202.50	0.02
.90	-0.02	203.60	-0.08
.70	-0.50	202.40	-0.10
.20P	-0.50P	202.60P	-0.11P
.50P	-0.36P	201.20P	-0.17P
.10	-0.69	203.00	-0.20
.00	-0.48	201.70	-0.23
.20	-0.68	200.80	-0.26
.70	-0.52	200.40	-0.32
4 .00	-0.52	199.60	-0.34
4 .50	-0.37	198.50	-0.37
.80	0.03	199.10	-0.38
.80	-0.65	201.50	-0.38
.00	-0.40	202.30	-0.39
.50	-0.68	201.60	-0.45
.00P	-0.64P	201.10P	-0.46P
.90	-0.35	200.80	-0.49
.60	-0.66	201.10	-0.48
1.20	-0.69	201.10	-0.52
0.50	-0.54	201.80	-0.51
05.90	-0.71	201.50	-0.56
11.90	-0.72	202.00	-0.54
118.10	-0.71	200.80	-0.52
421.50	-0.71	201.60	-0.61
422.50	-0.69	203.00	-0.64
422.90	-0.67	202.40	-0.65
425.40	-0.68	201.20	-0.68
425.10	-0.69	201.40	-0.65
425.30	-0.66	200.40	-0.63
426.60	-0.67	201.00	-0.68
427.20	-0.68	201.50	-0.66
428.10	-0.67	199.90	-0.67
428.30	-0.68	201.80	-0.62
427.30	-0.54	201.40	-0.65

Laidlaw/NIH
Unit #2 Boiler
Reference Method Data
U2070-R1

Starting
04-12-94

Time	O2 % dv	CO2 % dv	SO2 ppmdv	CO ppmdv	NOx ppmdv	THC ppmwv
18:51	6.594	10.790	428.00	-0.63	201.20	-0.67
18:52	6.565	10.820	429.10	-0.70	199.40	-0.65
18:53	6.534	10.840	431.10	-0.52	199.50	-0.68
18:54	6.576P	10.810P	431.00P	-0.53P	201.10P	-0.67P
18:55	6.596	10.780	427.80	-0.51	203.50	-0.67
18:56	6.579	10.800	428.00	-0.66	203.10	-0.68
18:57	6.589	10.790	429.70	-0.54	201.70	-0.69
18:58	6.575	10.800	429.10	-0.74	202.20	-0.70
18:59	6.598	10.780	429.40	-0.69	201.90	-0.73
19:00	6.575	10.800	429.60	-0.66	200.70	-0.72
19:01	6.579	10.800	431.20	-0.69	202.70	-0.73
19:02	6.587	10.790	430.20	-0.70	201.70	-0.72
19:03	6.601	10.790	429.50	-0.65	201.70	-0.72
19:04	6.608P	10.780P	430.50P	-0.73P	201.10P	-0.73P
19:05	6.598	10.790	429.60	-0.75	200.90	-0.73
19:06	6.591	10.800	430.90	-0.74	201.10	-0.74
19:07	6.606	10.780	429.70	-0.71	199.80	-0.73
19:08	6.592	10.790	429.60	-0.70	200.40	-0.74
19:09	6.600	10.790	430.20	-0.69	201.50	-0.73
19:10	6.592	10.790	428.80	-0.73	202.30	-0.72
19:11	6.585	10.800	430.50	-0.68	202.40	-0.80
19:12	6.595	10.800	431.60	-0.66	202.20	-0.76
19:13	6.616	10.780	430.80	-0.71	202.20	-0.75
19:14	6.591	10.810	431.60	-0.66	201.40	-0.69
65 MinAvg	6.618	10.793	424.43	-0.55	201.60	-0.47
Data Corrected for Calibrations						
65 MinAvg	6.654	11.031	435.75	<1.00*	206.56	<1.00*

The corrected THC and CO concentrations are reported as the lower detection limit to prevent a negative emission value after system bias adjustments. Negative THC and CO readings are caused by minimal system drift. However, the analyzer and sampling system calibration and bias error were within the performance criteria established by EPA Reference Methods 10 and 25A in 40 CFR 60, Appendix A.

Laidlaw/NIH
Unit #2 Boiler
Reference Method Data
U2070-R1

Calibrations:

[O2 U2] Span Value = 25
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 12.36
INITIAL CALIBRATION TIME --> 1620
LOW Cal. Response = -0.01 HIGH Cal. Response = 12.37
FINAL CALIBRATION TIME ----> 2006
LOW Cal. Response = 0.00 HIGH Cal. Response = 12.23

LOW System Drift = 0.05 % HIGH System Drift = -0.56 %

[CO2 U2] Span Value = 20
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 9.94
INITIAL CALIBRATION TIME --> 1620
LOW Cal. Response = 0.00 HIGH Cal. Response = 9.78
FINAL CALIBRATION TIME ----> 2006
LOW Cal. Response = 0.02 HIGH Cal. Response = 9.68

LOW System Drift = 0.12 % HIGH System Drift = -0.51 %

[SO2 U2] Span Value = 550
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 215.80
INITIAL CALIBRATION TIME --> 1620
LOW Cal. Response = -1.01 HIGH Cal. Response = 215.69
FINAL CALIBRATION TIME ----> 2006
LOW Cal. Response = 1.76 HIGH Cal. Response = 205.08

LOW System Drift = 0.50 % HIGH System Drift = -1.93 %

Laidlaw/NIH
Unit #2 Boiler
Reference Method Data
U2070-R1

Calibrations:

[CO U2] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 150.50
INITIAL CALIBRATION TIME --> 1620
LOW Cal. Response = -0.67 HIGH Cal. Response = 145.32
FINAL CALIBRATION TIME ----> 2006
LOW Cal. Response = -0.58 HIGH Cal. Response = 146.17

LOW System Drift = 0.02 % HIGH System Drift = 0.17 %

[NOx U2] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 253.00
INITIAL CALIBRATION TIME --> 1620
LOW Cal. Response = 0.60 HIGH Cal. Response = 251.52
FINAL CALIBRATION TIME ----> 2006
LOW Cal. Response = 0.60 HIGH Cal. Response = 242.05

LOW System Drift = 0.00 % HIGH System Drift = -1.89 %

[THC U2] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 217.00
INITIAL CALIBRATION TIME --> 1620
LOW Cal. Response = 1.00 HIGH Cal. Response = 215.86
FINAL CALIBRATION TIME ----> 2006
LOW Cal. Response = 0.57 HIGH Cal. Response = 212.32

LOW System Drift = -0.09 % HIGH System Drift = -0.71 %

Marker Description

Display Average

P Method 201 Port Change

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Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R2

Starting
04-14-94

Time	O2 % dv	CO2 % dv	SO2 ppmdv	CO ppmdv	NOx ppmdv	THC ppmwv
02:09	4.486	12.580	488.40	2.26	213.80	0.66
02:10	4.487	12.580	488.60	2.25	214.00	0.59
02:11	4.493	12.580	488.20	2.66	214.50	0.33
02:12	4.515	12.560	486.30	2.29	214.70	0.26
02:13	4.559	12.530	485.40	2.50	215.00	0.20
02:14	4.569	12.530	485.20	1.96	215.60	0.17
02:15	4.596	12.510	483.30	2.42	214.70	0.15
02:16	4.628	12.480	481.90	2.02	214.60	0.14
02:17	4.642	12.470	480.30	2.18	214.20	0.12
02:18	4.624	12.480	478.50	1.82	215.70	0.11
02:19	4.640P	12.470P	481.00P	1.80P	216.10P	0.23P
02:20	4.663	12.440	477.30	1.77	216.10	0.22
02:21	4.644	12.460	477.90	1.79	216.00	0.14
02:22	4.629	12.470	473.90	1.80	216.10	0.13
02:23	4.633	12.470	479.80	1.81	216.00	0.10
02:24	4.587	12.510	479.60	2.11	216.00	0.09
02:25	4.589	12.510	481.80	1.81	216.10	0.10
02:26	4.587	12.510	478.50	1.79	215.00	0.05
02:27	4.595	12.500	479.90	2.50	215.00	0.08
02:28	4.621	12.470	477.10	2.60	214.90	0.75
02:29	4.659	12.440	475.10	2.13	215.00	1.98
02:30	4.696P	12.420P	473.70P	2.19P	214.50P	1.06P
02:31	4.677	12.430	478.00	1.85	214.20	0.44
02:32	4.505	12.580	485.30	2.16	213.90	0.29
02:33	4.443	12.630	489.10	2.75	213.80	0.22
02:34	4.439	12.630	489.00	3.50	214.10	0.21
02:35	4.457	12.610	490.20	3.39	213.80	0.19
02:36	4.444	12.620	490.40	3.85	213.90	0.13
02:37	4.428	12.630	488.10	2.92	213.50	0.16
02:38	4.462	12.610	487.00	3.50	213.40	0.08
02:39	4.496	12.590	487.40	2.90	212.40	0.07
02:40	4.441	12.630	489.00	3.78	211.30	0.09
02:41	4.450	12.610	486.80	4.18	211.50	0.07
02:42	4.443P	12.620P	485.80P	3.66P	212.00P	0.06P
02:43	4.439	12.620	489.80	2.82	213.20	0.03
02:44	4.349	12.700	491.60	3.98	212.00	0.06
02:45	4.355	12.690	490.90	4.30	211.30	0.01
02:46	4.381	12.660	489.70	5.50	210.50	0.01
02:47	4.435	12.620	485.30	4.52	210.80	0.05
02:48	4.463	12.590	484.00	4.17	211.20	0.01
02:49	4.473	12.580	486.10	3.83	211.30	0.03

Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R2

Starting
04-14-94

Time	O2 % dv	CO2 % dv	SO2 ppmdv	CO ppmdv	NOx ppmdv	THC ppmwv
02:50	4.471	12.590	486.40	3.74	211.90	0.00
02:51	4.501	12.560	485.50	3.75	212.00	0.00
02:52	4.517	12.540	484.10	4.57	212.20	0.01
02:53	4.534	12.530	483.20	2.95	212.20	-0.01
02:54	4.525	12.530	482.40	3.05	212.00	0.00
02:55	4.525	12.530	481.90	3.03	212.40	0.01
02:56	4.529	12.530	482.20	3.29	212.10	0.01
02:57	4.535	12.520	482.00	2.93	211.80	2.23
02:58	4.554	12.500	482.70	2.67	212.50	1.42
02:59	4.562	12.490	481.10	2.68	212.80	0.80
03:00	4.583P	12.480P	480.80P	2.88P	212.70P	0.41P
03:01	4.604P	12.460P	480.50P	2.95P	212.80P	0.26P
03:02	4.580P	12.480P	481.80P	2.78P	213.10P	0.24P
03:03	4.581P	12.480P	479.10P	2.69P	213.30P	0.16P
03:04	4.564	12.500	483.70	2.69	212.80	0.13
03:05	4.542	12.510	484.20	3.28	213.20	0.88
03:06	4.532	12.520	485.30	3.78	212.60	2.30
03:07	4.518	12.530	487.00	2.72	212.00	1.45
03:08	4.525	12.520	484.00	2.68	212.20	3.57
03:09	4.527	12.520	486.20	2.68	212.20	2.24
03:10	4.546	12.500	484.90	2.70	211.50	2.88
03:11	4.592	12.460	483.00	2.68	211.20	2.28
03:12	4.609	12.450	484.20	2.68	211.60	1.52
03:13	4.647	12.410	481.00	2.68	211.60	1.24
03:14	4.656	12.410	480.60	3.04	211.90	1.17
03:15	6.011	10.960	464.90	2.70	201.00	1.70
67 MinAvg	4.558	12.512	483.75	2.89	213.08	0.57

Data Corrected for Calibrations

67 MinAvg	4.643	13.040	506.47	2.94	227.11	<1.00

Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R2

Calibrations:

[O2 U4]	Span Value = 25		
LOW Calibration Gas =	0.00	HIGH Calibration Gas =	12.36
INITIAL CALIBRATION TIME -->	200		
LOW Cal. Response =	0.00	HIGH Cal. Response =	12.13
FINAL CALIBRATION TIME ---->	332		
LOW Cal. Response =	0.00	HIGH Cal. Response =	12.12
LOW System Drift =	-0.02 %	HIGH System Drift =	-0.04 %
[CO2 U4]	Span Value = 20		
LOW Calibration Gas =	0.00	HIGH Calibration Gas =	9.94
INITIAL CALIBRATION TIME -->	200		
LOW Cal. Response =	0.05	HIGH Cal. Response =	9.58
FINAL CALIBRATION TIME ---->	332		
LOW Cal. Response =	0.04	HIGH Cal. Response =	9.52
LOW System Drift =	-0.07 %	HIGH System Drift =	-0.28 %
[SO2 U4]	Span Value = 550		
LOW Calibration Gas =	0.00	HIGH Calibration Gas =	441.00
INITIAL CALIBRATION TIME -->	200		
LOW Cal. Response =	3.00	HIGH Cal. Response =	423.19
FINAL CALIBRATION TIME ---->	332		
LOW Cal. Response =	3.22	HIGH Cal. Response =	420.06
LOW System Drift =	0.04 %	HIGH System Drift =	-0.57 %

Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R2

Calibrations:

[CO U4] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 150.50
INITIAL CALIBRATION TIME --> 200
LOW Cal. Response = 0.86 HIGH Cal. Response = 144.35
FINAL CALIBRATION TIME ----> 332
LOW Cal. Response = -0.73 HIGH Cal. Response = 144.62

LOW System Drift = -0.32 % HIGH System Drift = 0.05 %

[NOx U4] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 253.00
INITIAL CALIBRATION TIME --> 200
LOW Cal. Response = 0.25 HIGH Cal. Response = 235.20
FINAL CALIBRATION TIME ----> 332
LOW Cal. Response = -0.09 HIGH Cal. Response = 239.53

LOW System Drift = -0.07 % HIGH System Drift = 0.87 %

[THC U4] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 217.00
INITIAL CALIBRATION TIME --> 200
LOW Cal. Response = -0.04 HIGH Cal. Response = 219.99
FINAL CALIBRATION TIME ----> 332
LOW Cal. Response = 0.23 HIGH Cal. Response = 212.21

LOW System Drift = 0.05 % HIGH System Drift = -1.56 %

Marker Description

Display Average

P Method 201 Port Change

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Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R3

Starting
04-14-94

Time	O2 % dv	CO2 % dv	SO2 ppmdv	CO ppmdv	NOx ppmdv	THC ppmwv
03:51	4.845	12.350	474.60	4.54	204.80	0.08
03:52	4.842	12.350	474.50	4.90	204.00	0.06
03:53	4.843	12.350	473.50	4.74	203.80	0.06
03:54	4.848	12.350	475.10	4.29	204.10	0.05
03:55	4.837	12.360	477.60	4.48	204.60	0.07
03:56	4.846	12.350	477.10	4.94	203.10	0.06
03:57	4.835	12.360	477.30	4.89	202.40	0.05
03:58	4.826	12.370	478.30	6.27	201.50	0.05
03:59	4.844	12.350	478.30	6.20	201.90	0.06
04:00	4.841	12.350	476.40	5.71	201.60	0.01
04:01	4.850P	12.340P	478.30P	5.31P	202.00P	0.03P
04:02	4.872	12.320	474.10	4.87	202.20	0.03
04:03	4.891	12.300	475.30	5.62	201.70	0.01
04:04	4.870	12.310	475.00	6.00	201.80	0.00
04:05	4.877	12.300	474.70	6.18	200.90	0.03
04:06	5.153	12.070	467.90	7.89	197.80	0.02
04:07	5.236	11.990	459.90	5.51	193.50	0.02
04:08	4.858	12.300	473.60	9.36	194.50	0.05
04:09	4.839	12.310	475.00	7.47	196.40	0.02
04:10	4.701	12.430	479.20	6.19	194.60	0.05
04:11	4.607	12.500	480.10	9.09	194.40	0.15
04:12	4.558	12.540	485.20	10.20	195.80	0.11
04:13	4.461P	12.620P	490.20P	11.00P	195.10P	0.14P
04:14	4.445	12.630	490.20	12.39	194.30	0.17
04:15	4.430	12.640	491.10	12.76	192.80	0.53
04:16	4.449	12.620	488.60	14.74	193.10	1.66
04:17	4.447	12.630	488.00	14.14	193.50	1.90
04:18	4.500	12.580	487.10	15.91	193.10	1.33
04:19	4.582	12.520	481.00	13.55	193.10	0.94
04:20	4.548	12.550	483.20	10.30	193.50	2.06
04:21	4.567	12.540	483.20	11.81	192.80	1.42
04:22	4.569	12.540	482.10	13.99	193.30	1.15
04:23	4.522	12.580	485.80	14.17	192.30	0.88
04:24	4.564P	12.550P	482.40P	14.42P	191.40P	0.69P
04:25	4.570	12.550	483.20	17.21	191.60	0.57
04:26	4.538	12.580	484.70	13.99	190.90	0.51
04:27	4.516	12.600	483.70	12.76	205.70	0.42
04:28	4.479	12.630	484.00	3.08	227.10	0.39
04:29	4.474	12.640	488.00	1.91	227.60	1.11
04:30	4.488	12.630	483.50	1.92	227.90	3.72
04:31	4.511	12.610	483.40	1.91	228.20	2.26

Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R3

Starting
04-14-94

Time	O2 % dv	CO2 % dv	SO2 ppmdv	CO ppmdv	NOx ppmdv	THC ppmwv
04:32	4.604	12.530	481.30	1.68	228.70	1.65
04:33	4.640	12.490	480.50	0.93	228.60	1.28
04:34	4.680	12.460	478.40	0.97	228.90	1.04
04:35	4.731	12.420	476.30	1.01	230.40	0.86
04:36	4.728	12.420	480.50	1.00	231.80	0.73
04:37	4.753	12.400	476.80	0.96	232.70	0.61
04:38	4.771	12.390	474.80	1.02	233.50	0.81
04:39	4.802	12.360	475.20	1.04	233.70	2.29
04:40	4.674	12.480	476.90	1.01	234.30	1.73
04:41	4.579	12.560	485.10	0.99	233.60	1.18
04:42	4.578P	12.560P	485.40P	1.00P	235.10P	0.87P
04:43	4.562	12.570	483.90	1.11	231.90	0.69
04:44	4.597	12.540	485.70	1.37	232.10	0.79
04:45	4.644	12.500	482.50	1.00	232.10	0.69
04:46	4.675	12.480	481.60	1.00	234.40	1.01
04:47	4.727	12.430	478.30	1.01	234.80	1.13
04:48	4.698	12.450	481.50	1.01	234.90	1.76
04:49	4.680	12.470	481.10	1.01	236.10	2.12
04:50	4.626	12.510	482.20	0.96	235.40	1.66
04:51	4.616	12.520	483.80	0.98	235.00	1.28
04:52	4.619	12.480	480.40	0.90	235.00	1.00
04:53	4.853	12.260	477.70	0.95	232.10	0.83
04:54	5.980	11.160	460.90	0.96	227.40	0.75
64 MinAvg	4.712	12.431	479.65	5.65	212.56	0.80
Data Corrected for Calibrations						
64 MinAvg	4.790	12.939	502.26	6.18	224.78	<1.00

Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R3

Calibrations:

[O2 U4]	Span Value =	25		
LOW Calibration Gas =	0.00		HIGH Calibration Gas =	12.36
INITIAL CALIBRATION TIME -->	332			
LOW Cal. Response =	0.00		HIGH Cal. Response =	12.12
FINAL CALIBRATION TIME ---->	508			
LOW Cal. Response =	-0.00		HIGH Cal. Response =	12.20

LOW System Drift =	-0.01 %		HIGH System Drift =	0.31 %

[CO2 U4]	Span Value =	20		
LOW Calibration Gas =	0.00		HIGH Calibration Gas =	9.94
INITIAL CALIBRATION TIME -->	332			
LOW Cal. Response =	0.04		HIGH Cal. Response =	9.52
FINAL CALIBRATION TIME ---->	508			
LOW Cal. Response =	0.02		HIGH Cal. Response =	9.59

LOW System Drift =	-0.08 %		HIGH System Drift =	0.37 %

[SO2 U4]	Span Value =	550		
LOW Calibration Gas =	0.00		HIGH Calibration Gas =	441.00
INITIAL CALIBRATION TIME -->	332			
LOW Cal. Response =	3.22		HIGH Cal. Response =	420.06
FINAL CALIBRATION TIME ---->	508			
LOW Cal. Response =	3.93		HIGH Cal. Response =	423.11

LOW System Drift =	0.13 %		HIGH System Drift =	0.55 %

Laidlaw/NIH
Unit #4 Boiler
Reference Method Data
U4090-R3

Calibrations:

[CO U4] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 150.50
INITIAL CALIBRATION TIME --> 332
LOW Cal. Response = -0.73 HIGH Cal. Response = 144.62
FINAL CALIBRATION TIME ----> 508
LOW Cal. Response = 0.09 HIGH Cal. Response = 145.26

LOW System Drift = 0.16 % HIGH System Drift = 0.13 %

[NOx U4] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 253.00
INITIAL CALIBRATION TIME --> 332
LOW Cal. Response = -0.09 HIGH Cal. Response = 239.53
FINAL CALIBRATION TIME ----> 508
LOW Cal. Response = -0.43 HIGH Cal. Response = 239.02

LOW System Drift = -0.07 % HIGH System Drift = -0.10 %

[THC U4] Span Value = 500
LOW Calibration Gas = 0.00 HIGH Calibration Gas = 217.00
INITIAL CALIBRATION TIME --> 332
LOW Cal. Response = 0.23 HIGH Cal. Response = 212.21
FINAL CALIBRATION TIME ----> 508
LOW Cal. Response = 0.05 HIGH Cal. Response = 220.08

LOW System Drift = -0.04 % HIGH System Drift = 1.57 %

Marker Description

Display Average

P Method 201 Port Change

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