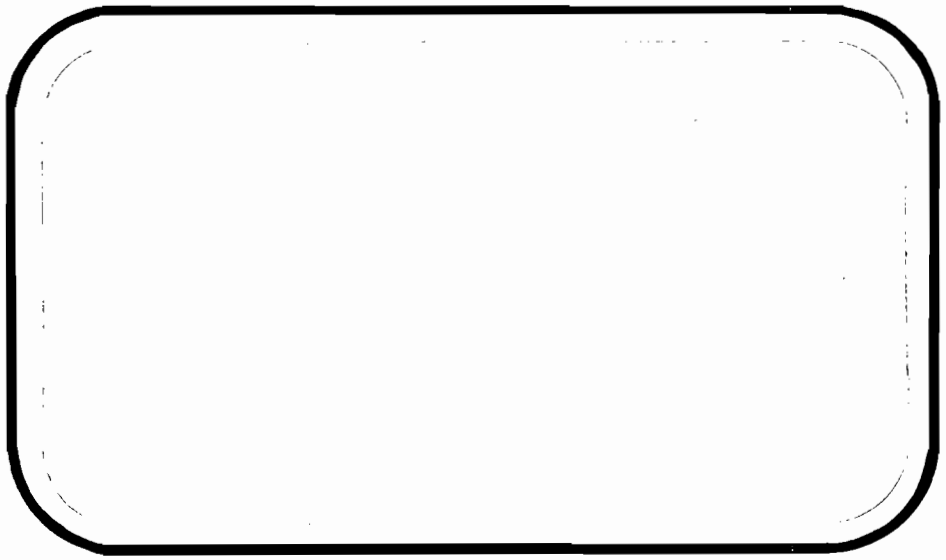
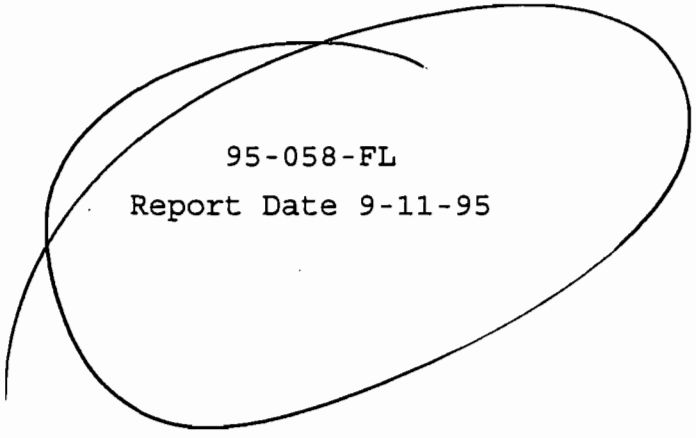


TOTAL SOURCE ANALYSIS, INC.

ENVIRONMENTAL TESTING CONSULTANTS

FINAL
BLEND EMISSIONS
TEST REPORT
FOR
JACKSONVILLE ELECTRIC
ST. JOHNS RIVER
POWER PARK
UNIT 1

August 11/19, 1995



TOTAL SOURCE ANALYSIS, INC.
ENVIRONMENTAL TESTING CONSULTANTS

September 11, 1995

I, James Tayfel, hereby certify that the emissions tests conducted at Jacksonville Electric Authority's St. Johns River Power Park, Unit 1 are in accordance with procedures established by the USEPA. This report accurately and faithfully presents the data obtained from the tests and the results determined from analysis of this data.

James Tayfel

James Tayfel
Crew Chief

I, Carl Vineyard, P.E., hereby attest that all work on this project was completed under my supervision and this report accurately presents the emissions from the units.

Carl Vineyard, P.E.
Chief Test Engineer

I, Angel Aguiar, P.E., have reviewed the reports for completeness and accuracy.

ANGEL AGUIAR CERTIFICATE NO. 47055 STATE OF FLORIDA

Angel Aguiar, P.E.
Florida Professional Engineer

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INTRODUCTION

INTRODUCTION

This report presents the results of the emissions tests performed for Jacksonville Electric St. Johns River Power Park, Unit 1.

The purpose of the tests was to determine the emissions of the unit. The results of the tests can be found in Section II of this report.

The emissions testing was performed by Total Source Analysis, Inc., whose Florida Branch Office is located at 810 N. Central Avenue, Umatilla, Florida 32784.

The tests were performed on August 11/19, 1995. The testing was performed in accordance with EPA reference methods as published in the July 1, 1994 Federal Register, - "Standards of Performance for New Stationary Sources" and subsequent revisions.

The testing equipment and sampling procedures are described in Section III of this report. The raw field data and equations used in determining final results are presented in the Appendix as well as the calibration data sheets for the applicable testing equipment.

SUMMARY OF TEST RESULTS

SUMMARY OF TEST RESULTS

The following table presents the final results of the emissons tests performed on Unit 1 at Jacksonville Electric's St. Johns River Power Park.

PARTICULATE

Run No.	Location	Date	lbs/dscf	lbs/hr	lbs/MBtu
1	Stack	8-14-95	5.06E-07	46.19	.006
2	Stack	8-14-95	1.07E-06	100.39	.014
3	Stack	8-14-95	1.03E-06	95.71	.013
Avg.			**8.72E-07**	**80.76**	**.011**
1	Stack	8-15-95	3.97E-07	36.25	.005
2	Stack	8-15-95	4.70E-07	44.01	.006
3	Stack	8-15-95	5.22E-07	48.60	.007
Avg.			**4.63E-07**	**42.95**	**.006**
1	Stack	8-16-95	2.29E-07	20.98	.003
2	Stack	8-16-95	4.08E-07	37.85	.005
3	Stack	8-16-95	3.04E-07	28.11	.004
Avg.			**3.14E-07**	**28.98**	**.004**
1	Stack	8-17-95	7.84E-07	71.31	.010
2	Stack	8-17-95	7.66E-07	71.73	.010
3	Stack	8-17-95	5.10E-07	46.82	.006
Avg.			**6.87E-07**	**63.28**	**.009**
1	Stack	8-19-95	2.75E-07	26.06	.004
2	Stack	8-19-95	2.65E-07	25.01	.003
3	Stack	8-19-95	2.05E-07	19.34	.003
Avg.			**2.48E-07**	**23.47**	**.003**

SO_3

Run No.	Location	Date	lbs/dscf	ppm	02%
1	Stack	8-11-95	1.541E-06	7.41	4.9
2	Stack	8-11-95	1.602E-06	7.70	4.9
3	Stack	8-11-95	1.559E-06	7.50	5.0
Avg.			**1.567E-06**	**7.54**	**4.9**
1	Stack	8-12-95	2.013E-06	9.68	5.0
2	Stack	8-12-95	1.879E-06	9.03	5.0
3	Stack	8-12-95	1.857E-06	8.93	4.9
Avg.			**1.916E-06**	**9.21**	**5.0**
1	Stack	8-13-95	1.154E-06	5.55	4.9
2	Stack	8-13-95	2.359E-06	11.34	4.8
3	Stack	8-13-95	5.243E-06	25.21	4.7
Avg.			**2.9186-06**	**14.03**	**4.8**
1	Stack	8-18-95	1.712E-06	8.23	5.0
2	Stack	8-18-95	2.469E-06	11.87	5.1
3	Stack	8-18-95	2.913E-06	14.01	5.0
Avg.			**2.364E-06**	**11.37**	**5.0**

CO

Run No.	Location	Test Date	ppm	%02
1	Stack	8-11-95	399.07	4.92
2	Stack	8-11-95	420.65	4.86
3	Stack	8-11-95	119.16	5.01
Avg.			**312.96**	**4.93**
1	Stack	8-12-95	460.81	5.04
2	Stack	8-12-95	481.31	4.98
3	Stack	8-12-95	550.61	4.93
Avg.			**497.58**	**4.98**
1	Stack	8-13-95	630.22	4.95
2	Stack	8-13-95	773.39	4.77
3	Stack	8-13-95	833.32	4.75
Avg.			**745.64**	**4.82**
1	Stack	8-18-95	444.22	5.00
2	Stack	8-18-95	471.25	5.05
3	Stack	8-18-95	488.23	5.04
Avg.			**467.90**	**5.03**

The complete results can be found on the computer printouts following.

Total Source Analysis, Inc.
Particulate Test Analysis

JEA
SJRPP
UNIT 1
95-058

Run Number		1	2	3
Data set		(01)	(02)	(03)
Date		8-14-95	8-14-95	8-14-95
Location		STACK BLEND	STACK BLEND	STACK BLEND
Start time		07:45	10:50	13:15
End time		10:05	13:00	15:25
Barometric Pressure	In. Hg	30.23	30.23	30.23
Static Pressure	In. H2O	-0.55	-0.55	-0.55
Volume of Condensate	Mls	262	257	261
Volume Sampled	DCF	86.588	83.536	82.954
Meter Correction Factor		1.00	1.00	1.00
Square Root of Delta P		1.149	1.172	1.174
Orifice Pressure	In. H2O	1.40	1.42	1.40
Meter Temperature	Deg. F	116	118	118
Flue Temperature	Deg. F	166	164	166
Percent CO2	%	14.40	14.20	14.45
Percent O2	%	4.80	4.90	4.46
Diameter of Nozzle	In	0.187	0.187	0.187
Area of Flue	Sq Ft	471.43	471.43	471.43
Sample Time	Min	120	120	120
Weight Gain	Grams	0.0184	0.0377	0.0358
F Factor	DSCF/MBtu	9780	9780	9780
Absolute Flue Pressure	In. Hg	30.19	30.19	30.19
Corrected Sample Volume	DSCF	80.11	77.03	76.49
Moisture in Flue Gas	%	13.3	13.6	13.9
Molecular Weight	Lb/LbMole	28.83	28.78	28.76
Velocity of Flue Gas	FpS	72.89	74.30	74.57
Volume of Flue Gas	ACFM	2,061,809	2,101,643	2,109,254
Volume of Flue Gas	DSCFM	1,520,149	1,550,385	1,545,685
Dust Concentration	Lb/DSCF	5.06E-07	1.07E-06	1.03E-06
Dust Concentration	Lbs/Hour	46.19	100.39	95.71
Dust Concentration	Grs/ACF	2.63E-03	5.62E-03	5.34E-03
Dust Concentration	Grs/DSCF	3.54E-03	7.55E-03	7.22E-03
Isokinetic Rate	%	108.4	102.2	101.8
Particulate Emissions	Lb/MBtu	0.006	0.014	0.013

Averages:

Stack Temperature	:	165.3	Percent O2 :	4.7
Vol Flue Gas	ACFM :	2,090,902	DSCFM :	1,538,740
Part Emis	Lb/DSCF :	8.72E-07	Lb/Hour :	80.76
	Grs/ACF :	4.53E-03	Grs/DSCF :	6.11E-03
	Lbs/MBtu :	1.1E-02		

Total Source Analysis, Inc.
Particulate Test Analysis

JEA
SJRPP
UNIT 1
95-058

Run Number		1	2	3
Data set		(04)	(05)	(06)
Date		8-15-95	8-15-95	8-15-95
Location		STACK BLEND	STACK BLEND	STACK BLEND
Start time		08:00	10:35	13:15
End time		10:07	12:40	15:25
Barometric Pressure	In. Hg	30.16	30.16	30.16
Static Pressure	In. H2O	-0.54	-0.54	-0.54
Volume of Condensate	Mls	261	284	276
Volume Sampled	DCF	83.217	85.552	84.692
Meter Correction Factor		1.00	1.00	1.00
Square Root of Delta P		1.158	1.192	1.186
Orifice Pressure	In. H2O	1.43	1.51	1.49
Meter Temperature	Deg. F	118	118	123
Flue Temperature	Deg. F	168	166	167
Percent CO2	%	14.40	14.00	14.30
Percent O2	%	5.10	5.20	4.80
Diameter of Nozzle	In	0.187	0.187	0.187
Area of Flue	Sq Ft	471.43	471.43	471.43
Sample Time	Min	120	120	120
Weight Gain	Grams	0.0138	0.0168	0.0183
F Factor	DSCF/MBtu	9780	9780	9780
Absolute Flue Pressure	In. Hg	30.12	30.12	30.12
Corrected Sample Volume	DSCF	76.56	78.72	77.26
Moisture in Flue Gas	%	13.8	14.5	14.4
Molecular Weight	Lb/LbMole	28.78	28.64	28.68
Velocity of Flue Gas	FpS	73.73	75.96	75.58
Volume of Flue Gas	ACFM	2,085,624	2,148,508	2,137,733
Volume of Flue Gas	DSCFM	1,520,200	1,558,742	1,550,968
Dust Concentration	Lb/DSCF	3.97E-07	4.70E-07	5.22E-07
Dust Concentration	Lbs/Hour	36.25	44.01	48.60
Dust Concentration	Grs/ACF	2.04E-03	2.41E-03	2.67E-03
Dust Concentration	Grs/DSCF	2.78E-03	3.29E-03	3.65E-03
Isokinetic Rate	%	103.6	103.9	102.5
Particulate Emissions	Lb/MBtu	0.005	0.006	0.007

Averages:

Stack Temperature	:	167.0	Percent O2	:	5.0
Vol Flue Gas	ACFM :	2,123,955	DSCFM	:	1,543,303
Part Emis	Lb/DSCF :	4.63E-07	Lb/Hour	:	42.95
	Grs/ACF :	2.38E-03	Grs/DSCF	:	3.24E-03
	Lbs/MBtu :	6E-03			

Total Source Analysis, Inc.
Particulate Test Analysis

JEA SJRPP POWERPARK
JACKSONVILLE FLA

95-058

Run Number		1	2	3
Data set		(10)	(11)	(12)
Date		8-16-95	8-16-95	8-16-95
Location		UNIT 1 BLEND	UNIT 1 BLEND	UNIT 1 BLEND
Start time		08:00	10:45	13:25
End time		10:25	12:50	15:37
Barometric Pressure	In. Hg	30.15	30.15	30.15
Static Pressure	In. H2O	-0.88	-0.88	-0.88
Volume of Condensate	Mls	247	256	264
Volume Sampled	DCF	79.551	82.145	82.095
Meter Correction Factor		1.00	1.00	1.00
Square Root of Delta P		1.160	1.174	1.175
Orifice Pressure	In. H2O	1.25	1.40	1.41
Meter Temperature	Deg. F	118	118	119
Flue Temperature	Deg. F	167	167	167
Percent CO2	%	14.30	14.20	14.10
Percent O2	%	5.00	4.80	4.90
Diameter of Nozzle	In	0.187	0.187	0.187
Area of Flue	Sq Ft	471.43	471.43	471.43
Sample Time	Min	120	120	120
Weight Gain	Grams	0.0076	0.0140	0.0104
F Factor	DSCF/MBtu	9780	9780	9780
Absolute Flue Pressure	In. Hg	30.09	30.09	30.09
Corrected Sample Volume	DSCF	73.12	75.50	75.33
Moisture in Flue Gas	%	13.7	13.8	14.2
Molecular Weight	Lb/LbMole	28.78	28.75	28.69
Velocity of Flue Gas	FpS	73.84	74.79	74.92
Volume of Flue Gas	ACFM	2,088,592	2,115,444	2,119,114
Volume of Flue Gas	DSCFM	1,525,857	1,543,258	1,539,304
Dust Concentration	Lb/DSCF	2.29E-07	4.08E-07	3.04E-07
Dust Concentration	Lbs/Hour	20.98	37.85	28.11
Dust Concentration	Grs/ACF	1.17E-03	2.11E-03	1.56E-03
Dust Concentration	Grs/DSCF	1.60E-03	2.86E-03	2.13E-03
Isokinetic Rate	%	98.6	100.6	100.7
Particulate Emissions	Lb/MBtu	0.003	0.005	0.004

Averages:

Stack Temperature	:	167.0		
Vol Flue Gas	ACFM :	2,107,717	Percent O2 :	4.9
			DSCFM :	1,536,140
Part Emis	Lb/DSCF :	3.14E-07	Lb/Hour :	28.98
	Grs/ACF :	1.62E-03	Grs/DSCF :	2.2E-03
	Lbs/MBtu :	4E-03		

Total Source Analysis, Inc.
Particulate Test Analysis

JEA SJRPP POWERPARK
JACKSONVILLE FLA
Blend
95-058
Unit #1

Run Number		1	2	3
Data set		(13)	(14)	(15)
Date		8-17-95	8-17-95	8-17-95
Location		UNIT 1 BLEND	UNIT 1 BLEND	UNIT 1 BLEND
Start time		08:00	10:35	13:15
End time		10:10	12:45	15:25
Barometric Pressure	In. Hg	30.19	30.19	30.19
Static Pressure	In. H2O	-0.83	-0.83	-0.83
Volume of Condensate	Mls	271	256	262
Volume Sampled	DCF	81.273	82.783	82.149
Meter Correction Factor		1.00	1.00	1.00
Square Root of Delta P		1.161	1.184	1.166
Orifice Pressure	In. H2O	1.37	1.43	1.37
Meter Temperature	Deg. F	118	120	119
Flue Temperature	Deg. F	167	166	169
Percent CO2	%	14.20	14.30	14.30
Percent O2	%	5.10	4.80	4.70
Diameter of Nozzle	In	0.187	0.187	0.187
Area of Flue	Sq Ft	471.43	471.43	471.43
Sample Time	Min	120	120	120
Weight Gain	Grams	0.0266	0.0264	0.0175
F Factor	DSCF/MBtu	9780	9780	9780
Absolute Flue Pressure	In. Hg	30.13	30.13	30.13
Corrected Sample Volume	DSCF	74.79	75.96	75.54
Moisture in Flue Gas	%	14.6	13.7	14.0
Molecular Weight	Lb/LbMole	28.66	28.77	28.73
Velocity of Flue Gas	FpS	74.03	75.26	74.37
Volume of Flue Gas	ACFM	2,094,037	2,128,696	2,103,624
Volume of Flue Gas	DSCFM	1,515,493	1,559,947	1,527,697
Dust Concentration	Lb/DSCF	7.84E-07	7.66E-07	5.10E-07
Dust Concentration	Lbs/Hour	71.31	71.73	46.82
Dust Concentration	Grs/ACF	4.01E-03	3.98E-03	2.62E-03
Dust Concentration	Grs/DSCF	5.48E-03	5.36E-03	3.57E-03
Isokinetic Rate	%	101.5	100.2	101.7
Particulate Emissions	Lb/MBtu	0.010	0.010	0.006

Averages:

Stack Temperature	:	167.5	Percent O2 :	4.9
Vol Flue Gas	ACFM :	2,108,786	DSCFM :	1,534,379
Part Emis	Lb/DSCF :	6.87E-07	Lb/Hour :	63.28
	Grs/ACF :	3.54E-03	Grs/DSCF :	4.81E-03
	Lbs/MBtu :	8.67E-03		

Total Source Analysis, Inc.
Particulate Test Analysis

JEA SJRPP POWERPARK
JACKSONVILLE FLA

95-058

Run Number		1	2	3
Data set		(17)	(18)	(19)
Date		8-19-95	8-19-95	8-19-95
Location		UNIT 1 BLEND	UNIT 1 BLEND	UNIT 1 BLEND
Start time		08:00	10:38	13:16
End time		10:15	12:56	15:32
Barometric Pressure	In. Hg	30.28	30.28	30.28
Static Pressure	In. H2O	-0.71	-0.74	-0.74
Volume of Condensate	Mls	205	217	231
Volume Sampled	DCF	81.337	83.156	87.737
Meter Correction Factor		1.00	1.00	1.00
Square Root of Delta P		1.157	1.160	1.160
Orifice Pressure	In. H2O	1.38	1.44	1.46
Meter Temperature	Deg. F	111	120	121
Flue Temperature	Deg. F	154	154	154
Percent CO2	%	14.20	14.30	14.40
Percent 02	%	5.00	5.20	4.60
Diameter of Nozzle	In	0.187	0.187	0.187
Area of Flue	Sq Ft	471.43	471.43	471.43
Sample Time	Min	120	120	120
Weight Gain	Grams	0.0095	0.0092	0.0075
F Factor	DSCF/MBtu	9780	9780	9780
Absolute Flue Pressure	In. Hg	30.23	30.23	30.23
Corrected Sample Volume	DSCF	76.04	76.54	80.62
Moisture in Flue Gas	%	11.3	11.8	11.9
Molecular Weight	Lb/LbMole	29.07	29.02	29.00
Velocity of Flue Gas	FpS	72.35	72.60	72.62
Volume of Flue Gas	ACFM	2,046,505	2,053,438	2,054,070
Volume of Flue Gas	DSCFM	1,577,001	1,572,924	1,571,863
Dust Concentration	Lb/DSCF	2.75E-07	2.65E-07	2.05E-07
Dust Concentration	Lbs/Hour	26.06	25.01	19.34
Dust Concentration	Grs/ACF	1.49E-03	1.43E-03	1.10E-03
Dust Concentration	Grs/DSCF	1.92E-03	1.85E-03	1.43E-03
Isokinetic Rate	%	99.2	100.1	105.5
Particulate Emissions	Lb/MBtu	0.004	0.003	0.003

Averages:

Stack Temperature		154.0		
Vol Flue Gas	ACFM	2,051,338	Percent 02	4.9
	DSCFM	1,573,929		
Part Emis	Lb/DSCF	2.48E-07	Lb/Hour	23.47
	Grs/ACF	1.35E-03	Grs/DSCF	1.74E-03
	Lbs/MBtu	3.33E-03		

Total Source Analysis, Inc.
SO3 - Sulfur Analysis

JEA
SJRPP
UNIT 1
95-058

Run Number		1	2	3
Data set		(19)	(20)	(21)
Date		8-11-95	8-11-95	8-11-95
Location		UNIT 1 STACK	UNIT 1 STACK	UNIT 1 STACK
Start time		08:15	10:14	12:13
End time		09:30	11:30	13:27
Barometric Pressure	In/Hg	30.22	30.22	30.22
Volume of Sample	Cu. Ft.	39.309	40.344	46.718
Meter Correction Factor		0.996	0.996	0.996
Meter Temperature	Deg. F	88	94	108
Percent O2	%	4.9	4.9	5.0
Volume of Solution	ML	160	211	224
Volume of Aliquot	ML	25	25	25
Normality of Barium	N	0.0099	0.0099	0.0099
Volume to Titrate Blank	ML	0.00	0.00	0.00
Volume to Titrate Sample	ML	10.50	8.40	8.70
Volume of Metered Gas	DSCF	38.086	38.665	43.671
Concentration of SO3	LBS/DSCF	1.541E-06	1.602E-06	1.559E-06
Parts Per Million SO3	PPM	7.41	7.70	7.50

Total Source Analysis, Inc.
SO3 - Sulfur Analysis

JEA
SJRPP
UNIT 1
95-058

Run Number		1	2	3
Data set		(22)	(23)	(24)
Date		8-12-95	8-12-95	8-12-95
Location		UNIT 1 STACK	UNIT 1 STACK	UNIT 1 STACK
Start time		08:06	10:00	11:50
End time		09:18	11:10	13:00
Barometric Pressure	In/Hg	30.23	30.23	30.29
Volume of Sample	Cu. Ft.	40.322	39.944	42.347
Meter Correction Factor		0.996	0.996	0.996
Meter Temperature	Deg. F	89	106	113
Percent O2	%	5.0	5.0	4.9
Volume of Solution	ML	250	175	171
Volume of Aliquot	ML	25	25	25
Normality of Barium	N	0.0100	0.0100	0.0100
Volume to Titrate Blank	ML	0.00	0.00	0.00
Volume to Titrate Sample	ML	8.90	11.40	12.10
Volume of Metered Gas	DSCF	39.009	37.483	39.330
Concentration of SO3	LBS/DSCF	2.013E-06	1.879E-06	1.857E-06
Parts Per Million SO3	PPM	9.68	9.03	8.93

Total Source Analysis, Inc.
SO3 - Sulfur Analysis

JEA
SJRPP
UNIT 1
95-058

Run Number		1	2	3
Data set		(25)	(26)	(27)
Date		8-13-95	8-13-95	8-13-95
Location		UNIT 1 STACK	UNIT 1 STACK	UNIT 1 STACK
Start time		08:00	09:47	11:43
End time		09:10	11:00	12:55
Barometric Pressure	In/Hg	30.29	30.29	30.29
Volume of Sample	Cu. Ft.	41.740	41.816	40.900
Meter Correction Factor		0.996	0.996	0.996
Meter Temperature	Deg. F	110	113	112
Percent O2	%	4.9	4.8	4.7
Volume of Solution	ML	196	193	199
Volume of Aliquot	ML	25	25	25
Normality of Barium	N	0.0100	0.0100	0.0100
Volume to Titrate Blank	ML	0.00	0.00	0.00
Volume to Titrate Sample	ML	6.50	13.45	28.40
Volume of Metered Gas	DSCF	38.970	38.837	38.053
Concentration of SO3	LBS/DSCF	1.154E-06	2.359E-06	5.243E-06
Parts Per Million SO3	PPM	5.55	11.34	25.21

Total Source Analysis, Inc.
SO3 - Sulfur Analysis

JEA
SJRPP
UNIT 1
95-058

Run Number		1	2	3
Data set		(28)	(29)	(30)
Date		8-18-95	8-18-95	8-18-95
Location		UNIT 1 STACK	UNIT 1 STACK	UNIT 1 STACK
Start time		08:00	09:50	11:35
End time		09:10	11:00	12:40
Barometric Pressure	In/Hg	30.19	30.19	30.19
Volume of Sample	Cu. Ft.	37.253	38.505	38.477
Meter Correction Factor		0.996	0.996	0.996
Meter Temperature	Deg. F	98	111	115
Percent O2	%	5.0	5.1	5.0
Volume of Solution	ML	193	197	165
Volume of Aliquot	ML	25	25	10
Normality of Barium	N	0.0100	0.0100	0.0100
Volume to Titrate Blank	ML	0.00	0.00	0.00
Volume to Titrate Sample	ML	8.90	12.70	7.10
Volume of Metered Gas	DSCF	35.412	35.769	35.494
Concentration of SO3	LBS/DSCF	1.712E-06	2.469E-06	2.913E-06
Parts Per Million SO3	PPM	8.23	11.87	14.01

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: CO
MONITOR SPAN 1000

UNIT NO.:

RUN NUMBER	AVERAGE MEASURED PPM	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PPM	CORRECTED PPM, DRY BASIS
1	392.31	0.00	0.00	0.00	59.90	62.00	0.21	62.00	399.07
2	422.81	0.00	0.00	0.00	302.70	304.40	0.17	302.00	420.65
3	119.69	0.00	0.00	0.00	304.40	302.30	-0.21	302.00	119.16

$$C_{gas} = (C_{avg} - C_o) * C_{ma} / (C_m - C_o) \qquad \text{Eq. 6C-1}$$

where:

Cgas = Effluent gas concentration, dry basis, ppm
Cavg = Average gas concentration indicated by gas analyzer, dry basis, ppm
Co = Average of initial and final system calibration bias check responses for the zero gas, ppm
Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm
Cma = Actual concentration of the upscale calibration gas, ppm

8-11-95

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: O2
MONITOR SPAN 25

UNIT NO.: 1

RUN NUMBER	AVERAGE MEASURED PERCENT	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PERCENT	CORRECTED PERCENT, DRY BASIS
1	4.87%	0.10%	0.10%	0.00%	11.40%	11.30%	-0.40%	11.60%	4.92%
2	4.77%	0.10%	0.10%	0.00%	11.30%	11.20%	-0.40%	11.60%	4.86%
3	4.89%	0.10%	0.10%	0.00%	11.20%	11.20%	0.00%	11.60%	5.01%

5-12-95

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: CO
MONITOR SPAN 1000

UNIT NO.: 1

RUN NUMBER	AVERAGE MEASURED PPM	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PPM	CORRECTED PPM, DRY BASIS
1	464.24	0.00	0.00	0.00	304.20	304.30	0.01	302.00	460.81
2	484.47	0.00	0.10	0.01	304.30	303.70	-0.06	302.00	481.31
3	552.57	0.10	0.00	-0.01	303.70	302.50	-0.12	302.00	550.61

B15

$$C_{gas} = (C_{avg} - C_o) * C_{ma} / (C_m - C_o) \qquad \text{Eq. 6C-1}$$

where:

Cgas = Effluent gas concentration, dry basis, ppm
Cavg = Average gas concentration indicated by gas analyzer, dry basis, ppm
Co = Average of initial and final system calibration bias check responses for the zero gas, ppm
Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm
Cma = Actual concentration of the upscale calibration gas, ppm

8-12-95

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: O2
MONITOR SPAN 25

UNIT NO.: 1

RUN NUMBER	AVERAGE MEASURED PERCENT	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PERCENT	CORRECTED PERCENT, DRY BASIS
1	4.97%	0.10%	0.10%	0.00%	11.30%	11.30%	0.00%	11.60%	5.04%
2	4.91%	0.10%	0.10%	0.00%	11.30%	11.30%	0.00%	11.60%	4.98%
3	4.82%	0.10%	0.10%	0.00%	11.30%	11.10%	-0.80%	11.60%	4.93%

8-73.4B

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: CO
MONITOR SPAN 1000

UNIT NO.: /

RUN NUMBER	AVERAGE MEASURED PPM	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PPM	CORRECTED PPM, DRY BASIS
1	636.27	0.00	0.00	0.00	305.40	304.40	-0.10	302.00	630.22
2	782.10	0.00	0.00	0.00	304.40	306.40	0.20	302.00	773.39
3	842.98	0.00	0.00	0.00	306.40	304.60	-0.18	302.00	833.32

$$C_{gas} = (C_{avg} - C_o) * C_{ma} / (C_m - C_o) \qquad \text{Eq. 6C-1}$$

where:

C_{gas} = Effluent gas concentration, dry basis, ppm
C_{avg} = Average gas concentration indicated by gas analyzer, dry basis, ppm
C_o = Average of initial and final system calibration bias check responses for the zero gas, ppm
C_m = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm
C_{ma} = Actual concentration of the upscale calibration gas, ppm

8-13-95

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: O2
MONITOR SPAN 25

UNIT NO.: /

RUN NUMBER	AVERAGE MEASURED PERCENT	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PERCENT	CORRECTED PERCENT, DRY BASIS
1	4.96%	0.10%	0.10%	0.00%	11.50%	11.50%	0.00%	11.60%	4.95%
2	4.77%	0.10%	0.10%	0.00%	11.50%	11.40%	-0.40%	11.60%	4.77%
3	4.67%	0.10%	0.10%	0.00%	11.40%	11.10%	-1.20%	11.60%	4.75%

8-18-95

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: CO
MONITOR SPAN 1000

UNIT NO.: 1

RUN NUMBER	AVERAGE MEASURED PPM	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PPM	CORRECTED PPM, DRY BASIS
1	444.73	0.00	0.00	0.00	301.50	303.20	0.17	302.00	444.22
2	474.65	0.00	0.10	0.01	303.20	305.20	0.20	302.00	471.25
3	491.11	0.10	0.00	-0.01	305.20	302.40	-0.28	302.00	488.23

B19

$$C_{gas} = (C_{avg} - C_o) * C_{ma} / (C_m - C_o) \qquad \text{Eq. 6C-1}$$

where:

Cgas = Effluent gas concentration, dry basis, ppm
Cavg = Average gas concentration indicated by gas analyzer, dry basis, ppm
Co = Average of initial and final system calibration bias check responses for the zero gas, ppm
Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm
Cma = Actual concentration of the upscale calibration gas, ppm

8-15-95

SAMPLING SYSTEM BIAS CHECK AND MEASURED VALUE CORRECTION

POLLUTANT: O2
MONITOR SPAN 25

UNIT NO.: 1

RUN NUMBER	AVERAGE MEASURED PERCENT	INITIAL ZERO GAS BIAS	FINAL ZERO GAS BIAS	ZERO GAS DRIFT	INITIAL UPSCALE GAS BIAS	FINAL UPSCALE GAS BIAS	UPSCALE GAS DRIFT	CALIBRATION GAS PERCENT	CORRECTED PERCENT, DRY BASIS
1	4.99%	0.10%	0.10%	0.00%	11.50%	11.40%	-0.40%	11.60%	5.00%
2	5.01%	0.10%	0.30%	0.80%	11.40%	11.10%	-1.20%	11.60%	5.05%
3	4.92%	0.30%	0.20%	-0.40%	11.10%	10.90%	-0.80%	11.60%	5.04%

B20

SAMPLING AND ANALYTICAL PROCEDURES

TESTING EQUIPMENT - EPA METHOD 5B SAMPLING TRAIN

An Anderson Corporation Stack Sampler (Model 201415) was used at the sampling locations(s). The particulate sampling train consisted basically of a glass or stainless steel probe; a variable-heat-controlled filter oven with a calibrated Type K (Chromel/Alumel) thermocouple located at the impinger outlet; a 1/4-hp shaft sealed carbon vane vacuum pump assembly with a vacuum gauge; a control unit with an elapse time indicator, a temperature selector switch, a temperature indicator (potentiometer), temperature controllers, an inclined draft gauge, a calibrated dry gas meter, and a calibrated orifice; and an umbilical with various interconnecting hoses, fitting and valves. An appropriately sized stainless-steel nozzle, a calibrated Type K temperature sensor, a static pressure tube, a calibrated S type pitot tube and a variable-heat-controlled stainless-steel liner with a calibrated Type K (Chromel/Alumel) thermocouple are integral parts of the probe assembly.

The vacuum pump was used to control gas sampling rates. The control unit was used to control probe and oven temperatures. The control unit was also used to monitor elapsed sampling times, temperatures, velocities, static pressure, gas sampling rates and sampled gas volume.

Integrated Gas Sampling Train

Flue gas was collected at the sampling location(s) for analysis with an integrated gas sampling train. The sampling train consisted basically of a Mann-made polystyrene gas filter drying tube; a Thomas 1/20-hp sealed-head diaphragm vacuum pump, and tygon tubing with various interconnecting fittings and valves.

Analyzer (Orsat)

Flue gas concentrations were determined with a Gas Analyzer (Orsat) which measures the percentage of carbon dioxide, the percentage of oxygen and percentage of carbon monoxide to the nearest tenth of a percent.

Programmable Calculator

A Hewlett Packard, Model 32SII, programmable calculator was used to determine the isokinetic sampling rate at each sampling point.

Barometer

The barometric pressure (actual station pressure) was determined from a calibrated Aneroid barometer located near the test site which read directly in inches of mercury to the nearest hundredth of an inch.

SAMPLING PROCEDURES - EPA REFERENCE METHOD 5B (PARTICULATE)

Prior to the field testing, the following procedures were performed: All instruments were checked and calibrated. Gelman Spectro Grade, glass-fiber-mat filters with 99.9 percent retention of 0.3-micron particles were individually numbered, placed in similarly numbered glass petri dishes, oven dried at 320 degrees Fahrenheit for two to three hours, cooled in a desiccator and individually weighed on a Mettler analytical balance (Model H54AR) to the nearest 0.1-milligram, and weighed a minimum of every six hours until two consecutive weights within ±0.5 milligrams were obtained. Several 250 milliliter crucibles were desiccated for a minimum of 24 hours and weighed in the same manner as the filters and petri dishes. Also, several 200-gram quantities of Type 6-16 mesh indicating silica gel were weighed on an Ohaus beam balance and placed into separate airtight polypropylene storage bottles.

The number of sampling points and positions of the points in the flue at the sampling location(s), and the sampling time at each point were determined prior to the particulate testing. The sampling procedures were performed in accordance with the Environment Protection Agency's Reference Method 5B, "Determination of Particulate Emissions from Stationary Sources" in the July 1, 1994 Federal Register, "Standards of Performance for New Stationary Sources" and subsequent revisions.

Before each test run, a particulate sampling train was prepared in part at the sampling location(s) in the following manner: An appropriately sized sampling nozzle was installed onto the inlet of the sampling probe and capped. The probe was then dimensioned and marked with glass-cloth tape at increments that corresponded with the predetermined sampling positions in the flue. A standard impinger assembly was prepared by adding 200 milliliters of distilled water, to each of the first two glass impingers. The third glass impinger was left dry and the fourth was filled with approximately 400 grams of type 6-16 mesh indicating silica gel. The entire impinger assembly was then placed in an ice bath. A disc filter was removed from its petri dish and placed inside a filter holder. The filter holder was then placed inside a filter oven and assembled to the sampling probe outlet and the impinger unit inlet. Next, an umbilical and sampling hoses were connected to the sampling probe, filter oven, impinger unit, vacuum pump and the control unit, accordingly. The probe and oven were then heated to and held at temperatures between 300 and 340 degrees Fahrenheit. The inclined draft gauges were checked and zeroed.

As soon as the probe and oven temperatures had stabilized the entire sampling train assembly was leak-checked at a minimum of 15 inches of mercury vacuum for one minute and the leakage rate recorded. A leakage rate of less than .02 cfm and no vacuum loss was considered acceptable.

After the particulate sampling train had been assembled, as previously described, the particulate sampling was performed.

The sampling nozzle, probe and filter holder were washed with nanograde acetone. The acetone washing and acetone blank were collected in labeled polypropylene sample bottles and retained for later evaporation, desiccation and weighing.

Flue gas concentrations (percentage of CO_2, percentage of O_2, and percentage of CO) were determined by taking several orsat samples of the gas collected, simultaneously with the particulate sampling throughout the test run, by an integrated gas sampling train. The integrated gas sample was collected from the discharge of the particulate control unit. The sampling train was set at a predetermined constant flow rate to obtain an adequate sample. The concentrations for each test run were recorded on a field test form.

Prior to the particulate sampling, a preliminary temperature and velocity traverse, orsat analysis and calculations were performed to determine a correct nozzle and orifice size, and the factors that would be used in calculating the isokinetic sampling rate for each sampling point. Knowing the actual pressure differential across the pitot tube used, the isokinetic sampling rate was calculated at each sampling point using a Hewlett Packard, Model 32SII, Programmable Calculator.

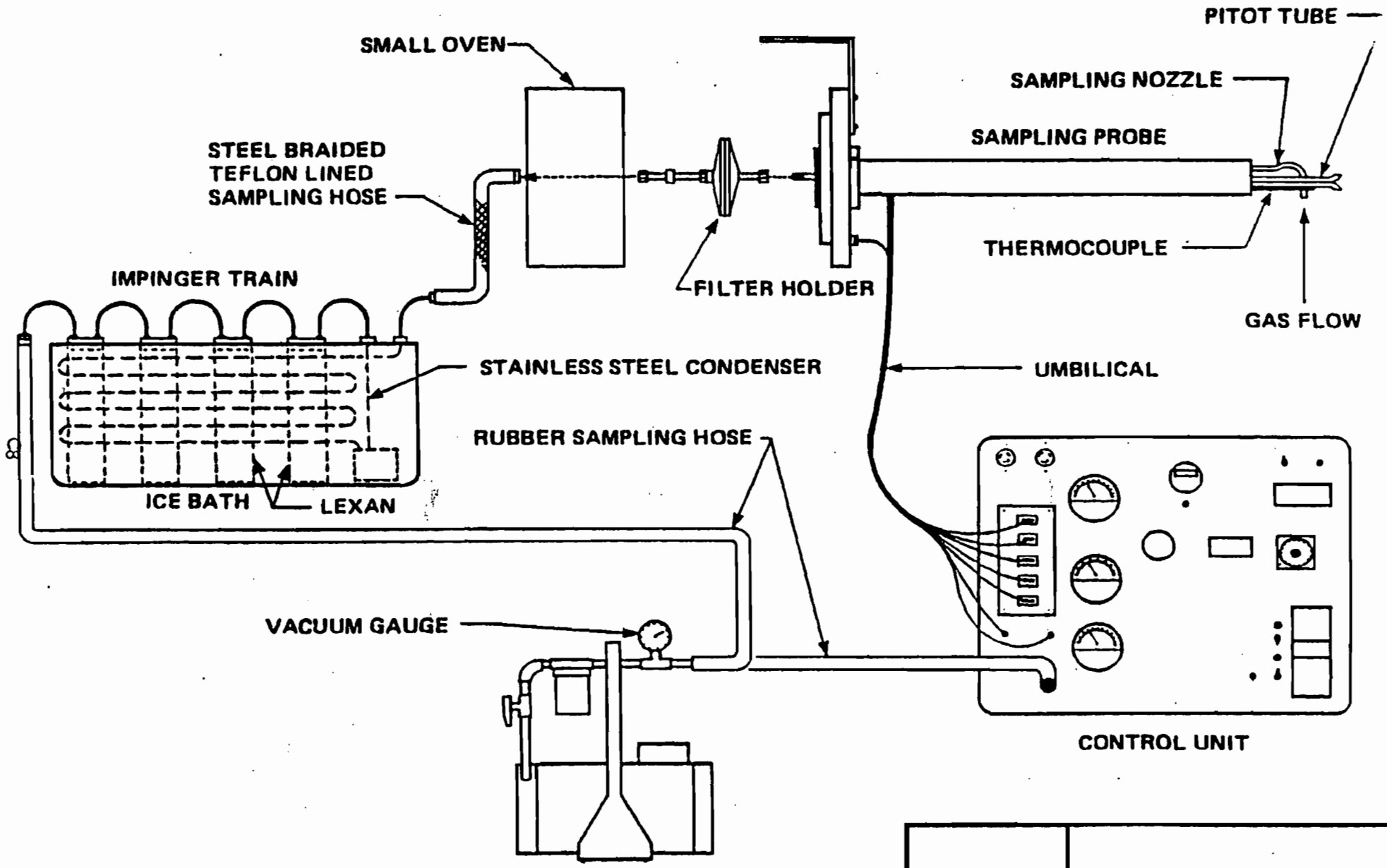
Three test runs were performed at the sampling location(s). The sampling data for each test run was recorded on a field test form during each of the sampling periods.

After the completion of a test run, the following procedures were performed: A final leak-check was performed at highest vacuum during the test for one minute and the leakage rate recorded. The flue gas moisture collected in the first three impingers was measured and recorded. The moisture laden silica gel in the fourth impinger was transferred to an appropriately marked, airtight polypropylene bottle and retained for later weighing. The weight gain of the silica gel moisture collection was added to the measured moisture condensed for that test run. The sample nozzle, probe and filter holder were capped and taken to a clean area for sample recovery. At the recovery area, the disc filter was carefully removed from the filter holder and transferred to its petri dish for later weighing.

ANALYTICAL PROCEDURES - EPA REFERENCE METHOD 5B (PARTICULATE)

After the field testing was completed, the following procedures were performed: Each silica gel moisture collection was weighed in its storage bottle on an Ohaus beam balance with sensitivity of 0.1-gram. Each disc filter and petri dish was oven dried at 320 degrees Fahrenheit for six hours and cooled in a desiccator for two hours before weighing. Each acetone washing and acetone blank was transferred from its sample bottle to a preweighed crucible for evaporation. When the acetone in a crucible had completely evaporated, it was oven dried at 320 degrees Fahrenheit for six hours and transferred to a desiccator for further drying at room temperature. Each acetone blank collected was used to determine the amount of residual weight each crucible retained due to acetone impurities. Each disc filter and petri dish, acetone washing and acetone blank was weighed on a Mettler analytical balance (Model H54AR) with a sensitivity of 0.1-milligram.

All test instruments were recalibrated to determine the deviation percentage.

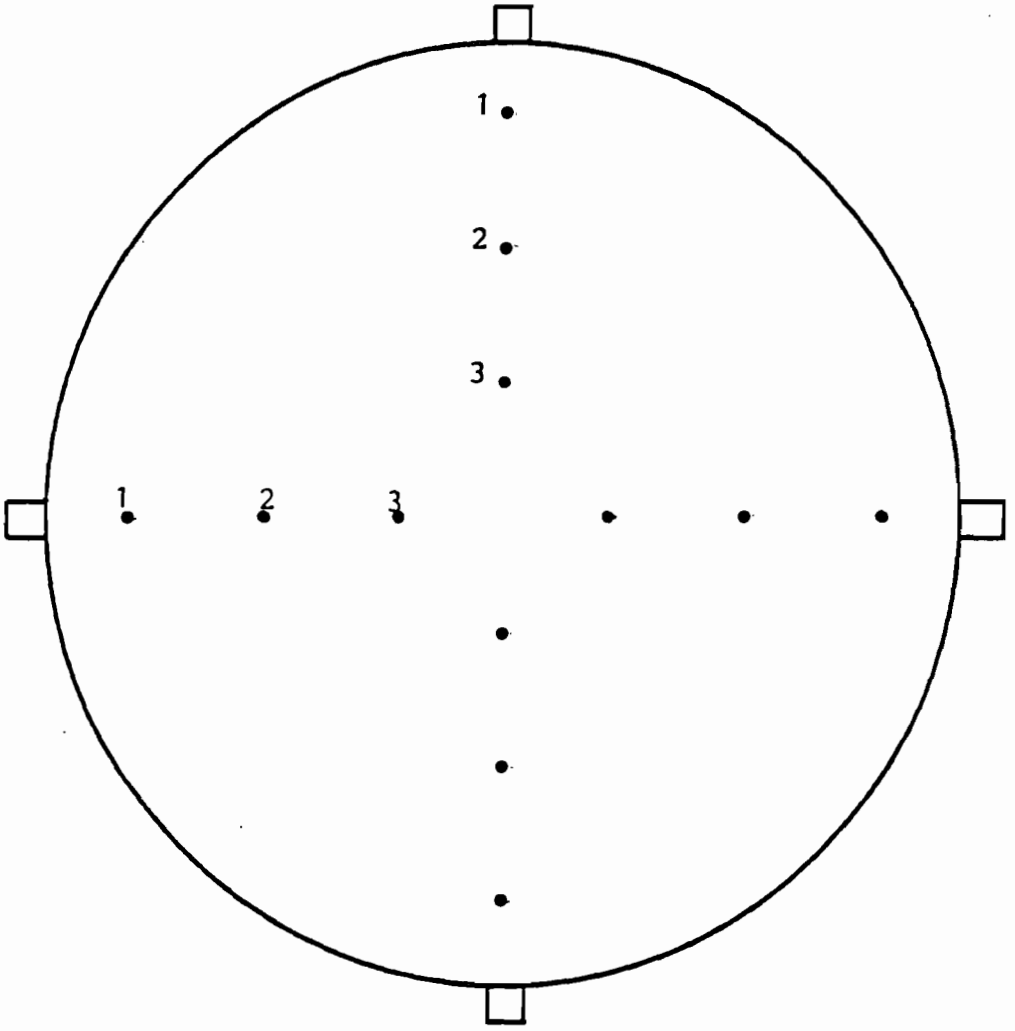


TSA

Exhibit

PARTICULATE
SAMPLING TRAIN

JEA-SJRPP UNIT 1&2
PARTICULATE SAMPLE POINTS



POINTS	DISTANCE FROM INSIDE WALL
1	12 7/8"
2	3' 6 7/8"
3	7' 3 "

DIAMETER STACK 24' 6"

CROSS SECTION AREA 471.43 FT^2

NOT TO SCALE

Total Source Analysis, Inc.
Environmental Testing Consultants

Exhibit

STACK TEST POINT LOCATIONS

TESTING EQUIPMENT - EPA REFERENCE METHOD 8

Sulfuric Acid Mist and Sulfur Dioxide

A Nutech Corporation Stack Sampler (Model 2010) was used at the sampling location(s). The sampling train consisted basically of an effective length stainless steel probe, a standard glass impinger assembly with a calibrated Type K (Chromel/Alumel) thermocouple located at the impinger outlet; a 3/4-hp shaft sealed carbon vane vacuum pump assembly with a vacuum gauge; control unit with an elapse time indicator, a temperature selector switch, a temperature indicator (potentiometer), temperature controllers, an inclined draft gauge, a calibrated dry gas meter, and a calibrated variable-diameter orifice; and an umbilical and various interconnecting hoses, fitting and valves. An appropriately sized stainless-steel nozzle, a calibrated Type K temperature sensor, a static pressure tube, a calibrated S type pitot tube and a variable-heat-controlled stainless-steel liner with a calibrated Type K (Chromel/Alumel) thermocouple are integral parts of the probe assembly.

The vacuum pump was used to control gas sampling rates. The control unit was used to control probe temperatures. The control unit was also used to monitor elapsed sampling times, temperatures, velocities, static pressures, gas sampling rates and sampled gas volume.

Integrated Gas Sampling Train

Flue gas was collected at the sampling location(s) for analysis with an integrated gas sampling train. The sampling train consisted basically of a Mann-made polystyrene gas filter drying tube; a Thomas 1/20 hp sealed-head diaphragm vacuum pump, a Dwyer flowmeter; a plastic bag housed in a protective aluminum case, and tygon tubing with various interconnecting fittings and valves.

Analyzer (Orsat)

Flue gas concentrations were determined with a Gas Analyzer (Orsat) which measures the percentage of carbon dioxide, percentage of oxygen and percentage of carbon monoxide to the nearest tenth of a percent.

Barometer

The barometric pressure (actual station pressure) was determined from a calibrated Aneroid barometer located near the test site which read directly in inches of mercury to the nearest hundredth of an inch.

SAMPLING PROCEDURES - EPA REFERENCE METHOD 8 (SO_3)

Prior to the field testing, the following procedures were performed: All instruments were checked and calibrated. Before each test run a sampling train was prepared inpart at the sampling location(s) in the following manner: An appropriately sized sampling nozzle was installed onto the inlet of a sampling probe and capped. The probe was then dimensioned and marked with glass-cloth tape at increments that corresponded with the predetermined sampling point positions in the flue. A standard impinger assembly was prepared by adding 100 milliliters of 80% Isopropanol to the first glass impinger. A glass filter holder was placed between the first and second impingers to catch sulfuric acid mist carryover, and 100 milliliters of 3% hydrogen peroxide was added to the second and third impingers. The fourth impinger was left dry and the fifth was filled with 250 grams of type 6-16 mesh indicating silica gel.

The entire impinger assembly was then placed into an icebath. Next, an umbilical and sampling hoses were connected to the sampling probe and impinger unit, a vacuum pump and a control unit, accordingly. The probe was then heated to and held at approximately 248 degrees Fahrenheit. All magnehelic gauges were checked and zeroed. As soon as the probe temperatures had stabilized, the entire sampling train assembly was leak-checked at a minimum of 15 inches of mercury vacuum for one minute and the leakage rate recorded. A leakage rate of less than .02 cfm and no vacuum loss was considered acceptable.

After the sampling train had been assembled, the probe heated, and the entire system leak-checked, as previously described, the SO_3 sampling was performed.

Flue gas concentrations (percentage of CO_2, percentage of O_2, and percentage of CO) were determined by taking several Orsat samples of the gas collected, simultaneously with the particulate sampling throughout the test run, by an integrated gas sampling train. The integrated gas sample was collected from the discharge of the particulate control unit. The sampling train was set at a predetermined constant flow rate to obtain an adequate sample. The concentrations for each test run were recorded on a field test form.

ANALYTICAL PROCEDURES - EPA REFERENCE METHOD 8

Container number one: A 100 ml aliquot of this solution was pipetted into a 250-ml Erlenmeyer flask, then 2 to 4 drops of thorin indicator were added, and the sample was titrated to a pink endpoint using 0.0100 normality barium perchlorate. The titration was repeated with a second aliquot of sample and titration values averaged. Replicate titrations must agree within 1 percent or ±0.2 ml., whichever is greater.

Container number two: The solution in the container holding the contents of the second and third impingers were discarded.

Blanks were prepared by adding 2 to 4 drops of thorin indicator to 100 ml of 80 percent isopropanol. The blanks were titrated in the same manner as the samples.

All test instruments were recalibrated to determine the deviation percentage.

EPA METHOD 10

DETERMINATION OF CARBON MONOXIDE EMISSIONS FROM STATIONARY SOURCES

1. Principle

1.1 Principle - An integrated or continuous gas sample is extracted from a sampling point and analyzed for carbon monoxide (CO) content using a nondispersive infrared analyzer (NDIR).

2. Range and Sensitivity

2.1 Range - 0 to 1,000 ppm.

2.2 Sensitivity - minimum detectable concentration is 0.1 ppm for a 0 to 1,000 ppm span.

3. Precision and Accuracy

3.1 Precision - The precision of most NDIR analyzers is approximately ±2 percent of span.

3.2 Accuracy - The accuracy of most NDIR analyzers is approximately ±5 percent of span after calibration.

4. Apparatus

4.1 Probe - Stainless steel or sheathed Pyrex glass, equipped with a filter to remove particulate matter.

4.2 Air-cooled Condenser or Equivalent - To remove any excess moisture.

4.3 Valve - Needle valve, or Equivalent, to adjust flow rate.

4.4 Pump - Leak-free diaphragm type, or equivalent, to transport gas.

4.5 Rate Meter - Rotometer, or equivalent, to measure a flow range from 0 to 1.0 liter per minute (0.035 cfm).

4.6 Flexible Bag - Tedlar, or equivalent, with a capacity of 60 to 90 liters (2 to 3 feet). The bag was leak tested in the laboratory before using by evacuating the bag with a pump followed by a dry gas meter. When evacuation was complete, there was no flow through the meter.

5. Analysis

5.1 Carbon Monoxide Analyzer - A Horiba Model 321 or Fuji Model 730 nondispersive infrared analyzer is used. The instrument was demonstrated by the manufacturer to meet or exceed manufacturer's specifications and those described in this method.

6. Calibration Gases

6.1 Calibration Gases - Known concentration of CO in nitrogen for instrument span, prepurified grade of nitrogen for zero, and two additional concentrations corresponding approximately to 60 percent and 30 percent span. The span concentration shall not exceed 1.5 times the applicable source performance standard. The calibration gases are certified by the manufacturer to be within ±2 percent of the specified concentration.

6.2 Silica Gel - Indicating type, 6 to 16 mesh, dried at 175 degrees C (347 degrees F) for two hours.

6.3 Ascarite

7. Procedure

7.1 Continuous Sampling - Set up the equipment as shown in Figure 10-1 making sure all connections are leak free. Place the probe in the stack at a sampling point and purge the sampling line. Connect the analyzer and begin drawing sample into the analyzer. Allow 5 minutes for the system to stabilize, then record the analyzer reading as required by the test procedure. CO_2 content of the gas may be determined. During the sampling system bias check, the system is operated at the normal sampling rate, no adjustments to the measurement system, other than those necessary to achieve proper calibration gas flow rates at the analyzer, are made. Alternately, introduce the zero and upscale gases until a stable response is achieved. The tester determined the measurement system response time by observing the times required to achieve a stable response for both the zero and upscale gases. Note the longer of the two times as the response time. The sampling system bias check shall be considered invalid if the difference between the gas concentrations displayed by the measurement system for the analyzer calibration error check and for the sampling system bias check exceeds ±5 percent of the span for either the zero or upscale calibration gas.

APPENDIX

Sample Calculations

acf	= actual cubic feet
acfm	= actual cubic feet per minute
A	= effective area of flue in square feet
acm	= actual cubic meters
acmm	= actual cubic meters per minute
A_n	= inside area of sampling nozzle in square feet
B_{ws}	= water vapor in gas stream, proportion by volume
%C	= percent carbon by weight, dry basis
%CO	= percent carbon monoxide by volume, dry basis
$\%CO_2$	= percent carbon dioxide by volume, dry basis
C_p	= pitot tube coeffecient
D_I	= dust loading per heat input in pounds (grams) per million Btu (calories) per Fr constant
D_I'	= dust loading per heat input in pounds (grams) per million Btu (calories) per Fr calculated
dscf	= dry standard cubic feet
dscfh	= dry standard cubic feet per hour
dscm	= dry standard cubic meters
dscmh	= dry standard cubic meters per hour
fps	= feet per second
F_r	= ratio factor of dry flue gas volume to heat value of combusted fuel in dry standard cubic feet (meters) per million Btu (calories)
gms	= grams
gm-mole	= gram-mole
grs	= grains
ΔH	= orfice pressure drop in inches water, average
%H	= percent hydrogen by weight, dry basis
H_c	= heat of combustion in Btu per pound, dry basis
hr	= hour
%I	= percent isokinetic
In. Hg	= inches mercury
lbs	= pounds
lb-mole	= pound-mole
%M	= percent moisture by volume
mmBtu	= million Btu
mmcal	= million calories
mm Hg	= millimeters mercury
mps	= meters per second
M_s	= molecular weight in pounds (gram) per pound (gram) mole (wet basis)
%N	= percent nitrogen by weight, dry basis
$\%N_2$	= percent nitrogen by difference, dry basis
%O	= percent oxygen by difference, dry basis
$\%O_2$	= percent oxygen by volume, dry basis
P_b	= barometric pressure in inches mercury
P_{std}	= standard absolute pressure (29.92 in Hg)
P_s	= absolute pressure in flue in inches (millimeters) mercury
P_f	= static pressure in flue in inches water, average
$\sqrt{\Delta P}$	= square root of velocity head in inches water, average
%S	= percent sulfur by weight, dry basis
scf	= standard cubic feet
scm	= standard cubic meters
T_{std}	= absolute temperature of air in degrees Rankine at standard conditions (528 degrees)
T_S	= absolute temperature of flue gas in degrees Rankin, average
T_m	= absolute temperature at meter in degrees Rankine, average
V_S	= velocity of flue gas in feet (meters) per second
V_l	= volume of condensate through the impingers in milliliters
V_{lc}	= volume of liquid collected in condenser in milliliters plus weight of liquid absorbed in silica gel in grams indicated as milliliters
V_m	= volume of metered gas measured at meter conditions in cubic feet (meters)
V_{ms}	= volume of metered gas corrected to dry standard conditions in cubic feet (meters)
V_o	= volume of flue gas at actual conditions in cubic feet (meters) per minute
Q_{sd}	= volume of flue gas corrected to dry standard conditions in cubic feet (meters) per hour
V_t	= total volume of flue gas sampled at actual conditions in cubic feet (meters)
V_w	= volume of water vapor in metered gas corrected to standard conditions in cubic feet (meters)
V_{wc}	= volume of water condensed in impingers corrected to standard conditions
V_{wsg}	= volume of water collected in silica gel corrected to standard conditions
W_a	= total weight of dust collected per unit volume in grains (grams) per actual cubic feet (meters)
W_d	= total weight of dust collected per unit volume in pounds (grams) per dry standard cubic feet (meters)
W_g	= total weight of dust collected in grams
W_h	= total weight of dust collected per unit volume in pounds (grams) per hour, dry basis
W_p	= total weight of dust collected in pounds
W_s	= total weight of dust collected per unit volume in grains (grams) per dry standard cubic feet (meters)
W_{sg}	= impinger silica gel weight gain in grams
Y	= metered gas volume correction factor
Θ	= total elapsed sampling time in minutes

(1) ABSOLUTE FLUE PRESSURE (in. Hg)

$$P_s = (\pm P_f \div 13.6) + P_b$$

(2) WATER VAPOR VOLUME IN METERED GAS CORRECTED TO STANDARD CONDITIONS (scf)

$$V_{wc} = .04707 \times V_l \qquad V_{wsg} = .04715 \times W_{sg}$$
$$V_w = V_{wc} + V_{wsg}$$

(3) METERED GAS VOLUME CORRECTED TO STANDARD CONDITIONS (scf)

$$V_{ms} = 17.64 \times Y \times V_m \frac{P_b + (\Delta H/13.6)}{T_m}$$

(4) PERCENT MOISTURE IN FLUE GAS

$$B_{ws} = \frac{V_w}{(V_{ms} + V_w)} \qquad \%M = B_{ws} \times 100$$

(5) AVERAGE RESULTS OF FLUE GAS ANALYSIS

$$\%N_2 \text{ dry} = 100 - (\%CO_2 + \%O_2 + \%CO)$$

(6) APPROXIMATE MOLECULAR WEIGHT OF FLUE GAS (WET BASIS) (lb/lb-mole)

$$M_s = (18 \times B_{ws}) + \Big((.440\ (\%CO_2) + .320\ (\%O_2) + .280\ (\%N_2 + \%CO)\Big) \times (1 - B_{ws})$$

(7) GAS VELOCITY IN FLUE (fps)

$$V_s = 85.49 \times C_p \times (\sqrt{\Delta P}\ )\ \text{avg.} \sqrt{\frac{T_s}{P_s \times M_s}}$$

(8) FLUE GAS VOLUME AT ACTUAL CONDITIONS (acfm)

$$V_a = V_s \times A \times 60$$

(9) FLUE GAS VOLUME CORRECTED TO DRY STANDARD CONDITIONS (dscfh)

$$Q_{sd} = \frac{T_{std}}{29.92} \times \frac{P_s}{T_s} \times V_a \times (1 - B_{ws}) \times 60$$

(10) TOTAL FLUE GAS VOLUME SAMPLED AT ACTUAL CONDITIONS (acf)

$$V_t = \left[V_m \times Y \times \frac{T_s}{T_m} \times \left(\frac{P_b + (\Delta H/13.6)}{P_s}\right)\right] + \left(0.00267 \times V_{lc} \times \frac{T_s}{P_s}\right)$$

(11) DUST CONCENTRATION FOR INDIRECT HEATING UNIT ACTUAL CONDITIONS AND STANDARD CONDITIONS

W_g = gms

$W_p = 0.002205 \times W_g$ (lb)

$W_d = \frac{V_p}{V_{ms}}$ (lb/dscf)

$W_h = W_d \times Q_{sd}$ (lb/hr dry)

$W_a = \frac{7000 \times W_p}{V_t}$ (gr/acf)

$W_s = 7000 \times W_d$ (gr/dscf)

$D_l = \frac{9780 \times 20.9 \times W_d}{(20.9 - \%O_2)}$ (lb/mmBtu with constant 9780Fr)

$F_r = \frac{10^6 \times [(3.64 \times \%H) + (1.53 \times \%C) + (0.57 \times \%S) + (0.14 \times \%N) - (0.46 \times \%O)]}{H_c}$ (dscf/mmBtu)

$D_l' = \frac{20.9 \times W_d \times F_r}{(20.9 - \%O_2)}$ (lb/mmBtu with calculated F_r)

(12) PERCENT OF ISOKINETIC SAMPLING

$$\%I = \frac{1.667 \times T_s \times \left\{0.00267 \times V_{lc} + \left[\frac{V_m \times Y}{T_m} \times \left(P_b + \Delta H/13.6\right)\right]\right\}}{\Theta \times V_s \times P_s \times A_n}$$

SO_2 SO_3 NOMENCLATURE

%C	=	Percent carbon by weight, dry basis
C_{SO_2}	=	Concentration of sulfur dioxide, dry basis corrected to standard conditions (lb/dscf)
C_{SO_3}	=	Concentration of sulfur trioxide, dry basis corrected to standard conditions (lb/dscf)
ESO_2	=	Emissions of SO_2 (lb/mmBtu)
ESO_3	=	Emissions of SO_3 (lb/mmBtu)
F	=	F factor, ratio factor of dry flue gas volume to heat of combusted fuel in dry standard cubic feet per million Btu.
%H	=	Percent hydrogen by weight, dry basis
Hc	=	Heat of combustion, dry basis, Btu/lb.
In Hg	=	inches mercury
mls	=	Milliters of the standard sulfuric acid used to standardize the barium perchlorate solution
Ml_t	=	Milliters required to titrate the standard sulfuric acid solution
%N	=	Percent nitrogen by weight, dry basis
Ns	=	Normality of sulfuric acid as labeled on bottle
Nt	=	normality of barium perchlorate titrant, milliequivalents/ml
%O	=	Percent oxygen by weight, dry basis
$\%O_2$	=	Percent oxygen by volume, dry basis
Pb	=	Barometric pressure in inches, mercury
Pstd	=	Standard absolute pressure (29.92 in. Hg)
PPM	=	Parts per million
%S	=	Percent sulfure by weight, dry basis
Tm	=	Absolute temperature at meter in degrees Rankine, average
Va	=	Volume of sample aliquot titrated, ml.
Vm	=	Volume dry gas as measured by the dry gas meter, (dcf)
Vmstd	=	Volume dry gas measured by the dry gas meter corrected to standard conditions (dscf)
Vsoln	=	Total volume of solution in which the sulfur dioxide sample is contained, 100 ml.
Vt	=	Volume of barium perchlorate titrant used for the sample, ml (average of replicate titrations)
Vtb	=	Volume of barium perchlorate titrant used for the blank, ml.
Y	=	Dry gas meter calibration factor

EPA - SO_3 FORMULAS

(1) $N_t = \dfrac{(mls) \times (Ns)}{Ml_t}$

(2) $V_{mstd} = 17.64 \dfrac{(Y)\,(V_m)\,(P_b)}{Tm}$

(3) $C_{SO_3} = 1.081 \times 10^{-4} \dfrac{(V_t - V_{tb}) \quad N \quad \left(\frac{Vsoln}{Va}\right)}{V_{mstd}}$

(4) $PPM_{SO_3} = C_{SO_3} \times 4.822 \times 10^{6}$

(5) $ESO_3 = C_{SO_3}\,(F)\,\dfrac{20.9}{20.9 - \%O_2}$

(6) $Fr = \dfrac{10^6 \times [(3.64 \times \%H) + (1.53 \times \%C) + (0.57 \times \%S) + (0.14 \times \%N) - (0.46 \times \%O)]}{Hc}$ (dscf/mmBtu)

SAMPLE CALCLULATION

(1) _____N_t = $\dfrac{(\_\_\_\_mls) \times (\_\_\_\_N)}{\_\_\_\_mls}$

(2) _____dscf = $17.64 \dfrac{(\_\_\_\_)\,(\_\_\_\_cf)\,(\_\_\_\_)NHg)}{\_\_\_\_^{o}R}$

(3) _____lb/dscf = $1.081 \times 10^{-4} \dfrac{(\_\_\_\_ml - \_\_\_\_ml) \quad \_\_\_\_N \quad \left(\frac{\_\_\_\_ml}{\_\_\_\_ml}\right)}{\_\_\_\_dscf}$

(4) _____ppm = _____lb/dscf x 8.024×10^{6}

(5) _____lb/mBtu = _____lb/dscf x _____dscf/mBtu $\dfrac{20.9}{(20.9 - \_\_\_\_\%)}$

(6) _____dscf/mBtu = $\dfrac{10^6 \times [(3.64 \times \_\_\_\_) + (1.53 \times \_\_\_\_) + (0.57 \times \_\_\_\_) + (0.14 \times \_\_\_\_)]}{\_\_\_\_Btu/lb}$

CO CALCULATION

$$lb/dscf = 0.726 \times 10^{-7} \times PPM$$

$$lb/MBtu = lb/dscf \times F\ Factor \times \frac{20.9}{(20.9 - \%O_2)}$$

$$lb/hour = lb/dscf \times dscfm \times 60\ min./hr.$$

TSA Field Data Sheets

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503 Field Data Sheet

Client: J.E.A. S.J.R.P.P.		Date: 8/11/95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL	Orsat Analysis	
Sampling Location: Unit # 1 Stack	Run No.: 1	CO_2: 14.34	$+O_2$: —
Filter No.: —	Acetone No.: —	Condensate: 80.0 20.06 g.	O_2: 4.92
Barometric Pressure: 30.22	Static Pressure: ~~-8~~ .41 IN	Probe Number: N-10-G-1F	14.34 / 4.92
Nozzle Diameter: .187	Nozzle Number: FL3	Pitot Coefficient: .875	Pitot Number: N-10-6-1-1F
Meter Corr. Factor: .996	Meter-Orifice: 2.999		
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 13%	Leak Test: Before .004 @ 15" HG	After .002 @ 6" HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0815										162.411
1	1.30	1.140	1.77	170	327	61	322	86	87	4	166.247
2	1.25	1.118	1.12	171	326	60	328	86	86	4	169.898
3	0.95	0.975	0853	172	332	60	324	86	86	4	172.693
1	1.45	1.204	1.32	171	331	63	329	89	88	4	175.899
2	1.33	1.153	1.21	170	335	58	324	91	88	4	179.010
3	1.25	1.118	1.14	168	331	62	327	91	87	4	182.006
1	1.43	1.196	1.31	169	330	63	328	92	87	4	185.369
2	1.35	1.162	1.24	168	334	62	327	92	87	4	188.636
3	0.97	0.985	0.89	167	331	65	324	93	88	4	191.874
1	1.49	1.221	1.35	169	321	60	327	90	86	4	195.150
2	1.32	1.149	1.20	169	324	62	324	90	86	6	198.608
3	1.12	1.058	1.02	170	321	64	329	91	87	6	201.720
Stop	0930										
AV→		(1.123)	(1.20)	(169.50)				~~(91.458)~~ 88		(4.33)	(39.309) Cu/FT.

ISOkinetic Rate → 103.2%

11.0% moisture

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

TSA

SO_3 Field Data Sheet

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Client: J.E.A. S.J.R.P.P.				Date: 8/11/95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL			Orsat Analysis	
Sampling Location: Unit # / Stack			Run No.: 2	CO_2	$+O_2$ / O_2 / CO
Filter No.: ~	Acetone No.: ~	Condensate: 81.5 ml.	50 19.50	14.35	4.86
Barometric Pressure: 30.22	Static Pressure: -.55	Probe Number: N-10-6-1F			
Nozzle Diameter: .187	Nozzle Number: FL3	Pitot Coefficient: .875	Pitot Number: N-10-6-1-1F		
Meter Corr. Factor: .996	Meter-Orifice: 2.999				
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 13%	Leak Test: Before .008 @ 15"HG	After .004 @ 3"HG		

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1014										208.124
1	1.46	1.208	1.33	171	324	60	320	90	85	3	211.796
2	1.39	1.179	1.26	170	322	61	328	90	86	3	215.131
3	1.09	1.044	0.99	168	324	60	332	92	86	3	218.144
1	1.51	1.229	1.39	168	321	59	334	91	90	3	221.440
2	1.34	1.158	1.24	168	322	59	328	94	89	3	224.699
3	1.08	1.039	1.00	169	323	60	328	97	91	3	227.750
1	1.52	1.233	1.41	169	321	63	327	95	93	3	231.149
2	1.43	1.196	1.83	170	322	63	327	101	93	3	234.510
3	1.23	1.109	1.56	171	324	62	329	105	95	3	238.003
1	1.46	1.208	1.43	170	329	61	329	96	96	3	241.396
2	1.31	1.145	1.63	168	331	61	327	106	97	3	245.004
3	1.05	1.025	1.31	169	330	60	324	110	95	3	248.468
Stop	1130										
AV→		(1.148)	(1.364)	(169.25)				(94.292)		3	(40.344) Cu/FT.

I50 = 103.0

moisture = 10.90.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

503 Field Data Sheet

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Client: J.E.A. S.J.R.P.P.		Date: 8/11/95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL		
Sampling Location: Unit # Stack	Run No.: 3		
Filter No.: ~	Acetone No.: ~	Condensate: TR [redacted] 169.0mL	
Barometric Pressure: 30.22	Static Pressure: -.55	Probe Number: N-10-G-1F	
Nozzle Diameter: .187	Nozzle Number:	Pitot Coefficient: .875	Pitot Number: N-10-G-1-1F
Meter Corr. Factor: .996	Meter-Orifice: 2.999		
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 11%	Leak Test: Before .006 @ 15"HG	After .002 @ 4"HG

Orsat Analysis

CO_2	$+O_2$	O_2	CO
14.1		5.0	

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1213										259.006
1	1.51	1.229	1.89	172	322	60	329	102	102	3	262.620
2	1.43	1.196	1.81	170	328	61	329	107	105	3	266.501
3	1.29	1.136	1.65	170	327	61	333	112	106	3	270.284
1	1.52	1.233	1.92	168	327	64	330	105	105	4	274.285
2	1.38	1.175	1.77	169	329	63	332	113	105	4	278.255
3	1.31	1.145	1.68	168	328	62	331	114	106	4	282.075
1	1.53	1.237	1.94	169	329	61	324	105	107	4	286.025
2	1.42	1.192	1.80	171	327	60	327	117	106	4	289.946
3	1.27	1.127	1.63	170	323	60	321	116	106	4	293.838
1	1.52	1.233	1.94	169	328	59	320	110	105	4	297.875
2	1.43	1.196	1.84	169	325	62	323	116	105	4	301.852
3	1.21	1.214	1.60	170	324	62	322	117	107	4	305.724
Stop	1327										
AV→		(1.184)	(1.789)	(169.58)				(108.292)		3.75	(46.718 Cu/FT.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

TSA

F-4-13

SO_3 Field Data Sheet

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Client: J.E.A. S.J.R.P.P.			Date: 12 AUG. 95 — Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL		Orsat Analysis
Sampling Location: Unit #1 Stack		Run No.: 1	CO_2: 14.23 — $+O_2$: — — O_2: 5.04 — CO: —
Filter No.: —	Acetone No.: —	Condensate: 60.0ml 31.9g	
Barometric Pressure: 30.23	Static Pressure: -.54	Probe Number: N-10-G-1F	
Nozzle Diameter: .187	Nozzle Number: 1-Z3	Pitot Coefficient: .875	Pitot Number: N-10-G-11F
Meter Corr. Factor: .996	Meter-Orifice: 2.999		
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 11.90	Leak Test: Before .004 @ 15"Hg	After .002 @ 5"Hg

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0806										316.521
1	1.49	1.221	1.54	170	321	60	324	85	85	4	320.369
2	1.39	1.179	1.31	171	318	60	322	88	86	4	323.959
3	1.25	1.118	1.18	169	319	63	322	88	86	4	327.098
1	1.47	1.212	1.39	170	322	61	327	86	86	3	330.401
2	1.38	1.175	1.31	171	324	61	327	90	87	3	333.746
3	1.08	1.039	1.04	169	325	60	326	94	89	3	336.872
1	1.53	1.237	1.47	170	324	61	325	90	87	5	340.148
2	1.41	1.187	1.35	171	328	64	329	92	90	5	343.581
3	1.29	1.136	1.24	170	329	63	325	92	87	5	346.795
1	1.50	1.225	1.44	168	325	61	324	92	86	5	350.159
2	1.43	1.196	1.37	167	322	61	328	96	85	5	353.529
3	1.18	1.086	1.13	169	324	62	324	99	86	5	356.843
Stop	0918										
AV→		(1.168)	(1.314)	(~~169.5~~) 169.75	TL.			(88.917)		14.25	(40.322) Cu/FT.

$I_{SO} = 101.2$

9.9% moisture.

$SO_3 = 8.72$ ppm wet.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Set 14 303 Field Data Sheet

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Client: J.E.A. S.J.R.P.P.				Date: 12 AUG. 95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL			Orsat Analysis	
Sampling Location: Unit #1 Stack			Run No.: 2	CO_2 / $+O_2$ / O_2 / CO	
Filter No.: —	Acetone No.: —	Condensate: 51 ml	38.65 gr.	14.22 / — / 4.98 / —	
Barometric Pressure: 30.23	Static Pressure: -.54	Probe Number: N-10-G-1F			
Nozzle Diameter: .187	Nozzle Number: FL3	Pitot Coefficient: .875	Pitot Number: N-10-G-11F		
Meter Corr. Factor: .996	Meter-Orifice: 2.999				
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 11%	Leak Test	Before: .000 @ 15" HG.	After: .001 @ 11" HG	

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1000										357.038
1	1.51	1.229	1.45	170	324	60	321	95	95	6	360.197
2	1.40	1.183	1.36	171	322	61	327	106	96	7	363.338
3	1.20	1.095	1.20	170	324	62	324	107	100	8	366.595
1	1.49	1.221	1.49	169	322	62	327	107	102	10	370.005
2	1.39	1.179	1.41	168	323	63	325	110	103	10	373.396
3	1.11	1.054	1.13	170	324	60	332	112	103	10	376.775
1	1.52	1.233	1.55	171	327	61	330	113	105	10	380.258
2	1.44	1.200	1.48	170	324	61	330	113	106	11	383.682
3	1.09	1.044	1.13	169	321	60	331	115	108	11	386.994
1	1.50	1.225	1.51	170	322	61	331	105	105	11	390.359
2	1.42	1.192	1.46	171	323	62	332	115	106	11	393.699
3	1.21	1.100	1.24	171	323	62	331	115	106	10	396.982
Stop	1110										
AV→		(1.163	X 1.37	X 170.00)				(109.417) 106		19.58	(39.944 Cu/FT.

ISO = 95.3

moisture = 10.1%

PPm = 8.17 wet

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Set 15

SO_3 Field Data Sheet

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Client: J.E.A. S.J.R.P.P.									Date: 12/16.95	Page 1 Of 2	
Project No.: 95-058-FL.				Operator: HARLEY C. OWELL					Orsat Analysis		
Sampling Location: Unit # Stack						Run No.: 3			CO_2	$+O_2$	O_2 / CO
Filter No.: —	Acetone No.: —			Condensate: 835			20.4 Sc.		14.18		4.93
Barometric Pressure: 30.29				Static Pressure: -.54		Probe Number: N-10-G-11F					
Nozzle Diameter: .167	Nozzle Number: FL3			Pitot Coefficient: .875		Pitot Number: N-10-G-11F					
Meter Corr. Factor: .996				Meter-Orifice: 2.999							
Sample Pt. Time: 5min 60min Test.				Assumed % Moisture: 10%					Leak Test: Before .000 @15"Hg		After .000 @4"Hg

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1150										406.578
1	1.51	1.229	1.55	169	319	59	328	110	110	4	410.223
2	1.39	1.179	1.46	170	322	60	329	111	111	4	413.837
3	1.21	1.110	1.27	171	323	60	327	112	111	4	417.194
1	1.48	1.217	1.56	168	321	60	327	111	111	4	420.639
2	1.40	1.183	1.49	169	322	61	328	115	113	4	424.552
3	1.03	1.015	1.10	170	323	64	334	117	115	4	427.839
1	1.50	1.225	1.58	170	321	62	330	112	111	4	431.403
2	1.37	1.170	1.45	171	322	63	322	115	112	4	434.605
3	1.01	1.005	1.07	172	328	63	322	116	112	4	438.483
1	1.53	1.237	1.62	170	322	63	327	113	112	4	442.085
2	1.34	1.158	1.42	171	325	61	328	115	113	4	445.691
3	1.18	1.086	1.26	169	324	62	328	115	113	4	448.925
Stop	1300										
AV→		(1.151	X 1.403)	(170.00)				(112.750)		4	(42.347 Cu/FT.
		ISO = 104.6%									
		moisture = 11.0%									

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

SET 16.5 cf.

503 Field Data Sheet

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Client: J.E.A. S.J.R.P.P.				Date: 8-13-95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL			Orsat Analysis	
Sampling Location: Unit # 1 Stack			Run No.: 1	CO_2	$+O_2$ / O_2 / CO
Filter No.: —	Acetone No.: —	Condensate: 72 ml	21.2 gm	14.29	4.95
Barometric Pressure: 30.29	Static Pressure: -.55	Probe Number: N-10-G-1F			
Nozzle Diameter: .187	Nozzle Number: FL 3	Pitot Coefficient: .875	Pitot Number: N-10-6-11F		
Meter Corr. Factor: .996	Meter-Orifice: 2.999				
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 10%	Leak Test	Before: .006 @ 15" HG	After: .006 @ 4" HG	

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0800										450.961
1	1.41	1.187	1.46	169	315	62	329	106	106	4	454.568
2	1.33	1.153	1.39	168	322	58	328	110	105	4	457.997
3	1.15	1.072	1.21	167	322	59	328	112	106	4	461.400
1	1.49	1.221	1.56	168	323	60	330	105	105	4	464.787
2	1.39	1.179	1.47	167	324	61	331	114	109	4	468.523
3	1.18	1.086	1.25	169	324	62	332	117	108	4	471.910
1	1.39	1.179	1.43	170	323	62	332	106	105	4	475.424
2	1.31	1.145	1.38	171	319	64	329	116	110	4	478.895
3	1.18	1.086	1.25	170	322	62	325	116	111	4	482.255
1	1.42	1.192	1.49	169	329	62	325	111	110	4	485.692
2	1.31	1.145	1.41	170	327	62	326	117	111	4	489.294
3	1.11	1.054	1.18	170	324	61	327	116	111	4	492.701
Stop	0810										
AV→		(1.141	1.37	168.67)				(110.125)		4	(41.740) Cu/FT.

T50 = 103.5°
moisture = 10.1.
ppm = 4.99

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

TSA
Total Source Analysis, Inc.
Environmental Testing Consultants

Set 17

SO_3 Field Data Sheet

BEST AVAILABLE COPY

Client: J.E.A. S.J.R.P.P.				Date: 8-13-95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL			Orsat Analysis	
Sampling Location: Unit # Stack			Run No.: 2	CO_2 / $+O_2$ / O_2 / CO	
Filter No.: —	Acetone No.:	Condensate: 62.0 ml / 24.39		14.42 / — / 4.77 / —	
Barometric Pressure: 30.29	Static Pressure: -.55	Probe Number: N-10-G-1-F			
Nozzle Diameter: .187	Nozzle Number: FL 3	Pitot Coefficient: .875	Pitot Number: N-10-G-11F		
Meter Corr. Factor: .996	Meter-Orifice: 2.999				
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 10%	Leak Test: Before .000 @15"	After .004 @3"/Hg		

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0947										500.410
1	1.51	1.229	1.59	168	321	60	324	110	110	3	504.075
2	1.40	1.183	1.48	169	322	61	324	113	110	3	507.643
3	1.15	1072	1.21	169	323	61	323	114	110	3	510.999
1	1.51	1.229	1.59	170	324	62	324	111	111	3	514.660
2	1.37	1.170	1.45	171	322	62	327	116	110	3	518.201
3	1.11	1.054	1.18	168	328	61	324	117	110	3	521.463
1	1.43	1.196	1.51	169	329	64	325	113	111	3	525 091
2	1.31	1.145	1.39	169	328	63	327	115	111	3	528.589
3	1.14	1.068	1.21	170	328	63	329	115	112	3	531.883
1	1.41	1.187	1.49	171	327	64	322	113	112	3	535.441
2	1.34	1.158	1.41	172	324	62	329	116	115	3	538.939
3	1.12	1.058	1.19	171	322	63	321	116	113	3	542.226
Stop	1100										
AV→		(1.146)	(1.39)	(169.75)				(112.667)		3	(41.816) Cu/FT.

Iso = 102.3 %

moisture = 9.4 %

10.27 ppm

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.

Sd. 18-

SO_3 Field Data Sheet

BEST AVAILABLE COPY

Client: J.E.A. S.J.R.P.P.		Date: 8-13-95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. ONEILL	Orsat Analysis	
Sampling Location: Unit # Stack	Run No.: 3	CO_2: 14.38	$+O_2$:
Filter No.: -	Acetone No.:	O_2: 4.67	CO:
Condensate: 67.0 @ 0m / 23.7 g.			
Barometric Pressure: 30.29	Static Pressure: -.55	Probe Number: IN-10-G-1F	
Nozzle Diameter: .187	Nozzle Number: FL.3	Pitot Coefficient:	Pitot Number: IN-10-G-11F
Meter Corr. Factor: .996	Meter-Orifice: 2.999		
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 10%	Leak Test: Before .008 @ 15" HG	After .006 @ 3" HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1143										351.832
1	1.49	1.221	1.57	171	321	61	327	112	112	3	355.152
2	1.39	1.179	1.47	170	322	60	327	114	113	3	358.339
3	1.28	1.131	1.36	169	323	61	324	115	113	3	361.699
1	1.45	1.204	1.531	169	322	58	323	112	112	3	365.252
2	1.35	1.162	1.43	169	323	59	323	114	113	3	368.804
3	1.05	1.025	1.113	170	324	60	329	114	113	3	372.135
1	1.48	1.217	1.56	170	325	60	327	112	112	3	375.664
2	1.29	1.136	1.37	171	324	61	326	115	113	3	379.151
3	1.10	1.049	1.17	168	325	61	329	114	112	3	382.400
1	1.50	1.225	1.58	170	324	60	327	113	112	3	386.001
2	1.35	1.162	1.43	169	322	60	324	112	113	3	389.517
3	1.17	1.082	1.24	169	323	61	320	113	112	3	392.732
Stop	1255										
AV→		(1.149)	(1.40)	(169.58)				(112.875)		3	(40.900) Cu/FT.
		150 = 100.3%									
		moisture	10.1%								

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.

Particulate Field Data Sheet **BEST AVAILABLE COPY**

Client		Date	Page	Of
JEA / S.J.R.P.P.		8-14-95	1	2
Project No.	Operator	Orsat Analysis		
95-058 FL	HARLEY C. O'NEILL			
Sampling Location	Run No.	CO_2	$+O_2$	O_2 CO
Stack Unit 1	1			
Filter No.	Acetone No.	Condensate		
95-028 FL	–	245 mL 16.8	14.4	~~4.8~~ 4.8
Barometric Pressure	Static Pressure	Probe Number		
30.23	-.55	N-10-G-1F		
Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number	
.187	FL 3	.875	N-10-G-11F	
Meter Corr. Factor	Meter-Orifice			
.996	2.999			
Sample Pt. Time	Assumed % Moisture	Leak Test	Before	After
10 min. 120 min TEST	10.5%		.005 @ 15" HG	.002 @ 2" HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
START	0749										601.296
1	1.51	1.229	1.56	170	322	61	325	110	109	2	608.634
2	1.34	1.158	1.40	167	321	67	324	112	109	2	615.601
3	1.17	1.082	1.23	166	322	63	321	117	110	2	622.209
1	1.43	1.196	1.50	164	329	65	327	112	110	2	629.384
2	1.37	1.170	1.46	165	322	61	324	121	112	2	636.474
3	1.09	1.044	1.16	166	326	62	327	122	112	2	642.923
1	1.53	1.237	1.62	164	324	61	324	114	112	2	650.412
2	1.31	1.145	1.41	165	327	59	325	122	114	2	657.449
3	1.12	1.058	1.20	165	329	58	324	125	119	2	663.381
1	1.52	1.233	1.62	164	327	59	329	116	114	2	672.834
2	1.41	1.187	1.52	166	324	63	322	124	116	2	681.002
3	1.09	1.044	1.176	165	324	60	329	126	116	2	687.884
STOP	1005										
AVG.		1.149	1.40	(165.8)				(~~120~~ 116	~~634~~)	2	(86.588 cuft)

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Particulate Field Data Sheet

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Client	Date	Page Of
JEA / S.J.R.P.P.	8-14-95	1 2

Project No.	Operator	Orsat Analysis
95-058 FL	HARLEY C. O'NEILL	

Sampling Location	Run No.	CO_2	$+O_2$	O_2	CO
STACK UNIT 1	2				

Filter No.	Acetone No.	Condensate				
95-029FL	—	239 ML	17.7	14.2	19.1	4.90

Barometric Pressure	Static Pressure	Probe Number				
30.23	-.55	N-10-G-1F		14.2	19.1	4.90

Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number				
.187	FL 3	.875	N-10-G-11F				

Meter Corr. Factor	Meter-Orifice
.996	2.999

Sample Pt. Time	Assumed % Moisture	Leak Test	Before	After
10mm 120 min TEST	10.5		.001@15"HG	.006 @2"HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
START	1050										688.002
1	1.51	1.229	1.60	163	324	61	327	114	114	2	694.813
2	1.42	1.192	1.51	164	327	63	324	115	114	2	701.993
3	1.26	1.118	1.33	165	329	60	322	123	119	2	708.678
1	1.52	1.233	1.52	167	324	61	327	116	114	2	715.914
2	1.43	1.196	1.46	164	322	59	324	123	115	2	722.934
3	1.18	1.086	1.20	168	321	64	327	126	116	2	729.664
1	1.49	1.221	1.51	163	328	63	326	117	116	2	736.995
2	1.39	1.179	1.43	164	327	62	326	124	117	2	743.025
3	1.22	1.105	1.25	163	324	61	326	124	117	2	750.777
1	1.52	1.233	1.56	164	323	62	327	112	112	2	757.975
2	1.51	1.229	1.547	164	324	61	325	124	117	2	765.395
3	1.16	1.049	1.120	163	324	61	322	126	116	2	771.538
STOP	1300										
AVG.		(1.172)	(1.420)	(164.0)				(117.96)		2"	(83.536) cu ft.

Pitot Tube Leak Check: Before CK After CK

Integrated Bag Leak Check: Before OK After OK

E11

Particulate Field Data Sheet

BEST AVAILABLE COPY

Client		Date	Page Of
JEA / S.J.R.P.P.		8-14-95	1 2
Project No.	Operator	Orsat Analysis	
95-058 FL	HARLEY C. O'NEILL		
Sampling Location	Run No.	CO_2	$+O_2$ O_2 CO
STACK UNIT 1	3		
Filter No.	Acetone No.	Condensate	
95-030 FL	—	245 ML 16.4	14.45 — 4.46 —
Barometric Pressure	Static Pressure	Probe Number	
30.23	-.55	N-10-G-1F	
Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number
.187	FL3	.875	N-10-G-11F
Meter Corr. Factor	Meter-Orifice		
.996	2.999		
Sample Pt. Time	Assumed % Moisture	Leak Test	Before / After
10min 120min TEST	13%		.000 @ 15"HG .00 @ 2"HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
START	1315										771.646
1	1.49	1.221	1.50	164	329	58	327	115	115	2	777.810
2	1.39	1.179	1.40	164	327	59	329	117	115	2	784.712
3	1.28	1.131	1.28	167	324	61	331	119	115	2	791.454
1	1.50	1.225	1.52	163	327	62	331	116	115	2	798.655
2	1.35	1.162	1.37	164	324	62	330	119	116	2	805.586
3	1.30	1.140	1.34	167	322	59	322	126	118	2	812.337
1	1.50	1.225	1.52	165	327	60	320	117	116	2	819.660
2	1.40	1.183	1.42	165	325	61	323	117	116	2	826.980
3	1.21	1.100	1.23	166	324	62	324	119	117	2	833.996
1	1.52	1.233	1.52	169	327	60	322	126	116	2	841.255
2	1.37	1.170	1.37	166	324	60	322	127	116	2	848.040
3	1.24	1.114	1.27	167	322	61	324	126	115	2	854.600
STOP	1325										
AVG.		1.179	1.40	165.5				~~122.42~~ 118		2	(82.954) cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Particulate Field Data Sheet

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Client: JEA / S.J.R.P.P.		Date: 8-15-95	Page 1 Of 2
Project No.: 95-058 FL	Operator: HARLEY C. O'NEILL	Orsat Analysis	
Sampling Location: Unit 1 Stack	Run No.: 1	CO_2	$+O_2$ / O_2 / CO
Filter No.: 95-031 FL	Acetone No.: —	Condensate: 244 ml (17.4)	14.4 / 5.10
Barometric Pressure: 30.16	Static Pressure: -.54	Probe Number: ~~A-6~~ N-10-G-1F	
Nozzle Diameter: .187	Nozzle Number: FL3	Pitot Coefficient: .875	Pitot Number: N-10-G-11F
Meter Corr. Factor: .996	Meter-Orifice: 2.999		
Sample Pt. Time: 10 min 120 min test	Assumed % Moisture: 11%	Leak Test: Before .008 @ 15" Hg	After .004 @ 2" Hg

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0800										854.756
1	1.47	1.212	1.57	169	324	61	327	114	114	2	861.995
2	1.29	1.136	1.35	168	325	62	326	117	112	2	868.760
3	1.13	1.063	1.20	168	325	61	327	122	113	2	875.086
1	1.48	1.217	1.55	168	322	59	326	115	113	2	882.289
2	1.37	1.170	1.47	167	324	59	326	126	115	2	889.402
3	1.23	1.109	1.32	167	323	58	326	126	116	2	896.152
1	1.49	1.221	1.56	168	325	59	322	115	115	2	903.338
2	1.37	1.170	1.47	169	324	60	323	126	116	2	910.478
3	1.26	1.122	1.35	170	321	59	324	126	119	2	917.196
1	1.49	1.221	1.58	169	326	62	327	120	116	2	924.401
2	1.34	1.158	1.44	168	322	61	325	126	118	2	931.423
3	1.20	1.095	1.29	169	322	61	325	127	116	2	937.973
Stop	1007										
AVG		(1.158)	~~1.38~~ 1.43	(168.33)				(118.458)		(2)	(83.217) cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Particulate Field Data Sheet **BEST AVAILABLE COPY**

Client	Date	Page Of
JEA / S.J.R.P.	8-15-95	1 2

Project No.	Operator	Orsat Analysis
95-058 FL	HARLEY C. O'NEILL	

Sampling Location	Run No.	CO_2	$+O_2$	O_2	CO
Unit 1 Stack	2				

Filter No.	Acetone No.	Condensate		
95-032 FL	—	266 ML	18.1	14.0 5.2

Barometric Pressure	Static Pressure	Probe Number
30.16	-.54	N-10-6-1F

Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number
.187	FL3	.875	N-10-6-11F

Meter Corr. Factor	Meter-Orifice
.996	2.999

Sample Pt. Time	Assumed % Moisture	Leak Test	Before	After
10 min 120 min test	11%		.000 @ 15" HG	.002 @ " HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1035										938.168
1	1.53	1.237	1.60	168	321	59	327	111	114	2	945.472
2	1.43	1.196	1.51	164	322	59	324	115	111	2	952.763
3	1.31	1.145	1.40	166	324	61	323	122	115	2	959.602
1	1.51	1.229	1.58	169	327	61	324	116	111	2	967.082
2	1.47	1.213	1.57	166	325	62	325	123	115	2	974.320
3	1.30	1.140	1.39	167	324	60	325	125	116	2	981.318
1	1.52	1.233	1.61	167	326	62	324	120	111	2	988.601
2	1.45	1.204	1.53	166	327	62	327	126	115	2	995.756
3	1.30	1.140	1.38	166	328	59	324	126	117	2	002.530
1	1.52	1.233	1.61	167	328	59	323	114	114	2	009.855
2	1.44	1.200	1.53	167	322	59	324	123	115	2	016.970
3	1.29	1.136	1.37	164	320	60	329	127	116	2	023.720
Stop	1240										
AVG		(1.192)	(1.51)	(166.42)				(117.917)		2	(85.552) cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Particulate Field Data Sheet

BEST AVAILABLE COPY

Client	Date	Page	Of
JEA / SJRPP	8-15-95	1	2

Project No.	Operator	Orsat Analysis			
95-058 FL	HARLEY C. O'NEILL				
Sampling Location	**Run No.**	CO_2	$+O_2$ %	~~O_2~~	CO
Unit 1 Stack	3	14.3	4.8		
Filter No.	**Acetone No.**	**Condensate**			
95-033 FL	—	256 ML 19.7			
Barometric Pressure	**Static Pressure**	**Probe Number**			
30.16	-.54	N-10-G-1F			
Nozzle Diameter	**Nozzle Number**	**Pitot Coefficient**	**Pitot Number**		
.187	FL3	.875	N-10-G-11F		
Meter Corr. Factor	**Meter-Orifice**				
.996	2.999				

Sample Pt. Time	Assumed % Moisture	Leak Test	Before	After
60 min 120min test	11%		.000 15"HG	.004 2"Hg

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1315										024.983
1	1.52	1.233	1.61	165	321	61	324	112	113	2	032.308
2	1.43	1.196	1.51	164	327	60	323	116	113	2	039.425
3	1.31	1.145	1.39	162	324	60	323	124	116	2	046.241
1	1.50	1.225	1.59	167	319	59	324	115	115	2	053.524
2	1.39	1.179	1.47	169	320	63	324	122	116	2	060.533
3	1.25	1.118	1.32	169	322	63	320	127	119	2	067.180
1	1.51	1.229	1.60	165	321	62	324	115	115	2	074.481
2	1.42	1.192	1.50	167	324	63	324	119	115	2	081.571
3	1.31	1.145	1.39	164	323	60	325	126	119	2	088.365
1	1.52	1.233	1.61	170	331	61	327	114	113	2	095.720
2	1.43	1.196	1.51	169	330	59	321	117	115	2	102.820
3	1.31	1.145	1.41	169	331	62	324	125	120	2	109.675
Stop	1525										
AVG		(1.1861	(1.49)	(166.75)				(122.500)		2	(84.692)
											cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Particulate Field Data Sheet

BEST AVAILABLE COPY

Client: JEA / S.J.R.P.P.		Date: 8-16-95	Page 1 Of 2
Project No.: 95-058FL	Operator: Hartley C. Oliver	Orsat Analysis	
Sampling Location: Unit 1 Stack	Run No.: 1	CO_2: 14.3	$+O_2$: 5.0
Filter No.: 95-034FL	Acetone No.: —	Condensate: 235 mL (11.6)	O_2: —
Barometric Pressure: 30.15	Static Pressure: -.88	Probe Number: N-10-G-11F	CO: —
Nozzle Diameter: .187	Nozzle Number: FL3	Pitot Coefficient: .875	Pitot Number: N-10-G-1F
Meter Corr. Factor: .996	Meter-Orifice: 2.999		
Sample Pt. Time: 60 min 120 min test	Assumed % Moisture: 13%	Leak Test: Before .000 @15"HG	After .000@2"HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0800			~~169~~							110.994
1	1.50	1.225	1.54	~~324~~ 169	324	62	322	112	112	2	117.295
2	1.41	1.187	1.41	169	322	58	324	116	112	2	124.055
3	1.29	1.136	1.31	167	322	59	324	122	115	2	130.230
1	1.47	1.212	1.49	167	324	59	323	115	115	2	137.135
2	1.35	1.162	1.37	168	325	60	322	124	115	2	143.774
3	1.18	1.086	1.21	167	324	60	321	127	116	2	150.280
1	1.52	1.233	1.54	165	327	59	322	116	116	2	157.310
2	1.35	1.162	1.37	166	324	59	322	127	116	2	164.028
3	1.09	1.044	1.10	167	325	60	321	126	116	2	170.642
1	1.55	1.245	1.56	167	324	61	322	116	116	2	177.862
2	1.38	1.175	1.416	167	323	61	324	125	117	2	183.995
3	1.11	1.054	1.144	164	323	61	324	126	116	2	190.545
Stop	1025										
AVG		(1.160)	(1.25)	(166.92)				(118.083)		(2)	(79.551) cuft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

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Client		Date	Page	Of
JEA / S.J.R.P.P.		8-16-95	1	2

Project No.	Operator
95-058 FL	HARLEY C. O'NEILL

Sampling Location	Run No.
Unit 1 Stack	2

Filter No.	Acetone No.	Condensate
95-035 FL	—	235 ML (21.4)

Barometric Pressure	Static Pressure	Probe Number
30.15	-.88	N-10-G-1F

Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number
.187	FL 3	.875	N-10-G-11F

Meter Corr. Factor	Meter-Orifice
.996	2.999

Orsat Analysis

CO_2	$+O_2$	O_2	CO
14.2	4.8		

Sample Pt. Time	Assumed % Moisture	Leak Test	Before	After
10 min 120 min test	13%		.000 @ 15" HG	.000 @ 2 HG

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1045										191.396
1	1.51	1.229	1.52	167	322	60	320	116	116	2	198.601
2	1.43	1.196	1.47	164	320	61	321	124	116	2	205.625
3	1.31	1.145	1.35	164	324	63	323	124	116	2	212.331
1	1.50	1.225	1.52	163	324	63	324	116	116	2	219.459
2	1.41	1.187	1.43	163	319	60	327	117	116	2	226.371
3	1.32	1.149	1.36	168	322	61	330	126	119	2	233.120
1	1.49	1.221	1.49	169	324	62	329	115	114	2	240.160
2	1.30	1.140	1.31	170	327	60	327	119	115	2	246.754
3	1.26	1.122	1.29	171	326	60	327	125	116	2	253.320
1	1.49	1.221	1.49	169	327	59	325	115	114	2	260.370
2	1.32	1.149	1.34	169	326	58	324	122	116	2	267.060
3	1.22	1.105	1.26	169	329	58	328	126	120	2	273.541
Stop	1250										
AVG		(1.174)	(1.40)	(167.1)				(118.292)		2	(82.145) cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

Particulate Field Data Sheet

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Client: J.E.A. / S.J.R.P.P.								Date: 8-16-95		Page 1 Of 2	
Project No.: 95-058 FL		Operator: HARLEY C. O'NEILL						Orsat Analysis			
Sampling Location: Unit 1 Stack				Run No.: 3				CO_2	$+O_2$	O_2	CO
Filter No.: 95-036FL	Acetone No.: -		Condensate: 24 ml			Zo.4		14.1	4.9		
Barometric Pressure: 30.15		Static Pressure: -.88	Probe Number: N-10-6-1F								
Nozzle Diameter: .187	Nozzle Number: FL3	Pitot Coefficient: .875	Pitot Number: N-10-6-11F								
Meter Corr. Factor: .996		Meter-Orifice: 2.999									
Sample Pt. Time: 10 min 120 min test		Assumed % Moisture: 13%		Leak Test		Before: .000 @ 15"		After: .000 @ " HG			

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1325										273.700
1	1.51	1.229	1.51	169	321	59	325	115	115	2	280.820
2	1.42	1.192	1.45	168	320	60	322	123	117	2	287.780
3	1.29	1.136	1.32	168	322	61	322	123	118	2	294.421
1	1.50	1.225	1.53	167	321	60	327	116	116	2	301.567
2	1.40	1.183	1.43	169	322	61	328	121	116	2	308.470
3	1.29	1.136	1.32	170	328	62	328	126	119	2	315.120
1	1.50	1.225	1.54	164	327	60	325	116	116	2	322.290
2	1.39	1.179	1.43	168	325	59	321	126	118	2	329.213
3	1.26	1.122	1.31	164	323	60	320	127	119	2	335.821
1	1.51	1.229	1.52	167	322	61	322	116	116	2	342.981
2	1.40	1.183	1.44	165	327	62	327	123	118	2	349.601
3	1.12	1.058	1.15	165	322	60	329	126	118	2	355.795
Stop	1537	(1.175)	(1.41)	(167.00)				(119.333)		2	(52.095) cu ft.
Avg.											

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

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Client: JEA / SJRPP				Date: 8-17-95	Page 1 Of 2
Project No.: 95-058 FL	Operator: HARLEY C. O'NEILL			Orsat Analysis	
Sampling Location: Unit 1 Stack			Run No.: 1	CO_2 / $+O_2$ / O_2 / CO	
Filter No.: 95-037 FL	Acetone No.: —	Condensate: 250 ML	20.8	14.2 / 5.1 / — / —	
Barometric Pressure: 30.19	Static Pressure: -.83	Probe Number: N-10-G-1F			
Nozzle Diameter: .187	Nozzle Number: FL 3	Pitot Coefficient: .875	Pitot Number: N-10-G-11F		
Meter Corr. Factor: .996	Meter-Orifice: 2.999				
Sample Pt. Time: 10min 120min TEST	Assumed % Moisture: 13 %	Leak Test: Before .000 @15"Hg	After .00 @2"Hg		

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0800										355.942
1	1.51	1.229	1.51	168	321	61	325	114	114	2	363.151
2	1.40	1.183	1.40	168	322	61	324	115	114	2	369.902
3	1.24	1.114	1.26	167	323	62	323	120	116	2	376.651
1	1.53	1.237	1.53	168	322	60	323	115	115	2	383.476
2	1.38	1.175	1.40	168	324	60	322	124	115	2	390.301
3	1.05	1.025	1.07	169	327	60	321	125	115	2	396.435
1	1.52	1.233	1.52	169	327	61	321	115	115	2	403.407
2	1.40	1.183	1.44	165	323	60	322	124	119	2	410.239
3	1.11	1.054	1.15	164	324	59	324	125	119	2	416.987
1	1.53	1.237	1.54	167	325	59	324	115	115	2	424.000
2	1.40	1.183	1.44	168	324	60	327	126	119	2	430.821
3	1.19	1.091	1.22	168	325	61	328	127	119	2	437.215
Stop	1010										
AVG		(1.161)	(1.37)	(167.42)				(118.333)		(2)	(81.273) cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

Particulate Field Data Sheet

Client: JEA / S.J.R.P.P.									Date: 8-17-95	Page 1 Of 2	
Project No.: 95-058 FL		Operator: HARLEY C. O'NEILL							Orsat Analysis		
Sampling Location: Unit 1 Stack						Run No.: 2			CO_2: 14.3	$+O_2$: 4.8	O_2:	CO:
Filter No.: 95-038 FL		Acatone No.:		Condensate: 233 mL	23.4						
Barometric Pressure: 30.19		Static Pressure: -.83		Probe Number: N-10-G-1F							
Nozzle Diameter: .187	Nozzle Number: FL3	Pitot Coefficient: .875		Pitot Number: N-10-G-11F							
Meter Corr. Factor: .996		Meter-Orifice: 2.999									
Sample Pt. Time: 10min 120min Test		Assumed % Moisture: 13%		Leak Test		Before: .00015"Hg		After: .0002"Hg			

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1035										437.336
1	1.50	1.225	1.50	168	321	61	324	115	115	2	444.417
2	1.39	1.179	1.41	168	322	61	327	121	116	2	451.246
3	1.21	1.100	1.24	169	322	60	324	126	120	2	457.667
1	1.55	1.245	1.59	164	321	62	324	116	116	2	464.901
2	1.41	1.187	1.44	165	322	61	325	123	117	2	471.840
3	1.21	1.100	1.25	165	323	61	327	126	120	2	478.320
1	1.51	1.229	1.52	166	324	64	329	116	115	2	485.420
2	1.45	1.204	1.46	166	324	63	328	126	116	2	492.392
3	1.50	1.225	1.54	166	325	64	328	125	116	2	499.550
1	1.48	1.217	1.52	165	322	65	327	126	116	2	506.673
2	1.40	1.183	1.44	164	322	65	326	127	116	2	513.590
3	1.24	1.114	1.28	163	320	66	320	126	116	2	520.119
Stop	1245										
AVG		(1.184)	(1.43)	(165.75)				(120.083)		(2)	(82.783)
											cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
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Client		Date	Page	Of
JEA / SJR.P.P.		8-17-95	1	2

Project No.	Operator	Orsat Analysis			
95-058 FL	HARLEY C. O'NEICL	CO_2	$+O_2$	O_2	CO
Sampling Location: Unit 1 Stack	Run No.: 3	14.3	~~[illegible]~~	14.7	
Filter No.: 95-039 FL	Acetone No.: ~	Condensate: 240 ml	21.6		
Barometric Pressure: 30.19	Static Pressure: -.83	Probe Number: N-10-G-11F			
Nozzle Diameter: .187	Nozzle Number: FL 3	Pitot Coefficient: .875	Pitot Number: N-10-G-11F		
Meter Corr. Factor: .996	Meter-Orifice: 2.999				
Sample Pt. Time: 10 min 120 min TEST	Assumed % Moisture: 13%	Leak Test: Before .000 @ 15"HG	After .000 @ 5"HG		

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1315										520.226
1	1.51	1.229	1.51	168	324	61	327	115	115	2	527.331
2	1.42	1.192	1.42	167	327	60	324	119	115	2	534.201
3	1.29	1.136	1.29	167	325	58	324	126	118	2	540.760
1	1.50	1.225	1.50	169	324	59	325	116	115	2	547.841
2	1.39	1.179	1.39	171	324	60	324	119	116	2	556.663
3	1.19	1.091	1.22	170	322	61	323	126	120	2	563.056
1	1.51	1.229	1.50	171	320	62	324	116	112	2	570.127
2	1.39	1.179	1.38	172	321	61	324	123	119	2	576.920
3	1.21	1.100	1.24	169	322	63	325	126	119	2	582.370
1	1.55	1.245	1.59	169	327	64	324	115	115	2	589.566
2	1.39	1.179	1.41	169	327	62	325	121	116	2	596.463
3	1.01	1.005	1.04	169	324	64	327	127	121	2	602.375
Stop	1525										
AVG		(1.166 X 1.37 X 169.25)						(118.750)	1	2	1 (82.149) cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
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Set 19 SO_3 Field Data Sheet **BEST AVAILABLE COPY**

Client		Date	Page	Of
J.E.A. S.J.R.P.P.		8-18-95	1	2

Project No.	Operator	Orsat Analysis			
95-058-FL.	THKLEY C. O'NEILL	CO_2	~~O_2~~ 3A	O_2	CO
Sampling Location: Unit # 1 Stack	Run No. 1				
Filter No. N/A	Acetone No. -	Condensate 58.5ml 24.8 5m	14.23	5.00	
Barometric Pressure 30.19	Static Pressure -.76	Probe Number N-10-G-1F			
Nozzle Diameter .187	Nozzle Number FL3	Pitot Coefficient .875	Pitot Number N-10-G-11F		
Meter Corr. Factor .996	Meter-Orifice 2.999				
Sample Pt. Time 5min 60min Test.	Assumed % Moisture 13 %	Leak Test	Before .000 @15"Hg	After .000 @ "Hg	

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0800										602.909
1	1.53	1.237	1.42	167	324	59	327	95	95	7	606.209
2	1.39	1.179	1.30	164	323	60	329	95	94	7	609.529
3	1.01	1.005	0.95	163	324	60	325	95	94	7	612.529
1	1.51	1.229	1.42	163	323	61	324	96	95	7	615.670
2	1.30	1.140	1.23	164	320	60	324	100	96	7	618.779
3	1.03	1.015	0.98	165	321	58	326	102	96	7	621.635
1	1.52	1.233	1.44	165	322	59	327	100	96	7	625.848
2	1.23	1.109	1.18	163	321	58	326	104	96	7	628.009
3	1.01	1.005	0.96	166	324	59	327	106	96	7	630.963
1	1.52	1.233	1.44	165	322	59	327	106	96	7	634.135
2	1.31	1.145	1.25	165	320	61	327	102	96	7	637.296
3	1.04	1.020	0.99	168	325	60	324	104	96	7	640.162
Stop	0810										
AV→		(1.129)	(1.21)	(165.17)				(97.708)		(7.1)	(37.253) Cu/FT.
	ISO = 94.9 %										
	moisture = 9.9 %										
	SO_3 ppm = 7.39										

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Sct 26 SO_3 Field Data Sheet **BEST AVAILABLE COPY**

Client		Date	Page Of
J.E.A. S.J.R.P.P.		8-18-95	1 2
Project No.	Operator	Orsat Analysis	
95-058-FL.	HARLEY C. O'NEILL		
Sampling Location	Run No.	CO_2	$+O_2$ O_2 CO
Unit # 1 Stack	2		
Filter No. / Acetone No. / Condensate			
N/A / — / 66.0mL			
Barometric Pressure	Static Pressure	Probe Number	
30.19	-.76	N-10-G-1F	14.28 — 5.05
Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number
.187	FL3	.875	N-10-G-11F
Meter Corr. Factor	Meter-Orifice		
.996	2.999		
Sample Pt. Time	Assumed % Moisture	Leak Test	Before / After
5min 60min Test.	13%		.002 @ 15" / .002 @ 7'46

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	0950										650.164
1	1.51	1.229	1.42	164	327	58	325	95	95	6	653.493
2	1.38	1.175	1.36	163	327	56	324	111	107	7	656.777
3	1.29	1.136	1.28	163	326	56	324	115	106	7	660.038
1	1.51	1.229	1.48	166	326	57	329	110	108	7	663.302
2	1.29	1.136	1.28	166	326	57	331	112	109	7	666.500
3	1.15	1.072	1.11	167	323	59	330	118	110	7	669.694
1	1.52	1.233	1.49	166	324	60	331	110	106	7	673.005
2	1.36	1.166	1.30	166	325	63	330	115	111	7	676.161
3	1.14	1.068	1.15	165	327	64	329	121	112	7	679.263
1	1.50	1.225	1.49	166	325	62	329	112	112	7	682.495
2	1.31	1.145	1.30	166	327	60	327	121	112	7	685.551
3	1.15	1.072	1.16	167	324	61	326	122	113	7	688.669
Stop	1100										
AV→		(1.157)	(1.32)	(165.42)				(110.88)		16.9	(38.505) Cu/FT.

I_{SO} = 94.1 %
moisture = 10.6 %

SO_3 ppm = 10.6 %

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

Set 21

SO_3 Field Data Sheet

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Client: J.E.A. S.J.R.P.P.				Date: 8-10-95	Page 1 Of 2
Project No.: 95-058-FL.	Operator: HARLEY C. O'NEILL			Orsat Analysis	
Sampling Location: Unit # 1 Stack			Run No.: 3	CO_2: 14.25	$+O_2$ 3A: —
Filter No.: N/A	Acetone No.: —	Condensate: 419.0 mL 26.5 g.		O_2: 5.04	CO: —
Barometric Pressure: 30.19	Static Pressure: -.76	Probe Number: N-10-6-1F			
Nozzle Diameter: .187	Nozzle Number: FL 3	Pitot Coefficient: .875	Pitot Number: N-10-6-11F		
Meter Corr. Factor: .996	Meter-Orifice: 2.999				
Sample Pt. Time: 5min 60min Test.	Assumed % Moisture: 13%	Leak Test	Before: .008@"Hg	After: .004@"Hg	

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	1135										696.583
1	1.50	1.225	1.39	169	321	59	327	95	95	7	699.773
2	1.37	1.170	1.37	169	319	61	326	116	114	7	703.200
3	1.15	1.072	1.15	169	322	62	323	116	113	7	706.102
1	1.51	1.229	1.60	164	324	60	326	117	114	7	709.305
2	1.31	1.145	1.32	163	322	61	327	115	111	7	712.511
3	1.21	1.100	1.22	163	325	62	324	115	116	7	715.714
1	1.54	1.241	1.55	165	324	62	326	116	115	7	719.002
2	1.33	1.153	1.36	165	327	60	329	121	116	7	722.029
3	1.25	1.118	1.28	167	324	61	327	123	118	7	725.292
1	1.50	1.225	1.51	167	327	62	325	115	115	7	728.760
2	1.31	1.145	1.33	168	326	60	329	121	115	7	732.041
3	1.10	1.049	1.12	165	321	59	327	121	115	7	735.060
Stop	1240										
AV→		(1.156)	(1.35)	(166.17)				(114.63)		7	(38.477) Cu/FT.

ISO = 92.3
moisture = 9.1 %
SO_3 PPM = 12.73

Pitot Tube Leak Check: Before ok After ok
Integrated Bag Leak Check: Before ok After ok

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DATA SET 17

Client		Date	Page
JEA / SJRPP.		8-19-95	2
Project No.	Operator	Orsat Analysis	
95-058 FL	J. Keith		
Sampling Location	Run No.	CO_2	$+O_2$ O_2 CO
Unit 1 Stack	1		
Filter No.	Acetone No.	Condensate	
95-040 FL		190 mls	
Barometric Pressure	Static Pressure	Probe Number	
30.28	-.71	N-10-G-1F	14.2 5.0
Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number
.187	FL 3	.875	N-10-G-11F
Meter Corr. Factor	Meter-Orifice		
.996	2.999		
Sample Pt. Time	Assumed % Moisture	Leak Test	Before / After
10min 120 min test	13%		.007 @ 12"Hg / .006 @ 11"Hg

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	08:00										746.584
C 1	1.5	1.225	1.54	153	320	62	340	10	8	1.0	753.82
2	1.3	1.140	1.34	158	332	63	342	10	6	1.0	760.49
3	1.2	1.095	1.24	155	330	62	337	10	7	1.0	766.89
B 1	1.5	1.225	1.54	154	326	63	342	10	5	1.0	774.01
2	1.4	1.183	1.44	156	340	64	336	10	7	1.0	780.94
3	1.1	1.049	1.13	153	339	65	334	11	0	1.0	787.13
A 1	1.5	1.225	1.54	154	327	65	330	11	1	1.5	794.30
2	1.4	1.183	1.44	154	338	66	336	11	2	1.5	801.23
3	1.2	1.095	1.24	152	330	66	329	11	3	1.0	807.62
D 1	1.4	1.183	1.44	153	327	64	333	11	6	1.5	814.57
2	1.4	1.183	1.44	154	325	65	340	11	6	1.5	821.47
3	1.2	1.095	1.24	153	332	65	335	11	7	1.0	827.910
Stop 10:45											
AVG		(1.157)	(1.38)	(154)				(11)		1	(81.337 cuft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

Particulate Field Data Sheet

DATA SET 18

Client: JEA / S.J.R.P.P.		Date: 8-19-95	Page: (1) Of 2
Project No.: 95-058FL	Operator: J. KEHL		
Sampling Location: UNIT 1 STACK	Run No.: 2		
Filter No.: 95-041 FL	Acetone No.:	Condensate: 200 mls 17.3	
Barometric Pressure: 30.28	Static Pressure: -.74	Probe Number: N-10-G-1F	
Nozzle Diameter: .187	Nozzle Number: FL 3	Pitot Coefficient: .875	Pitot Number: N-10-G-1F
Meter Corr. Factor: .996	Meter-Orifice: 2.999		
Sample Pt. Time: 10 min. 120 MIN TEST	Assumed % Moisture: 18 %	Leak Test	Before: .005 @ 12"Hg After: .005 @ 12"Hg

Orsat Analysis

CO_2	$+O_2$	O_2	CO
14.3		5.2	

Sample Point		ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start		10:38										828.129
D	1	1.5	1.225	1.53	153	329	63	339	11	5	2.0	835.29
	2	1.4	1.183	1.43	154	335	63	330	11	6	2.0	842.17
	3	1.1	1.049	1.12	153	340	64	334	11	6	1.5	848.31
A	1	1.4	1.183	1.52	155	334	63	330	12	0	2.0	855.40
	2	1.4	1.183	1.52	154	340	64	327	12	1	2.0	862.53
	3	1.2	1.095	1.30	154	335	65	333	12	2	1.5	869.11
B	1	1.5	1.225	1.63	154	341	65	329	12	2	2.0	876.51
	2	1.4	1.183	1.52	154	338	65	332	12	1	2.0	883.60
	3	1.2	1.095	1.30	152	334	66	337	12	2	1.5	890.22
C	1	1.4	1.183	1.52	154	329	66	334	12	3		897.32
	2	1.5	1.225	1.63	154	331	65	338	12	4	2.0	904.66
	3	1.2	1.095	1.30	153	336	66	330	12	3	2.5	911.278
Stop		12:56									2.0	
AVG			(1.160)	(1.44)	(154)				(120)			(83.156 cuft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

Particulate Field Data Sheet

DATA SET 19

Client	Date	Page
JEA / S.J.R.P.P.	8-19-95	1 Of 2

Project No.	Operator
95-058 FL	J. KEHL

Sampling Location	Run No.
Unit 1 Stack	3

Filter No.	Acetone No.	Condensate
95-042 FL		15.8 215 mls

Barometric Pressure	Static Pressure	Probe Number
30.28	-.74	N-10-G-1F

Nozzle Diameter	Nozzle Number	Pitot Coefficient	Pitot Number
.187	FL3	.875	N-10-6-11F

Meter Corr. Factor	Meter-Orifice
.996	2.999

Sample Pt. Time	Assumed % Moisture	Leak Test	Before	After
10min. 120 min test	1%		.008 @ 13" Hg	.007 @ 11" Hg

Orsat Analysis

CO_2	$+O_2$	O_2	CO
14.4		4.6	

Sample Point	ΔP	$\sqrt{\Delta P}$	ΔH	Temperature °F: Stack	Probe	Imp. Out	Oven	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
Start	13:16										911.814
C 1	1.5	1.225	1.63	154	321	61	330	11	6	2.5	919.16
2	1.4	1.183	1.52	154	328	61	336	11	7	2.5	926.31
3	1.1	1.049	1.19	153	332	62	332	11	9	2.0	932.64
B 1	1.5	1.225	1.63	154	329	63	335	12	0	2.5	939.98
2	1.4	1.183	1.52	155	333	62	340	12	0	2.5	947.09
3	1.2	1.095	1.30	154	338	63	337	12	1	2.0	953.71
A 1	1.4	1.183	1.52	154	340	62	334	12	1	2.5	960.83
2	1.4	1.183	1.52	155	338	62	330	12	2	2.5	967.91
3	1.2	1.095	1.30	152	336	63	329	12	1	2.5	978.54
D 1	1.5	1.225	1.63	154	331	63	331	12	2	2.5	985.87
2	1.4	1.183	1.52	154	329	64	334	12	3	2.5	992.95
3	1.2	1.095	1.30	153	325	63	329	12	3	2.0	999.551
Stop 18:32											
AVG		(1.160)	(1.46)	(154)				(12.0)		1	(87.737) cu ft.

Pitot Tube Leak Check: Before OK After OK

Integrated Bag Leak Check: Before OK After OK

Total Source Analysis, Inc.
Environmental Testing Consultants

TSA CEMS Log

Client :JEA SJRPP
Site :0000
Unit :1
Project :95-058
Comment :Run #1
Test Date :8/11/95 Time :08:15 thru 09:15:06 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
8:15:59	4.74	14.29	357.22
8:16:59	4.79	14.25	320.82
8:17:59	5.07	14.03	199.32
8:18:59	4.98	14.08	218.01
8:19:59	4.70	14.36	278.66
8:20:59	4.48	14.45	796.51
8:21:59	5.09	13.95	409.58
8:22:59	5.14	14.00	169.02
8:23:59	4.42	14.50	765.53
8:24:59	5.15	13.87	594.63
8:25:59	5.24	13.92	124.26
8:26:59	4.44	14.50	819.94
8:27:59	5.03	13.98	531.32
8:28:59	5.34	13.81	128.52
8:29:58	4.50	14.49	573.56
8:30:58	4.72	14.32	433.54
8:31:58	4.77	14.27	473.64
8:32:58	5.32	13.85	259.03
8:33:58	4.60	14.42	585.77
8:34:58	4.78	14.29	368.36
8:35:58	4.99	14.11	184.48
8:36:58	5.15	14.00	92.87
8:37:58	4.54	14.46	808.72
8:38:58	5.05	14.06	263.62
8:39:58	4.79	14.29	204.39
8:40:58	4.75	14.31	501.98
8:41:58	5.22	13.93	238.51
8:42:58	4.98	14.14	170.44
8:43:58	4.79	14.27	303.33
8:44:58	4.93	14.15	487.47
8:45:58	4.88	14.19	345.25
8:46:58	4.93	14.16	376.26
8:47:58	4.99	14.11	301.36
8:48:58	4.83	14.22	412.80
8:49:58	4.85	14.22	447.77
8:50:58	4.99	14.10	430.45
8:51:58	5.09	14.05	143.37
8:52:58	4.64	14.36	983.06
8:53:58	4.95	14.12	547.62
8:54:58	4.95	14.16	268.19
8:55:58	4.79	14.27	344.17
8:56:58	5.07	14.05	197.31
8:57:58	4.79	14.28	290.25
8:58:58	4.72	14.31	532.61
8:59:58	5.16	13.96	287.29
9:00:58	4.68	14.34	479.20

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run #1
Test Date :8/11/95 Time :08:15 thru 09:15:06

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
09:01:58	4.83	14.24	451.56
09:02:58	4.79	14.25	521.89
09:03:58	4.91	14.14	401.67
09:04:58	4.87	14.18	515.00
09:05:58	4.87	14.20	286.29
09:06:58	4.74	14.30	509.98
09:07:58	4.86	14.17	377.35
09:08:58	4.75	14.28	433.56
09:09:58	4.94	14.13	342.23
09:10:58	4.91	14.17	282.34
09:11:58	4.73	14.32	439.45
09:12:58	4.80	14.25	516.76
09:13:58	5.03	14.07	280.22
09:14:58	4.86	14.19	255.60
09:15:06	4.84	14.22	267.26
Averages for 61 Points	4.87	14.18	392.31

Egas → 4.918 14.343 399.068

Client :JEA SJRPP
[redacted]e :0000
[redacted]nit :R 1
Project :95-058
[redacted]ment :Run 2
[redacted]t Date :8/11/95 Time :10:14 thru 11:14:30 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
10:14:06	4.79	14.23	342.28
10:15:06	4.71	14.32	613.62
10:16:06	4.66	14.35	468.33
10:17:06	5.04	14.04	278.64
10:18:06	4.62	14.39	328.27
10:19:06	4.85	14.19	486.44
10:20:06	4.80	14.25	275.28
10:21:06	4.59	14.41	352.98
10:22:06	4.68	14.32	742.54
10:23:06	5.01	14.07	291.81
10:24:06	4.82	14.23	225.49
10:25:06	4.62	14.40	285.30
10:26:06	4.62	14.37	490.88
10:27:06	5.26	13.84	182.51
10:28:06	4.49	14.47	622.65
10:29:06	4.85	14.18	497.00
10:30:06	4.71	14.31	349.58
10:31:06	4.78	14.24	500.75
10:32:06	5.27	13.84	186.66
10:33:06	4.37	14.54	733.10
10:34:06	4.78	14.23	592.87
10:35:06	4.66	14.34	342.71
10:36:06	4.96	14.09	306.35
10:37:06	4.85	14.21	233.55
10:38:06	4.75	14.26	288.01
10:39:06	4.80	14.22	393.73
10:40:05	4.82	14.22	446.29
10:41:05	4.71	14.29	729.37
10:42:05	4.99	14.07	280.33
10:43:05	4.74	14.29	278.82
10:44:05	4.78	14.24	431.45
10:45:05	4.66	14.33	601.63
10:46:05	4.70	14.30	651.12
10:47:05	4.79	14.25	521.31
10:48:05	4.84	14.20	343.25
10:49:05	4.61	14.37	917.39
10:50:05	4.66	14.35	669.05
10:51:05	4.83	14.21	567.75
10:52:05	4.82	14.22	521.20
10:53:05	4.77	14.22	502.06
10:54:05	4.78	14.24	685.67
10:55:05	4.67	14.33	973.72
10:56:05	4.54	14.45	779.71
10:57:05	4.62	14.41	368.87
10:58:05	4.54	14.45	484.83
10:59:05	4.60	14.41	418.64

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run #3
Test Date :8/11/95 Time :10:14 thru 11:14:30 Page 2

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
11:00:05	4.81	14.21	315.79
11:01:05	4.79	14.23	245.11
11:02:05	4.78	14.26	181.99
11:03:05	4.84	14.22	161.25
11:04:05	4.53	14.44	347.23
11:05:05	4.74	14.28	630.16
11:06:05	4.73	14.28	298.74
11:07:05	4.82	14.19	221.42
11:08:05	4.95	14.10	171.50
11:09:05	4.88	14.15	304.34
11:10:05	4.96	14.08	135.97
11:11:05	4.98	14.06	347.82
11:12:05	4.87	14.16	291.23
11:13:05	4.94	14.12	100.21
11:14:05	4.62	14.36	454.97
Averages for 61 Points	4.77	14.25	422.81
$\bar{c}_{gas}$	4.86	14.35	420.65

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run #3
Test Date :8/11/95 Time :12:13 thru 13:13:49 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
12:13:09	4.77	14.19	139.36
12:14:09	4.73	14.23	188.61
12:15:09	4.80	14.17	201.37
12:16:09	4.86	14.10	245.91
12:17:09	4.74	14.22	179.88
12:18:09	5.02	13.92	261.53
12:19:08	4.72	14.18	388.79
12:20:08	4.74	14.19	181.49
12:21:08	4.78	14.17	128.57
12:22:08	5.06	13.93	62.03
12:23:08	4.72	14.23	122.55
12:24:08	4.79	14.16	155.42
12:25:08	4.97	14.00	88.90
12:26:08	5.00	13.96	44.93
12:27:08	4.81	14.15	40.99
12:28:08	4.80	14.15	65.05
12:29:08	5.07	13.87	85.80
12:30:08	4.62	14.31	153.49
12:31:08	4.74	14.17	299.35
12:32:08	4.99	13.96	169.65
12:33:08	4.85	14.12	107.57
12:34:08	4.72	14.22	118.58
12:35:08	4.94	14.02	143.46
12:36:08	4.95	13.98	160.59
12:37:08	4.80	14.16	107.12
12:38:08	4.75	14.15	200.36
12:39:08	4.98	13.97	145.38
12:40:08	4.87	14.08	103.67
12:41:08	5.07	13.90	94.91
12:42:08	5.09	13.89	26.00
12:43:08	5.01	13.96	145.27
12:44:08	5.05	13.92	124.36
12:45:08	4.89	14.06	184.25
12:46:08	4.97	14.00	169.53
12:47:08	5.10	13.90	170.53
12:48:08	4.81	14.14	208.01
12:49:08	5.09	13.90	181.67
12:50:08	5.05	13.95	72.91
12:51:08	5.01	13.98	91.75
12:52:08	4.98	14.02	65.05
12:53:08	5.05	13.92	154.53
12:54:08	4.81	14.17	97.85
12:55:08	5.00	14.00	102.27
12:56:08	4.82	14.15	108.04
12:57:08	4.83	14.16	82.86
12:58:08	5.00	14.01	73.77

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run #3
Test Date :8/11/95 Time :12:13 thru 13:13:49 Page 2

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
12:59:08	4.95	14.09	54.81
13:00:08	4.81	14.21	110.70
13:01:08	4.90	14.11	99.21
13:02:08	4.88	14.15	30.94
13:03:08	4.89	14.14	39.87
13:04:08	4.85	14.16	48.88
13:05:08	4.84	14.17	30.94
13:06:07	5.17	13.88	11.87
13:07:07	4.85	14.18	17.88
13:08:07	4.67	14.30	90.72
13:09:07	5.15	13.88	71.02
13:10:07	4.79	14.23	36.95
13:11:07	4.66	14.30	122.56
13:12:07	5.08	13.91	65.12
13:13:07	4.97	14.10	31.84
13:13:49	4.64	14.34	113.62
Averages for 62 Points	4.89	14.08	119.69
$\bar{c}$ gas	5.01	14.11	119.43

Client :JEA SJRPP

BEST AVAILABLE COPY

File :0000
Unit : Run 1
Project :95-058
Comment : Unit #1
Test Date :8/12/95 Time :08:00 thru 09:00:19 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
08:00:31	4.90	14.24	487.66
08:01:31	4.97	14.16	424.52
08:02:31	5.03	14.13	395.20
08:03:31	4.87	14.24	617.70
08:04:31	5.02	14.12	727.42
08:05:31	5.30	13.91	367.98
08:06:31	5.04	14.14	366.46
08:07:31	5.21	14.00	331.26
08:08:31	5.60	13.63	135.65
08:09:31	5.30	13.97	78.79
08:10:31	4.58	14.47	1000.37
08:11:31	5.24	13.92	611.53
08:12:31	5.30	13.96	167.22
08:13:31	4.60	14.48	631.05
08:14:31	5.23	13.99	635.90
08:15:31	4.86	14.30	388.41
08:16:31	4.89	14.29	498.84
08:17:31	4.77	14.33	689.70
08:18:31	5.08	14.11	506.23
08:19:31	4.85	14.29	366.49
08:20:31	5.03	14.14	490.95
08:21:31	4.96	14.21	499.87
08:22:31	4.98	14.21	280.20
08:23:30	4.88	14.28	372.66
08:24:30	4.79	14.36	299.26
08:25:30	4.90	14.26	578.76
08:26:30	4.99	14.20	384.62
08:27:30	4.92	14.26	341.27
08:28:30	5.04	14.14	357.63
08:29:30	5.03	14.17	345.20
08:30:30	4.76	14.35	731.33
08:31:30	4.90	14.22	657.84
08:32:30	5.36	13.88	241.37
08:33:30	4.75	14.36	377.70
08:34:30	4.75	14.34	776.62
08:35:30	5.16	14.04	396.54
08:36:30	4.92	14.24	350.35
08:37:30	4.92	14.24	355.03
08:38:30	4.91	14.25	421.49
08:39:30	4.92	14.22	353.36
08:40:30	4.99	14.16	641.97
08:41:30	5.05	14.10	417.19
08:42:30	4.92	14.23	475.44
08:43:30	4.97	14.17	589.62
08:44:30	5.12	14.07	411.31
08:45:30	4.49	14.50	1000.37

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run 1.
Test Date :8/12/95 Time :08:00 thru 09:00:19

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
08:46:30	5.19	14.01	773.80
08:47:30	4.98	14.18	406.56
08:48:30	4.92	14.23	284.50
08:49:30	4.94	14.20	453.21
08:50:30	4.99	14.17	500.79
08:51:30	5.00	14.18	329.45
08:52:30	5.04	14.12	379.39
08:53:30	4.79	14.34	498.00
08:54:30	4.89	14.20	1000.52
08:55:30	5.09	14.12	351.24
08:56:30	4.84	14.28	490.00
08:57:30	5.12	14.06	261.67
08:58:30	4.96	14.22	220.20
08:59:30	4.85	14.28	347.28
09:00:19	5.01	14.14	446.29
Averages for 61 Points	4.97	14.18	464.24

$\bar{C}_{gas}$ = 5.04 14.23 460.81

lient :JEA SJRPP
i e :0000
nit :1
roject :95-058
:o ment : Run 2
'est Date :8/12/95 Time :10:00 thru 11:00:16 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
10:00:25	5.11	14.06	448.48
10:01:25	5.00	14.18	535.13
10:02:25	4.92	14.22	489.32
10:03:25	5.02	14.17	353.69
10:04:25	4.84	14.29	444.50
10:05:25	4.88	14.24	722.74
10:06:25	4.99	14.18	588.44
10:07:25	5.08	14.09	445.14
10:08:25	5.05	14.14	304.67
10:09:25	4.76	14.36	568.67
10:10:25	4.72	14.34	920.36
10:11:25	5.01	14.16	531.74
10:12:25	4.99	14.19	280.24
10:13:25	4.74	14.36	596.51
10:14:25	5.01	14.15	557.93
10:15:25	5.10	14.06	393.41
10:16:25	4.72	14.39	361.78
10:17:25	4.96	14.17	753.73
10:18:25	4.83	14.30	415.32
10:19:25	5.01	14.14	419.65
10:20:25	4.86	14.28	480.25
10:21:25	4.88	14.25	487.29
10:22:25	4.96	14.20	476.43
10:23:25	4.88	14.26	437.63
10:24:25	4.87	14.27	399.39
10:25:25	4.80	14.33	400.54
10:26:25	5.01	14.11	383.61
10:27:25	5.01	14.16	286.46
10:28:25	4.61	14.46	567.02
10:29:25	4.99	14.13	777.61
10:30:24	5.02	14.16	381.80
10:31:24	4.74	14.37	503.47
10:32:24	5.00	14.16	601.96
10:33:24	4.84	14.30	365.80
10:34:24	4.97	14.17	396.44
10:35:24	5.02	14.16	178.84
10:36:24	4.93	14.18	593.58
10:37:24	4.66	14.38	795.90
10:38:24	5.12	14.02	590.73
10:39:24	4.99	14.16	373.73
10:40:24	4.78	14.34	379.44
10:41:24	4.88	14.24	525.23
10:42:24	4.90	14.25	472.80
10:43:24	4.68	14.41	564.26
10:44:24	5.11	14.03	607.53
10:45:24	5.06	14.12	392.85

lient :JEA SJRPP
ite :0000
nit : 1
roject :95-058
omment : Run 2
'est Date :8/12/95 Time :10:00 thru 11:00:16

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
.0:46:24	4.73	14.38	438.40
.0:47:24	4.81	14.30	608.64
.0:48:24	5.02	14.12	345.48
.0:49:24	4.81	14.30	505.38
L0:50:24	4.99	14.17	503.89
L0:51:24	4.93	14.22	334.34
L0:52:24	4.84	14.27	470.51
L0:53:24	4.95	14.20	382.02
L0:54:24	4.91	14.22	441.49
10:55:24	4.92	14.23	504.88
10:56:24	4.91	14.23	407.45
10:57:24	4.89	14.21	781.21
10:58:24	4.87	14.26	422.65
10:59:24	4.82	14.27	459.32
11:00:16	4.81	14.33	395.34
Averages for 61 Points	4.91	14.22	484.47

$\bar{C}_{gas}$ = 4.98 14.22 481.31

Client :JEA SJRPP

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Site :0000
Unit :1
Project :95-058
Comment :Run 3
Test Date :8/12/95 Time :11:50 thru 12:50:11 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
11:50:05	4.83	14.31	636.96
11:51:05	5.05	14.13	312.46
11:52:05	4.90	14.27	188.68
11:53:05	4.74	14.36	497.58
11:54:05	4.82	14.31	572.30
11:55:05	4.74	14.40	442.32
11:56:05	4.81	14.31	767.35
11:57:05	4.74	14.36	665.58
11:58:05	4.84	14.27	552.79
11:59:05	4.75	14.38	366.59
12:00:05	4.92	14.25	534.74
12:01:05	4.74	14.37	558.60
12:02:05	4.87	14.25	651.78
12:03:05	4.85	14.29	416.38
12:04:05	4.82	14.34	442.52
12:05:05	4.92	14.23	469.56
12:06:05	5.07	14.09	273.65
12:07:05	4.74	14.40	320.62
12:08:05	4.82	14.28	635.80
12:09:05	5.24	13.96	248.54
12:10:05	4.62	14.50	305.45
12:11:05	4.57	14.50	1000.52
12:12:05	4.67	14.41	868.72
12:13:05	4.88	14.27	426.64
12:14:05	4.77	14.36	485.21
12:15:05	4.63	14.47	546.05
12:16:05	4.77	14.36	560.61
12:17:05	4.86	14.30	385.19
12:18:04	4.64	14.44	574.47
12:19:04	4.99	14.15	634.13
12:20:04	4.82	14.31	321.53
12:21:04	4.78	14.34	420.59
12:22:04	4.97	14.17	576.70
12:23:04	4.85	14.27	443.43
12:24:04	4.73	14.36	548.20
12:25:04	4.77	14.33	663.69
12:26:04	5.05	14.11	290.49
12:27:04	4.98	14.18	252.54
12:28:04	4.70	14.40	487.27
12:29:04	4.76	14.34	496.01
12:30:04	4.86	14.24	850.01
12:31:04	4.82	14.26	600.46
12:32:04	4.73	14.33	709.47
12:33:04	4.79	14.30	542.37
12:34:04	4.73	14.34	494.89
12:35:04	4.99	14.12	477.24

lient :JEA SJRPP
ite :0000
nit : 1
roject :95-058
omment : Run 3
est Date :8/12/95 Time :11:50 thru 12:50:11 Page 2

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
.2:36:04	4.72	14.38	356.33
.2:37:04	4.67	14.36	855.23
.2:38:04	4.94	14.13	1000.37
.2:39:04	4.81	14.29	508.22
.2:40:04	4.69	14.36	894.74
.2:41:04	4.86	14.20	915.81
.2:42:04	4.76	14.30	789.37
.2:43:04	4.99	14.14	422.99
.2:44:04	4.82	14.29	370.60
.2:45:04	4.72	14.33	845.52
.2:46:04	4.88	14.22	475.06
12:47:04	4.90	14.19	507.23
12:48:04	4.71	14.35	521.21
12:49:04	4.60	14.42	929.50
12:50:04	4.97	14.12	718.00
12:50:11	5.01	14.09	632.67
Averages for 62 Points	4.82	14.28	552.57

$\bar{c}_{gas}$ = 4.93 14.18 550.61

Client :JEA SJRPP

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Site :0000

Unit :1

Project :95-058

Comment :Run 1

Test Date :8/13/95 Time :08:00 thru 09:00:14 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
08:00:07	5.21	14.11	432.46
08:01:07	5.07	14.22	610.68
08:02:07	5.17	14.15	311.68
08:03:07	5.15	14.14	543.78
08:04:07	4.85	14.35	1000.67
08:05:07	5.33	14.02	372.76
08:06:07	4.85	14.39	466.26
08:07:07	4.75	14.44	937.57
08:08:07	5.12	14.16	845.30
08:09:07	5.14	14.19	433.81
08:10:07	4.71	14.49	664.59
08:11:07	4.78	14.43	789.89
08:12:07	5.03	14.27	533.90
08:13:07	4.96	14.30	442.29
08:14:07	4.87	14.36	753.65
08:15:07	5.07	14.21	706.41
08:16:07	5.08	14.25	433.04
08:17:07	4.99	14.29	543.57
08:18:07	5.16	14.17	440.50
08:19:07	4.95	14.34	584.17
08:20:07	4.85	14.40	732.21
08:21:06	5.19	14.14	590.81
08:22:06	5.16	14.21	249.38
08:23:06	4.93	14.34	727.46
08:24:06	5.15	14.17	456.12
08:25:06	4.64	14.53	1000.44
08:26:06	5.00	14.28	999.29
08:27:06	4.88	14.38	820.56
08:28:06	5.14	14.19	702.92
08:29:06	4.93	14.38	521.98
08:30:06	4.90	14.35	999.83
08:31:06	5.08	14.26	576.86
08:32:06	4.81	14.47	709.68
08:33:06	4.95	14.32	924.48
08:34:06	4.91	14.38	384.59
08:35:06	5.03	14.29	439.28
08:36:06	4.97	14.34	447.19
08:37:06	5.15	14.20	314.85
08:38:06	4.95	14.35	439.81
08:39:06	4.97	14.31	777.87
08:40:06	5.20	14.13	357.43
08:41:06	4.88	14.38	591.31
08:42:06	5.07	14.25	526.77
08:43:06	4.86	14.40	915.49
08:44:06	4.86	14.41	654.02
08:45:06	5.06	14.27	406.54

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run 1
Test Date :8/13/95 Time :08:00 thru 09:00:14 Page 2

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
08:46:06	4.70	14.54	932.17
08:47:06	4.96	14.37	556.06
08:48:06	4.97	14.32	502.86
08:49:06	4.69	14.55	944.48
08:50:06	4.68	14.53	999.98
08:51:06	5.23	14.10	825.43
08:52:06	4.84	14.43	554.58
08:53:06	5.04	14.24	789.83
08:54:06	4.87	14.42	542.86
08:55:06	4.84	14.41	989.41
08:56:06	4.96	14.32	747.63
08:57:06	4.95	14.37	605.09
08:58:06	4.86	14.38	897.07
08:59:06	4.94	14.38	367.68
09:00:06	4.84	14.42	539.69
09:00:14	4.87	14.40	539.89
Averages for 62 Points	4.96	14.31	636.27

$\bar{E}$ gas = 4.95 14.29 630.22

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run 2
Test Date :8/13/95 Time :09:47 thru 10:47

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
09:47:41	4.88	14.44	295.55
09:48:40	4.73	14.52	815.61
09:49:40	5.02	14.26	870.46
09:50:40	4.45	14.71	904.76
09:51:40	4.76	14.46	1000.37
09:52:40	4.88	14.42	574.82
09:53:40	4.76	14.51	498.91
09:54:40	4.79	14.48	653.45
09:55:40	4.70	14.56	861.16
09:56:40	4.80	14.44	1000.52
09:57:40	4.93	14.39	470.78
09:58:40	4.52	14.67	980.56
09:59:40	4.85	14.40	1000.60
10:00:40	4.84	14.43	518.02
10:01:40	4.85	14.45	546.35
10:02:40	4.70	14.51	762.42
10:03:40	4.92	14.38	643.06
10:04:40	4.82	14.44	729.43
10:05:40	4.90	14.38	548.67
10:06:40	4.75	14.48	675.51
10:07:40	4.86	14.37	1000.52
10:08:40	4.93	14.34	720.29
10:09:40	4.89	14.38	512.88
10:10:40	4.78	14.44	800.61
10:11:40	5.02	14.25	631.00
10:12:40	4.78	14.45	698.63
10:13:40	4.75	14.47	893.83
10:14:40	4.76	14.46	792.14
10:15:40	4.89	14.35	724.65
10:16:40	4.79	14.44	551.00
10:17:40	4.82	14.41	648.85
10:18:40	4.63	14.55	888.59
10:19:40	4.67	14.52	896.72
10:20:40	4.74	14.45	899.82
10:21:40	4.81	14.42	884.83
10:22:40	4.59	14.57	1000.45
10:23:40	4.87	14.37	697.02
10:24:40	4.92	14.35	518.82
10:25:40	4.64	14.53	853.56
10:26:40	4.73	14.45	843.49
10:27:40	4.63	14.55	1000.29
10:28:40	4.82	14.40	859.72
10:29:40	4.77	14.44	721.55
10:30:40	4.70	14.51	676.83
10:31:40	4.70	14.48	988.33
10:32:40	4.83	14.38	781.74

Client :JEA SJRPP
Site :0000
Unit :1
Project :95-058
Comment : Run 2
Test Date :8/13/95 Time :09:47 thru 10:47

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
10:33:40	4.79	14.44	756.98
10:34:40	4.74	14.47	940.64
10:35:39	4.84	14.39	698.49
10:36:39	4.50	14.62	999.75
10:37:39	4.78	14.45	1000.45
10:38:39	4.70	14.50	1000.29
10:39:39	4.74	14.46	791.98
10:40:39	4.64	14.52	1000.22
10:41:39	4.81	14.41	780.10
10:42:39	4.81	14.42	652.53
10:43:39	4.79	14.43	674.96
10:44:39	4.80	14.43	791.69
10:45:39	4.68	14.49	1000.29
10:46:39	4.64	14.52	1000.52
Averages for 60 Points	4.77	14.45	782.10
$\bar{c}$ gas	4.77	14.42 TR	773.39

Client :JEA SJRPP
File :0000
Init :1
Project :95-058
Comment :Run 3
Test Date :8/13/95 Time :11:43 thru 12:43:23

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
11:43:12	4.63	14.51	999.98
11:44:12	4.74	14.45	951.46
11:45:12	4.76	14.46	780.10
11:46:12	4.71	14.45	999.83
11:47:12	4.74	14.45	938.59
11:48:12	4.60	14.57	912.88
11:49:12	4.54	14.57	1000.45
11:50:12	4.65	14.52	970.54
11:51:12	4.74	14.45	748.11
11:52:12	4.43	14.65	1000.75
11:53:12	4.79	14.40	1000.37
11:54:12	4.86	14.40	489.79
11:55:12	4.42	14.67	1000.29
11:56:12	4.69	14.47	1000.29
11:57:12	4.63	14.55	758.86
11:58:12	4.48	14.62	999.98
11:59:12	4.71	14.46	1000.37
12:00:12	4.73	14.44	1000.45
12:01:12	4.74	14.43	1000.45
12:02:12	4.73	14.46	761.85
12:03:12	4.79	14.39	702.92
12:04:12	4.76	14.44	462.37
12:05:12	4.59	14.58	807.84
12:06:12	4.67	14.50	678.82
12:07:12	4.57	14.56	1000.75
12:08:12	4.67	14.48	918.92
12:09:12	5.00	14.22	519.12
12:10:12	4.36	14.68	1000.14
12:11:12	4.54	14.57	1000.37
12:12:12	4.76	14.42	1000.14
12:13:12	4.69	14.46	1000.45
12:14:12	4.54	14.59	846.53
12:15:12	4.63	14.51	1000.52
12:16:12	4.66	14.49	936.94
12:17:12	4.80	14.39	843.77
12:18:12	4.71	14.47	436.66
12:19:12	4.59	14.54	913.79
12:20:12	4.78	14.40	857.53
12:21:12	4.73	14.45	689.89
12:22:11	4.78	14.41	494.20
12:23:11	4.99	14.24	449.03
12:24:11	4.75	14.47	361.84
12:25:11	4.26	14.74	1000.68
12:26:11	4.69	14.47	1000.29
12:27:11	4.67	14.50	1000.52
12:28:11	4.71	14.49	896.91

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run3
Test Date :8/13/95 Time :11:43 thru 12:43:23 Page 2

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
12:29:11	4.88	14.35	559.15
12:30:11	4.62	14.57	657.93
12:31:11	4.65	14.50	999.98
12:32:11	4.67	14.49	863.56
12:33:11	4.58	14.57	804.85
12:34:11	4.59	14.53	1000.60
12:35:11	4.77	14.42	847.88
12:36:11	4.78	14.40	1000.45
12:37:11	4.66	14.52	796.09
12:38:11	4.61	14.52	999.83
12:39:11	4.70	14.48	830.21
12:40:11	4.75	14.43	680.66
12:41:11	4.69	14.46	713.58
12:42:11	4.73	14.44	871.76
12:43:11	4.62	14.54	755.91
12:43:23	4.61	14.54	746.04
Averages for 62 Points	4.67	14.48	842.98

Egas 4.75 14.38 833.32

Client :JEA SJRPP
[redacted] :0000
Unit :1
Project :95-058
Comment :Rural
Test Date :8/18/95 Time :08:00 thru 09:00:12 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
08:00:22	4.94	14.29	292.35
08:01:22	5.03	14.19	456.44
08:02:22	5.09	14.17	279.26
08:03:22	5.10	14.16	155.43
08:04:22	5.15	14.12	112.42
08:05:22	5.02	14.24	119.57
08:06:22	4.87	14.32	329.38
08:07:22	4.69	14.49	460.12
08:08:22	4.89	14.31	473.28
08:09:22	5.11	14.15	262.58
08:10:22	5.14	14.12	121.81
08:11:22	5.11	14.15	213.24
08:12:22	4.80	14.41	238.37
08:13:22	4.85	14.37	574.95
08:14:22	4.94	14.30	211.29
08:15:21	4.96	14.28	225.42
08:16:21	4.90	14.31	287.39
08:17:21	5.01	14.21	251.91
08:18:21	4.93	14.29	350.18
08:19:21	5.02	14.22	464.20
08:20:21	4.93	14.31	256.36
08:21:21	4.92	14.27	455.42
08:22:21	4.90	14.31	444.26
08:23:21	4.98	14.24	227.23
08:24:21	4.90	14.32	373.34
08:25:21	4.96	14.26	315.53
08:26:21	5.02	14.23	211.21
08:27:21	4.97	14.27	195.36
08:28:21	4.77	14.39	437.01
08:29:21	5.06	14.15	667.01
08:30:21	4.96	14.27	283.51
08:31:21	5.08	14.16	191.60
08:32:21	4.98	14.27	288.28
08:33:21	5.03	14.20	247.35
08:34:21	4.90	14.32	176.07
08:35:21	5.38	13.88	317.68
08:36:21	4.67	14.46	394.18
08:37:21	4.84	14.26	1000.52
08:38:21	5.67	13.65	308.40
08:39:21	4.64	14.50	554.96
08:40:21	5.68	13.60	262.66
08:41:21	5.06	14.19	161.52
08:42:21	4.50	14.50	1000.52
08:43:21	5.37	13.86	999.83
08:44:21	4.71	14.40	711.45
08:45:21	4.78	14.30	1000.60

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run 1
Test Date :8/18/95 Time :08:00 thru 09:00:12 Page 2

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
08:46:21	5.65	13.68	390.87
08:47:21	4.53	14.52	952.16
08:48:21	5.57	13.62	987.72
08:49:21	5.45	13.81	154.54
08:50:21	4.79	14.29	1000.67
08:51:21	4.89	14.23	803.75
08:52:21	4.93	14.21	575.89
08:53:21	4.84	14.27	694.77
08:54:21	4.97	14.19	527.77
08:55:21	4.98	14.16	481.48
08:56:21	4.93	14.20	625.98
08:57:21	5.01	14.16	417.53
08:58:21	4.79	14.31	955.60
08:59:21	4.98	14.17	676.67
09:00:12	5.01	14.17	521.84
Averages for 61 Points	4.99	14.20	444.73

Egas → 5.00 14.23 444.22

Client :JEA SJRPP
Unit :0000
Unit :1
Project :95-058
Comment : Run 2.
Test Date :8/18/95 Time :09:50 thru 10:50 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
09:50:48	5.15	14.10	209.36
09:51:48	4.91	14.28	462.66
09:52:48	5.00	14.20	376.91
09:53:48	5.11	14.12	251.91
09:54:48	4.86	14.33	462.01
09:55:48	4.86	14.30	647.08
09:56:48	5.30	13.96	223.07
09:57:48	4.88	14.28	862.25
09:58:48	4.92	14.25	490.10
09:59:48	5.39	13.85	338.46
10:00:48	4.85	14.35	440.56
10:01:48	5.15	14.08	422.26
10:02:48	5.13	14.14	192.31
10:03:48	4.79	14.39	408.39
10:04:48	5.41	13.82	315.26
10:05:48	4.95	14.29	288.91
10:06:48	4.71	14.41	1000.52
10:07:48	5.32	13.92	376.72
10:08:48	5.10	14.11	340.17
10:09:48	4.96	14.25	335.55
10:10:47	5.23	14.02	255.95
10:11:47	4.89	14.32	356.04
10:12:47	4.96	14.22	464.50
10:13:47	4.89	14.29	481.09
10:14:47	5.02	14.18	402.41
10:15:47	5.01	14.20	330.28
10:16:47	5.13	14.10	271.23
10:17:47	4.98	14.21	570.96
10:18:47	5.24	14.01	323.00
10:19:47	5.09	14.14	325.53
10:20:47	4.85	14.26	982.12
10:21:47	5.05	14.13	664.71
10:22:47	5.02	14.19	500.22
10:23:47	4.97	14.19	662.72
10:24:47	5.07	14.16	364.85
10:25:47	4.96	14.22	545.67
10:26:47	5.06	14.15	553.98
10:27:47	5.05	14.17	387.56
10:28:47	4.82	14.34	622.32
10:29:47	4.98	14.22	600.35
10:30:47	5.20	14.00	414.87
10:31:47	5.06	14.19	245.76
10:32:47	4.81	14.32	779.75
10:33:47	4.92	14.23	799.88
10:34:47	5.03	14.18	375.86
10:35:47	5.10	14.13	327.37

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run 3
Test Date :8/18/95 Time :09:50 thru 10:50

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
10:36:47	5.03	14.16	356.73
10:37:47	5.11	14.12	219.41
10:38:47	4.63	14.45	1000.14
10:39:47	4.87	14.27	828.14
10:40:47	5.07	14.12	593.81
10:41:47	5.14	14.07	455.54
10:42:47	5.02	14.18	419.01
10:43:47	5.08	14.12	556.01
10:44:47	5.06	14.14	418.98
10:45:47	4.97	14.22	499.30
10:46:47	4.84	14.32	644.17
10:47:47	5.04	14.13	515.39
10:48:47	5.10	14.11	365.33
10:49:47	4.92	14.24	554.14
Averages for 60 Points	5.01	14.18	474.65

$\bar{c}_{gas}$ = 5.05 14.28 471.25

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run 3
Test Date :8/18/95 Time :11:35 thru 12:35 Page 1

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
11:35:05	4.90	14.29	512.98
11:36:05	4.95	14.23	582.71
11:37:05	5.12	14.06	314.21
11:38:05	4.99	14.24	211.94
11:39:05	4.98	14.18	587.65
11:40:05	5.17	14.03	346.10
11:41:05	5.11	14.11	239.13
11:42:05	4.80	14.37	321.80
11:43:05	4.66	14.47	932.59
11:44:05	4.67	14.46	1000.52
11:45:05	5.23	13.97	503.44
11:46:05	4.73	14.42	527.78
11:47:05	4.89	14.27	635.63
11:48:05	5.10	14.11	322.34
11:49:05	4.84	14.33	514.67
11:50:05	4.79	14.37	724.67
11:51:05	4.98	14.19	485.65
11:52:05	4.89	14.28	471.85
11:53:05	4.97	14.21	610.63
11:54:05	5.14	14.11	256.47
11:55:05	4.89	14.28	569.93
11:56:05	4.90	14.30	421.52
11:57:05	4.87	14.30	583.31
11:58:05	4.92	14.28	383.69
11:59:05	5.08	14.08	361.41
12:00:05	4.99	14.21	331.82
12:01:05	4.84	14.32	712.32
12:02:05	5.08	14.11	520.35
12:03:05	5.04	14.18	229.76
12:04:05	4.81	14.35	615.54
12:05:05	5.01	14.17	411.49
12:06:04	4.90	14.28	564.68
12:07:04	4.77	14.34	995.61
12:08:04	4.99	14.13	952.35
12:09:04	5.11	14.10	285.63
12:10:04	4.84	14.33	416.09
12:11:04	5.13	14.09	194.76
12:12:04	4.93	14.25	256.47
12:13:04	4.90	14.27	374.59
12:14:04	4.98	14.19	303.50
12:15:04	4.87	14.26	420.05
12:16:04	4.97	14.21	246.81
12:17:04	4.71	14.42	504.17
12:18:04	5.01	14.16	276.53
12:19:04	4.93	14.20	358.17
12:20:04	4.88	14.26	378.07

Client :JEA SJRPP
Site :0000
Unit : 1
Project :95-058
Comment : Run 3
Test Date :8/18/95 Time :11:35 thru 12:35

Time	1030 O2 %	1029 CO2 %	1028 CO PPm
12:21:04	4.85	14.28	563.39
12:22:04	5.17	14.01	321.49
12:23:04	4.56	14.51	829.61
12:24:04	4.87	14.23	1000.60
12:25:04	4.96	14.21	332.46
12:26:04	4.86	14.27	390.26
12:27:04	4.84	14.27	810.83
12:28:04	5.04	14.13	298.50
12:29:04	4.66	14.41	557.85
12:30:04	4.82	14.27	806.84
12:31:04	5.04	14.10	435.39
12:32:04	4.87	14.27	340.28
12:33:04	4.99	14.10	680.84
12:34:04	4.96	14.17	327.08
Averages for 60 Points	4.92	14.23	491.11
	5.04	14.25	488.23

Test Calibration Data

ANALYZER CALIBRATION DATA

Client J.E.A. SJ.R.P.P. Project # 95-058-F1 Test Date 8-11-95

Source Identification Unit #1 Stack Operator J. Roth

Calibration Data For Sampling Runs: 1- Gas Type: CO Span: 100	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS		0.0	0.0	0.0	0.0
LOW-RANGE GAS		14.74	14.80	.06	.06
MID-RANGE GAS		29.73	29.0	.73	.73
HIGH-RANGE GAS upscale		62.0	61.80	.20	.20

Calibration Data For Sampling Runs: 1- Gas Type: CO Span: 1000	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS		0.0	0.0	0.0	0.0
LOW-RANGE GAS		-			
MID-RANGE GAS		302.0	305.9	3.90	.39
HIGH-RANGE GAS		603.5	603.7	.20	.02

Calibration Data For Sampling Runs: PE Gas Type: O2 Span: 25	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS		0.0	.10	.10	.40
LOW-RANGE GAS		—			
MID-RANGE GAS upscale		11.60	11.60	0.0	0.0
HIGH-RANGE GAS		20.90	2040	0.0	0.0

Calibration Data For Sampling Runs: 1- Gas Type: CO2 Span: 20	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS		0.0	0.0	0.0	0.0
LOW-RANGE GAS		—			
MID-RANGE GAS upscale		10.9	11.0	.1	.50
HIGH-RANGE GAS	G1	17.20	17.20	0.0	0.0

ANALYZER CALIBRATION DATA

Client J.E.A. S.J.R.P.P. Project # 95-058-F1 Test Date 8-12-95

Source Identification Unit #1 Stack Operator T. Roth

Calibration Data For Sampling Runs: 1- Gas Type: CO Span: 100	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	ALM023664	14.74	14.25	.49	.49
MID-RANGE GAS	ALM028243	29.73	29.24	.49	.49
HIGH-RANGE GAS 1 upscale	SA6640	62.0	61.0	1.0	1.0

Calibration Data For Sampling Runs: 1- Gas Type: CO Span: 1000	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	—	—			
MID-RANGE GAS 2 upscale	ALM025068	302.0	305.7	3.70	.37
HIGH-RANGE GAS	ALM012900	603.5	602.2	1.30	.13

Calibration Data For Sampling Runs: 1- Gas Type: O_2 Span: 25	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066 0.0	0.0	.10	.10	.40
LOW-RANGE GAS	—	—			
MID-RANGE GAS upscale	SG9133268	11.60	11.60		0.0
HIGH-RANGE GAS	Amb. Air.	20.90	20.70	-20	-80

Calibration Data For Sampling Runs: 1- Gas Type: O_2 Span: 20	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	—	—			
MID-RANGE GAS upscale	SG9133059	10.90	11.0	.10	.50
HIGH-RANGE GAS G2	ALM049101	17.20	17.20	0.0	0.0

ANALYZER CALIBRATION DATA

Client J.E.A. S.J.R.P.P. Project # 95-058-F1 Test Date 8-13-95

Source Identification Unit #1 Stack Operator T. Roth

Calibration Data For Sampling Runs: 1- Gas Type: CO Span: 100	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	ALM023664	14.74	14.0	.740	.74
MID-RANGE GAS	ALM028243	29.73	29.00	.73	.73
HIGH-RANGE GAS	SA6640	62.0	61.0	1.0	1.0

Calibration Data For Sampling Runs: 1- Gas Type: CO Span: 1000	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	—	—			
MID-RANGE GAS	ALM028068	302.0	305.4	3.40	.34
HIGH-RANGE GAS	ALM012900	6035	600.6	2.90	.29

Calibration Data For Sampling Runs: 1- Gas Type: O2 Span: 25	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	—	—			
MID-RANGE GAS	SG9133268	11.60	11.70	-.10	.40
HIGH-RANGE GAS	Amb. Air	20.90	20.80	-.10	.40

Calibration Data For Sampling Runs: 1- Gas Type: CO_2 Span: 20	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	UN1066	0.0	.10	.10	.50
LOW-RANGE GAS	—	—			
MID-RANGE GAS	SG9133059	10.90	11.10	.20	1.0
HIGH-RANGE GAS G3	ALM049101	17.20	17.20	0.0	0.0

ANALYZER CALIBRATION DATA

Client J.E.A. S.J.R.P.P. Project # 95-058-F1 Test Date 8-18-95

Source Identification Unit # 1 Stack Operator T. Roth

Calibration Data For Sampling Runs: 1-3 Gas Type: CO Span: 100	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	Un1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	ALM023664	14.74	13.95	.79	.79
MID-RANGE GAS	ALM02P243	29.73	29.00	.73	.73
HIGH-RANGE GAS	SA6640	62.0	60.0 TR	1.0	1.0

Calibration Data For Sampling Runs: 1-3 Gas Type: CO Span: 1000	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	Un1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	—	—			
MID-RANGE GAS upscale	ALM028068	302.0	303.3	1.3	.130
HIGH-RANGE GAS	ALM012900	603.5	601.6	1.90	.190

Calibration Data For Sampling Runs: 1-3 Gas Type: O_2 Span: 25	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	Un1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	—	—			
MID-RANGE GAS upscale	SG9133[illegible]	11.60	11.60	0.0	0.0
HIGH-RANGE GAS	Amb Air.	20.90	20.60	.30	1.20

Calibration Data For Sampling Runs: 1-3 Gas Type: CO_2 Span: 20	Cylinder Number	Cylinder Value % or PPM	Analyzer Response	Absolute Difference % or PPM	Difference % of Span
ZERO GAS	Un1066	0.0	0.0	0.0	0.0
LOW-RANGE GAS	—	—			
MID-RANGE GAS upscale	SG9133059	10.90	11.0	.10	.50
HIGH-RANGE GAS G4	ALM049101	17.20	17.2	0.0	0.0

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-11-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	0.00	0.00	0.00	0.00
UPSCALE GAS		61.80	59.90	-0.19	62.00	0.02	0.21
	CMA:	62.00		CO:	0.00	CM:	60.95

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.10	0.50	0.10	0.50	0.00
UPSCALE GAS		11.00	10.80	-1.00	10.80	-1.00	0.00
	CMA:	10.90		CO:	0.10	CM:	10.80

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.10	0.10	0.00	0.10	0.00	0.00
UPSCALE GAS		11.60	11.40	-0.80	11.30	-1.20	-0.40
	CMA:	11.60		CO:	0.10	CM:	11.35

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	ERR	0.00	ERR	ERR
UPSCALE GAS		0.00	0.00	ERR	0.00	ERR	ERR
	CMA:			CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-11-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
UPSCALE GAS		**305.90**	**302.70**	**-0.32**	**304.40**	**-0.15**	**0.17**
	CMA:	302.00		CO:	0.00	CM:	303.55

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.50**	**0.10**	**0.50**	**0.00**
UPSCALE GAS		**11.00**	**10.80**	**-1.00**	**10.90**	**-0.50**	**0.50**
	CMA:	10.90		CO:	0.10	CM:	10.85

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.10**	**0.10**	**0.00**	**0.10**	**0.00**	**0.00**
UPSCALE GAS		**11.60**	**11.30**	**-1.20**	**11.20**	**-1.60**	**-0.40**
	CMA:	11.60		CO:	0.10	CM:	11.25

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:			CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-11-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	0.00	0.00	0.00	0.00
UPSCALE GAS		305.90	304.40	-0.15	302.30	-0.36	-0.21
	CMA:	302.70		CO:	0.00	CM:	303.35

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.10	0.50	0.10	0.50	0.00
UPSCALE GAS		11.00	10.90	-0.50	10.90	-0.50	0.00
	CMA:	10.90		CO:	0.10	CM:	10.90

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.10	0.10	0.00	0.10	0.00	0.00
UPSCALE GAS		11.60	11.20	-1.60	11.20	-1.60	0.00
	CMA:	11.60		CO:	0.10	CM:	11.20

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	ERR	0.00	ERR	ERR
UPSCALE GAS		0.00	0.00	ERR	0.00	ERR	ERR
	CMA:			CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-12-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
UPSCALE GAS		**305.70**	**304.20**	**-0.15**	**304.30**	**-0.14**	**0.01**
	CMA:	302.00		CO:	0.00	CM:	304.25

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.50**	**0.20**	**1.00**	**0.50**
UPSCALE GAS		**11.00**	**10.90**	**-0.50**	**10.90**	**-0.50**	**0.00**
	CMA:	10.90		CO:	0.15	CM:	10.90

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.40**	**0.10**	**0.40**	**0.00**
UPSCALE GAS		**11.60**	**11.30**	**-1.20**	**11.30**	**-1.20**	**0.00**
	CMA:	11.60		CO:	0.10	CM:	11.30

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:			CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-12-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	0.00	0.10	0.01	0.01
UPSCALE GAS		305.70	304.30	-0.14	303.70	-0.20	-0.06
	CMA:	302.00		CO:	0.05	CM:	304.00

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.20	1.00	0.20	1.00	0.00
UPSCALE GAS		11.00	10.90	-0.50	11.00	0.00	0.50
	CMA:	10.90		CO:	0.20	CM:	10.95

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.10	0.40	0.10	0.40	0.00
UPSCALE GAS		11.60	11.30	-1.20	11.30	-1.20	0.00
	CMA:	11.60		CO:	0.10	CM:	11.30

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	ERR	0.00	ERR	ERR
UPSCALE GAS		0.00	0.00	ERR	0.00	ERR	ERR
	CMA:	0.00		CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-12-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.01**	**0.00**	**0.00**	**-0.01**
UPSCALE GAS		**305.70**	**303.70**	**-0.20**	**302.50**	**-0.32**	**-0.12**
	CMA:	302.00		CO:	0.05	CM:	303.10

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.20**	**1.00**	**1.00**
UPSCALE GAS		**11.00**	**11.00**	**0.00**	**11.00**	**0.00**	**0.00**
	CMA:	10.90		CO:	0.10	CM:	11.00

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.40**	**0.10**	**0.40**	**0.00**
UPSCALE GAS		**11.60**	**11.30**	**-1.20**	**11.10**	**-2.00**	**-0.80**
	CMA:	11.60		CO:	0.10	CM:	11.20

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:	0.00		CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-13-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
UPSCALE GAS		**305.40**	**305.40**	**0.00**	**304.40**	**-0.10**	**-0.10**
	CMA:	302.00		CO:	0.00	CM:	304.90

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.10**	**0.10**	**0.00**	**0.20**	**0.50**	**0.50**
UPSCALE GAS		**11.10**	**10.90**	**-1.00**	**11.00**	**-0.50**	**0.50**
	CMA:	10.90		CO:	0.15	CM:	10.95

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.40**	**0.10**	**0.40**	**0.00**
UPSCALE GAS		**11.70**	**11.50**	**-0.80**	**11.50**	**-0.80**	**0.00**
	CMA:	11.60		CO:	0.10	CM:	11.50

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:			CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-13-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	0.00	0.00	0.00	0.00
UPSCALE GAS		305.40	304.40	-0.10	306.40	0.10	0.20
CMA:		302.00		CO:	0.00	CM:	305.40

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.10	0.20	0.50	0.00	-0.50	-1.00
UPSCALE GAS		11.10	11.00	-0.50	10.90	-1.00	-0.50
CMA:		10.90		CO:	0.10	CM:	10.95

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.10	0.40	0.10	0.40	0.00
UPSCALE GAS		11.70	11.50	-0.80	11.40	-1.20	-0.40
CMA:		11.60		CO:	0.10	CM:	11.45

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		0.00	0.00	ERR	0.00	ERR	ERR
UPSCALE GAS		0.00	0.00	ERR	0.00	ERR	ERR
CMA:		0.00		CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-13-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
UPSCALE GAS		**305.40**	**306.40**	**0.10**	**304.60**	**-0.08**	**-0.18**
	CMA:	302.00		CO:	0.00	CM:	305.50

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.10**	**0.00**	**-0.50**	**0.20**	**0.50**	**1.00**
UPSCALE GAS		**11.10**	**10.90**	**-1.00**	**11.10**	**0.00**	**1.00**
	CMA:	10.90		CO:	0.10	CM:	11.00

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.40**	**0.10**	**0.40**	**0.00**
UPSCALE GAS		**11.70**	**11.40**	**-1.20**	**11.10**	**-2.40**	**-1.20**
	CMA:	11.60		CO:	0.10	CM:	11.25

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:	0.00		CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-18-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
UPSCALE GAS		**303.30**	**301.50**	**-0.18**	**303.20**	**-0.01**	**0.17**
	CMA:	302.00		CO:	0.00	CM:	302.35

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.50**	**0.10**	**0.50**	**0.00**
UPSCALE GAS		**11.00**	**10.90**	**-0.50**	**10.90**	**-0.50**	**0.00**
	CMA:	10.90		CO:	0.10	CM:	10.90

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.40**	**0.10**	**0.40**	**0.00**
UPSCALE GAS		**11.60**	**11.50**	**-0.40**	**11.40**	**-0.80**	**-0.40**
	CMA:	11.60		CO:	0.10	CM:	11.45

RUN NO:	1		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:			CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-18-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.10**	**0.01**	**0.01**
UPSCALE GAS		**303.30**	**303.20**	**-0.01**	**305.20**	**0.19**	**0.20**
	CMA:	302.00		CO:	0.05	CM:	304.20

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.50**	**0.10**	**0.50**	**0.00**
UPSCALE GAS		**11.00**	**10.90**	**-0.50**	**10.80**	**-1.00**	**-0.50**
	CMA:	10.90		CO:	0.10	CM:	10.85

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.40**	**0.30**	**1.20**	**0.80**
UPSCALE GAS		**11.60**	**11.40**	**-0.80**	**11.10**	**-2.00**	**-1.20**
	CMA:	11.60		CO:	0.20	CM:	11.25

RUN NO:	2		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:	0.00		CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

SYSTEM CALIBRATION BIAS AND DRIFT DATA

CLIENT JEA SJRPP PROJECT # 95-058-FL TEST DATE 08-18-95

SOURCE IDENTIFICATION UNIT 1 STACK OPERATOR T. ROTH

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	1000	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.10**	**0.01**	**0.00**	**0.00**	**-0.01**
UPSCALE GAS		**303.30**	**305.20**	**0.19**	**302.40**	**-0.09**	**-0.28**
	CMA:	302.00		CO:	0.05	CM:	303.80

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	CO2	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	20	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**0.00**	**0.10**	**0.50**	**0.50**
UPSCALE GAS		**11.00**	**10.80**	**-1.00**	**11.00**	**0.00**	**1.00**
	CMA:	10.90		CO:	0.05	CM:	10.90

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	02	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	25	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.30**	**1.20**	**0.20**	**0.80**	**-0.40**
UPSCALE GAS		**11.60**	**11.10**	**-2.00**	**10.90**	**-2.80**	**-0.80**
	CMA:	11.60		CO:	0.25	CM:	11.00

RUN NO:	3		INITIAL VALUES		FINAL VALUES		
GAS TYPE:	Gass	ANALYZER	SYSTEM	SYSTEM	SYSTEM	SYSTEM	DRIFT
SPAN:	0	RESPONSE	RESPONSE	CAL. BIAS % OF SPAN	RESPONSE	CAL. BIAS % OF SPAN	% OF SPAN
ZERO GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
UPSCALE GAS		**0.00**	**0.00**	**ERR**	**0.00**	**ERR**	**ERR**
	CMA:	0.00		CO:	0.00	CM:	0.00

TOTAL SOURCE ANALYSIS, INC.

ENVIROMENTAL TESTING CONSULTANTS

Gas Certification Sheets

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (313) 589-2950 FAX: (313) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
TOTAL SOURCE ANALYSIS
510 DICKSON STREET
WELLINGTON, OH, 44090

Assay Laboratory
Scott Specialty Gases, Inc.
1290 Combermere
Troy, MI 48083

Purchase Order 1344
Scott Project # 558885

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number	ALM023664	**Certification Date**	12-8-93	**Expiration Date**	12-7-96
Cylinder Pressure	1900 psig	**Previous Certification Dates**	None		

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	**14.74 ppm**	**±1% NIST Directly Traceable**

Balance Gas: Nitrogen

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1678	5-12-94	AAL6302	45.76 PPM CO IN N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO: Beckman/867/0100157	11-10-93	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 11-29-93 Response Units: mv Z1=0.00 R1=46.80 T1=15.20 R2=46.80 Z2=0.00 T2=15.20 Z3=0.00 T3=15.20 R3=46.80 Avg. Conc. of Cust. Cyl. 14.74 ppm	Date: 12-8-93 Response Units: mv Z1=0.00 R1=46.80 T1=15.20 R2=46.80 Z2=0.00 T2=15.20 Z3=0.00 T3=15.20 R3=46.80 Avg. Conc. of Cust. Cyl. 14.74 ppm	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 CRM 1678 Constants: A=0.3465483 B=0.9339077 C=0.00095399 D=-0.000003327 E=0
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4
			Concentration=A+Bx+Cx^2+Dx^3+Ex^4

Special Notes

Analyst Tim Sanderson

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
TOTAL SOURCE ANALYSIS
510 DICKSON STREET
WELLINGTON, OH 44090-1171

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 2004
Scott Project # : 575700

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM028243
Cylinder Pressure + : 1900 psig
Certificate Date : 1/13/95
Previous Certificate Date : None
Expiration Date : 1/13/98

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	29.73 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1679	8/11/96	ALM037782	97.10 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO:Horiba/OPE-135/565607092	1/13/95	Non-Dispersive Infared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 1/6/95 Response Units: mv Z1=0.00 R1=80.00 T1=25.00 R2=80.00 Z2=0.00 T2=25.00 Z3=0.00 T3=25.00 R3=80.00 Avg. Conc. of Cust. Cyl. 29.67 ppm	Date: 1/13/95 Response Units: mv Z1=0.00 R1=80.00 T1=25.10 R2=80.00 Z2=0.00 T2=25.10 Z3=0.00 T3=25.10 R3=80.00 Avg. Conc. of Cust. Cyl: 29.79 ppm	Concentration=A+Bz+Cz^2+Dz^3+Ez^4 r=1.00000 NTRM 1679 Constants: B=1.202500000 C=-0.001100400 D=0.000015397 E=0.000000000

Special Notes

Mail

H2

Analyst

MISP/P-1

610-691-2474
FAX # 610-758-8384

LIQUID CARBONIC

CYLINDER GAS PRODUCTS

EAST COAST REGION
145 SHIMERSVILLE RD., BETHLEHEM, PA 18015

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER S/T CANTON P.O NUMBER 49763

REFERENCE STANDARD

COMPONENT		NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE	49.7 PPM GMIS VS.	1678C	CAL-6763	48.2 PPM

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

COMPONENT CARBON MONOXIDE 49.7 PPM ANALYZER MAKE-MODEL-S/N SIEMENS ULTRAMAT 5E [illegible]-930

ANALYTICAL PRINCIPLE NON-DISPERSIVE INFRARED LAST CALIBRATION DATE 03/31/95

FIRST ANALYSIS DATE 04/17/95 SECOND ANALYSIS DATE 04/25/95

Z	0.00	R	50.8	C	63.4	CONC.	62.0	Z	0.00	R	50.6	C	63.2	CONC.	62.1
R	50.8	Z	0.00	C	63.4	CONC.	62.0	R	50.6	Z	0.00	C	63.2	CONC.	62.1
Z	0.00	C	63.4	R	50.8	CONC.	62.0	Z	0.00	C	63.2	R	50.6	CONC.	62.1
U/M	PPM					MEAN TEST ASSAY	62.0	U/M	PPM					MEAN TEST ASSAY	62.1

THIS CYLINDER NO. SA6640
HAS BEEN CERTIFIED ACCORDING TO SECTION EPA-600/R93/224
OF TRACEABILITY PROTOCOL NO. REV. 9/93
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 1650PSIG
CERTIFICATION DATE 04/25/95
EXPIRATION DATE 04/25/98

CERTIFIED CONCENTRATION
CARBON MONOXIDE 62.0 ppm
NITROGEN BALANCE

ANALYZED BY Daniel J. Day
DANIEL J. DAY, H3

CERTIFIED BY Robert Hillard
ROBERT HILLARD

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
TOTAL SOURCE ANALYSIS
510 DICKSON STREET
WELLINGTON, OH 44090-1171

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 1477
Scott Project # : 568881

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM049209
Cylinder Pressure + : 1900 psig
Certificate Date : 7/25/94
Previous Certificate Date : None
Expiration Date : 7/25/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Dioxide	10.9 %	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2745	11/3/96	SX20311	15.75 % % Carbon Dioxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO2:Horiba/PIR-2000/02609015	7/14/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Dioxide	Date: 7/25/94 Response Units: mv Z1=0.00 R1=120.90 T1=95.90 R2=120.90 Z2=0.00 T2=95.90 Z3=0.00 T3=95.90 R3=120.90 Avg. Conc. of Cust. Cyl. 10.9 %		Concentration=A+Bx+Cx²+Dx³+Ex⁴ r=1.00000 SRM 2745 Constants: A=-1.415500000 B=0.140570000 C=-0.000642590 D=0.000005418 E=0.000000000

Special Notes

Analyst Rhonda Lundy

MISP/P-1

AGA Gas, Inc.

Specialty & Medical Gases Division

CERTIFICATE OF ANALYSIS

EPA PROTOCOL

PERFORMED ACCORDING TO SECTION 2.2, PROCEDURE G1

Production Number: 12940090
Cylinder Number: CC7791
Cylinder Pressure: 2000 psi

NOTICE, THIS CYLINDER IS NOT TO BE USED WHEN PRESSURE IS UNDER 150 psig

Certified Component	Certified Concentration	Date of Certification	Analytical Method
Carbon Dioxide	7% ± 1%	1/23/95	Non-Dispersive Infrared

Expiration Date: 1/23/98
Balance Gas: Nitrogen

REFERENCE STANDARD DATA:

SRM Number	Cylinder Number	Concentration
GMIS	CC4109	13.93% Carbon Dioxide

CERTIFIED AT:

AGA Gas Inc.
Specialty & Medical Gas Division
[illegible] Monclova Road
[illegible], Ohio 43537

Michael Sickmiller
Quality Control Supervisor

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
TOTAL SOURCE ANALYSIS
510 DICKSON STREET
WELLINGTON, OH 44090-1171

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 1477
Scott Project # : 568881

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM049101
Cylinder Pressure + : 1900 psig
Certificate Date : 7/25/94
Previous Certificate Date : None
Expiration Date : 7/25/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Dioxide	17.2 %	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2745	11/3/96	SX20311	15.75 % % Carbon Dioxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO2:Horiba/PIR-2000/02609015	7/14/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Carbon Dioxide

First Triad Analysis

Data: 7/25/94 Response Units: mv
Z1=0.00 R1=120.90 T1=127.10
R2=120.90 Z2=0.00 T2=127.10
Z3=0.00 T3=127.10 R3=120.90
Avg. Conc. of Cust. Cyl. 17.2 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4
r=1.00000 SRM 2745
Constants: A=-1.415500000
B=0.140570000 C=-0.000842590
D=0.000005418 E=0.000000000

Special Notes

Analyst Rhonda Lundy

MISP/P-1

Air Produc'n and Chemicals, Inc.
SPECIALTY GA DEPARTMENT
12722 S. WENTWORTH AVENUE
CHICAGO, IL 60628

Certificate of Analysis - EPA Protocol Gas Standard

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G

Customer:
APCI
5420 WARNER RD,
VALLEY VIEW
CLEVELAND OH 44125

PO: Rel:

Notes:

Order No: 231-01952
Batch No: 861-23317
Cylinder No: SG9133258
Cylinder Pressure*: 2000 psig
Certification Date: 01/23/95
Expiration Date: 01/23/98

*** Certified Concentration ***		********* Reference Standards *********			********** Analytical Instrumentation ********			
Component	Certified Concentration	Cylinder #	Standard Number	Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
OXYGEN	11.6 ±.10 %	SG9113455BAL	GMIS	15.0500 %	Shimadzu GC-8A	32029	01/18/95	GC-TCD

Balance Gas: Nitrogen

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* Standard should not be used below 150 psig

H7

Analyst: Shaher Aboor
Shaher Aboor

Approved By: Robert McNear
Robert McNear

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
TOTAL SOURCE ANALYSIS
510 DICKSON STREET
WELLINGTON, OH 44090-1171

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 1433
Scott Project # : 565319

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM028068
Cylinder Pressure + : 1900 psig
Certificate Date : 4/28/94
Previous Certificate Date : None
Expiration Date : 4/28/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	302.0 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1681	7/19/95	ALM-024827	966.1 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	4/15/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 3/15/94 Response Units: mv Z1=0.00 R1=100.00 T1=35.40 R2=100.00 Z2=0.00 T2=35.40 Z3=0.00 T3=35.40 R3=100.00 Avg. Conc. of Cust. Cyl. 302.0 ppm	Date: 4/28/94 Response Units: mv Z1=0.00 R1=100.00 T1=35.40 R2=100.00 Z2=0.00 T2=35.40 Z3=0.00 T3=35.40 R3=100.00 Avg. Conc. of Cust. Cyl: 302.0 ppm	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=1.00000 CRM 1681 Constants: A=-0.162760000 B=7.918200000 C=0.017444000 D=0.000000000 E=0.000000000

Special Notes

Don Eichler Jr

Analyst Don Eichler, Jr

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
TOTAL SOURCE ANALYSIS
510 DICKSON STREET
WELLINGTON, OH 44090-1171

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 1433
Scott Project # : 565319

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards: Procedure G1; September, 1993.

Cylinder Number : ALM012900
Cylinder Pressure + : 1900 psig
Certificate Date : 4/28/94
Previous Certificate Date : None
Expiration Date : 4/28/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	603.5 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder pressure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1681	7/19/95	ALM-024827	966.1 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
CO : Beckman/864/102528	4/15/94	Non-Dispersive Infrared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Carbon Monoxide

First Triad Analysis

Date: 2/8/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=68.50
R2=100.00	Z2=0.00	T2=68.50
Z3=0.00	T3=68.50	R3=100.00
Avg. Conc. of Cust. Cyl. 603.5 ppm		

Second Triad Analysis

Date: 4/28/94	Response Units: mv	
Z1=0.00	R1=100.00	T1=68.50
R2=100.00	Z2=0.00	T2=68.50
Z3=0.00	T3=68.50	R3=100.00
Avg. Conc. of Cust. Cyl: 603.5 ppm		

Calibration Curve

Concentration=A+Bx+Cx^2+Dx^3+Ex^4	
r=1.00000	CRM 1681
Constants:	A=-0.182780000
B=7.918200000	C=0.017444000
D=0.000000000	E=0.000000000

Special Notes

Analyst Don Eichler, Jr

Calibrations of Test Equipment

Best Available Copy

DRY GAS METER CALIBRATION SHEET

CLIENT: SHOP Q.A.Q.C.
PROJECT NUMBER: 95-000-PI
MODULE: RAC # 2
ORIFICE: 2.999

RUN BY: T.ROTH
DATE: 5/18/95
BAROMETRIC PRESSURE 29.99

DELTA H IN.H2O	Vw Initial	Vw Final	Vw Cub.Feet	Vd Initial	Vd Final	Vd Cub.Feet	Tw F	TDi F	TDo F	Td F	Time Min
0.5	8.000	12.067	4.067	675.818	[illegible]	4.139	66.6	85.0	77.0	81.00	10.0
1.0	13.000	18.619	5.619	680.768	[illegible]	5.735	66.5	89.0	78.0	83.50	10.0
1.5	20.000	26.600	6.600	687.995	[illegible]	6.972	67.0	92.0	80.0	86.00	10.0
2.0	29.000	36.935	7.935	697.310	[illegible]	8.378	67.0	92.0	80.0	86.00	10.0
3.0	39.000	48.370	9.370	707.955	[illegible]	9.925	67.0	96.0	82.0	89.00	10.0

DELTA H IN.H2O	DELTA H 13.6	MC/Y	Yi
0.50	0.0368	1.011	-0.015
1.00	0.0735	1.009	-0.013
1.50	0.1103	1.007	-0.011
2.00	0.1471	0.977	0.019
3.00	0.2206	0.976	0.020

DELTA Ha	DELTA Ha @I
1.837	0.088
1.708	0.017
1.744	-0.019
1.708	0.017
1.827	-0.102

METER CORR. FACTOR: 0.996
ORIFICE: 2.999
DELTA H@I: 1.725

WHERE:
- AH = Orifice Setting
- Vw = Volume of Gas of Wet Test Meter
- Vd = Volume of Gas of Dry Gas Meter
- Tw = Temperature of Fluid in Wet Test Meter
- Tdi = Inlet Temperature of Dry Gas Meter
- Tdo = Outlet Temperature of Dry Gas Meter
- Td = Average Temperature of Dry Gas Meter
- Time = Time Required to pull specific cubic feet
- Mc = Dry Gas Meter Correction Factor
- A Ha = Orifice setting that equates to .75 cfm of air at standard conditions
- A Hai = Ha tolerance; tolerance for individual values (+/-) .20 from average
- Yi = Ratio of reading of Wet Test Meter to Dry Gas Meter; tolerance for individual values (+/-) .02 from average

EQUATIONS: Mc (Y)

$$\frac{Vw\ Pb\ (Td + 460)}{Vd\ (Pb + AH/13.6)(Tw + 460)}$$

AH (a)

$$\frac{0.0317\ AH}{Pb\ (Td + 460)} \left| \frac{(Tw + 460)Time}{Vw} \right|^2$$

SHOP Q.A.Q.C.
95-000-FL
RAC # 2
5/18/95

ORIFICE CALCULATIONS

INITIAL

DELTA H	Ft/Min	X^2
0 5	0.4130	0.1706
1.0	0.5735	0.3289
1.5	0.6973	0.4862
2.0	0.8376	0.7016
3.0	0 9925	0.9851

POSSIBLE COMRINATIONS

1	(3.0 - 2.0)	1	3.6278	-17.64%
2	(3.0 - 1.5)	2	3.0070	-0.28%
3	(3.0 - 1.0)	3	3.0481	-1.65%
4	(3.0 - .50)	4	3.0894	-2.36%
5	(2.0 - 1.5)	5	2.3218	22.57%
6	(2.0 - 1.0)	6	2.6833	10.61%
7	(2.0 - .50)	7	2.8248	5.80%
8	(1.5 - 1.0)	8	3.1781	-5.99%
9	(1.5 - .50)	9	3.1680	-5.66%
10	(1.0 - .50)	10	3.1570	-5.31%

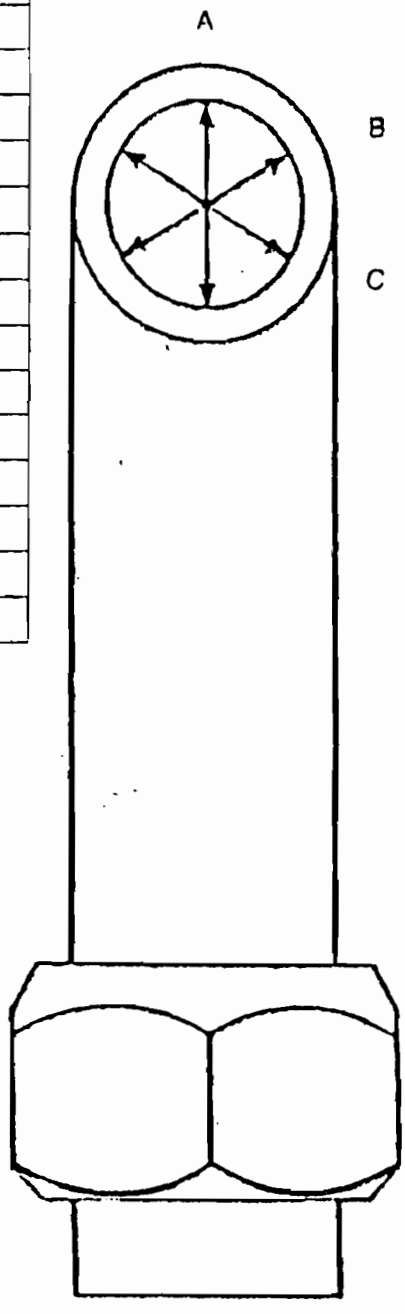
AVERAGE ORIFICE 2.9986

Nozzle Calibration

Sized By J. Roth Shop QA QC.

Date	Nozzle	Dimension A	Dimension B	Dimension C	Difference	Avg. Diameter
2-21-95	FI-01	.120	.120	.120	.000	.120
2-21-95	FI-02	.139	.139	.140	.001	.139
2-21-95	FI-03	.186	.188	.187	.002	.187
2-21-95	FI-04	.187	.187	.187	.000	.187
2-21-95	FI-05					
2-21-95	FI-06	.231	.230	.232	.002	.231
2-21-95	FI-07	.250	.249	.249	.001	.249
2-21-95	FI-08	.248	.249	.248	.001	.248
2-21-95	FI-09	.250	.250	.250	.000	.350
2-21-95	FI-10	.250	.250	.250	.000	.250
2-21-95	FI-11	.252	.252	.251	.001	.252
2-21-95	FI-12	.375	.374	.375	.001	.375
2-21-95	FI-13	.302	.302	.301	.001	.302
2-21-95	FI-14	.305	.306	.306	.001	.306
2-21-95	FI-15	.314	.315	.315	.001	.315
2-21-95	FI-16	.374	.375	.374	.001	.374
2-21-95	FI-17	.372	.373	.372	.001	.372
2-21-95	FI-18	.371	.372	.372	.001	.372
2-21-95	FI-19	.370	.369	.371	.002	.370
2-21-95	FI-20	.438	.437	.438	.001	.438
2-21-95	FI-22	.501	.502	.503	.002	.502
2-21-95	FI-21	.496	.495	.496	.001	.496
2-21-95	FI-23	.501	.501	.501	.000	.501
2-21-95	FI-24	.501	.500	.501	.001	.501
2-21-95	FI-25	.494	.495	.494	.001	.494
2-21-95	FI-27	.496	.498	.498	.002	.498
2-22-95	FI-26	.753	.753	.753	.000	.753

All Dimensions are in inches.



TSA

Total Source Analysis, Inc.
Environmental Testing Consultants

Pitot Calibration Form

Client Shop Quality
Project No. _____
Test Location Umatilla, FL.

Run By T. Roth / J. Tayfel
Date 2-27-95
Pitot No. A-10-1-1-FL

● "A" Side Calibration

Run No.	△Pstd cm H_2O (in H_2O)	△P (s) cm H_2O (in. H_2O)	$C_p(s)$	Deviation $C_p(s)-\bar{C}_p(A)$
1	.840	1.200	.828	-0.360
2	.860	1.267	.816	-0.407
3	.903	1.200	.859	-0.297
	Average	$\bar{C}_p$ (Side A)	.834	-0.355

●● "B" Side Calibration

Run No.	△Pstd cm H_2O (in H_2O)	△P (s) cm H_2O (in. H_2O)	$C_p(s)$	Deviation $C_p(s)-\bar{C}_p(B)$
1	.840	1.200	.828	-0.360
2	.860	1.233	.827	-0.373
3	.903	1.200	.859	-0.297
	Average	$\bar{C}_p$ (Side B)	.838	-0.343

Calculations:

$$C_p(s) = 0.99\sqrt{\frac{\Delta P\ (standard)}{\Delta P\ (s)}}$$

Deviation = $C_p(s) = \bar{C}_p$ (A or B)

$$\text{Average Deviation} = \sigma\ (A \text{ or } B) = \frac{\sum_{1}^{3} |C_p(s) - \bar{C}_p\ (A \text{ or } B)|}{3}$$

$|\bar{C}_p(\text{Side A}) - \bar{C}_p(\text{Side B})| = \frac{-.012}{3}$

Nozzle size used for Calibrations (inches) 1/4" FI-003
Intercomponent Spacings During Calibrations:
Pitot - Nozzle: ± 3/4"
Pitot - Thermocouple: 1/2"
Pitot - Probe Sheath: 1/2"

Total Source Analysis, Inc.
Environmental Testing Consultants

Pitot Calibration Form

Client Shop Quality
Project No.
Test Location Umatilla, FL.

Run By T. Roth / J. Tayfel
Date 2-27-95
Pitot No. N-10-G I F

● "A" Side Calibration

Run No.	△ Pstd cm H_2O (in H_2O)	△P (s) cm H_2O (in. H_2O)	$C_p(s)$	Deviation $C_p(s)-\bar{C}_p(A)$
1	.840	1.133	.852	- 0.293
2	.860	1.100	.875	- 0.240
3	.903	1.100	.897	- 0.197
	Average	$\bar{C}_p$ (Side A)	.875	- 0.243

●● "B" Side Calibration

Run No.	△ Pstd cm H_2O (In H_2O)	△P (s) cm H_2O (in. H_2O)	$C_p(s)$	Deviation $C_p(s)-\bar{C}_p(B)$
1	.840	1.133	.852	-0.293
2	.860	1.133	.863	-0.273
3	.903	1.133	.884	-0.230
	Average	$\bar{C}_p$ (Side B)	.866	-0.265

Calculations:

$$C_p(s) = 0.99\sqrt{\frac{\Delta P \text{ (standard)}}{\Delta P \text{ (s)}}}$$

Deviation = C_p (s) = $\bar{C}_p$ (A or B)

Average Deviation = σ (A or B) = $\frac{\sum_{1}^{3} | C_p(s) - \bar{C}_p \text{ (A or B)} |}{3}$

$|\bar{C}_p(\text{Side A}) - \bar{C}_p(\text{Side B})| = .022$

Nozzle size used for Calibrations (inches) 3/8" F1-017

Intercomponent Spacings During Calibrations:

Pitot - Nozzle: 3/4"

Pitot - Thermocouple: 1 1/2"

Pitot - Probe Sheath: 1 1/4"

Total Source Analysis, Inc.
Environmental Testing Consultants

Laboratory Reports

Client J.E.A. S.J.R.P.P. Project No. 95-058-FL. Date 8-15-95

Run No. 1
Filter No. 95-028-FL.
Acetone No. FL-01
Amount liquid lost during transport 0.0 mL
Acetone blank volume, ml 100.0 mL
Acetone wash volume, ml 100 mL.
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6048	.6018	.0030
2	60.4492	60.4336	.0156
Total			.0186
Less acetone blank			.0002
Weight of particulate matter			.0184

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	445.0	266.8
Initial	200.0	250.0
Liquid collected	245.0	16.8
Total Volume Collected	261.8 mL	g* ✓ ml

Run No. 2
Filter No. 95-029-FL
Acetone No. FL-01
Amount liquid lost during transport 0.0 mL
Acetone blank volume, ml 100.0 mL
Acetone wash volume, ml 100 mL
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6090	.6061	.0029
2	71.0504	71.0154	.0350
Total			.0379
Less acetone blank			.0002
Weight of particulate matter			.0377

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	439.0	267.7g
Initial	200.0	250.0
Liquid collected	239.0	17.7
Total Volume Collected	256.7 mL	g* ✓ ml

No. 3
Filter No. 95-030-FL
Acetone No. FL-01
Amount liquid lost during transport 0.0mL
Acetone blank volume, ml 100.0 mL
Acetone wash volume, ml 100 mL
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6041	.5988	.0053
2	70.8370	70.8063	.0307
Total			.0360
Less acetone blank			.0002
Weight of particulate matter			.0358

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	445.0	266.4g
Initial	200.0	250.0
Liquid collected	245.0	16.4g
Total Volume Collected	261.4mL	g* ✓ ml

Run No. Blank
Filter No. —
Acetone No. FL.01
Amount liquid lost during transport 0.0mL
Acetone blank volume, ml 100.0mL
Acetone wash volume, ml 100.0mL
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	—	—	—
2	73.4360	73.4358	.0002
Total			.0002
[redacted] acetone blank			—
Weight of [redacted] matter			.0002

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	—	—
Initial	—	—
Liquid collected	—	—
Total Volume Collected	—	— g* — ml

*Convert weight of water to volume by dividing total weight increase by density of water (1g/ml): $\frac{\text{Increase, g}}{\text{1g/ml}}$ = Volume Water, ml

**See Federal Register, Method 5, 6.6, & 6.7.

Analytical Data Sheet

Client TEA. SJRPP Project No. 95-058-FL Date 8-15-95

Run No. 1
Filter No. 95-031-FL
Acetone No. FI-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100 mL
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1	.6008	.5937	.0071
2	80.6911	80.6842	.0069
Total			.0140
		Less acetone blank	.0002
		Weight of particulate matter	.0138

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	444.0	267.4
Initial	200.0	250.0
Liquid collected	244.0	17.4
Total Volume Collected	261.4	g* ✓ml

Run No. 2
Filter No. 95-032-FL
Acetone No. FI-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1	.6072	.6022	.0050
2	74.9549	74.9429	.0120
Total			.0170
		Less acetone blank	.0002
		Weight of particulate matter	.0168

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	466.0	268.1
Initial	200.0	250.0
Liquid collected	266.0	18.10
Total Volume Collected	284.1	g* ✓ml

Run No. 3
Filter No. 95-033-FL
Acetone No. FI-01
Amount liquid lost during transport 0.0mL
Acetone blank volume, ml 100.0mL
Acetone wash volume, ml 100.0mL
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1	.5884	.5827	.0057
2	74.7372	74.7244	.0128
Total			.0185
		Less acetone blank	.0002
		Weight of particulate matter	.0183

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	456.0	269.7
Initial	200.0	250.0
Liquid collected	256.0	19.7
Total Volume Collected	275.7	g* ✓ml

Run No. Blank
Filter No. —
Acetone No. FI-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml —
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected g		
	Final Weight	Tare Weight	Weight Gain
1			
2	73.4360	73.4358	.0002
Total			.0002
		Less acetone blank	—
		~~Weight of particulate matter~~	.0002

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	—	—
Initial	—	—
Liquid collected	—	—
Total Volume Collected	—	— g* — ml

*Convert weight of water to volume by dividing total weight increase by density of water (1g/ml): $\frac{\text{Increase, g}}{1\text{g/ml}}$ = Volume Water, ml

**See Federal Register, Method 5, 6.6, & 6.7.

Client J.E.A. S.J.R.P.P. Project No. 95-058-F1 Date 8-16-95

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Run No. —
Filter No. 95-034-F1
Acetone No. F1-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.5941	.5895	.0005
2	60.4382	60.4309	.0073
Total			.0078
		Less acetone blank	.0002
		Weight of particulate matter	.0076

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	435.0	261.6
Initial	200.0	250.6
Liquid collected	235.0	11.6
Total Volume Collected	246.6	g* / ml

Run No. 2
Filter No. 95-035-F1
Acetone No. F1-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6101	.6061	.0040
2	71.0246	71.0144	.0102
Total			.0142
		Less acetone blank	.0002
		Weight of particulate matter	.0140

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	435.0	271.4
Initial	200.0	250.0
Liquid collected	235.0	21.4
Total Volume Collected	256.4	g* / ml

No. 3
Filter No. 95-036-F1
Acetone No. F-1-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100.0
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6140	.6082	.0058
2	70.8083	70.8035	.0048
Total			.0106
		Less acetone blank	.0002
		Weight of particulate matter	.0104

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	444.0	270.4
Initial	200.0	250.0
Liquid collected	244.0	20.4
Total Volume Collected	264.4	g* / ml

Run No. Blank
Filter No. —
Acetone No. F1-01
Amount liquid lost during transport —
Acetone blank volume, ml 0.0
Acetone wash volume, ml 100.0
Acetone blank concentration, mg/mg (equation 5-4)** —
Acetone wash blank, mg (equation 5-5)** —

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1			
2	73.4360	73.4358	.0002
Total			.0002
		Less acetone blank	—
		~~Weight of particulate matter~~	.0002

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	—	—
Initial	—	—
Liquid collected	—	—
Total Volume Collected	—	g* / ml

*Convert weight of water to volume by dividing total weight increase by density of water (1g/ml): $\frac{\text{Increase, g}}{1\text{g/ml}}$ = Volume Water, ml

**See Federal Register, Method 5, 6.6, & 6.7.

Client JEA / SJRPP Project No. 95-058 FL Date 8-19-95

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Run No. Run 1 Unit 1 Stack
Filter No. 95-040 F
Acetone No.
Amount liquid lost during transport
Acetone blank volume, ml
Acetone wash volume, ml
Acetone blank concentration, mg/mg (equation 5-4)**
Acetone wash blank, mg (equation 5-5)**

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6138	.6073	.0065
2	80.6891	80.6860	.0031
Total			.0096
		Less acetone blank	-.0001
		Weight of particulate matter	.0095

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	390.0	265.1
Initial	200.0	250.0
Liquid collected	190.0	15.1
Total Volume Collected	205.1	g* ml

Run No. Run 2 Unit 1 Stack
Filter No. 95-041 FL
Acetone No.
Amount liquid lost during transport
Acetone blank volume, ml
Acetone wash volume, ml
Acetone blank concentration, mg/mg (equation 5-4)**
Acetone wash blank, mg (equation 5-5)**

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6100	.6066	.0034
2	73.4353	73.4294	.0059
Total			.0093
		Less acetone blank	-.0001
		Weight of particulate matter	.0092

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	400.0	267.3
Initial	200.0	250.0
Liquid collected	200.0	17.3
Total Volume Collected	217.3	g* ml

Run No. Run 3 Unit 1 Stack
Filter No. 95-042 FL
Acetone No.
Amount liquid lost during transport
Acetone blank volume, ml
Acetone wash volume, ml
Acetone blank concentration, mg/mg (equation 5-4)**
Acetone wash blank, mg (equation 5-5)**

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6065	.6041	.0024
2	74.9490	74.9438	.0052
Total			.0076
		Less acetone blank	-.0001
		Weight of particulate matter	.0075

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	415.0	265.8
Initial	200.0	250.0
Liquid collected	215.0	15.8
Total Volume Collected	220.8	g* ml

Run No. Blank
Filter No.
Acetone No.
Amount liquid lost during transport
Acetone blank volume, ml
Acetone wash volume, ml
Acetone blank concentration, mg/mg (equation 5-4)**
Acetone wash blank, mg (equation 5-5)**

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1			
2	73.2579	73.2578	.0001
Total			
		Less acetone blank	
		Weight of particulate matter	

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final		
Initial		
Liquid collected		
Total Volume Collected		g* ml

*Convert weight of water to volume by dividing total weight increase by density of water (1g/ml): $\frac{\text{Increase, g}}{\text{1g/ml}}$ = Volume Water, ml

**See Federal Register, Method 5, 6.6, & 6.7.

Analytical Data Sheet

Client J.E.A. S.J.R.P.P. Project No. 95-058-FL. Date 8-17-95

Run No. 1
Filter No. 95-037-FL
Acetone No. FL-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100
Acetone blank concentration, mg/mg (equation 5-4)** -
Acetone wash blank, mg (equation 5-5)** -

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6104	.6037	.0067
2	60.4485	60.4284	.0201
Total			.0268
		Less acetone blank	.0002
		Weight of particulate matter	.0266

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	450.0	270.8
Initial	200.0	250.0
Liquid collected	250.0	20.8
Total Volume Collected	270.8	g* ✓ ml

Run No. 2
Filter No. 95-038-FL
Acetone No. FL-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100.
Acetone blank concentration, mg/mg (equation 5-4)** -
Acetone wash blank, mg (equation 5-5)** -

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.5916	.5839	.0077
2	71.0334	71.0145	.0189
Total			.0266
		Less acetone blank	.0002
		Weight of particulate matter	.0264

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	433.0	273.4
Initial	200.0	250.0
Liquid collected	233.0	23.4
Total Volume Collected	256.4	g* ✓ ml

Run No. 3
Filter No. 95-039-FL
Acetone No. FL-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0
Acetone wash volume, ml 100
Acetone blank concentration, mg/mg (equation 5-4)** -
Acetone wash blank, mg (equation 5-5)** -

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	.6062	.5997	.0065
2	70.8138	70.8026	.0112
Total			.0177
		Less acetone blank	.0002
		Weight of particulate matter	.0175

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	440.0	271.6
Initial	200.0	252.0
Liquid collected	240.0	21.6
Total Volume Collected	261.6	g* ✓ ml

Run No. Blank.
Filter No. -
Acetone No. FL-01
Amount liquid lost during transport 0.0
Acetone blank volume, ml 100.0 mL
Acetone wash volume, ml -
Acetone blank concentration, mg/mg (equation 5-4)** -
Acetone wash blank, mg (equation 5-5)** -

Container Number	Weight of Particulate Collected, g		
	Final Weight	Tare Weight	Weight Gain
1	-	-	-
2	73.4360	73.4358	.0002
Total			.0002
		~~Less~~ acetone blank	-
		~~Weight of~~ particulate ~~matter~~	.0002

	Volume of Liquid Water Collected	
	Impinger Volume, ml.	Silica Gel Weight, g
Final	-	-
Initial	-	-
Liquid collected	-	-
Total Volume Collected	-	- g* ÷ ml

*Convert weight of water to volume by dividing total weight increase by density of water (1g/ml): $\frac{\text{Increase, g}}{1\text{g/ml}}$ = Volume Water, ml

**See Federal Register, Method 5, 6.6, & 6.7.

SO_3 Analysis Sheet

Client J.E.A. S.J.R.P.P. Analysis Run By T. Roth Date Aug 11 1995

Project No. 95-058-FL Plant Site Jacksonville Fla.

Barium Perchlorate Normality .0099 = $\frac{\text{Mls } H_2SO4 \text{ X Normality}}{\text{Mls Barium Titrated}}$ = $\frac{25.0 \text{X} \ .03}{50.70}$

Sampling Location	Run No.	Sample #	Volume of Solution	Volume of Aliquot	Volume to Titrate
Unit #1 Stack		Blank	1000mL	50.0mL	0.0/0.0
	1	1	160.0ml	25.0 mL	10.6/10.4
	2	2	211.0mL	25.0 mL	8.5/8.9/8.3
	3	3	224.0ml	25.0 ml	8.7/8.7/

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SO_3 Analysis Sheet

Client J.E.A. S.J.R. P.P. Analysis Run By T. Roth Date Aug 12 1995

Project No. 95-058-FL Plant Site Jacksonville Fla

Barium Perchlorate Normality .0100 = Mls H_2SO_4 X Normality / Mls Barium Titrated = $\frac{35.0 \times .02}{49.5}$

Sampling Location	Run No.	Sample #	Volume of Solution	Volume of Aliquot	Volume to Titrate
Unit #1 Stack		Blank	1000mL	50.0mL	0.0/0.0
	1	1	200ml	25.0mL	8.8/9.0
	2	2	175ml	25.0ml	11.1/11.4/11.4
	3	3	17ml	25.0ml	12.0/12.2

Total Source Analysis, Inc.
Environmental Samplers

SO_3 Analysis Sheet

Client J.E.A. S.J.R.P.P. Analysis Run By T. Roth Date Aug 13 1995

Project No. 95- Plant Site Jacksonville Fla.

Barium Perchlorate Normality .0100 = Mls H_2SO_4 X Normality / Mls Barium Titrated = $\frac{25.0 \times .02}{49.8}$

Sampling Location	Run No.	Sample #	Volume of Solution	Volume of Aliquot	Volume to Titrate
Unit # 1 Stack		Blank	1000ml	50.0ml	0.0/0.0
	1	1	196ml	25.0ml	6.6/6.5/6.5
	2	2	193ml	25.0ml	13.4/13.1/13.5
	3	3	198.5ml	25.0ml	27.8/28.4/28.4

Total Source Analysis, Inc.
Environmental Samplers

SO_3 Analysis Sheet

Client J.E.A. S.J.R.P.P. Analysis Run By T. Roth Date Aug 14 1995

Project No. 95-058-FJ Plant Site Jacksonville Fla

Barium Perchlorate Normality .0100 = Mls H_2SO_4 X Normality / Mls Barium Titrated = $\frac{25.0 \times .02}{49.80}$

Sampling Location	Run No.	Sample #	Volume of Solution	Volume of Aliquot	Volume to Titrate
Unit # Stack		Blank	1000ml.	50.0mL	0.0/0.0
	1	1	192.5ml	25.0mL	9.5/9.0/8.9
	2	2	197.0mL	25.0mL.	12.8/12.6
	3	3	165.0ml	~~25.0mL~~ TR 10.0ml	7.0/7.2

Total Source Analysis, Inc.
Environmental Samplers

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