Continuation

of document

submitted on

March 7, 2003

Georgia-Pacific

Palatka Pulp and Paper Operations
Consumer Products Division

P.O. Box 919
Palatka, FL 32178-0919
(386) 325-2001

December 13, 2002

Mr. Christopher L. Kirts
District Air Program Administrator
State of Florida
Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Re: Bleach Plant Compliance Test – October 2002
Georgia-Pacific Palatka Operations

Dear Mr. Kirts:

Continuous monitoring system (CMS) parameters, monitoring frequencies, averaging times and the rationale for selecting the CMS are required to be submitted for approval pursuant to 40 CFR 63.453 (n). This information has been updated from a previous submittal (letter dated October 25, 2002, Appendix A) reflecting recent compliance testing conducted in October 2002, which has been summarized and included in this correspondence for your review. (A copy of the test report is included as an attachment.)

The Bleach Plant scrubber collects and treats emissions from the No. 3 Bleach Plant as well as emissions from the R8/10 Chlorine Dioxide Generator. The pH of the gas scrubber effluent, the scrubber liquid influent flow rate, and the fan amps were continuously recorded during the testing. We have analyzed this information pursuant to 40 CFR 63.453 (n) as follows.

Although all runs demonstrated compliance with 40 CFR 63.445 (c) (2) by a considerable margin, four of the six runs were selected to develop operating parameter values providing the greatest operating flexibility while also demonstrating continuous compliance (see Table 1).

The average pH during these runs was 9.2 with a minimum during one run of 9.0 (see Figures 1 and 2 in Appendix B). We, therefore, propose for the Administrator's approval that we operate the scrubber effluent pH above a minimum of 9.0 as a rolling 3-hour average with a monitoring frequency of at least once every 15 minutes (see Table 2). We believe the monitoring frequency of once every 15 minutes to be appropriate because the standard deviation of the data was quite low. The average flow of the scrubber medium was 1257 gpm with a minimum of 1252 gpm. By the same rationale we propose for the Administrator's approval that we operate above a minimum flow of 1252 as a rolling 3-hour average with the same monitoring frequency described above.

Region 4 previously approved monitoring fan amperage of the bleaching system vent gas fan as an alternative monitoring parameter to 40 CFR 63.453 (c)(2) (letter dated December 22,

2000). The mill continuously monitors fan amperage and displays it as fan load on its Distributed Control System (DCS). Fan load during the time of the testing was calculated as follows (Equation 1).

$$\%Load = \frac{measured\ amps}{0.701 * full\ load\ amps} * 100 = \frac{measured\ amps}{0.701 * 25.7} * 100 = \frac{measured\ amps}{18.02} * 100$$

Please note 0.701 represents a conversion factor for ranging of the signal from the field instrumentation to the DCS.

Figure 3 reflects the fan load/amperage when the Bleach Plant goes down. Because the mill continues to run the fan the amperage goes up although the process is down. We have also taken all the belts off the fan motor to determine its "no load" amperage, 9.8 amps. Because of data variability we propose to operate the fan such that the amperage is below 19.3 and above 10.8 amps as a rolling 3-hour average. This will be converted to fan load for convenience of the operators. Note that this calculation has been simplified according to the following (Equation 2) and became effective on December 5, 2002 at 13:05.

$$\%Load = \frac{measured\ amps}{full\ load\ amps} * 100 = \frac{measured\ amps}{25.7} * 100$$

Again, we propose to monitor fan amperage/load at least once every 15 minutes. In all cases, pH, flow, and % Load data will be transferred to a plant wide information (PI) system for record keeping purposes.

We respectfully request written approval as required by 40 CFR 63.453 (n). If you have any questions about our rationale please do not hesitate to call me at (386) 329-0918.

Sincerely,

Theodore D. Kennedy
Vice President

tk

Enclosures

cc: Lee Page, EPA Region 4
William Jernigan, Atlanta
Scott Matchett, Atlanta
Cindy Barlow
Nickolai Selbach

Appendix A

Letter Dated October 25, 2002

Georgia-Pacific

Palatka Pulp and Paper Operations
Consumer Products Division

P.O. Box 919
Palatka, FL 32178-0919
(386) 325-2001

October 25, 2002

Mr. Mort Benjamin
Air Compliance Supervisor
Northeast District
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, FL 32256-7577

Re: Cluster Rule CMS Parameters (40 CFR 63.453(n))
Georgia-Pacific Palatka Operations
1070005

Dear Mr. Benjamin:

During a recent review of recordkeeping and reporting procedures we discovered that continuous monitoring system (CMS) parameters, monitoring frequencies, averaging times and the rationale for choosing the CMS were not submitted in a readable, concise format and summary to the Department pursuant to 40 CFR 63.453 (n).

The CMS listed in the attached tables were chosen because they indicate when there is a breach of the Closed Vent Collection System, a bypass of the Condensate Collection System, or they otherwise indicate operation outside of tested operating ranges on the condensate, low-volume-high-concentration (LVHC) and bleach plant treatment systems specifically identified in 40 CFR Subpart S. The tables show the equipment, the parameters that are monitored, the CMS tag numbers, the limits that have been evaluated and the thresholds or minimum averaging times.

Limit switches, pressure measurements, stream flows, temperatures, pH, fan load, pH and indications of valve positions are forms of CMS that are generally accepted industry-wide for monitoring for compliance.

The parameters designated as "Valve Position" or "Vent Valve Position" in the attached Tables indicate that a system is either being collected (valve "Closed") or bypassed (valve "Open") to show compliance with the requirement to collect gases from the named LVHC systems.

The incinerator temperature values were selected because data collected during the IPT of the two incinerators indicated that compliance with the treatment requirements of 63.443(d) were met at all times when the temperatures were above the chosen values. The averaging time was selected based on run times of the reference test methods. Similarly, the parameter values shown for the stripper parameters mandated under 63.453(g) were based on data gathered during the stripper characterization study.

Finally, the scrubber parameters are either mandated by the rule (see 63.453(c)) or approved as acceptable alternative monitoring. Parameter values were chosen based on data gathered during the scrubber IPTand subsequent performance tests, and when the parameters are within the designated ranges, we meet the bleach plant treatment requirements found in 63.445(c). Averaging times were selected based on normal compliance test times.

If you have any more questions concerning this issue, please do not hesitate to contact either Joe Taylor at 386-329-0027 or via e-mail at jetaylor@gapac.com or me at 386-329-0918.

Sincerely,

Theodore D. Kennedy

Theodore D. Kennedy
Vice-President
Palatka Operations

Bc: S. D. Matchett (GA030-43)
W. M. Jernigan (GA030-09)

MACT I CONTINUOUS MONITORING SYSTEMS

Area	Parameter/Equipment	Parameter Monitored	PI Tag Number	Range/Limit	Threshold/Averaging Time
Bleach Plant (scrubber)	Scrubbant Recirculation Flow	Flow	40fif31.pv	≥ 1229 gpm	3-hr average
	Scrubber Fan Load	Load	40iif33.pv	≥ 85%	Continuous
	Scrubbant Recirculation pH	PH	40aif32.pv	≥ 9.1	3-hr average
Thermal Oxidizer	Primary Incinerator Temperature	Temperature	13ncgincin:13ttm22a.pnt	≥ 1300° F	3-hr rolling average
	Backup Incinerator Temperature	Temperature	13ncgincin:13ttm22b.pnt	≥ 1300° F	
Steam Stripper	Steam Flow to Stripper	Steam Flow	13constrip:13fcc01.meas		3-hr rolling average
	Condensate Flow to Stripper	Condensate Flow	13constrip:13fcc19.meas	N/A	3-hr rolling average
	Condensate Temperature entering Column	Temperature	13constrip:13ttc30.pnt	≥ 160° F	3-hr rolling average
Condensate Collection	Pre-evaporator 1st and 2nd effect foul, Pre-evaporator hotwell condensate	Flow, gpm	13concollect:13ftk20.pnt	N/A	Daily average rolled into 15-day rolling average
	1st and 2nd effect contaminated condensate, as makeup	Flow, gpm	13concollect:13ftk03.pnt	N/A	Daily average rolled into 15-day rolling average
	Turpentine Decanter Underflow and Secondary Condenser condensate	Flow, gpm	13concollect:13ftk21.pnt	N/A	Daily average rolled into 15-day rolling average

MACT I CONTINUOUS MONITORING SYSTEMS

Area	Parameter/Equipment	Parameter Monitored	Loop Number	Range/Limit	Threshold/Averaging Time
Closed Vent System	#1 Blow Tank Safety Valve	Limit Switch	05VL1VNT	Open/Closed	minute
	#2 Blow Tank Safety Valve	Limit Switch	05VL2VNT	Open/Closed	minute
	#3 Blow Tank Safety Valve	Limit Switch	05VL3VNT	Open/Closed	minute
	Secondary Condenser Vent	Limit Switch	13D06	Open/Closed	minute
	Secondary Condenser Rupture Disc	Pressure Transmitter	13D07	14.5 psi	minute
	Secondary Condenser Rupture Disc	Pressure Transmitter	13D61	14.5 psi	minute
	Accumulator Safety Valve	Limit Switch	13A07	Open/Closed	minute
	Accumulator Safety Valve	Limit Switch	13A22	Open/Closed	minute
	Pre-evaporator Hotwell Loop Seal	Pressure Transmitter	13PTB23	14" water column	minute
	Pre-evaporator Hotwell Vent	Limit Switch	13D01	Open/Closed	minute
	Pre-evaporator Hotwell Rupture Disc	Pressure Switch	13D02	10 psi	minute
	Turpentine Condenser Vent	Limit Switch	13J01	Open/Closed	minute
	Turpentine Condenser Rupture Disc	Pressure Switch	13J02	10 psi	minute
	#1 Evaporator Hotwell Vent	Limit Switch	13J26	Open/Closed	minute

MACT I CONTINUOUS MONITORING SYSTEMS

Area	Parameter/Equipment	Parameter Monitored	Loop Number	Range/Limit	Threshold/Averaging Time
Closed Vent System	#1 Evaporator Hotwell Rupture Disc	Pressure Switch	13J27	10 psi	minute
	#2 Evaporator Hotwell Vent	Limit Switch	13J21	Open/Closed	minute
	#2 Evaporator Hotwell Rupture Disc	Pressure Switch	13J22	10 psi	minute
	#3 Evaporator Hotwell Vent	Limit Switch	13J16	Open/Closed	minute
	#3 Evaporator Hotwell Rupture Disc	Pressure Switch	13J17	10 psi	minute
	#3 Evaporator Hotwell Loop Seal	Pressure Transmitter	11PTJ12	14" water column	minute
	#4 Evaporator Hotwell Vent	Limit Switch	13J11	Open/Closed	minute
	#4 Evaporator Hotwell Rupture Disc	Pressure Switch	13J12	10 psi	minute
	#4 Evaporator Hotwell Rupture Disc	Pressure Switch	13J15	10 psi	minute
	#4 Evaporator Hotwell Loop Seal	Pressure Transmitter	68PTO46	14" water column	minute
	Stripper Feed Tank Water Seal	Water Seal	13K09	8 psi	minute
	Stripper Feed Tank Rupture Disc	Pressure Transmitter	13K15	14.5 psi	minute
	Stripper-off-gas to Oxidizer	Limit Switch	13L04	Open/Closed	minute
	Stripper-off-gas to Oxidizer Rupture Disc	Temperature Transmitter	13L14	160° F	minute

MACT I CONTINUOUS MONITORING SYSTEMS

Area	Parameter/Equipment	Parameter Monitored	Loop Number	Range/Limit	Threshold/Averaging Time
Closed Vent System	Stripper-off-gas to Boiler	Limit Switch	59D12	Open/Closed	
	Stripper-off-gas to Boiler Rupture Disc	Pressure Transmitter	59D35	14.5 psi	
	NCG Vent to Oxidizer	Limit Switch	13D70	Open/Closed	
	NCG to Oxidizer Rupture Disc	Pressure Transmitter	13D65	14.5 psi	
	NCG to Oxidizer Rupture Disc	Temperature Transmitter	13D68	160° F	
	Batch NCG to Boiler Rupture Disc	Pressure Transmitter	13D63	14.5 psi	
	NCG Vent to Boiler	Limit Switch	59D08	Open/Closed	
	NCG to Boiler Rupture Disc	Temperature Transmitter	59D06	160° F	

Appendix B

Miscellaneous Information

Table 1

	Run 1	Run 2	Run 3	Run 4
Start =	10/29/02 12:18	10/31/02 13:32	10/31/02 15:50	10/31/02 17:10
End =	10/29/02 13:23	10/31/02 14:43	10/31/02 16:56	10/31/02 18:16

	Do Stage					Eop Stage		D1 Stage		BP Scrubber									R-10 Run Status	Test
	BAST/h			% Pine	% HW	% Pine	% HW	% Pine	% HW	Flow (gpm)			pH			Fan Load (%)	Fan Load (amps)	Fan Delta P (in H2O)	ClO2 (STPD)	Cl2
	43FY804.PV	Maximum	STDEV	43AYB04W.PV	Calculation	43AYD04W.PV	Calculation	43AYF04W.PV	Calculation	40FIF31.PV	Minimum	STDEV	40AIF32.PV	Minimum	STDEV	40IIF33.PV	40IIF33.PV	40PIF03.PV	37FYF14.PV	ppm
Run 1	50	52	0.6	100.0	0.0	100.0	0.0	100.0	0.0	1262	1261	0.6	9.1	9.0	0.05	83.9	15.1	20.9	0.00	0.233
Run 2	50	52	0.8	100.0	0.0	100.0	0.0	100.0	0.0	1263	1262	1.0	9.3	9.3	0.01	86.5	15.4	21.4	31.6	0.073
Run 3	50	52	0.6	100.0	0.0	100.0	0.0	100.0	0.0	1258	1257	0.8	9.3	9.3	0.00	86.4	15.4	21.4	37.3	0.020
Run 4	50	52	0.6	100.0	0.0	100.0	0.0	100.0	0.0	1262	1260	0.9	9.3	9.2	0.02	86.8	15.4	21.4	30.3	0.092
										Average =	1257			9.2		85.1	15.3			

Table 2

No. 3 Bleach Plant					
Parameter		**Test Condition**	**Proposed Operating Value**	**Monitoring Frequency**	**Averaging Time**
pH, Minimum		9.0	9.0	5 min	3-hr., rolling
Scrubber flow, Minimum	(gpm)	1252	1252	5 min	3-hr., rolling
Fan load Minimum	(amps)	15.11[a]	10.8[c]	5 min	3-hr., rolling
Fan load Maximum	(amps)	15.45[b]	19.3[d]	5 min	3-hr., rolling
Fan "No Load"	(amps)	9.8			

[a] Equivalent to 83.9% Load, using Equation 1

[b] Equivalent to 85.8% Load, using Equation 1

[c] Equivalent to 41.9% Load using Equation 2

[d] Equivalent to75% Load using Equation 2

Figure 1

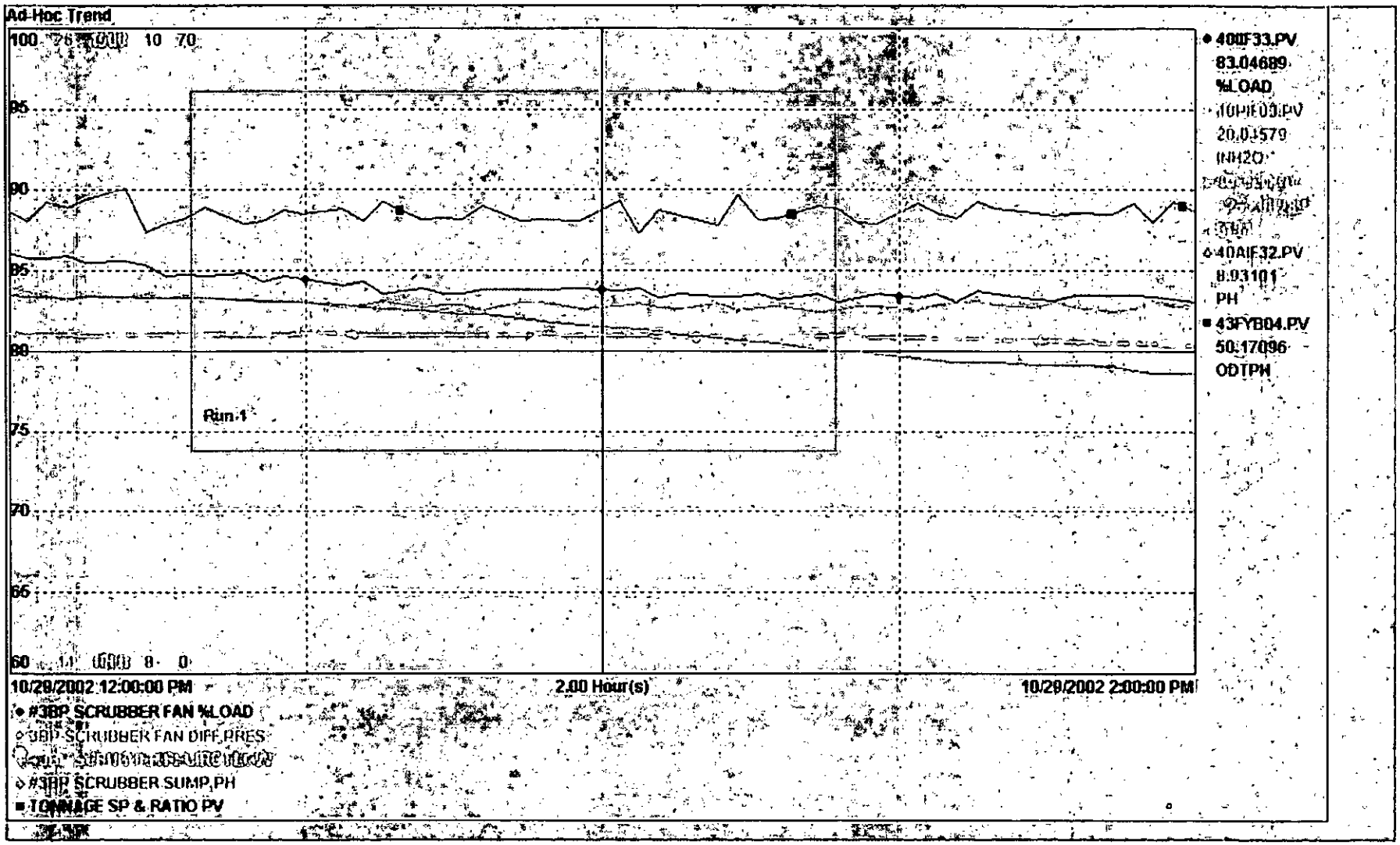

Ad-Hoc Trend
100
95
90
85
80
75
70
65
60
Run 1
40IF33.PV
83.04689
%LOAD
40AIF32.PV
8.93101
PH
43FYB04.PV
50.17096
ODTPH
10/29/2002 12:00:00 PM
2.00 Hour(s)
10/29/2002 2:00:00 PM
#3BP SCRUBBER FAN %LOAD
#3BP SCRUBBER SUMP PH
TONNAGE SP & RATIO PV

Figure 2

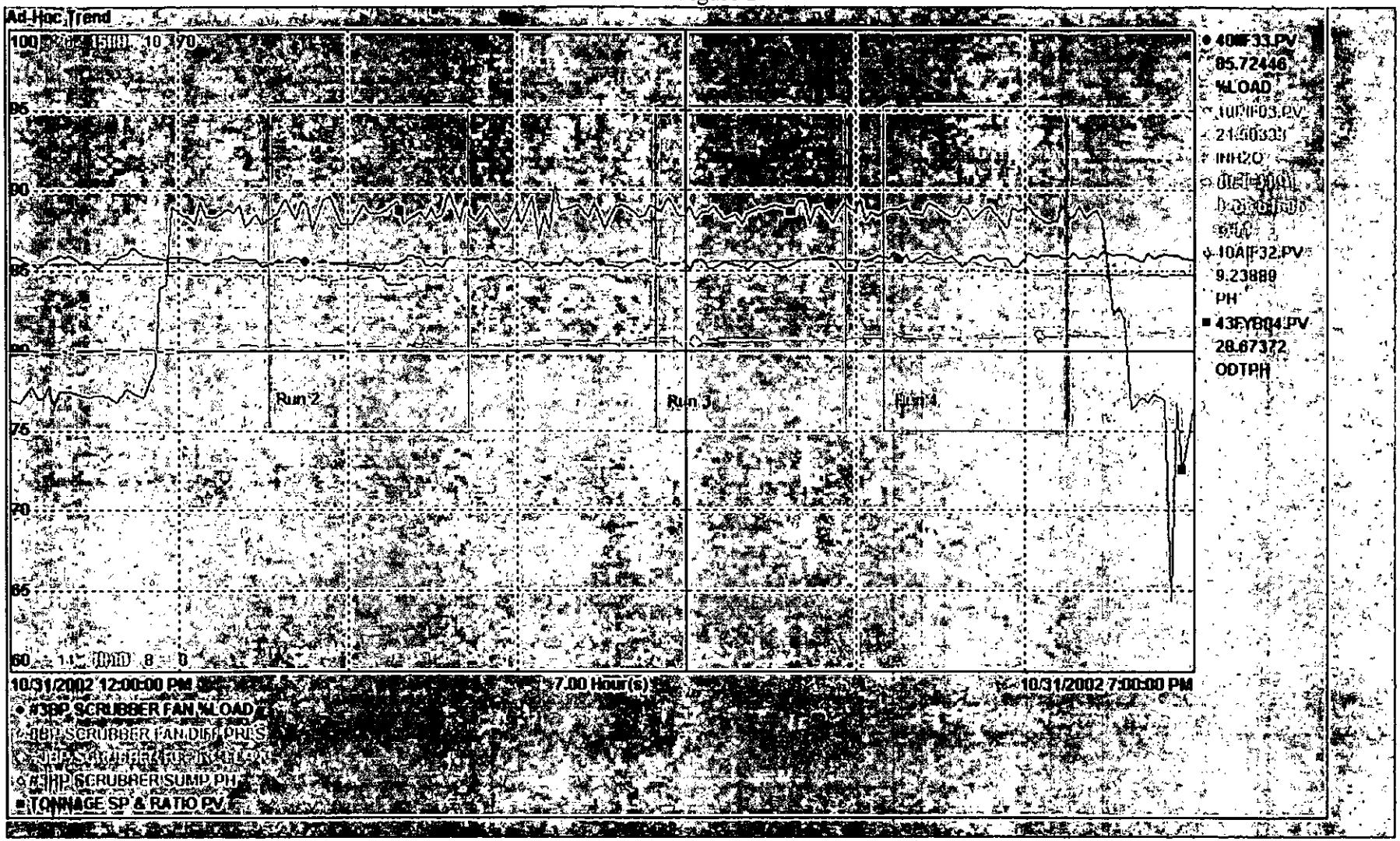
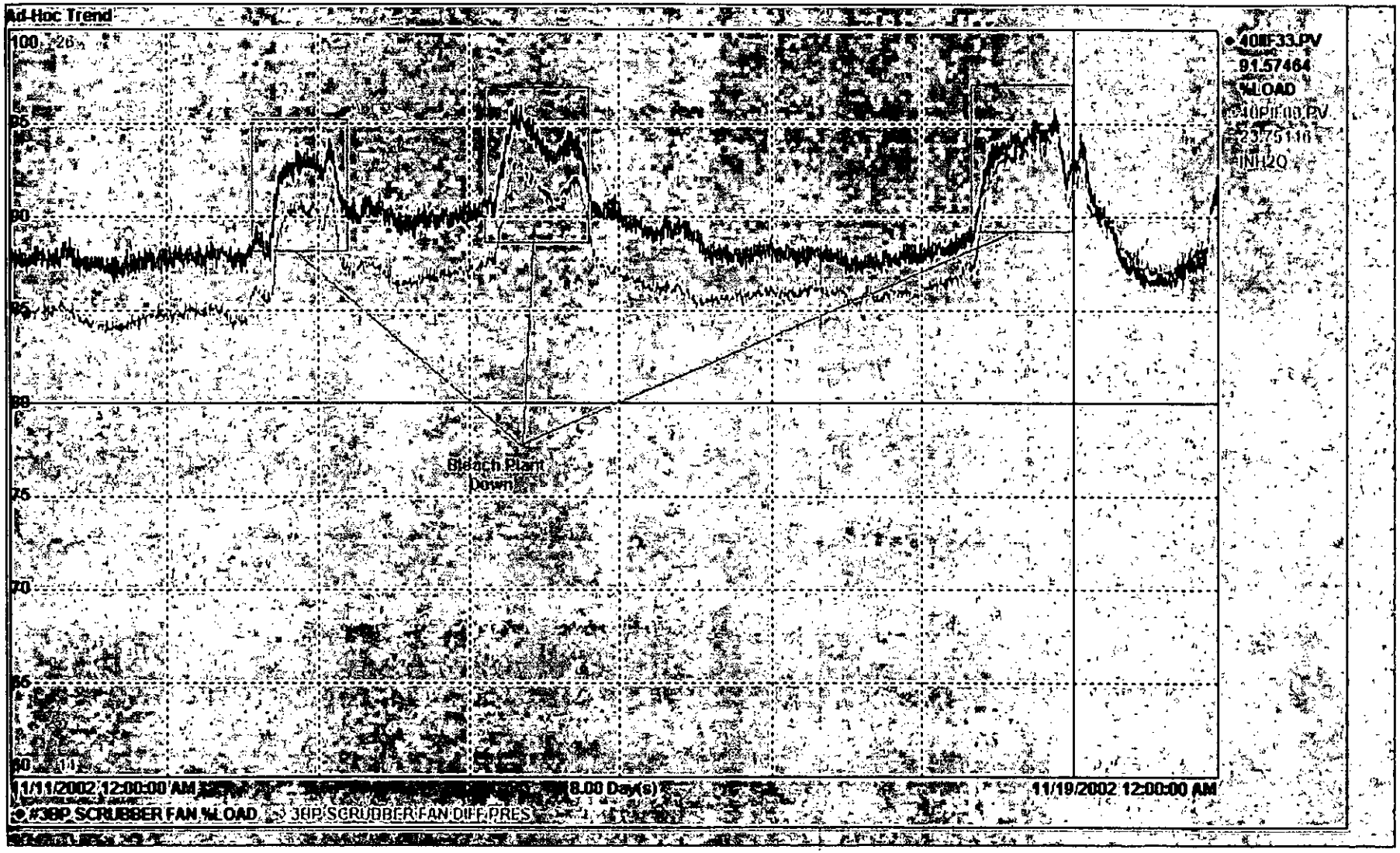

Ad-Hoc Trend
100
95
90
85
80
75
70
65
60
Run 2
Run 3
Run 4
10/31/2002 12:00:00 PM
7.00 Hour(s)
10/31/2002 7:00:00 PM
#3BP SCRUBBER FAN %LOAD
#3BP SCRUBBER FAN DIFF PRES
#3BP SCRUBBER SUMP PH
TONNAGE SP & RATIO PV
%LOAD
INH2O
PH
ODTPH

Figure 3


Ad-Hoc Trend
100
95
90
85
80
75
70
65
60
40IIF33.PV
91.57464
%LOAD
40IF09.PV
23.75116
INH2O
Bleach Plant
Down
11/11/2002 12:00:00 AM
8.00 Day(s)
11/19/2002 12:00:00 AM
#38P SCRUBBER FAN %LOAD
38P SCRUBBER FAN DIFF PRES

Appendix C

Raw Data
(5-minute averages)

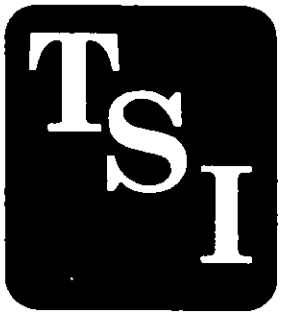
pH Run 1		pH Run 2		pH Run 3		pH Run 4	
29-Oct-02 12:18:00	9.2	31-Oct-02 13:32:00	9.3	31-Oct-02 15:50:00	9.3	31-Oct-02 17:10:00	9.3
29-Oct-02 12:23:00	9.2	31-Oct-02 13:37:00	9.3	31-Oct-02 15:55:00	9.3	31-Oct-02 17:15:00	9.3
29-Oct-02 12:28:00	9.1	31-Oct-02 13:42:00	9.3	31-Oct-02 16:00:00	9.3	31-Oct-02 17:20:00	9.3
29-Oct-02 12:33:00	9.1	31-Oct-02 13:47:00	9.3	31-Oct-02 16:05:00	9.3	31-Oct-02 17:25:00	9.3
29-Oct-02 12:38:00	9.1	31-Oct-02 13:52:00	9.3	31-Oct-02 16:10:00	9.3	31-Oct-02 17:30:00	9.3
29-Oct-02 12:43:00	9.1	31-Oct-02 13:57:00	9.3	31-Oct-02 16:15:00	9.3	31-Oct-02 17:35:00	9.3
29-Oct-02 12:48:00	9.1	31-Oct-02 14:02:00	9.3	31-Oct-02 16:20:00	9.3	31-Oct-02 17:40:00	9.3
29-Oct-02 12:53:00	9.1	31-Oct-02 14:07:00	9.3	31-Oct-02 16:25:00	9.3	31-Oct-02 17:45:00	9.3
29-Oct-02 12:58:00	9.1	31-Oct-02 14:12:00	9.3	31-Oct-02 16:30:00	9.3	31-Oct-02 17:50:00	9.3
29-Oct-02 13:03:00	9.1	31-Oct-02 14:17:00	9.3	31-Oct-02 16:35:00	9.3	31-Oct-02 17:55:00	9.2
29-Oct-02 13:08:00	9.0	31-Oct-02 14:22:00	9.3	31-Oct-02 16:40:00	9.3	31-Oct-02 18:00:00	9.2
29-Oct-02 13:13:00	9.0	31-Oct-02 14:27:00	9.3	31-Oct-02 16:45:00	9.3	31-Oct-02 18:05:00	9.2
29-Oct-02 13:18:00	9.0	31-Oct-02 14:32:00	9.3	31-Oct-02 16:50:00	9.3	31-Oct-02 18:10:00	9.2
		31-Oct-02 14:37:00	9.3				

Flow Run 1		Flow Run 2		Flow Run 3		Flow Run 4	
29-Oct-02 12:18:00	1263	31-Oct-02 13:32:00	1253	31-Oct-02 15:50:00	1258	31-Oct-02 17:10:00	1261
29-Oct-02 12:23:00	1262	31-Oct-02 13:37:00	1253	31-Oct-02 15:55:00	1258	31-Oct-02 17:15:00	1261
29-Oct-02 12:28:00	1263	31-Oct-02 13:42:00	1252	31-Oct-02 16:00:00	1257	31-Oct-02 17:20:00	1261
29-Oct-02 12:33:00	1263	31-Oct-02 13:47:00	1252	31-Oct-02 16:05:00	1257	31-Oct-02 17:25:00	1261
29-Oct-02 12:38:00	1263	31-Oct-02 13:52:00	1253	31-Oct-02 16:10:00	1258	31-Oct-02 17:30:00	1261
29-Oct-02 12:43:00	1262	31-Oct-02 13:57:00	1252	31-Oct-02 16:15:00	1258	31-Oct-02 17:35:00	1261
29-Oct-02 12:48:00	1263	31-Oct-02 14:02:00	1252	31-Oct-02 16:20:00	1258	31-Oct-02 17:40:00	1261
29-Oct-02 12:53:00	1263	31-Oct-02 14:07:00	1252	31-Oct-02 16:25:00	1259	31-Oct-02 17:45:00	1262
29-Oct-02 12:58:00	1262	31-Oct-02 14:12:00	1252	31-Oct-02 16:30:00	1259	31-Oct-02 17:50:00	1262
29-Oct-02 13:03:00	1262	31-Oct-02 14:17:00	1253	31-Oct-02 16:35:00	1260	31-Oct-02 17:55:00	1262
29-Oct-02 13:08:00	1261	31-Oct-02 14:22:00	1254	31-Oct-02 16:40:00	1259	31-Oct-02 18:00:00	1263
29-Oct-02 13:13:00	1262	31-Oct-02 14:27:00	1254	31-Oct-02 16:45:00	1259	31-Oct-02 18:05:00	1263
29-Oct-02 13:18:00	1261	31-Oct-02 14:32:00	1254	31-Oct-02 16:50:00	1259	31-Oct-02 18:10:00	1263
		31-Oct-02 14:37:00	1255				

Fan Load (Amps) Run 1		Fan Load (Amps) Run 2		Fan Load (Amps) Run 3		Fan Load (Amps) Run 4	
29-Oct-02 12:18:00	15.26	31-Oct-02 13:32:00	15.40	31-Oct-02 15:50:00	15.37	31-Oct-02 17:10:00	15.47
29-Oct-02 12:23:00	15.23	31-Oct-02 13:37:00	15.44	31-Oct-02 15:55:00	15.39	31-Oct-02 17:15:00	15.44
29-Oct-02 12:28:00	15.20	31-Oct-02 13:42:00	15.43	31-Oct-02 16:00:00	15.39	31-Oct-02 17:20:00	15.45
29-Oct-02 12:33:00	15.14	31-Oct-02 13:47:00	15.41	31-Oct-02 16:05:00	15.38	31-Oct-02 17:25:00	15.48
29-Oct-02 12:38:00	15.09	31-Oct-02 13:52:00	15.40	31-Oct-02 16:10:00	15.38	31-Oct-02 17:30:00	15.45
29-Oct-02 12:43:00	15.07	31-Oct-02 13:57:00	15.38	31-Oct-02 16:15:00	15.38	31-Oct-02 17:35:00	15.39
29-Oct-02 12:48:00	15.10	31-Oct-02 14:02:00	15.36	31-Oct-02 16:20:00	15.36	31-Oct-02 17:40:00	15.46
29-Oct-02 12:53:00	15.11	31-Oct-02 14:07:00	15.34	31-Oct-02 16:25:00	15.40	31-Oct-02 17:45:00	15.45
29-Oct-02 12:58:00	15.10	31-Oct-02 14:12:00	15.38	31-Oct-02 16:30:00	15.35	31-Oct-02 17:50:00	15.44
29-Oct-02 13:03:00	15.05	31-Oct-02 14:17:00	15.43	31-Oct-02 16:35:00	15.39	31-Oct-02 17:55:00	15.38
29-Oct-02 13:08:00	15.03	31-Oct-02 14:22:00	15.47	31-Oct-02 16:40:00	15.43	31-Oct-02 18:00:00	15.47
29-Oct-02 13:13:00	15.03	31-Oct-02 14:27:00	15.38	31-Oct-02 16:45:00	15.45	31-Oct-02 18:05:00	15.48
29-Oct-02 13:18:00	15.03	31-Oct-02 14:32:00	15.40	31-Oct-02 16:50:00	15.42	31-Oct-02 18:10:00	15.47
		31-Oct-02 14:37:00	15.45				

Fan Load (%) Run 1		Fan Load (%) Run 2		Fan Load (%) Run 3		Fan Load (%) Run 4	
29-Oct-02 12:18:00	84.7	31-Oct-02 13:32:00	85.5	31-Oct-02 15:50:00	85.3	31-Oct-02 17:10:00	85.9
29-Oct-02 12:23:00	84.6	31-Oct-02 13:37:00	85.7	31-Oct-02 15:55:00	85.4	31-Oct-02 17:15:00	85.7
29-Oct-02 12:28:00	84.4	31-Oct-02 13:42:00	85.6	31-Oct-02 16:00:00	85.4	31-Oct-02 17:20:00	85.8
29-Oct-02 12:33:00	84.0	31-Oct-02 13:47:00	85.5	31-Oct-02 16:05:00	85.4	31-Oct-02 17:25:00	85.9
29-Oct-02 12:38:00	83.8	31-Oct-02 13:52:00	85.5	31-Oct-02 16:10:00	85.4	31-Oct-02 17:30:00	85.8
29-Oct-02 12:43:00	83.6	31-Oct-02 13:57:00	85.4	31-Oct-02 16:15:00	85.4	31-Oct-02 17:35:00	85.4
29-Oct-02 12:48:00	83.8	31-Oct-02 14:02:00	85.3	31-Oct-02 16:20:00	85.2	31-Oct-02 17:40:00	85.8
29-Oct-02 12:53:00	83.9	31-Oct-02 14:07:00	85.1	31-Oct-02 16:25:00	85.5	31-Oct-02 17:45:00	85.8
29-Oct-02 12:58:00	83.8	31-Oct-02 14:12:00	85.4	31-Oct-02 16:30:00	85.2	31-Oct-02 17:50:00	85.7
29-Oct-02 13:03:00	83.6	31-Oct-02 14:17:00	85.6	31-Oct-02 16:35:00	85.4	31-Oct-02 17:55:00	85.4
29-Oct-02 13:08:00	83.4	31-Oct-02 14:22:00	85.9	31-Oct-02 16:40:00	85.6	31-Oct-02 18:00:00	85.9
29-Oct-02 13:13:00	83.4	31-Oct-02 14:27:00	85.4	31-Oct-02 16:45:00	85.8	31-Oct-02 18:05:00	85.9
29-Oct-02 13:18:00	83.4	31-Oct-02 14:32:00	85.5	31-Oct-02 16:50:00	85.6	31-Oct-02 18:10:00	85.9
		31-Oct-02 14:37:00	85.7				

Attachment

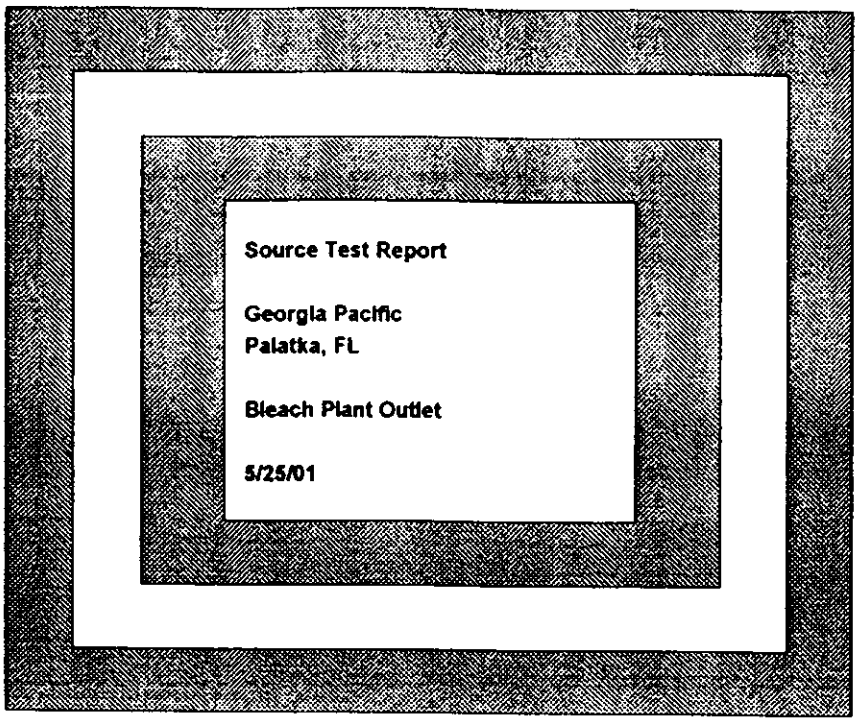


TECHNICAL SERVICES, INC.

(904) 353-5761

2901 Danese Street

Jacksonville, Florida 32206



Prepared By:

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David Salter
David Salter

USE OF THIS REPORT AND INFORMATION INCLUDED

This Report and the information contained is the property of the individual or organization named on the face hereof and may be freely distributed in its present form.

REPORT CERTIFICATION

Technical Services, Inc. (TSI) has used its professional experience and best professional efforts in performing this compliance test. I have reviewed the results of these tests and to the best of my knowledge and belief they are true and correct.

REPORT NO. 0104A07

Harvey C. Gray, Jr.

HARVEY C. GRAY, JR.
DATE:

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LIST OF TABLES

I. Introduction

Compliance testing for Chlorinated Haps emissions and Carbon Monoxide emissions from the Bleach Plant Scrubber, located at the Georgia Pacific Paper facility in Palatka, FL., was performed on May 25th, 2001. Three (3) test runs, each lasting one (1) hour, were completed on this source for both tests.

Testing and analytical procedures were in accordance with EPA's Methods ten (10), twenty-six (26A), and Florida DEP requirements.

We wish to express our appreciation to Mr. Joe Taylor and the operating staff at Georgia Pacific for their valuable assistance in the successful completion of this project.

II. Summary and Discussion of Results

Results of the compliance tests are summarized in the following tables. Complete emissions data, along with supportive field and analytical data, are included in Appendices A, B, C, and G.

The Bleach Plant Scrubber was within compliance during the tests. The average emissions for Chlorinated Haps were 0.0089 lbs/hr, with an allowable emissions of 0.36 lbs/hr. The average emissions for Carbon Monoxide were 44.72 lbs/hr, with an allowable emissions of 46.0 lbs/hr.

T S I

Volumetric Flow and Emission Output - Table I

FACILITY: Georgia Pacific
LOCATION: Palatka, FL

SOURCE: Bleach Plant Outlet

Date	Run Number	Chlorinated Haps Emissions GR/SCF	LB/HR	ppm, vol.	Vol. Flow Rate ACFM	SCFMD	Adjusted Volume SCFD	Percent H20	Percent Isokinetic
5/25/01	1	0.00008	0.0098	0.13	15440.0	14275.0	35.391	4.6	96.4
5/25/01	2	0.00007	0.0083	0.11	15256.0	14178.0	36.388	5.1	99.8
5/25/01	3	0.00007	0.0084	0.11	15409.0	14413.0	36.716	5.4	99.0
Mean		0.00007	0.0089	0.12	15368.3	14288.7	36.165	5.0	98 4

Mean determined as arithmetic average of the results for each of the three runs.

REMARKS: MACT requires <10 ppm chlorinated HAPs

GEORGIA PACIFIC - PALATKA, FLORIDA BLEACH PLANT - SUMMARY OF CARBON MONOXIDE RESULTS - MAY 25 - 26, 2001

	START TIME	END TIME	STACK FLOW scfm-d	CARBON MONOXIDE, ppm	CARBON MONOXIDE, lbs/hr
RUN 1	21:50	22:49	14183	670.4	41.5
RUN 2	23:02	0:01	14406	766.3	48.2
RUN 3A	0:12	2:13	14331	712.0	44.5
TEST AVERAGE			**14307**	**716.2**	**44.7**

NOTE - DURING TEST RUN NUMBER THREE THE Eop MIXER TRIPPED. THE BLEACH PLANT PRODUCTION DECREASED AND THE TEST WAS SUSPENDED. ONCE NORMAL PRODUCTION RESUMED THE TEST RESTARTED.

III. Process Description And Operation

III. Process Description and Operation

The bleaching process is an elemental chlorine-free (ECF) process. The CLO2 is produced on site.

The bleaching process consists of the staged introduction of CLO2 to the pulp slurry followed by washing of the bleached pulp. The off gases from all stages of the process are collected and passed through a wet scrubber utilizing an alkaline scrubbing solution.

IV. Sampling Point Location

T S I

Table III
Air Report - Sampling Point Locations

Facility Georgia Pacific
Location Palatka, FL
Source Name Bleach Plant Outlet

Stack Interior Diameter = 42.00 inches

Sample Point Number	Inches Inside Stack Wall
1	1.85
2	6.13
3	12.43
4	29.57
5	35.87
6	40.15

Port Length 7 inches

Distances From Nearest Disturbance

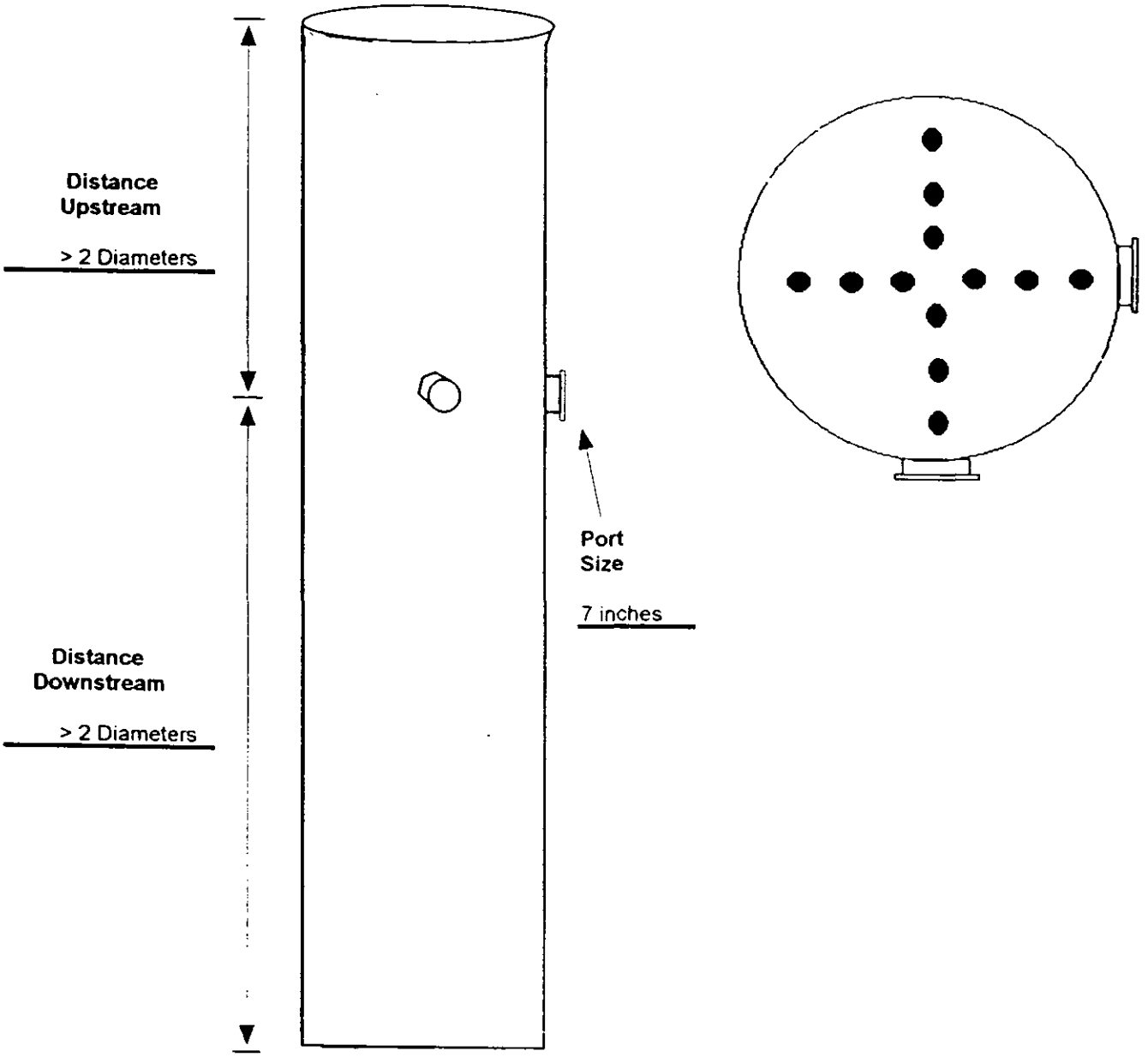
Source	Stack Distance
Downstream	> 8 diameters
Upstream	> 2 Diameters

The above mentioned Downstream and Upstream distances are approximate distances.

T S I

Air Report - Sampling Port Location Diagram

Facility	Georgia Pacific	Date	
Location	Palatka, FL		
Source	Bleach Plant Outlet		



V. Field And Analytical Procedures

METHOD 10

DETERMINATION OF CARBON MONOXIDE EMISSIONS FROM STATIONARY SOURCES

1. Principle and Applicability

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

1.2 Applicability. This method is applicable for the determination of carbon monoxide emissions from stationary sources only when specified by the test procedures contained in this text or otherwise specified by the Director. The test procedure will indicate whether a continuous or an integrated sample is to be used.

2. Range and Sensitivity

2.1 Range. 0 to 1,000 ppm.

2.2 Sensitivity. Minimum detectable concentration is 20 ppm for a 0 to 1,000 ppm span.

3. Interferences

Any substance having a strong absorption of infrared energy will interfere to some extent. For example, discrimination ratios for water (H_2O) and carbon dioxide (CO_2) are 3.5 percent H_2O per 7 ppm CO and 10 percent CO_2 per 10 ppm CO, respectively, for devices measuring in the 1,500 to 3,000 ppm range. For devices measuring in the 0 to 100 ppm range, interference ratios can be as high as 3.5 percent H2O per 25 ppm CO and 10 percent CO2 per 50 ppm CO. The use of silica gel and ascarite traps will alleviate the major interference problems. The measured gas volume must be corrected if these traps are used.

4. Precision and Accuracy

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

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

5. Apparatus

5.1 Continuous sample (Figure 10-1).

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

5.1.2 Air-cooler condenser or equivalent. To remove any excess moisture.

5.2 Integrated sample (Figure 10.2).

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

5.2.2 Air-cooler condenser or equivalent. To remove any excess moisture.

5.2.3 Valve. Needle valve, or equivalent, to adjust flow rate.

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

5.2.5 Rate meter. Rotameter, or equivalent, to measure a flow range from 0 to 1.0 liter per min. (0.035 cfm).

5.2.6 Flexible bag. Tedlar, or equivalent, with a capacity of 60 to 90 liters (2 to 3 ft^3). Leak-test the bag in the laboratory before using by evacuating bag with a pump followed by a dry gas meter. When evacuation is complete, there should be no flow through the meter.

5.2.7 Pitot tube. Type S, or equivalent, attached to the probe so that the sampling rate can be regulated proportional to the stack gas velocity when velocity is varying with the time or a sample traverse is conducted.

5.3 Analysis (Figure 10-3).

5.3.1 Carbon monoxide analyzer. Nondispersive infrared spectrometer, or equivalent. This instrument should be demonstrated, preferably by the manufacturer, to meet or exceed manufacturer's specifications and those described in this method.

5.3.2 Drying tube. To contain approximately 200 g of silica gel.

5.3.3 Calibration gas. Refer to Section 6.1.

5.3.4 Filter. As recommended by NDIR manufacturer.

5.3.5 CO_2 removal tube. To contain approximately 500 g of ascarite.

5.3.6 Ice water bath. For ascarite and silica gel tubes.

5.3.7 Valve. Needle valve, or equivalent, to adust flow rate.

5.3.8 Rate meter. Rotameter or equivalent to measure gas flow rate of 0 to 1.0 liter per minute (0.035 cfm) through NDIR.

5.3.9 Recorder (optional). To provide permanent record of NDIR readings.

6. Reagents

6.1 Calibration gases. Known concentration of CO in nitrogen (N_2) for instrument span, prepurified grade of N_2 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 shall be 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°C (347°F) for 2 hours.

6.3 Ascarite. Commercially available.

7. Procedure

7.1 Sampling

7.1.1 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. (See Sections 7.2 and 8). CO_2 content of the gas may be determined by using the Method 3 integrated sample procedure, or by weighing the ascarite CO_2 removal tube and computing CO_2 concentration from the gas volume sampled and the weight gain of the tube.

7.1.2 Integrated sampling. Evacuate the flexible bag. Set up the equipment as shown in Figure 10-2 with the bag

disconnected. Place the probe in the stack and purge the sampling line. Connect the bag, making sure that all connections are leak free. Sample at a rate proportional to the stack velocity. CO_2 content of the gas may be determined by using the Method 3 integrated sample procedures, or by weighing the ascarite CO_2 removal tube and computing CO_2 concentration from the gas volume sampled and the weight gain of the tube.

7.2 CO Analysis. Assemble the apparatus as shown in Figure 10-3, calibrate the instrument, and perform other required operations as described in Section 8. Purge analyzer with N_2 prior to introduction of each sample. Direct the sample stream through the instrument for the test period, recording the readings. Check the zero and span again after the test to assure that any drift or malfunction is detected. Record the sample data on Table 10-1.

8. Calibration

Assemble the apparatus according to Figure 10-3. Generally an instrument requires a warm-up period before stability is obtained. Follow the manufacturer's instructions for specific procedure. Allow a minimum time of 1 hour for warm-up. During this time check the sample conditioning apparatus, i.e., filter, condenser, drying tube, and CO_2 removal tube, to ensure that each component is in good operating condition. Zero and calibrate the instrument according to the manufacturer's procedures using, respectively, nitrogen and the calibration gases.

TABLE 10-1. FIELD DATA

Location..... Comments:

Test.....

Date.....

Operator.....

Clock Time	Rotameter setting, liters per minute (cubic feet per minute)

9. Calculation

Calculate the concentration of carbon monoxide in the stack using Equation 10-1.

$$C_{CO_{stack}} = C_{CO_{NDIR}} (1-F_{CO_2})$$

where:

$C_{CO_{stack}}$ = concentration of CO in stack, ppm by volume (dry basis).

$C_{CO_{DNIR}}$ = concentration of CO measured by NDIR analyzer, ppm by volume (dry basis).

F_{CO_2} = volume fraction of CO_2 in sample, i.e., percent CO_2 from Orsat analysis divided by 100.

10. Alternative Procedure

10.1 Interference Trap. The sample condition system described in Method 10A, Sections 2.1.2 and 4.2 may be used as an alternate to the silica gel and ascarite traps.

11. Bibliography

1. McElroy, Frank, The Intertech NDIR-CO Analyzer, Presented at 11th Methods Conference on Air Pollution, University of California, Berkeley, Calif., April 1, 1970.

2. Jacobs, M.B., et al., Continuous Determination of Carbon Monoxide and Hydrocarbons in Air by a Modified Infrared Analyzer, J. Air Pollution Control Association, 9(2):110-114, August 1959.

3. MSA LIRA Infrared Gas and Liquid Analyzer Instruction Book, Mine Safety Appliances Co., Technical Products Division, Pittsburgh, Pa.

4. Models 215A, 315A, and 415A Infrared Analyzers, Beckman Instruments Inc., Beckman Instructions 1635-B, Fullerton, Calif., October 1967.

5. Continuous CO Monitoring System, Model A5611, Intertech Corp., Princeton, N.J.

6. UNOR Infrared Gas Analayzers, Bendix Corp., Ronceverte, West Virginia.

ADDENDA

A. Performance Specifications for NDIR Carbon Monoxide Analyzers.

Range (minimum)	0-1000 ppm.
Output (minimum)	0-10mV.
Minimum detectable sensitivity	20 ppm.
Rise time, 90 percent (maximum)	30 seconds.
Fall time, 90 percent (maximum)	30 seconds.
Zero drift (maximum)	10% in 8 hours.
Span drift (maximum)	10% in 8 hours.
Precision (minimum)	±2% of full scale.
Noise (maximum)	±1% of full scale.
Linearity (maximum deviation)	2% of full scale.
Interference rejection ration	CO_2--1000 to 1, H_2O--500 to 1.

B. Definitions of Performance Specifications.

Range -- The minimum and maximum measurement limits.

Output -- Electrical signal which is proportional to the measurement; intended for connection to readout or data processing devices. Usually expressed as millivolts or milliamps full scale at a given impedance.

Full scale -- The maximum measuring limit for a given range.

Minimum detectable sensitivity -- The smallest amount of input concentration that can be detected as the concentration approaches zero.

Accuracy -- The degree of agreement between a measured value and the true value; usually expressed as ± percent of full scale.

Time to 90 percent response -- The time interval from a step change in the input concentration at the instrument inlet to a reading of 90 percent of the ultimate recorded concentration.

Rise Time (90 percent) -- The interval between initial response time and time to 90 percent response after a step increase in the inlet concentration.

Fall Time (90 percent) -- The interval between initial response time and time to 90 percent response after a step decrease in the inlet concentration.

Zero Drift -- The change in instrument output over a stated time period, usually 24 hours, of unadjusted continuous operation when the input concentration is zero; usually expressed as percent full scale.

Span Drift -- The change in instrument output over a stated time period, usually 24 hours of unadjusted continuous operation when the input concentration is a stated upscale value; usually expressed as percent full scale.

Precision -- The degree of agreement between repeated measurements of the same concentration, expressed as the average deviation of the single results from the mean.

Noise -- Spontaneous deviations from a mean output not caused by input concentration changes.

Linearity -- The maximum deviation between an actual instrument reading and the reading predicted by a straight line drawn between upper and lower calibration points.

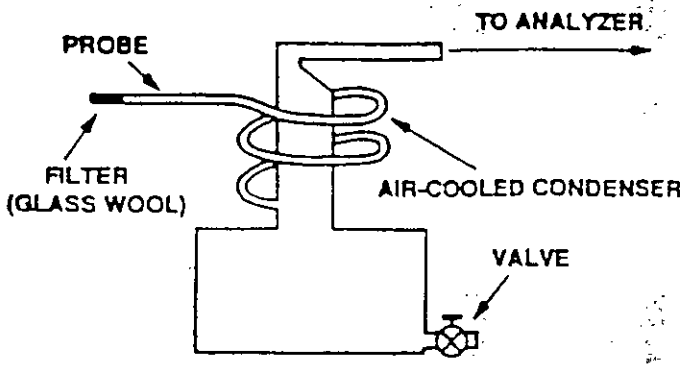


Figure 10-1. Continuous Sampling Train

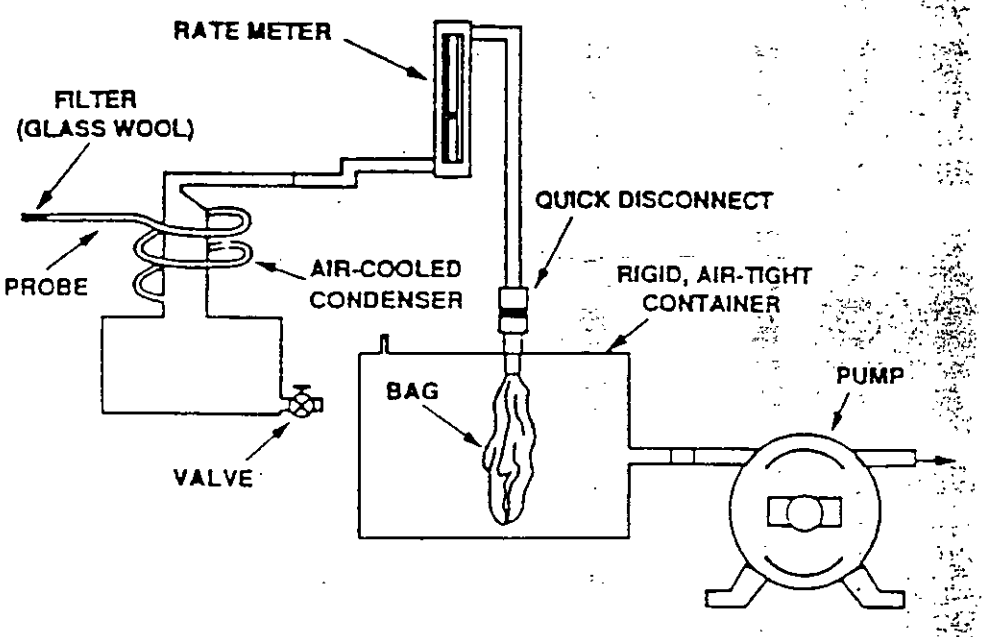


Figure 10-2. Integrated Gas--Sampling Train

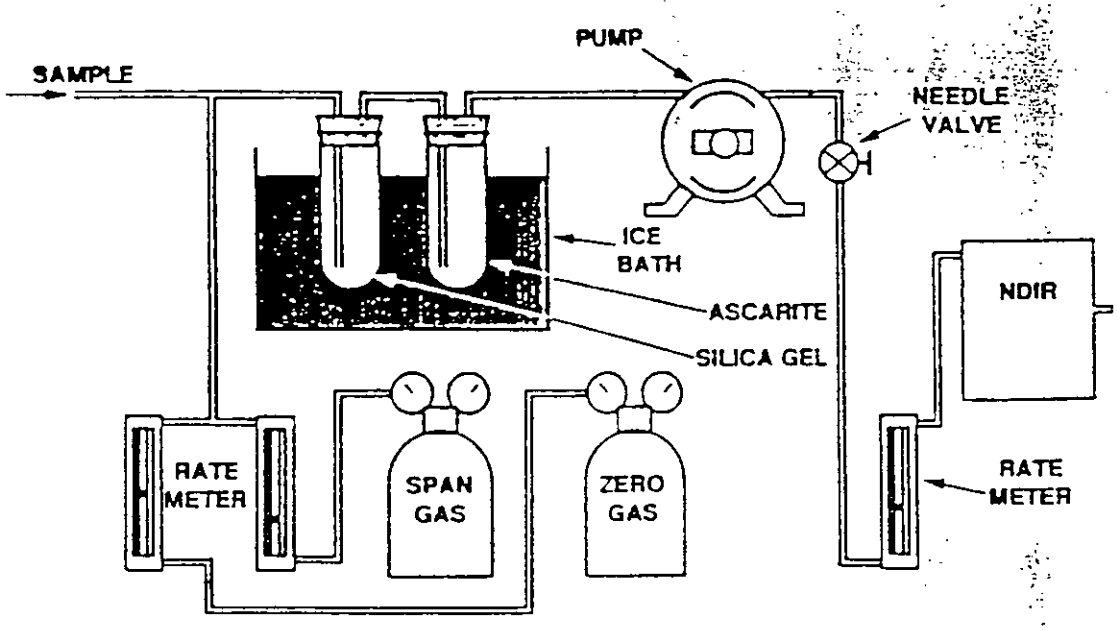


Figure 10-3. Analytical Equipment

METHOD 26A

DETERMINATION OF HYDROGEN HALIDE AND HALOGEN EMISSIONS FROM STATIONARY SOURCES - ISOKINETIC METHOD

1. Applicability, Principle, Interferences, Precision, Bias, and Stability

1.1 Applicability. This method is applicable for determining emissions of hydrogen halides (HX) [hydrogen chloride (HCL), hydrogen bromide (HBr), and hydrogen flouride (HF)] and halogens (X_2) [chlorine (Cl_2) and bromine (Br_2)] from stationary sources. This method collects the emission sample isokinetically and is therefore particulary suited for sampling at sources, such as those controlled by wet scrubbers, emitting acid-particulate matter (e.g., hydrogen halides dissolved in water droplets). [NOTE: Mention of trade names or specific products does not constitute endorsement by the Enviromental Protection Agency.]

1.2 Principle. Gaseous and particulate pollutants are withdrawn isokinetically from the source and collected in an optional cyclone, on a filter, and in absorbing solutions. The cyclone collects any liquid droplets and is not necessary if the source emissions do not contain them; however, it is preferable to include the cyclone in the sampling train to protect the filter from any moisture present. The filter collects other particulate matter including halide salts. Acidic and alkaline absorbing solutions collect the gaseous hydrogen halides and halogens, respectively. Following sampling of emissions containing liquid droplets, any halides/halogens dissolved in the liquid in the cyclone and on the filter are vaporized to gas and corrected in the impingers by pulling conditioned ambient air throught the sampling train. The hydrogen halides are solubilized in the acidic solution and form chloride (Cl^-), bromide (Br^-), and fluoride (F^-) ions. The halogens have a very low solubility in the acidic solution and pass through to the alkaline solution where they are hydrolyzed to form a proton (H^+), the halide ion, and the hypohalous acid (HClO or HBrO). Sodium thiosulfate is added to the alkaline solution to assure reaction with the hypohalous acid to form a second halide ion such that 2 halide ions are formed for each molecule of halogen gas. The halide ions in the separate solutions are measured by ion chromatography (IC). If desired, the particulate matter recovered from the filter and the probe is analyzed following the procedures in Method 5. [NOTE: If the tester intendes to use this sampling arrangement to sample concurrently for particulate

matter, the alternative Teflon^R probe liner, cyclone, and filter holder should not be used. The Teflon^R filter support must be used. The tester must also meet the probe and filter temperature requriements of both sampling trains.]

1.3 Interferences. Volatile materials, such as chlorine dioxide (ClO_2) and ammonium chloride (NH_4Cl), which produce halide ions upon dissolution during sampling are potential interferents. Interferents for the halide measurements are the halogen gases which disproportionate to a hydrogen halide and an hypohalous acid upon dissolution in water. The use of acidic rather than neutral or basic solutions for collection of the hydrogen halides greatly reduces the dissolution of any halogens passing through this solution. The simultaneous presence of both HBr and Cl_2 may cause a positive bias in the HCl result with a corresponding negative bias in the Cl_2 result as well as affecting the HBr/Br_2 split. High concentrations of nitrogen oxides (NO_x) may produce sufficient nitrate (NO_3) to interfere with measurements of very low Br levels.

1.4 Precision and Bias. The method has a possible measurable negative bias below 20 ppm HCl perhaps due to reaction with small amounts of moisture in the probe and filter. Similiar bias for the other hydrogen halides is possible.

1.5 Sample Stability. The collected Cl^- samples can be stored for up to 4 weeks for analysis for HCl and Cl_2.

1.6 Detection Limit. The in-stack detection limit for HCl is approximately 0.02 ug per liter of stack gas; the analytical detection limit for HCl is 0.1 ug/ml. Detection limits for the other analyses should be similiar.

2. Apparatus

2.1 Sampling. The sampling train is shown in Figure 26A-1; the apparatus is similiar to the Method 5 train where noted as follows:

2.1.1 Probe Nozzle. Borosilicate or quartz glass; constructed and calibrated according to Method 5, Sections 2.1.1 and 5.1, and coupled to the probe liner using a Teflon^R union; a stainless steel nut is recommended for this union. When the stack temperature exceeds 210^{o}C (410^{o}F), a one-piece glass nozzle/liner assembly must be used.

2.1.2 Probe Liner. Same as Method 5, Section 2.1.2, except metal liners shall not used. Water-cooling of the stainless steel sheath is recommended at temperatures exceeding 500^{o}C. Teflon^R may be used in limited applications where the minimum

stack temperature exceeds 120°C (250°F) but never exceeds the temperature where Teflon^R is estimated to become unstable (approximately 210°C).

2.1.3 Pitot Tube, Differential Pressure Gauge, Filter Heating System, Metering System, Barometer, Gas Density Determination Equipment. Same as Method 5, Sections 2.1.3, 2.1.4, 2.1.6, 2.1.8, 2.1.9, and 2.1.10.

2.1.4 Cyclone (Optional). Glass or Teflon^R. Use of the cyclone is required only when the sample gas stream is saturated with moisture; however, the cyclone is recommended to protect the filter from any moisture droplets present.

2.1.5 Filter Holder. Borosilicate or quartz glass, or Teflon^R filter holder, with a Teflon^R filter support and a sealing gasket. The sealing gasket shall be constructed of Teflon^R or equivalent materials. The holder design shall provide a positive seal against leakage at any point along the filter circumference. The holder shall be attached immediately to the outlet of the cyclone.

2.1.6 Impinger Train. The following system shall be used to determine the stack gas moisture content and to collect the hydrogen halides and halogens: five or six impingers connected in a series with leak-free ground glass fittings or any similar leak-free noncontaminating fittings. The first impinger shown in Figure 26A-1 (knockout or condensate impinger) is optional and is recommended as a water knockout trap for use under high moisture conditions. If used, this impinger should be constructed as described below for the alkaline impingers, but with a shortened stem, and should contain 50 ml of 0.1 N H_2SO_4. The following two impingers (acid impingers which each contain 100 ml of 0.1 H_2SO_4) shall be of the Greenburg-Smith design with the standard tip (Method 5, Section 2.1.7). The next two impingers (alkaline impingers which each contain 100 ml of 0.1 N NaOH) and the last impinger (containing silica gel) shall be of the modified Greenburg-Smith design (Method 5, Section 2.1.7). The condensate, acid, and alkaline impingers shall contain known quantities of the appropriate absorbing reagents. The last impinger shall contain a known weight of silica gel or equivalent desiccant. Teflon^R impingers are an acceptable alternative.

2.1.7 Ambient Air Conditioning Tube (Optional). Tube tightly packed with approximately 150 g of fresh 8 to 20 mesh sodium hydroxide-coated silica, or equivalent, (AscariteII^R has been found suitable) to dry and remove acid gases from the ambient air used to remove moisture from the filter and cyclone, when the cyclone is used. The inlet and outlet ends of the tube should be packed with at least 1-cm thickness of glass wool or

filter material suitable to prevent escape of fines. Fit one end with flexible tubing, etc. to allow connection to probe nozzle following the test run.

2.2 Sample Recovery. The following items are needed:

2.2.1 Probe-Liner and Probe-Nozzle Brushes, Wash Bottles, Glass Sample Storage Containers, Petri Dishes, Graduated Cylinder or Balance, and Rubber Policeman. Same as Method 5, Sections 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, and 2.2.7.

2.2.2 Plastic Storage Containers. Screw-cap polypropylene containers to store silica gel. High-density polyethylene bottles with Teflon screw cap liners to store impinger reagents, 1-liter.

2.2.3 Funnels. Glass or high-density polyethylene, to aid in sample recovery.

2.3 Analysis. For analysis, the following equipment is needed:

2.3.1 Volumetric Flasks. Class A, various sizes.

2.3.2 Volumetric Pipettes. Class A, assortment, to dilute samples to calibration range of the ion chromatograph (IC).

2.3.3 Ion Chromatograph. Suppressed or nonsuppressed, with a conductivity detector and electronic integrator operating in the peak area mode. Other detectors, a strip chart recorder, and peak heights may be used.

3. Reagents

Unless otherwise indicated, all reagents must conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society (ACS reagent grade). When such specifications are not available, the best available grade shall be used.

3.1 Sampling.

3.1.1 Water. Deionized, distilled water that conforms to American Society of Testing and Materials (ASTM) Specification D 1193-77, Type 3.

3.1.2 Acidic Absorbing Solution, 0.1 N Sulfuric Acid (H_2SO_4). To prepare 1 L, slowly add 2.80 ml of concentrated H_2SO_4 to about 900 ml of water while stirring, and adjust the

final volume to 1 L using additional water. Shake well to mix the solution.

3.1.3 Alkaline Absorbing Solution, 0.1 N Sodium Hydroxide (NaOH). To prepare 1 L, dissolve 4.00 g of solid NaOH in about 900 ml of water and adjust the final volume to 1 L using additional water. Shake well to mix the solution.

3.1.4 Filter. Teflon mat (e.g., Pallflex^{R} TX40H145) filter. When the stack gas temperature exceeds 210^{o}C (410^{o}F) a quartz fiber filter may be used.

3.1.5 Silica Gel, Crushed Ice, and Stopcock Grease. Same as Method 5, Sections 3.1.2, 3.1.4, and 3.1.5, respectively.

3.1.6 Sodium Thiosulfate, ($Na_2S_2O_3 3 \cdot 5\ H_2O$).

3.2 Sample Recovery.

3.2.1 Water. Same as Section 3.1.1.

3.2.2 Acetone. Same as Method 5, Section 3.2.

3.3 Sample Analysis.

3.3.1 Water. Same as Section 3.1.1.

3.3.2 Reagent Blanks. A separate blank solution of each absorbing reagent should be prepared for analysis with the field samples. Dilute 200 ml of each absorbing solution (250 ml of the acidic absorbing solution, if a condensate impinger is used) to the same final volume as the field samples using the blank sample of rinse water. If a particulate determination is conducted, collect a blank sample of acetone.

3.3.3 Halide Salt Stock Standard Solutions. Prepare concentrated stock solutions from reagent grade sodium chloride (NaCl), sodium bromide (NaBr), and sodium fluoride (NaF). Each must be dried at 110^{o}C for 2 or more hours and then cooled to room temperature in a desiccator immediately before weighing. Accurately weigh 1.6 to 1.7 g of the dried NaCl to within 0.1 mg, dissolve in water, and dilute to 1 liter. Calculate the exact Cl concentration using Equation 26A-1.

$$uCl^{-}/ml = g \text{ of NaCl} \times 10^{3} \times 35.453/58.44 \qquad \text{(Equation 26A-1)}$$

In a similar manner, accurately weigh and solubilize 1.2 to 1.3 g of dried NaBr and 2.2 to 2.3 g of NaF to make 1 liter solutions.

Use Equations 26A-2 and 26A-3 to calculate the Br^- and F^- concentrations.

$ugBr^-/ml$ = g of NaBr x 10^3 x 79.904/102.90 (Equation 26A-2)

ugF^-/ml = g of NaF x 10^3 x 18.998/41.99 (Equation 26A-3)

Alternately, solutions containing a nominal certified concentration of 1000 mg/L NaCl are commercially available as convenient stock solutions from which standards can be made by appropriate volumetric dilution. Refrigerate the stock standard solutions and store no longer than 1 month.

3.3.4 Chromatographic Eluent. Same as Method 26, Section 3.2.4.

4. Procedure

Because of the complexity of this method, testers and analysts should be trained and experienced with the procedures to ensure reliable results.

4.1 Sampling.

4.1.1 Pretest Preparation. Follow the general procedure given in Method 5, Section 4.1.1, except the filter need only be desiccated and weighed if a particulate determination will be conducted.

4.1.2 Preliminary Determinations. Same as Method 5, Section 4.1.2.

4.1.3 Preparation of Sampling Train. Follow the general procedure given in Method 5, Section 4.1.3, except for the following variations:

And 50 ml of 0.1 N H_2SO_4 to the condensate impinger, if used. Place 100 ml of 0.1 N H_2SO_4 in each of the next two impingers. Finally, transfer approximately 200-300 g of preweighed silica gel from its container to the last impinger. Set up the train as in Figure 26A-1. When used, the optional cyclone is inserted between the probe liner and filter holder and located in the heated filter box.

4.1.4 Leak-Check Procedures. Follow the leak-check procedures given in Method 5, Sections 4.4.1 (Pretest Leak-Check), 4.1.4.2 (Leak-Checks During the Sample Run), and 4.1.4.3 (Post-Test Leak-Check).

4.1.5 Train Operation. Follow the general procedure given in Method 5, Section 4.1.5. Maintain a temperature around the filter and (cyclone, if used) of greater than 120°C (248°F). For each run, record the data required on a data sheet such as the one shown in Method 5, Figure 5-2. If the condensate impinger becomes too full, it may be emptied, recharged with 50 ml of 0.1 N H_2SO_4, and replaced during the sample run. The condensate emptied must be saved and included in the measurement of the volume of moisture collected and included in the sample for analysis. The additional 50 ml of absorbing reagent must also be considered in calculating the moisture. After the impinger is reinstalled in the train, conduct a leak-check as described in Method 5, Section 4.1.4.2.

4.1.6 Post-Test Moisture Removal (Optional). When the optional cyclone is included in the sampling train or when moisture is visible on the filter at the end of a sample run even in the absence of a cyclone, perform the following procedure. Upon completion of the test run, connect the ambient air conditioning tube at the probe inlet and operate the train with the filter heating system at least 120°C (248°F) at a low flow rate (e.g., ΔH = 1 in. H_2O) to vaporize any liquid and hydrogen halides in the cyclone or on the filter and pull them through the train into the impingers. After 30 minutes, turn off the flow, remove the conditioning tube, and examine the cyclone and filter for any visible moisture. If moisture is visible, repeat this step for 15 minutes and observe again. Keep repeating until the cyclone is dry. [NOTE: It is critical that this is repeated until the cyclone is completely dry.]

4.2 Sample Recovery. Allow the probe to cool. When the probe can be handled safely, wipe off all the external surfaces of the tip of the probe nozzle and place a cap loosely over the tip. Do not cap the probe tip tightly while the sampling train is cooling down because this will create a vacuum in the filter holder, drawing water from the impingers into the holder. Before moving the sampling train to the cleanup site, remove the probe, wipe off any silicone grease, and cap the open outlet of the impinger train, being careful not to lose any condensate that might be present. Wipe off any silicone grease and cap the filter or cyclone inlet. Remove the umbilical cord from the last impinger and cap the impinger. If a flexible line is used between the first impinger and the filter holder, disconnect it at the filter holder and let any condensed water drain into the first impinger. Wipe off any silicone grease and cap the filter holder outlet and the impinger inlet. Ground glass stoppers, plastic caps, serum caps, Teflon tape, Parafilm, or aluminum foil may be used to close these openings. Transfer the probe and filter/impinger assembly to the cleanup area. This area should be clean and protectd from the weather to minimize sample

contamination or loss. Inspect the train prior to and during disassembly and note any abnormal conditions. Treat samples as follows:

4.2.1 Container No. 1 (Optional; Filter Catch for Particulate Determination). Same as Method 5, Section 4.2, Container No. 1.

4.2.2 Container No. 2 (Optional; Front-Half Rinse for Particulate Determination). Same as Method 5, Section 4.2, Container No. 2.

4.2.3 Container No. 3 (Knockout and Acid Impinger Catch for Moisture and Hydrogen Halide Determination). Disconnect the impingers. Measure the liquid in the acid and knockout impingers to ± 1 ml by using a graduated cylinder or by weighing it to ± 0.5 g by using a balance. Record the volume or weight of liquid present. This information is required to calculate the moisture content of the effluent gas. Quantitatively transfer this liquid to a leak-free sample storage container. Rinse these impingers and connecting glassware including the back portion of the filter holder (and flexible tubing, if used) with water and add these rinses to the storage container. Seal the container, shake to mix, and label. The fluid level should be marked so that if any sample is lost during transport, a correction proportional to the lost volume can be applied. Retain rinse water and acidic absorbing solution blanks and analyze with the samples.

4.2.4 Container No. 4 (Alkaline Impinger Catch for Halogen and Moisture Determination). Measure and record the liquid in the alkaline impingers as described in Section 4.2.3. Quantitatively transfer this liquid to a leak-free sample storage container. Rinse these two impingers and connecting glassware with water and add these rinses to the container. Add 25 mg of sodium thiosulfate per ppm halogen-dscm of stack gas sample. [NOTE: This amount of sodium thiosulfate includes a safety factor of approximately 5 to assure complete reaction with the hypohalous acid to form a second Cl^- ion in the alkaline solution.] Seal the container, shake to mix, and label; mark the fluid level. Retain alkaline absorbing solution blank and analyze with the samples.

4.2.5 Container No. 5 (Silica Gel for Moisture Determination). Same as Method 5, Section 4.2, Container No. 3.

4.2.6 Container Nos. 6 through 9 (Reagent Blanks). Save portions of the absorbing reagents (0.1 N H_2SO_4 and 0.1 N NaOH) equivalent to the amount used in the sampling train; dilute to the approximate volume of the corresponding samples using rinse water directly from the wash bottle being used. Add the same

ratio of sodium thiosulfate solution used in container No. 4 to the 0.1 N NaOH absorbing reagent blank. Also, save a portion of the rinse water alone and a portion of the acetone equivalent to the amount used to rinse the front half of the sampling train. Place each in a separate, prelableled sample container.

4.2.7 Prior to shipment, recheck all sample containers to ensure that the caps are well-secured. Seal the lids of all containers around the circumference with Teflon tape. Ship all liquid samples upright and all particulate filters with the particulate catch facing upward.

4.3 Sample Preparation and Analysis. Note the liquid levels in the sample containers and confirm on the analysis sheet whether or not leakage occurred during transport. If a noticeable leakage has occurred, either void the sample or use methods, subject to the approval of the Administrator, to correct the final results.

4.3.1 Container Nos. 1 and 2 and Acetone Blank (Optional; Particulate Determination). Same as Method 5, Section 4.3.

4.3.2. Container No. 5. Same as Method 5, Section 4.3 for Silica gel.

4.3.3 Container Nos. 3 and 4 and Absorbing Solution and Water Blanks. Quantitatively transfer each sample to a volumetric flask or graduated cyclinder and dilute with water to a final volume within 50 ml of the largest sample.

4.3.3.1 The IC conditions will depend upon analytical column type and whether suppressed or nonsuppressed IC is used. Prior to calibration and sample analysis, establish a stable baseline. Next, inject a sample of water, and determine if any Cl^-, Br^-, or F^- appears in the chromatogram. If any of these ions are present, repeat the load/injection procedure until they are no longer present. Analysis of the acid and alkaline absorbing solution samples requires separate standard calibration curves; prepare each according to Section 5.2. Ensure adequate baseline separation of the analyses.

4.3.3.2 Between injections of the appropriate series of calibration standards, inject in duplicate the reagent blanks and the field samples. Measure the areas or heights of the Cl^-, Br^-, and F^- peaks. Use the average response to determine the concentrations of the field samples and reagent blanks using the linear calibration curve. If the values from duplicate injections are not within 5 percent of their mean, the duplicate injection shall be repaeated and all four values used to determine the average response. Dilute any sample and the blank

with equal volumes of water if the concentration exceeds that of the highest standard.

4.4 Audit Sample Analysis. Audit samples must be analyzed subject to availability.

5. Calibration

Maintain a laboratory log of all calibrations.

5.1 Probe Nozzle, Pitot Tube, Dry Gas Metering System, Probe Heater, Temperature Gauges, Leak-Check of Metering System, and Barometer. Same as Method 5, Sections 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, and 5.7, respectively.

5.2 Ion Chromatograph. To prepare the calibration standards, dilute given amounts (1.0 ml or greater) of the stock standard solutions to convenient volumes, using 0.1 N H_2SO_4 or 0.1 N NaOH, as appropriate. Prepare at least four calibration standards for each absorbing reagent containing the three stock solutions such that they are within the linear range of the field samples. Using one to the standards in each series, ensure adequate baseline separation for the peaks of interest. Inject the appropriate series of calibration standards, starting with the lowest concentration standard first both before and after injection of the quality control check sample, reagent blanks, and field samples. This allows compensation for any instrument drift occurring during sample analysis. Determine the peak areas, or height, of the standards and plot individual values versus halide ion concentrations in ug/ml. Draw a smooth curve through the points. Use linear regression to calculate a formula describing the resulting linear curve.

6. Quality Control

Same as Method 5, Section 4.4.

7. Quality Assurance

7.1 Applicability. When the method is used to demonstrate compliance with a regulation, a set of two audit samples shall be analyzed.

7.2 Audit Procedure. The currently available audit samples are chloride solutions. Concurrently analyze the two audit samples and a set of compliance samples in the same manner to evaluate the technique of the analyst and the standards preparation. The same analyst, analytical reagents, and analytical system shall be used both for compliance samples and the Environmental Protection Agency (EPA) audit samples.

7.3 Audit Sample Availability. Audit samples will be supplied only to enforcement agencies for compliance tests. Audit samples may be obtained by writing the Source Test Audit Coordinator (MD-77B), Quality Assurance Division, Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Laboratory, Research Triangle Park, NC 27711 or by calling the Source Test Audit Coordinator (STAC) at (919) 541-7834. The request for the audit samples should be made at least 30 days prior to the scheduled compliance sample analysis.

7.4 Audit Results. Calculate the concentrations in mg/dscm using the specified sample volume in the audit instructions. Include the results of both audit samples, their identification numbers, and the analyst's name with the results of the compliance determination samples in appropriate reports to the EPA regional office or the appropriate enforcement agency. **(NOTE:** Acceptability of results may be obtained immediately by reporting the audit results in mg/dscm and compliance results in total ug HCl/sample to the responsible enforcement agency.) The concentrations of the audit samples obtained by the analyst shall be agree within 10 percent of the actual concentrations. If the 10 percent specification is not met, reanalyze the compliance samples and audit samples, and include intitial and reanalysis values in the test report. Failure to meet the 10 percent specification may require retests until the audit problems are resolved.

8. Calculations

Retain at least one extra decimal figure beyond those contained in the available data in intermediate calculations, and round off only the final answer appropriately.

8.1 Nomenclature. Same as Method 5, Section 6.1. In Addition:

B_x = Mass concentration of applicable absorbing solution blank, ug halide ion (Cl^-, Br^-, F^-)/ml, not exceed 1 ug/ml which is 10 times the published analytical detection limit of 0.1 ug/ml. (It is also approximately 5 percent of the mass concentration anticipated to result from a one hour sample at 10 ppmv HCl.)

C = Concentration of hydrogen halide (HX) or halogen (X_2), dry basis, mg/dscm.

m_{HX} = Mass of HCl, HBr, or HF in sample , ug.

m_{X2} = Mass of Cl_2 or Br_2 in sample, ug.

S_{x^-} = Analysis of sample, ug halide ion (Cl^-, Br^-, F^-)/ml.

V_s = Volume of filtered and diluted sample, ml.

8.2 Average Dry Gas Meter Temperature and Average Orifice Pressure Drop. See data sheet (Figure 5-2 of Method 5).

8.3 Dry Gas Volume. Calculate $V_{m(std)}$ and adjust for leakage, if necessary, using the equation in Section 6.3 of Method 5.

8.4 Volume of Water Vapor and Moisture Content. Calculate the volume of water vapor $V_{w(std)}$ and moisture content B_{ws} from the data obtained in this method (Figure 5-2 of Method 5); use Equations 5-2 and 5-3 of Method 5.

8.5 Isokinetic Variation and Acceptable Results. Use Method 5, Sections 6.11 and 6.12.

8.6 Actone Blank Concentration, Acetone Wash Blank Residue Weight, Particulate Weight, and Particulate Concentration. For particulate determination.

8.7 Total ug HCl, HBr, or HF Per Sample.

$$m_{HX} = K\ V_s\ (S_{X^-} - B_{X^-}) \qquad \text{(Equation 26A-4)}$$

where:

K_{HCl} = 1.028 (ug HCl/ug-mole)/(ug Cl^-/ug-mole).

K_{HBr} = 1.013 (ug HBr/ug-mole)/(ug Br^-/ug-mole).

K_{HF} = 1.053 (ug HF/ug-mole)/(ug F^-/ug$^-$mole).

8.8 Total ug Cl_2 or Br_2 Per Sample.

$$m_{X2} = V_s\ (S_{X^-} - B_{X^-}) \qquad \text{(Equation 26A-5)}$$

8.9 Concentration of Hydrogen Halide or Halogen in Flue Gas.

$$C = K\ m_{HX,X2} / V_{m(std)} \qquad \text{(Equation 26A-6)}$$

where:

$K = 10^{-3}$ mg/ug

8.10 Stack Gas Velocity and Volumetric Flow Rate. Calculate the average stack gas velocity and volumetric flow

rate, if needed, in using data obtained in this method and the equations in Sections 5.2 and 5.3 of Method 2.

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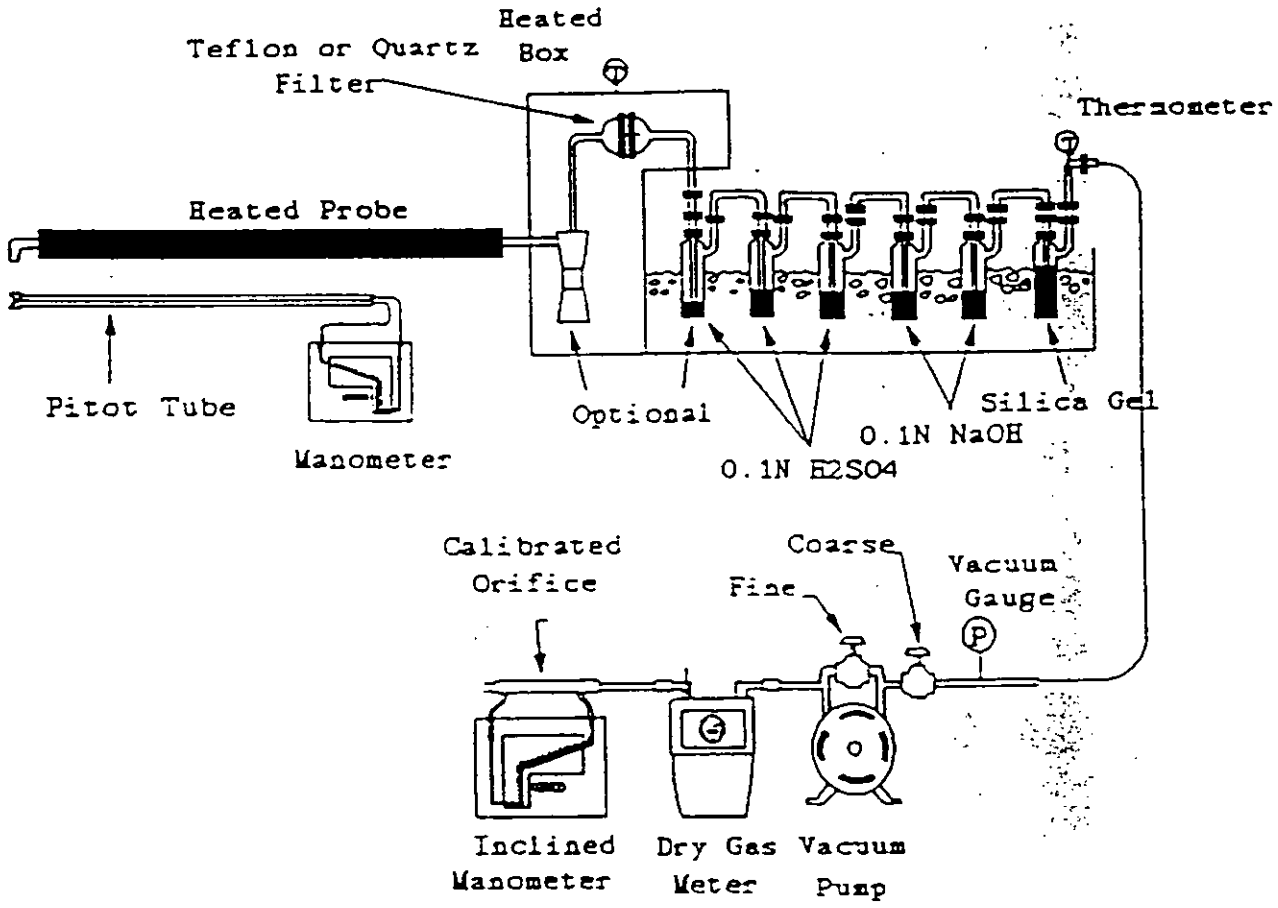

Figure 26A-1. Sampling train.

APPENDIX A

COMPLETE EMISSION DATA

Source Sampling Nomenclature Sheet

PB - Barometric pressure, inches Hg.
PS - Stack pressure, inches Hg.
AS - Effective area of positive stack gas flow, sq. ft.
As - stack area, sq. ft.
NPTS - Number of traverse point where the pitot velocity head was greater than zero
TS - Stack temperature, degrees fahrenheit
TM - Meter temperature, degrees fahrenheit
ASQH - Average square root of velocity head, inches H2O
DH - Average meter orifice pressure differential, inches H2O
AN - Sampling nozzle area, square feet
CP - S-type pitot tube correction factor
VM - Recorded meter volume sample, cubic feet (meter conditions)
VC - Condensate and silica gel increase in impingers, milliliters
PO - Pressure at the dry test meter orifice, $PB + \frac{H}{13.6}$
t - Test time in minutes
STP - Standard conditions, dry, 68 degrees fahrenheit (Tstd), 29.92 inches Hg (Pstd)
Y - Average ratio of accuracy of wet test meter to dry gas meter, with a tolerance of plus or minus 0.02

VWV - Conversion of condensate in milliliters to water vapor in cubic feet (STP)
VSTPD - Volume sampled, cubic feet (STP)
VT - Total water vapor and dry gas volume sampled, cubic feet (STP)
W - Moisture fraction of stack gas
FDA - Dry gas fraction
MD - Molecular weight of stack gas, lbs/lb-mole (dry conditions)
MS - Molecular weight of stack gas, lbs/lb-mole (stack conditions)
GS - Specific gravity of stack gas, referred to air
EA - Excess air
U - Stack gas velocity, feet per minute
QS - Stack gas flow rate, cubic feet per minute (stack conditions)
QD - Stack gas flow rate, cubic feet per minute (dry conditions)
QSTPD - Stack gas flow rate, cubic feet per minute (STP)
PISO - Percent isokinetic volume sampled (method described in Federal Register)
ESTP - Particulate concentration at standard and dry conditions, grains/scf
E12 - ESTP corrected to 12 % CO2, grains/scf
E50 - ESTP corrected to 50 % excess air, grains/scf
EM - Mass emissions rate, lbs/hr
Eh - Mass emissions rate, lbs mmBTUs
E - ESTP corrected to % Excess Air.

Equations For Calculating Particulate Emissions

$$VWV = (0.04707) \times (VC)$$

$$VSTPD = (17.65) \times (VM) \times \left(\frac{PB + DH}{13.6}\right) + (TM) \times (Y)$$

$$VT = (VWV) \times (VSTPD)$$

$$W = (VWV) + (VT)$$

$$FDA = (1.0) - (W)$$

$$MD = (0.44 \times \%\,CO2) + (0.32 \times \%\,O2) + (0.28 \times \%\,N2) + (0.28 \times \%\,CO)$$

$$MS = (MD \times FDA) + (18 \times W)$$

$$CS = (MS) + (28.99)$$

$$EA = \left[(100) \times \left(\%\,O2 - \frac{\%\,CO}{2}\right)\right] \Big/ \left[(0.266 \times \%\,N2) - \left(O2 - \frac{\%\,CO}{2}\right)\right]$$

$$U = (174) \times (CP) \times (ASQH) \times \sqrt{(TS \times 29.92) + (CS \times PS)}$$

$$QS = (U) \times (AS)$$

$$QD = (QS) \times (FDA)$$

$$QSTPD = (528) \times (QD) \times (PS) + (TS \times 29.9)$$

$$PISO = \frac{(100) \times Ts \times VSTPD \times Pstd}{Tstd \times U \times (t) \times An \times Ps \times (FDA)}$$

$$ESTP = \frac{(\text{SAMPLE WT. in mg.}) \times (0.01543)}{VSTPD}$$

$$E12 = \frac{(ESTP) \times (12)}{(CO2\,\%)}$$

$$E50 = \frac{(ESTP) \times (100 + EA)}{150}$$

$$EM = \frac{(ESTP) \times (QSTPD)\ (60\ min)}{7000}$$

$$Eh = \frac{(ESTP)}{7000} \times \text{FUEL FACTOR} \times \frac{20.9}{(20.9 - \%\,O2)}$$

$$E_{EA} = \frac{(ESTP) \times (100 + EA)}{\text{Desired EA}}$$

Facility: Georgia Pacific **Test Date:** 5/25/01

Source: Bleach Plant Outlet **Run Number:** 1

Example Calculations:
Page 1

1. Stack Pressure, (PS)
   PS = PB + (PG/ 13.6)

Example. PB = 30.09 Therefore PS= 30.10 in. Hg.
PG = 0.07

2. Meter Pressure, (PM)
   PM = (PB) + (*H / 13.6)

Example. *H = 1.508 Therefore PM= 30.20 in. Hg.

3. Volume Water Vapor, (VWV).
   VWV = (0.04707) x (VC)

Example. VC = 37 Therefore VWV= 1.718 SCF

4. Meter Volume, corrected to Standard Conditions, (VSTD)

$$VSTPD = \frac{(17.65) \times (VM) \times (PM) \times (Y)}{TM}$$

Example. VM = 35.618 Therefore VSTPD = 35.391 SCF
PM = 30.20
TM = 553.1
Y = 1.031

5. Total Volume Of Sample, (VT).

   VT = VWV + VSTPD

Example. VWV = 1.718 Therefore VT = 37.109 SCF
VSTPD = 35.391

PB = Barometric Pressure, inches of Hg.
PG = Static Pressure of stack, inches of H2O.
*H = Average meter orifice pressure differential inches of H2O.
VC = Volume condensate liquid volume + gain in silica gel wt., grams.
PM = See eq. 2.
TM = Temperature, meter, degrees Rankine.
Y = Meter Correction Factor
VWV = See eq. 3.
VSTPD = See eq. 4.

Facility: Georgia Pacific **Test Date:** 5/25/01

Source: Bleach Plant Outlet **Run Number:** 1

Example Calculations:
Page 2

6. Fraction Water Vapor in Gas Stream, (W)

W = (VWV / VT)

Example. VWV = 1.718 Therefore W = 0.046
VT = 37.109

7. Fraction Dry Air, (FDA).

FDA = 1.0 - W

Example. W = 0.046 Therefore FDA = 0.954

8. Molecular Weight of Stack Gas, Dry, (MD).

MD = (0.44 x %CO2) + (0.32 x %O2) + (0.28 x %N2) + (0.28 x %CO)

Example. CO2 = 0 Therefore MD = 28.84
O2 = 20.9
N2 = 79.1
CO = 0

9. Molecular Weight of Stack Gas, Stack Conditions, (MS).

MS = (MD x FDA) + (18 x W)

Example. MD = 28.84 Therefore MS = 28.34
FDA = 0.954
W = 0.046

10. Specific Gravity of Gas, Relative to Air, (GS)

GS = MS / 28.99

Example. MS = 28.34 Therefore GS = 0.978

VWV = See eq. 3 MS = See eq. 9
VT = See eq. 5
W = See eq. 6
MD = See eq. 8

Facility: Georgia Pacific **Test Date:** 5/25/01

Source: Bleach Plant Outlet **Run Number:** 1

Example Calculations:
Page 3

11. Velocity of Stack Gas, as feet per minute, (U).

$U = 174 \times CP \times H \times \sqrt{(TS \times 29.92) / (GS \times PS)}$

Example. CP =	0.84	Therefore U =	1604.8	FPM
H =	0.4652			
TS =	548			
PS =	30.10			
GS =	0.978			

12. Stack Gas Flow Rate, Stack Conditions, cubic feet per minute, (QS).

$QS = U \times AS$

Example. U =	1604.8	Therefore QS =	15440	ACFM
AS =	9.621			

13. Stack Gas Flow Rate, Dry (QD)

$QD = QS \times FDA$

Example. QS =	15440	Therefore QD =	14730	CFMD
FDA =	0.954			

14. Stack Gas Flow Rate, Standard Temperature and Pressure, Dry, (QSTPD)

$QSTPD = (528 \times QD \times PS) / (TS \times 29.92)$

Example QD =	14730	Therefore QSTPD =	14275	SCFMD
PS =	30.09			
TS =	548			

CP = Pitot Coefficient
H = Average of square roots of velocity heads, in H2O.
TS = Temperature of stack, deg. R.
PS = See eq. 1
GS = See eq. 10

Facility: Georgia Pacific **Test Date:** 5/25/01

Source: Bleach Plant Outlet **Run Number:** 1

Example Calculations:
Page 4

15. Percent Isokinetic Volume Sampled, (PISO)

$$PISO = \frac{(100) \times Ts \times VSTPD \times Pstd}{Tstd \times U \times \Theta \times An \times Ps \times FDA}$$

Example. AN =	0.000413	Therefore PISO =	96.4
Θ =	60	Pstd =	29.92
VSTPD =	35.391	Tstd =	528
Ts =	548	Ps =	30.095147
U =	1604.8	FDA =	0.954

16. Particulate Concentration, grains per Standard Cubic Foot, (ESTP).

$$ESTP = (.01543 \times Mg.) / VSTPD$$

Example. Mg. = 0 Therefore ESTP = 0 Grs/ SCF.
VSTPD = 35.391

17. Mass Emission Rate, Lbs / Hr, (EM).

$$EM = \frac{ESTP \times QSTPD \times 60\ Min/\ Hr}{7000}$$

Example.
QSTPD = 14275 Therefore EM = 0 Lbs/ Hr

VSTPD = See eq. 4
AN = Area Nozzle, Sq Ft
Mg. = Weight of particulate catch in milligrams.

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Environmental Consultants
Analytical Chemists

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Jacksonville, Fl. 32206
(904) 353 - 5761

Facility	Georgia Pacific
Location	Palatka, FL
Stack	Bleach Plant Outlet
Run Date	5/25/01
Run Number	1
Start Time	1850
Finish Time	1952
Weather	Clear
Total Time (min.)	60.00
Barometric Pressure	30.09
Stack Diameter (in.)	42.000
Stack Area sq. ft.	9.621
Nozzle Area sq. ft.	0.0004125
Number of Points	12
Avg of SQRT of V.H.	0.4652
Meter Correction (Y)	1.031
Nozzle Diameter	0.275
Pitot Correction Factor	0.84

Impinger Condensate , Ml	32
Silica Gel Condensate, Gm	4.5
Volume Metered	35.618
Meter Temp (Deg R)	553.1
Orsat CO2 %	0.0
Orsat O2 %	20.9
Orsat CO %	0.0
Orsat N %	79.1
Condensate Volume, Ml	36.5
Delta H (inches H2O)	1.5080
Stack Pressure	30.095
Stack Temp (Deg R)	548.0

==========

Volume Water Vapor, SCF	**1.718**
Gas Volume Sampled, STPD	**35.391**
Total Volume, STP	**37.109**
Moisture in stack gas, volume fraction	**0.046**
Dry Stack Gas, volume fraction	**0.954**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.34**
Specific gravity of Stack Gas Relative to Air	**0.978**
Excess Air (%)	**14864.9**
Average Stack Velocity, FPM	**1604.8**
Actual Stack Gas Flow Rate, ACFM	**15440**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**14730**
Stack Gas Flow Rate, SCFMD	**14275**
Percent Isokinetic	**96.4**

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(904) 353 - 5761

Facility: Georgia Pacific
Stack: Bleach Plant Outlet
Run Date: 5/25/01
Run No: 1

Field Data Points				
Trav. Pt.	Vel. Head	Meter Orif.	Stack °F	Meter °F
1	0.23	1.60	92	91
2	0.23	1.60	91	92
3	0.22	1.53	89	93
4	0.22	1.53	90	93
5	0.22	1.53	90	93
6	0.2	1.39	90	93
7	0.22	1.53	86	93
8	0.23	1.60	85	93
9	0.22	1.53	85	93
10	0.22	1.53	85	94
11	0.21	1.46	88	95
12	0.18	1.25	85	94
13	0		0	0
14	0		0	0
15	0		0	0
16	0		0	0
17	0		0	0
18	0		0	0
19	0		0	0
20	0		0	0
21	0		0	0
22	0		0	0
23	0		0	0
24	0		0	0
25	0		0	0
26	0		0	0
27	0		0	0
28	0		0	0
29	0		0	0
30	0		0	0

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2901 Danese Street
Jacksonville, Fl. 32206
(904) 353 - 5761

Facility			
Location	Palatka, FL		
Stack	Bleach Plant Outlet		
Run Date	5/25/01	**Impinger Condensate, Ml**	36.0
Run Number	2	**Silica Gel Condensate, Gm**	5.2
Start Time	2130	**Volume Metered**	36.140
Finish Time	2234	**Meter Temp (Deg R)**	545.8
Weather	Scattered Clouds	**Orsat CO2 %**	0.0
Total Time (min.)	60.00	**Orsat O2 %**	20.9
Barometric Pressure	30.09	**Orsat CO %**	0.0
Stack Diameter (in.)	42.000	**Orsat N %**	79.1
Stack Area sq. ft.	9.621	**Condensate Volume, Ml**	41.2
Nozzle Area sq. ft.	0.0004125	**Delta H (inches H2O)**	1.4850
Number of Points	12	**Stack Pressure**	30.094
Avg of SQRT of V.H.	0.4616	**Stack Temp (Deg R)**	542.3
Meter Correction (Y)	1.031		
Nozzle Diameter	0.275		
Pitot Correction Factor	0.84		

==========

Volume Water Vapor, SCF	**1.939**
Gas Volume Sampled, STPD	**36.388**
Total Volume, STP	**38.327**
Moisture in stack gas, volume fraction	**0.051**
Dry Stack Gas, volume fraction	**0.949**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.29**
Specific gravity of Stack Gas Relative to Air	**0.976**
Excess Air (%)	**14864.9**
Average Stack Velocity, FPM	**1585.7**
Actual Stack Gas Flow Rate, ACFM	**15256**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**14478**
Stack Gas Flow Rate, SCFMD	**14178**
Percent Isokinetic	**99.8**

Technical Services, Inc.
Environmental Consultants
Analytical Chemists

2901 Danese Street
Jacksonville, Fl. 32206
(904) 353 - 5761

Facility: Georgia Pacific
Stack: Bleach Plant Outlet
Run Date: 5/25/01
Run No: 2

Field Data Points				
Trav. Pt.	Vel. Head	Meter Orif.	Stack ' F	Meter ' F
1	0.23	1.60	81	85
2	0.23	1.60	82	85
3	0.22	1.53	82	85
4	0.22	1.53	82	84
5	0.21	1.46	83	88
6	0.2	1.39	82	87
7	0.23	1.60	82	85
8	0.22	1.53	83	86
9	0.21	1.46	82	86
10	0.21	1.46	83	86
11	0.2	1.39	83	86
12	0.18	1.25	83	86
13	0		0	0
14	0		0	0
15	0		0	0
16	0		0	0
17	0		0	0
18	0		0	0
19	0		0	0
20	0		0	0
21	0		0	0
22	0		0	0
23	0		0	0
24	0		0	0
25	0		0	0
26	0		0	0
27	0		0	0
28	0		0	0
29	0		0	0
30	0		0	0

Technical Services, Inc.
Environmental Consultants
Analytical Chemists

2901 Danese Street
Jacksonville, Fl. 32206
(904) 353 - 5761

Facility	Georgia Pacific
Location	Palatka, FL
Stack	Bleach Plant Outlet
Run Date	5/25/01
Run Number	3
Start Time	2300
Finish Time	2402
Weather	Partly Cloudy
Total Time (min.)	60
Barometric Pressure	30.09
Stack Diameter (In.)	42.000
Stack Area sq. ft.	9.621
Nozzle Area sq. ft.	0.0004125
Number of Points	12
Avg of SQRT of V.H.	0.4680
Meter Correction (Y)	1.031
Nozzle Diameter	0.275
Pitot Correction Factor	0.84

Impinger Condensate, Ml	40.0
Silica Gel Condensate, Gm	4.9
Volume Metered	36.222
Meter Temp (Deg R)	542.2
Orsat CO2 %	0.0
Orsat O2 %	20.9
Orsat CO %	0.0
Orsat N %	79.1
Condensate Volume, Ml	44.9
Delta H (inches H2O)	1.5250
Stack Pressure	30.094
Stack Temp (Deg R)	537.1

==========

Volume Water Vapor, SCF	**2.113**
Gas Volume Sampled, STPD	**36.716**
Total Volume, STP	**38.829**
Moisture in stack gas, volume fraction	**0.054**
Dry Stack Gas, volume fraction	**0.946**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.25**
Specific gravity of Stack Gas Relative to Air	**0.974**
Excess Air (%)	**14864.9**
Average Stack Velocity, FPM	**1601.6**
Actual Stack Gas Flow Rate, ACFM	**15409**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**14577**
Stack Gas Flow Rate, SCFMD	**14413**
Percent Isokinetic	**99.0**

Technical Services, Inc.
Environmental Consultants
Analytical Chemists

2901 Danese Street
Jacksonville, Fl. 32206
(904) 353 - 5761

Facility: Georgia Pacific
Stack: Bleach Plant Outlet
Run Date: 5/25/01
Run No: 3

Field Data Points				
Trav. Pt.	Vel. Head	Meter Orif.	Stack 'F	Meter 'F
1	0.23	1.60	80	82
2	0.22	1.53	81	83
3	0.22	1.53	80	83
4	0.22	1.53	78	82
5	0.2	1.39	78	82
6	0.2	1.39	78	82
7	0.23	1.60	76	82
8	0.23	1.60	76	82
9	0.24	1.67	75	82
10	0.22	1.53	75	82
11	0.22	1.53	74	82
12	0.2	1.39	74	82
13	0		0	0
14	0		0	0
15	0		0	0
16	0		0	0
17	0		0	0
18	0		0	0
19	0		0	0
20	0		0	0
21	0		0	0
22	0		0	0
23	0		0	0
24	0		0	0
25	0		0	0
26	0		0	0
27	0		0	0
28	0		0	0
29	0		0	0
30	0		0	0

Ambient Air Services, Inc.
Environmental Consultants

106 Ambient Air Way
Starke, Florida 32091

(904) 964 - 8440
(904) 964 - 6675 fax

Volumetric Air-Flow Rates

Plant	GEORGIA PACIFIC		
Location	PALATKA, FL		
Stack	BLEACH PLANT		
Run Date	5/26/01		
Run Number	3	**Volume Metered**	0
Start Time	0	**Meter Temp (Deg R)**	ERR
Finish Time	0	**Orsat CO2 %**	0
Barometric Pressure	30.09	**Orsat O2 %**	21
Stack Diameter (in.)	42	**Orsat CO %**	0
Stack Area sq. ft.	9.621	**Orsat N %**	79
Number of Points	0	**Condensate Volume**	0
Avg of SQRT of V.H.	0.4641	**Delta H (inches H2O)**	ERR
Meter Correction (Y)	0	**Stack Pressure**	30.09
Pitot Correction Factor	0.84	**Stack Temp (Deg R)**	534.8

==========

Moisture in stack gas, volume fraction	**0.053**
Dry Stack Gas, volume fraction	**0.947**
Molecular Weight of Stack Gas (Dry Basis)	**28.84**
Molecular Weight of Stack Gas (Stack conditions)	**28.270**
Specific gravity of Stack Gas Relative to Air	**0.975**
Excess Air (%)	
Average Stack Velocity, FPM	**1584.2**
Actual Stack Gas Flow Rate, ACFM	**15242**
Actual Stack Gas Flow Rate, (Dry) ACFMD	**14434**
Stack Gas Flow Rate (Standard conditions), SCFMD	**14331**
Stack Gas Flow Rate (Standard conditions), SCFMW	**15133**

APPENDIX B

FIELD DATA SHEETS

TECHNICAL SERVICES, INC.
JACKSONVILLE, FL
(904)353-5761

SOURCE SAMPLING FIELD DATA SHEET

FACILITY: Georgia Pacific Palatka, GA RUN No. 1
SOURCE: Bleach Plant outlet DATE: 5-25-01
WEATHER: Clear
TYPE TEST: M26A
TESTERS: DA / BM
12 PTS. @ 5 MIN/PT 60 MIN F.D.A. = 0.92
Y meter = 1.031 Filter No. =
COMMENTS: Dave / GP Palatka

BAROMETRIC PRESS 30.09
METER BOX ID 11
METER DELTA Ha 2.32
PROBE ID 5'5
PITOT CORR. FACTOR 0.84
NOZZLE DIA. 0.275 in.
PROBE TEMP. ~350
STACK ID (IN): ~~46~~ 42
PORT LENGTH 7"

PRE-TEST.
Ts = 555
Tm = 555

ORSAT:
CO2 0
O2 20.5
CO 0

TIME	START 1450	START VOLUME	212.658
TIME	END 1952	END VOLUME	248.276

Factors: 6.959

Ea = 0.36 lb/hr
Chlorinated hpps

LEAK CHECK: PRE.TEST 0.016 CFM@15". POST: 0.006 @ 2 " Hg.
PITOT LEAK CHECK = OK AT 3"
VOL. WATER COLLECTED = 32 ML
WEIGHT MOIS. SILICA GEL = 4.5 GR
STAT.PRESS= +0.07

SCFMD = 17127

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.
1-1	5	15.4	0.23	1.6	92	91	249	62	2
2	10	18.2	0.23	1.6	91	92	252	60	2
3	15	22.6	0.24	1.7	89	93	252	59	2
4	20	25.2	0.24	1.5	90	93	253	60	2
5	25	28.9	0.22	1.5	90	93	252	60	2
6	30	31.1	0.20	1.4	90	93	251	61	2
2-1	35	34.6	0.22	1.5	86	93	250	62	2
2	40	36.8	0.23	1.6	85	93	249	62	2
3	45	39.3	0.22	1.5	88	93	251	62	2
4	50	42.2	0.22	1.5	88	94	250	63	2
5	55	45.0	0.21	1.5	88	95	251	63	2
6	60		0.18	1.3	85	94	249	63	2

[redacted] JACKSONVILLE, FL
(904)353-5761

FACILITY: Georgia Pacific Palatka RUN No 2
SOURCE: Bleach Plant outlet DATE 5-21-04
WEATHER: Scattered Clouds PRE-TEST. ORSAT
BAROMETRIC PRESS 30.05 TYPE TEST: M26A Ts = CO2 0
METER BOX ID 11 TESTERS: LH/BM Tm = O2 20.5
METER DELTA Ha 2.32 12 PTS. @ 5 MIN/PT 60 MIN F.D.A. = CO 0
PROBE ID 509 Y meter = 1.031 Filter No. = Computer
PITOT CORR FACTOR 0.84 Directory and file name
NOZZLE DIA 0.275 in
PROBE TEMP 250
STACK ID (IN) 46.42
PORT LENGTH 7"

TIME START 2130 START VOLUME [redacted] 248.351
TIME END 2234 END VOLUME 254.491
Factors: 6.959

LEAK CHECK: PRE-TEST 0.010 CFM@15" POST 0.000 "Hg. PITOT LEAK CHECK = OK AT 3" VOL. WATER COLLECTED = 36 ML STAT PRESS= +0.05
WEIGHT MOIS. SILICA GEL = 5.2 GR

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg	COMMENTS
1-1	5	52.4	0.23	1.6	81	85	244	64	3	Stopped at 2 X
2	10	55.8	0.23	1.6	82	85	244	60	3	
3	15	58.2	0.23	1.5	82	85	254	60	3	
4	20	60.5	0.22	1.5	82	83	251	61	3	
5	25	63.4	0.21	1.5	83	85	247	61	3	
6	30	66.1	0.22	1.4	82	87	252	61	3	
2-1	35	68.4	0.23	1.4	82	85	242	61	3	
2	40	71.2	0.22	1.5	83	86	245	60	3	
3	45	74.2	0.21	1.5	82	86	251	61	3	
4	50	77.8	0.21	1.5	83	86	249	61	3	
5	55	79.9	0.20	1.4	83	86	242	61	3	
6	60		0.18	1.3	83	86	230	62	3	

[redacted] TECHNICAL SERVICES, INC.
JACKSONVILLE, FL
(904)353-5761

[redacted] SOURCE SAMPLING FIELD DATA SHEET

FACILITY: Georgia Pacific Palatka, FL RUN No 3
SOURCE: Bleach Plant Outlet DATE 5-25-01
WEATHER: Partly Cloudy
TYPE TEST: M26A
TESTERS: [redacted]

BAROMETRIC PRESS 30.02
METER BOX ID 11
METER DELTA Ha 2.32
PROBE ID 544
PITOT CORR FACTOR 0.84
NOZZLE DIA 0.225 in
PROBE TEMP ~270
STACK ID (IN) 46 42
PORT LENGTH 7"

PRE-TEST. Ts = Tm =
12 PTS. @ 5 MIN/PT 60 MIN F.D.A. =
Y meter = 1.031 Filter No. =

ORSAT CO2 0 O2 20.5 CO 0
Computer
Directory and file name

TIME START 2300 START VOLUME 285.513
TIME END 2402 END VOLUME 320.215
Factors: 6 954

LEAK CHECK: PRE-TEST 0.00 CFM@15" POST 0.00 @ 13 Hg.
PITOT LEAK CHECK = OK AT 3"
VOL. WATER COLLECTED = 40 ML
WEIGHT MOIS. SILICA GEL = 49 GR
STAT.PRESS= -0.06

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP	METER TEMP (F)	FILTER TEMP (F)	LAST IMPINGER TEMP	VACUUM INCHES Hg	COMMENTS
1-1	5	88.7	0.23	1.6	80	82	249	62	3	
2	10	90.8	0.22	1.5	81	83	255	60	3	
3	15	94.1	0.22	1.5	82	83	256	55	3	
4	20	98.2	0.22	1.4	78	82	252	60	3	
5	25	00.3	0.20	1.4	78	82	247	59	3	
6	30	03.1	0.20	1.4	78	82	247	59	3	
2-1	35	05.6	0.23	1.6	76	82	242	60	3	
2	40	7.9	0.23	1.6	76	82	240	60	3	
3	45	10.5	0.24	1.7	75	82	244	60	3	
4	50	13.1	0.22	1.4	75	82	242	61	3	
5	55	17.2	0.22	1.4	74	82	245	60	3	
6	60		0.22	1.4	74	82	236	61	3	

Velocity Traverse

Technical Services, Inc.
Jacksonville, FL (904)353-5761

Plant: Georgia Pacific Date: 5-25-01

Source: _____ Barometric Pressure: 30.09

Stack Diameter: 46

Run No. (4) Run No. _____ Run No. _____

Start: 0030 Stop: 0035 Start: Stop: Start: Stop:

Static Press.(in.H2O) +0.05 Static Press.(in.H2O) _____ Static Press.(in.H2O) _____

Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F
1-1	0.24	74
2	0.24	75
3	0.23	75
4	0.22	75
5	0.20	76
6	0.19	75
2-1	0.23	74
2	0.23	75
3	0.22	75
4	0.22	75
5	0.19	76
6	0.18	74

Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F

Traverse Point No.	Velocity Head	Stack Temp. (Ts) Deg. F

APPENDIX C

LABORATORY ANALYSIS

TECHNICAL SERVICES, INC.
ENVIRONMENTAL CONSULTANTS

For Georgia Pacific (Palatka)
P O Box 919
Palatka, FL 32178-0919
Contact: Joe Taylor

Report Date 30-May-01
Date Received 05/26/2001 @ 10:20
Purchase Order #:

CERTIFICATE OF ANALYSIS

LAB	MATRIX	SAMPLE DATE	SAMPLE TIME	SAMPLED BY
SAMPLE DESCRIPTION				
01050850	IMPINGER	05/25/2001	NA	TSI- D.S., G.H.
BLEACH PLANT INLET AND OUTLET, OUTLET RUN 1/ COMPOSITE				
01050851	IMPINGER	05/25/2001	NA	TSI- D.S., G.H.
BLEACH PLANT INLET AND OUTLET, OUTLET RUN 2/ COMPOSITE				
01050852	IMPINGER	05/25/2001	NA	TSI- D.S., G.H.
BLEACH PLANT INLET AND OUTLET, OUTLET RUN 3/ COMPOSITE				
01050853	IMPINGER	05/25/2001	NA	TSI- D.S., G.H.
BLEACH PLANT INLET AND OUTLET, OUTLET RUN 1/ COMPOSITE				
01050854	IMPINGER	05/25/2001	NA	TSI- D.S., G.H.
BLEACH PLANT INLET AND OUTLET, OUTLET RUN 2/ COMPOSITE				
01050855	IMPINGER	05/25/2001	NA	TSI- D.S., G.H.
BLEACH PLANT INLET AND OUTLET, OUTLET RUN 3/ COMPOSITE				

Respectfully submitted,
Technical Services, Inc.

Walter Mock

Georgia Pacific (Palatka)

Lab No.	Parameter	Result		Code	Method	Detection Limit
01050850	Default	Not analyzed				
01050851	Default	Not analyzed				
01050852	Default	Not analyzed				
01050853	Chloride	0.971	ug/ml Cl-		Method 26A	0.02
01050853	Sample Volume	196	mls			1
		190.3 µg				
01050854	Chloride	0.808	ug/ml Cl-		Method 26A	0.02
01050854	Sample Volume	200	mls			1
		161.6 µg				
01050855	Chloride	0.838	ug/ml Cl-		Method 26A	0.02
01050855	Sample Volume	194	mls			1
		162.6 µg				

R-1

R-2

R-3

Georgia Pacific (Palatka)

Lab No	Parameter	Date of Analysis	Analysis Time	Analyst	Prep Date
01050850	Default			none	
01050851	Default			none	
01050852	Default			none	
01050853	Chloride	05/26/2001		WEM	
01050853	Sample Volume	05/26/2001		WEM	
01050854	Chloride	05/26/2001		WEM	
01050854	Sample Volume	05/26/2001		WEM	
01050855	Chloride	05/26/2001		WEM	
01050855	Sample Volume	05/26/2001		WEM	

APPENDIX D

SCRUBBER DATA AND PROCESS CERTIFICATION

BLEACH PLANT PRODUCTION DATA

DATE	TIME	ADTUP	FAN LOAD, %
05/25/01	1850-1952	55	85.1
	2133-2300	50	85.6
	2300-2330	55	85.9
	2330-0042	50	85.8
	0145-0230	50	85.2

ADTUP is air-dried tons of unbleached pulp across the bleach plant.
Fan load is the % of full load (amperage) of the fan used as the surrogate flow measure.
The scrubber recirculation flow ranged from 1500 gpm to 1740 gpm during the testing.
The scrubber pH was 9.5 during the testing.

DATA CERTIFICATION BY OWNER OR HIS AUTHORIZED AGENT

I, Myra Carpenter (print name),

certify that to my knowledge all data

submitted in this compliance test report

for the ECF Bleach Plant unit

on May 25, 2001 (date)

are true and correct.

Myra Carpenter (signature and title)

APPENDIX E

CHAIN OF CUSTODY

0105085C -
0105085

Technical Services, Inc.
2901 Danese St., Jacksonville, FL 32206
(904) 353-5761 / fax (904) 358-2908

CHAIN of CUSTODY RECORD

CLIENT NAME & ADDRESS (REPORT TO BE SENT TO:) c/o Air Dept
Georgia Pacific
Palatka, FL

REMARKS
Bleach Plant inlet & Outlet
Method 26A

PROJ. NO.

PROJECT NAME/ ADDRESS:

SAMPLERS: (SIGNATURE)
D. Hall G Hanlin

Sample Location ID	DATE	TIME	COMP	GRAB	TOTAL NO. of Containers	BOTTLE MAKEUP	PARAMETERS
Outlet R-1	5-15-01	N/A	✓		1	0.1N H_2SO_4	M 26A
2	↓	↓	↓		1		
3					1		
R-1					1	0.1N NaOH	
2					1		
3					1		

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
D. Hall	5/16/01 1100		
RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
		RECEIVED FOR LABORATORY BY	DATE/TIME
		J.T.F. / Mark	5/16/01 1100

J

APPENDIX F

CALIBRATION DATA

T S I

Annual Dry Gas Meter Calibration Data By TSI Reference Meter

REFERENCE METER R-275 **TSI Reference Dry Meter Calibration Date:** 8/09/00

Yi of reference meter: 1.012

Date 1/4/01 **Calibrated by** R Garza

Barometric Pressure 30.12 **Meter Box** 11

Orifice Manometer Setting (DH) In. H2O	Reference Dry Gas Meter Cu.ft.	Gas Volume: Reference Meter (Vw) Std.Cu. Ft.	Gas Volume: Dry Gas Meter (VD) Cu. Ft.	Temperature: Reference Meter (Tw) Deg ^F	Temperature: Dry Gas Meter Temperature (Td) Deg ^F		Time (t), min	Delta H In. H2O	Yi
0.5	10.015	10.099	9.715	73.2	X	66.40	29.34	2.39	1.025
1	10.002	10.082	9.761	73.4	X	70.90	20.46	2.31	1.026
1.5	10.005	10.044	9.642	75.6	X	73.30	17.00	2.42	1.033
2	10.013	10.075	9.691	74.4	X	74.50	14.50	2.32	1.035
3	10.012	10.057	9.645	75.3	X	75.40	11.39	2.16	1.035
					Average Delta H and Y			2.32	1.031
					Yi Allowance =		1.011	To	1.051
					DH Allowance =		2.12	To	2.52

* If there is only one thermometer on the dry gas meter, record the temperature under Td

Vw = Gas volume passing through the Reference test meter, (cu. ft.)

Vd = Gas volume passing through the dry gas meter, (cu. ft.)

Tw = *Temperature of the gas in the Reference test meter, Deg F*

Td = Temperature of the gas in the dry gas meter, Deg F

DH = Pressure differential across orifice, in H2O = pretest DH + or - 0.20

Yi = Ratio of accuracy of the Reference test meter to dry gas meter for each run

Y = Average ratio of the Reference test meter to dry gas meter for all three test runs; tolerance = pretest Y + or - 0.02Y

Pb = Barometric pressure, in. Hg

t = Time of calibration run, min.

Quality Assurance Handbook M5-2.4A

Quality Assurance Handbook M5-2.4A

TSI

Post-Test Dry Gas Meter Calibration Data Form (English Units)

N/A

Test numbers: All | Date: 5/31/01 | Meter Box No.: 11 | Facility: GP

Barometric Pressure, Pb: 30.05 | Reference Meter: R-275 | Pretest Y Value: 1.024

Orifice Manometer Setting (DH) In. H2O	Gas Volume: Reference Meter (Vw) Cu. Ft.	Gas Volume: Dry Gas Meter (VD) Cu. Ft.	Temperature: Reference Meter (Tw) Deg ^F	Temperature: Dry Gas Meter		Temperature: Dry Gas Meter: Average (Td) Deg ^F	Time (), min	Vacuum Setting In. Hg.	Yi
1.5	10.003	9.831	75	X	X	75	16.87	< 2	1.014
1.5	10.001	9.823	75	X	X	76	16.56	<2	1.016
1.5	10.000	9.820	80	X	X	81	16.92	<2	1.016
								Yi =	1.016

* If there is only one thermometer on the dry gas meter, record the temperature under Td

$$Yi = \frac{Vw * Pb * (Td + 460)}{Vd\,(Pb + (Delta\ H/13.6)) \times (Tw + 460)}$$

Vw = Gas volume passing through the reference test meter, (cu. ft.)
Vd = Gas volume passing through the dry gas meter, (cu. ft.)
Tw = Temperature of the gas in the reference test meter, Deg F
(Td)i = Temperature of the inlet gas of the dry gas meter, Deg F
(Td) = Temperature of the outlet gas of the dry gas meter, Deg F
Td = Average temperature of the gas in the dry gas meter, obtained by the average of (Td)i & (Td)o, Deg F
DH = Pressure differential across orifice, in H2O
Yi = Ratio of accuracy of the reference test meter to dry gas meter for each run
Y = Average ratio of the reference test meter to dry gas meter for all three test runs; tolerance = pretest Y + or - 0.02Y
Pb = Barometric pressure, in. Hg.
= Time of calibration run, min.

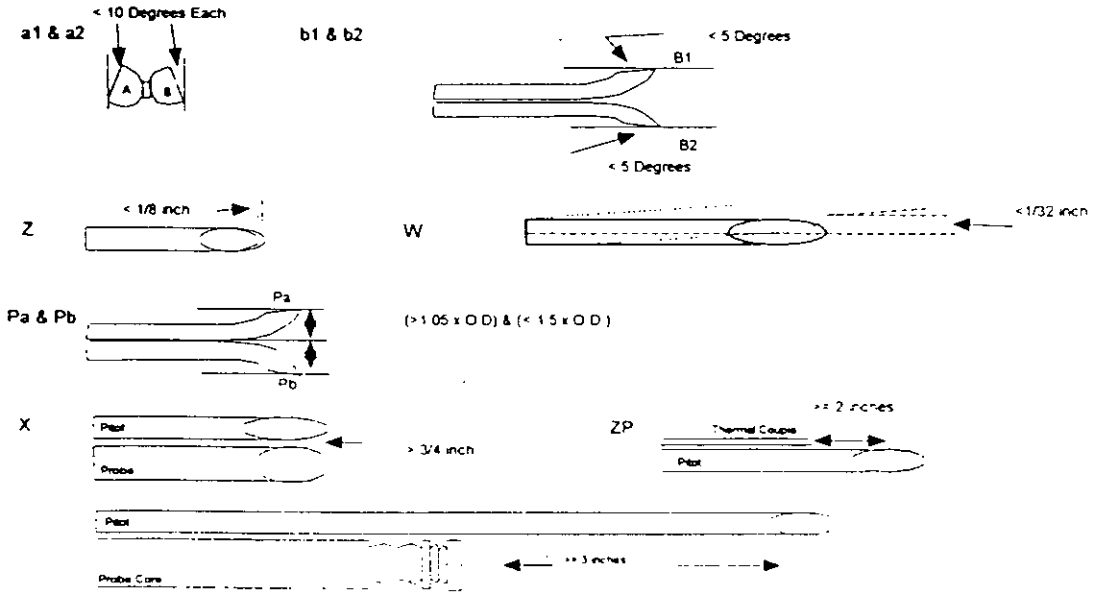
Quality Assurance Handbook M5-2.4A

ANNUAL PITOT TUBE CALIBRATION WORKSHEET
MARCH 22, 2001

Pitot Tube I.D. #	Coefficient	Pa Inches	Pb Inches	Dt Inches	Zs Inches	Ws Inches	a1 Degrees	a2 Degrees	b1 Degrees	b2 Degrees	X Inches	Zp Inches	Y Inches
WC1	0.84	0.555	0.533	0.373	0.07	< 0.313	0	2	2	3	0.74	2.0	4.0
3A	0.84	0.554	0.556	0.374	0.061	< 0.313	1	3	2	2	1.4	2.0	4.0
3AG	0.84	0.550	0.551	0.375	0.003	< 0.313	2	3	3	2	1.5	2.0	4.0
4A	0.84	0.540	0.538	0.375	0.049	< 0.313	1	3	2	2	1.4	2.0	4.0
4AG	0.84	0.557	0.554	0.373	0.03	< 0.313	1	1	3	0	1.5	2.0	4.0
6A	0.84	0.512	0.539	0.375	0.063	< 0.313	0	2	2	1	1.5	2.0	4.0
6B	0.84	0.405	0.415	0.375	0.06	< 0.313	0	3	2	1	1.2	2.0	4.0
5CG	0.84	0.540	0.551	0.375	0.066	< 0.313	2	3	2	2	1.12	2.0	4.0
7A	0.84	0.550	0.542	0.374	0.056	< 0.313	1	2	1	2	1.31	2.0	4.0
7B	0.84	0.549	0.542	0.375	0.06	< 0.313	3	1	1	1	1.38	2.0	4.0
7C	0.84	0.555	0.550	0.375	0.051	< 0.313	1	2	2	2	1.41	2.0	4.0
7AG	0.84	0.540	0.535	0.371	0.037	< 0.313	3	3	1	1	1.3	2.0	4.0
7BG	0.84	0.550	0.551	0.375	0.034	< 0.313	2	2	3	3	1.1	2.0	4.0
7CG	0.84	0.556	0.554	0.375	0.032	< 0.313	1	3	1	1	1.35	2.0	4.0
8A	0.84	0.531	0.545	0.375	0.031	< 0.313	2	2	0	2	1.2	2.0	4.0
9A	0.84	0.520	0.512	0.374	0.056	< 0.313	2	2	1	1	1.51	2.0	4.0
10A	0.84	0.554	0.544	0.374	0.078	< 0.313	2	2	0	1	1.28	2.0	4.0
10B	0.84	0.550	0.552	0.375	0.05	< 0.313	1	1	3	2	1.25	2.0	4.0
12A	0.84	0.407	0.411	0.374	0.059	< 0.313	3	3	2	2	1.35	2.0	4.0

Calibrations performed by George Hawkins

Pa Distance between where pitots adjoin to tip of pitot (Must be between 1.05 & 1.50 times O.D. of tubing)
Pb Distance between where pitots adjoin to tip of pitot (Must be between 1.05 & 1.50 times O.D. of tubing)
Dt Diameter of pitot tube (0.375 inches on all pitots)
Zs Distance between the tip of the impact and static line along the length of the pitot (Must be < 1/8 inch (0.1250))
Ws Spacing between Pitot tubes where welded together (Must be < 1/32 inch (0.0313))
a1 Angle across opening of Pitot tube from side to side or perpendicular to length of probe (Must be < 10 Deg)
a2 Angle across opening of Pitot tube from side to side or perpendicular to length of probe (Must be < 10 Deg)
b1 Angle across opening of Pitot tube from side to side or perpendicular to length of probe (Must be < 5 Deg)
b2 Angle across opening of Pitot tube from side to side or perpendicular to length of probe (Must be < 5 Deg)
X Distance between side of nozzle and side of pitot tube (Must be > 3/4 inch)
Zp Distance from center of pitot opening back to tip of thermal couple (Must be >= 3/4 inch (0.75))
Y Distance from center of pitot opening back to probe (Must be >= 3 inches)



T S I

Air Report - Method Five Equipment Calibrations

NOZZLE CALIBRATION

Facility	Georgia Pacific	Date	5/25/01
Location	Palatka, FL		
Source Name	Bleach Plant Outlet	Analyst	WJ

Calibration Data

All Technical Services, Inc. pitot tubes have been modified to comply with specifications as presented in the Thursday, August 18, 1977 Federal Register (Vol. 42, No. 160). A pitot tube correction factor of 0.84 has been assigned.

Our thermometers, pyrometers and thermocouples are calibrated against a standard mercury thermometer in a hot oven in our laboratory. (Data on following page.)

Our field barometer is checked before every test against that of our laboratory mercury barometer.

All probe nozzles are calibrated each test run to assure isokinetic sampling.

Nozzle Diameter in Inches: 0.275

				Mean
Run 1	0.275	0.275	0.275	0.275

S I

Air Report - Method Five Equipment Calibrations

THERMOCOUPLE CALIBRATIONS

Facility: Georgia Pacific **Date:** 5/31/01

Location: Palatka, FL **Analyst:** [illegible]

Source Name: Bleach Plant Outlet Inlet

Calibration Data

Ambient Temperature 75 **Reference: Mercury in glass** X

Thermocouple Number 5cg **Other** ____

Barometric Pressure 29.97

Reference Point Number	Source(a) (specify)	Reference Thermometer Temperature	Thermocouple Temperature	Temperature Difference(b)
1	Ice Bath	34	33	0.20
2	Inter-mediate	75	73	0.37
3	Boiling Water	212	212	0.00
4	Hot Oil	347	345	0.25

a = Type of calibration system used

b = $\frac{(\text{REF. TEMP. } +460)-(\text{THERMOCOUPLE TEMP. } +460)}{\text{ref. temp } + 460} \times 100 <= 1.5\%$

GEORGIA PACIFIC

PALATKA, FLORIDA

SUMMARY OF CO CALIBRATIONS - BLEACH PLANT

5/25/01 - 5/26/01

INSTRUMENT RANGE, PPM	1200			
CALIBRATION GAS PPM	INITIAL CALIBRATION	END RUN 1	END RUN 2	END RUN 3
0.0	12.0	12.0	11.3	10.8
1015.0	1016.4	1020.0	1032.5	1031.6
594.7	575.1	N/A	N/A	N/A
301.9	293.5	N/A	N/A	N/A
CALIBRATION ERROR		((INSTRUMENT RESPONSE-CALIBRATION GAS VALUE)/INSTRUMENT RANGE)X100		
0.0	1.0	1.0	0.9	0.9
1015.0	0.1	0.4	1.5	1.4
594.7	-1.6	N/A	N/A	N/A
301.9	-0.7	N/A	N/A	N/A
CALIBRATION DRIFT		((FINAL CALIBRATION - INITIAL CALIBRATION)/INSTRUMENT RANGE)X100		
0.0	N/A	0.0	-0.1	-0.1
1015.0	N/A	0.3	1.3	1.3
594.7	N/A	N/A	N/A	N/A

ZERO BIAS CHECKS		(SAMPLE SYSTEM-DIRECT)/RANGEX100	
SAMPLE ZERO	DIRECT ZERO	BIAS	
N/A	N/A	#VALUE! INITIAL	
N/A	N/A	#VALUE! FINAL	ALL CAL
CALIBRATION BIAS CHECKS			GASES INJECTED
CALIBRATION GAS, PPM	N/A		TO PROBE TIP ONLY
SAMPLE	DIRECT	BIAS	
N/A	N/A	#VALUE! INITIAL	
N/A	N/A	#VALUE! FINAL	

PRAXAIR

Praxair Distribution, Inc.
145 Shimersville Road
Bethlehem, PA 18015
Tel. (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER PRAXAIR SOUTHEAST **P.O NUMBER** 333045-00

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE 503.2PPM GMIS VS	1680B	CLM-009396	490.4 PPM

ANALYZER READINGS

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

COMPONENT CARBON MONOXIDE 503.2PPM GMIS **ANALYZER MAKE-MODEL-S/N** Siemens Ultramat SE S/N B8-900

ANALYTICAL PRINCIPLE NON-DISPERSIVE INFRARED **LAST CALIBRATION DATE** 12/31/00

FIRST ANALYSIS DATE 12/27/00 **SECOND ANALYSIS DATE** [illegible]

Z [illegible]	R 503	C 301	CONC. [illegible]	Z 0	R 504	C 302	CONC. [illegible]
R 502	Z 0	C 302	CONC. 302.3	R 504	Z 0	C 302	CONC. 301.5
Z 0	C 302	R 503	CONC. 302.3	Z 0	C 303	R 504	CONC. 302.3
U/M ppm		MEAN TEST ASSAY 302.0		U/M ppm		MEAN TEST ASSAY 301.9	

VALUES NOT VALID BELOW 150 PSIG
UNCERTAINTIY OF CARBON MONOXIDE +1.9PPM

THIS CYLINDER NO. CC114912 **CERTIFIED CONCENTRATION**

HAS BEEN CERTIFIED ACCORDING TO SECTION [illegible] CARBON MONOXIDE 301.9PPM

OF TRACEABILITY PROTOCOL NO. EPA 600/R97/121 AIR BALANCE

PROCEDURE G1

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 01/03/01

EXPIRATION DATE 01/03/04 TERM

ANALYZED BY JOHN FRIBISH *CERTIFIED BY* KEVIN BRADY

Praxair Distribution, Inc.
145 Shimersville Road
Bethlehem, PA 18015
Tel. (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER PRAXAIR SOUTHEAST **P.O NUMBER** 333045-00

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE 503.2PPM GMIS VS	1680B	CLM-009396	490.4 PPM

ANALYZER READINGS

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

1. **COMPONENT** CARBON MONOXIDE 503.2PPM GMI **ANALYZER MAKE-MODEL-S/N** Siemens Ultramat 5E S/N B8-900

ANALYTICAL PRINCIPLE NON-DISPERSIVE INFRARED **LAST CALIBRATION DATE** 12/31/00

FIRST ANALYSIS DATE 12/27/00 **SECOND ANALYSIS DATE** 01/03/01

Z 0	R 503	C 595	CONC. 595.6		Z 0	R 504	C 595	CONC. 594.1	
R 502	Z 0	C 595	CONC. 595.6		R 504	Z 0	C 595	CONC. 594.1	
Z 0	C 594	R 503	CONC. 594.6		Z 0	C 595	R 504	CONC. 594.1	
U/M ppm		MEAN TEST ASSAY	595.3		U/M ppm		MEAN TEST ASSAY	594.1	

VALUES NOT VALID BELOW 150 PSIG

UNCERTAINTIY OF CARBON MONOXIDE ±4.2PPM

THIS CYLINDER NO. SA12251

HAS BEEN CERTIFIED ACCORDING TO SECTION 2.0

OF TRACEABILITY PROTOCOL NO. EPA-600/R97/121

PROCEDURE G1

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 01/03/01

EXPIRATION DATE 01/03/04 TERM

CERTIFIED CONCENTRATION

CARBON MONOXIDE 594.1PPM

AIR BALANCE

ANALYZED BY *CERTIFIED BY*

JOHN PETERS

SPECTRA GASES
277 Coit St. • Irvington, NJ 07111 USA Tel.: (973) 372-2060 • (800) 932-0624 • Fax (973) 372-8551
Shipped From: 80 Industrial Drive • Alpha, N.J 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G2

CUSTOMER: Ambient Air Service
SGI ORDER # : 134478
ITEM# : 1
P.O.# : 07079802

CYLINDER # : CC88617
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 350

CERTIFICATION DATE: 7/8/98
EXPIRATION DATE: 7/8/2001

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	2/24/98 7/8/98	1014 ppm 1017 ppm	1015 ppm	+/- 1%

BALANCE Nitrogen

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	NTRM-81681	CC55775	994 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Horiba VIA-510	570423011	NDIR	6/29/98

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: _____
FRED PIKULA

DATE: 7/8/98

APPENDIX G

CARBON MONOXIDE EMISSIONS

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1015 ppm cal	CORRECTED PPM	FLOW, scfm-dry	POUNDS OF CO PER HOUR
5/25/01 18:46	1030.0	1015 ppm cal	10.98	1026.4			
5/25/01 18:46	1026.0	1015 ppm cal	10.98	1026.4			
5/25/01 18:46	1022.0	1015 ppm cal	10.98	1026.4			
5/25/01 18:46	1026.0	1015 ppm cal	10.98	1026.4			
5/25/01 18:47	1030.0	1015 ppm cal	10.98	1026.4			
5/25/01 18:47	1024.0	1015 ppm cal	10.98	1026.4			
5/25/01 18:47	1022.0	1015 ppm cal	10.98	1026.4			
5/25/01 18:47	1016.0	wet	10.98	1026.4			
5/25/01 18:48	923.8	wet	10.98	1026.4			
5/25/01 18:48	456.9	wet	10.98	1026.4			
5/25/01 18:48	144.2	wet	10.98	1026.4			
5/25/01 18:48	24.0	wet	10.98	1026.4			
5/25/01 18:49	14.0	wet	10.98	1026.4			
5/25/01 18:49	24.0	wet	10.98	1026.4			
5/25/01 18:49	56.1	wet	10.98	1026.4			
5/25/01 18:49	44.0	wet	10.98	1026.4			
5/25/01 18:50	18.0	wet	10.98	1026.4			
5/25/01 18:50	12.0	wet	10.98	1026.4			
5/25/01 18:50	12.0	wet	10.98	1026.4			
5/25/01 18:50	10.0	0 ppm cal	10.98	1026.4			
5/25/01 18:51	10.0	0 ppm cal	10.98	1026.4			
5/25/01 18:51	10.0	0 ppm cal	10.98	1026.4			
5/25/01 18:51	12.0	wet	10.98	1026.4			
5/25/01 18:51	16.0	wet	10.98	1026.4			
5/25/01 18:52	60.1	wet	10.98	1026.4			
5/25/01 18:52	154.3	wet	10.98	1026.4			
5/25/01 18:52	214.4	wet	10.98	1026.4			
5/25/01 18:52	270.5	wet	10.98	1026.4			
5/25/01 18:53	288.5	wet	10.98	1026.4			
5/25/01 18:53	292.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:53	294.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:53	294.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:54	292.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:54	292.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:54	294.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:54	294.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:55	292.5	301.9 ppm cal	10.98	1026.4			
5/25/01 18:55	286.5	wet	10.98	1026.4			
5/25/01 18:55	298.5	wet	10.98	1026.4			
5/25/01 18:55	440.8	wet	10.98	1026.4			
5/25/01 18:56	545.0	wet	10.98	1026.4			
5/25/01 18:56	575.1	wet	10.98	1026.4			
5/25/01 18:56	579.1	wet	10.98	1026.4			
5/25/01 18:56	581.1	594.7 ppm cal	10.98	1026.4			
5/25/01 18:57	583.1	594.7 ppm cal	10.98	1026.4			
5/25/01 18:57	583.1	594.7 ppm cal	10.98	1026.4			
5/25/01 18:57	581.1	594.7 ppm cal	10.98	1026.4			
5/25/01 18:57	581.1	594.7 ppm cal	10.98	1026.4			
5/25/01 18:58	581.1	594.7 ppm cal	10.98	1026.4			
5/25/01 18:58	581.1	594.7 ppm cal	10.98	1026.4			
5/25/01 18:58	643.2	wet	10.98	1026.4			
5/25/01 18:58	939.8	wet	10.98	1026.4			
5/25/01 18:59	1070.1	wet	10.98	1026.4			
5/25/01 18:59	1118.2	wet	10.98	1026.4			
5/25/01 21:37	12.0	0 ppm cal	11.982	1021.8			
5/25/01 21:37	12.0	0 ppm cal	11.982	1021.8			
5/25/01 21:38	12.0	0 ppm cal	11.982	1021.8			
5/25/01 21:38	12.0	0 ppm cal	11.982	1021.8			
5/25/01 21:38	12.0	0 ppm cal	11.982	1021.8			
5/25/01 21:38	12.0	0 ppm cal	11.982	1021.8			
5/25/01 21:39	12.0	0 ppm cal	11.982	1021.8			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1018 ppm cal	CORRECTED PPM	FLOW, scfm, dry	POUNDS OF CO PER HOUR
5/25/01 21:39	12.0	0 ppm cal	11.982	1021.9			
5/25/01 21:39	14.0	wait	11.982	1021.9			
5/25/01 21:39	212.4	wait	11.982	1021.9			
5/25/01 21:40	649.2	wait	11.982	1021.8			
5/25/01 21:40	959.9	wait	11.982	1021.8			
5/25/01 21:40	1010.0	wait	11.982	1021.9			
5/25/01 21:40	1014.0	1015 ppm cal	11.982	1021.9			
5/25/01 21:41	1018.0	1015 ppm cal	11.982	1021.9			
5/25/01 21:41	1016.0	1015 ppm cal	11.982	1021.9			
5/25/01 21:41	1012.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:41	1018.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:42	1020.0	1015 ppm cal	11.982	1021.9			
5/25/01 21:42	1014.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:42	1018.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:42	1018.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:43	1014.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:43	1020.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:43	1016.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:43	1014.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:44	1018.0	1015 ppm cal	11.982	1021.8			
5/25/01 21:44	1008.0	wait	11.982	1021.8			
5/25/01 21:44	933.8	wait	11.982	1021.9			
5/25/01 21:44	729.4	wait	11.982	1021.8			
5/25/01 21:45	611.2	wait	11.982	1021.8			
5/25/01 21:45	581.1	wait	11.982	1021.8			
5/25/01 21:45	575.1	594.7 ppm cal	11.982	1018.2			
5/25/01 21:45	575.1	594.7 ppm cal	11.982	1018.2			
5/25/01 21:46	577.1	594.7 ppm cal	11.982	1018.2			
5/25/01 21:46	575.1	594.7 ppm cal	11.982	1018.2			
5/25/01 21:46	577.1	594.7 ppm cal	11.982	1018.2			
5/25/01 21:46	573.1	594.7 ppm cal	11.982	1018.2			
5/25/01 21:47	573.1	594.7 ppm cal	11.982	1018.2			
5/25/01 21:47	581.1	wait	11.982	1018.2			
5/25/01 21:47	601.1	wait	11.982	1018.2			
5/25/01 21:47	675.3	wait	11.982	1018.2			
5/25/01 21:48	701.3	wait	11.982	1018.2			
5/25/01 21:48	713.4	wait	11.982	1018.2			
5/25/01 21:48	721.4	wait	11.982	1018.2			
5/25/01 21:48	723.4	wait	11.982	1018.2			
5/25/01 21:49	717.4	wait	11.982	1018.2			
5/25/01 21:49	717.4	wait	11.982	1018.2			
5/25/01 21:49	719.4	wait	11.982	1018.2			
5/25/01 21:49	719.4	wait	11.982	1018.2			
5/25/01 21:50	715.4	run 1	11.982	1018.2	709.5	14183	43.9
5/25/01 21:50	713.4	run 1	11.982	1018.2	707.5	14183	43.8
5/25/01 21:50	711.4	run 1	11.982	1018.2	705.5	14183	43.7
5/25/01 21:50	709.4	run 1	11.982	1018.2	703.5	14183	43.5
5/25/01 21:51	705.4	run 1	11.982	1018.2	699.4	14183	43.3
5/25/01 21:51	695.3	run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 21:51	695.3	run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 21:51	697.3	run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 21:52	687.3	run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 21:52	679.3	run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 21:52	683.3	run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 21:52	687.3	run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 21:53	687.3	run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 21:53	691.3	run 1	11.982	1018.2	685.3	14183	42.4
5/25/01 21:53	691.3	run 1	11.982	1018.2	685.3	14183	42.4
5/25/01 21:53	685.3	run 1	11.982	1018.2	679.2	14183	42.0
5/25/01 21:54	687.3	run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 21:54	683.3	run 1	11.982	1018.2	677.2	14183	41.9

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1018 ppm cal	CORRECTED PPM	FLOW, scfm, dry	POUNDS OF CO PER HOUR
5/25/01 21:54	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 21:54	669.3	Run 1	11.982	1018.2	663.3	14183	41.0
5/25/01 21:55	669.3	Run 1	11.982	1018.2	663.3	14183	41.0
5/25/01 21:55	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 21:55	673.3	Run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 21:55	665.3	Run 1	11.982	1018.2	659.0	14183	40.8
5/25/01 21:56	669.3	Run 1	11.982	1018.2	663.3	14183	41.0
5/25/01 21:56	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 21:56	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 21:56	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 21:57	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 21:57	673.3	Run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 21:57	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 21:57	663.3	Run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 21:58	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 21:58	663.3	Run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 21:58	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 21:58	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 21:59	661.3	Run 1	11.982	1018.2	655.0	14183	40.5
5/25/01 21:59	649.2	Run 1	11.982	1018.2	642.8	14183	39.8
5/25/01 21:59	633.2	Run 1	11.982	1018.2	626.7	14183	38.8
5/25/01 21:59	639.2	Run 1	11.982	1018.2	632.7	14183	39.1
5/25/01 22:00	647.2	Run 1	11.982	1018.2	640.8	14183	39.6
5/25/01 22:00	641.2	Run 1	11.982	1018.2	634.7	14183	39.3
5/25/01 22:00	639.2	Run 1	11.982	1018.2	632.7	14183	39.1
5/25/01 22:00	651.2	Run 1	11.982	1018.2	644.9	14183	39.9
5/25/01 22:01	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:01	657.3	Run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:01	665.3	Run 1	11.982	1018.2	659.0	14183	40.8
5/25/01 22:01	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:02	685.3	Run 1	11.982	1018.2	679.2	14183	42.0
5/25/01 22:02	693.3	Run 1	11.982	1018.2	687.3	14183	42.5
5/25/01 22:02	693.3	Run 1	11.982	1018.2	687.3	14183	42.5
5/25/01 22:02	691.3	Run 1	11.982	1018.2	685.3	14183	42.4
5/25/01 22:03	693.3	Run 1	11.982	1018.2	687.3	14183	42.5
5/25/01 22:03	697.3	Run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:03	697.3	Run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:03	705.4	Run 1	11.982	1018.2	699.4	14183	43.3
5/25/01 22:04	705.4	Run 1	11.982	1018.2	699.4	14183	43.3
5/25/01 22:04	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:04	685.3	Run 1	11.982	1018.2	679.2	14183	42.0
5/25/01 22:04	677.3	Run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:05	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:05	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:05	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:05	663.3	Run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 22:06	659.3	Run 1	11.982	1018.2	652.9	14183	40.4
5/25/01 22:06	657.3	Run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:06	651.2	Run 1	11.982	1018.2	644.9	14183	39.9
5/25/01 22:06	643.2	Run 1	11.982	1018.2	636.8	14183	39.4
5/25/01 22:07	647.2	Run 1	11.982	1018.2	640.8	14183	39.6
5/25/01 22:07	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:07	653.2	Run 1	11.982	1018.2	646.9	14183	40.0
5/25/01 22:07	651.2	Run 1	11.982	1018.2	644.9	14183	39.9
5/25/01 22:08	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:08	657.3	Run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:08	653.2	Run 1	11.982	1018.2	646.9	14183	40.0
5/25/01 22:08	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:09	663.3	Run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 22:09	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:09	665.3	Run 1	11.982	1018.2	659.0	14183	40.8

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1018 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/25/01 22:09	663.3	Run 1	11.982	1018.2	557.0	14183	40.6
5/25/01 22:10	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:10	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:10	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:10	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:11	683.3	Run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 22:11	677.3	Run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:11	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:11	677.3	Run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:12	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:12	661.3	Run 1	11.982	1018.2	655.0	14183	40.5
5/25/01 22:12	665.3	Run 1	11.982	1018.2	659.0	14183	40.8
5/25/01 22:12	665.3	Run 1	11.982	1018.2	659.0	14183	40.8
5/25/01 22:13	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:13	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:13	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:13	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:14	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:14	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:14	673.3	Run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 22:14	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:15	677.3	Run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:15	683.3	Run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 22:15	683.3	Run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 22:15	677.3	Run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:16	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:16	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:16	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:16	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:17	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:17	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:17	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:17	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:18	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:18	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:18	673.3	Run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 22:18	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:19	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:19	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:19	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:19	685.3	Run 1	11.982	1018.2	679.2	14183	42.0
5/25/01 22:20	685.3	Run 1	11.982	1018.2	679.2	14183	42.0
5/25/01 22:20	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:20	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:20	673.3	Run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 22:21	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:21	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:21	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:21	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:22	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:22	675.3	Run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:22	677.3	Run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:22	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:23	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:23	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:23	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:23	683.3	Run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 22:24	689.3	Run 1	11.982	1018.2	683.3	14183	42.3
5/25/01 22:24	693.3	Run 1	11.982	1018.2	687.3	14183	42.5
5/25/01 22:24	687.3	Run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 22:24	689.3	Run 1	11.982	1018.2	683.3	14183	42.3

Georgia Pacific Bleach Plant - Carbon Monoxide Test

Date - Time	PPM	COMMENTS	ZERO CAL	1018 ppm cal	CORRECTED PPM	FLOW, acfm-dry	POUNDS OF CO PER HOUR
5/25/01 22:25	687.3	Run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 22:25	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:25	685.3	Run 1	11.982	1018.2	679.2	14183	42.0
5/25/01 22:25	683.3	Run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 22:26	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:26	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:26	679.3	Run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:26	687.3	Run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 22:27	693.3	Run 1	11.982	1018.2	687.3	14183	42.5
5/25/01 22:27	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:27	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:27	697.3	Run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:28	699.3	Run 1	11.982	1018.2	693.4	14183	42.9
5/25/01 22:28	697.3	Run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:28	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:28	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:29	697.3	Run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:29	697.3	Run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:29	699.3	Run 1	11.982	1018.2	693.4	14183	42.9
5/25/01 22:29	709.4	Run 1	11.982	1018.2	703.5	14183	43.5
5/25/01 22:30	717.4	Run 1	11.982	1018.2	711.6	14183	44.0
5/25/01 22:30	711.4	Run 1	11.982	1018.2	705.5	14183	43.7
5/25/01 22:30	703.3	Run 1	11.982	1018.2	697.4	14183	43.2
5/25/01 22:30	701.3	Run 1	11.982	1018.2	695.4	14183	43.0
5/25/01 22:31	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:31	693.3	Run 1	11.982	1018.2	687.3	14183	42.5
5/25/01 22:31	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:31	697.3	Run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:32	695.3	Run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:32	693.3	Run 1	11.982	1018.2	687.3	14183	42.5
5/25/01 22:32	687.3	Run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 22:32	681.3	Run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:33	673.3	Run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 22:33	671.3	Run 1	11.982	1018.2	665.1	14183	41.2
5/25/01 22:33	669.3	Run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:33	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:34	647.2	Run 1	11.982	1018.2	640.8	14183	39.6
5/25/01 22:34	647.2	Run 1	11.982	1018.2	640.8	14183	39.6
5/25/01 22:34	641.2	Run 1	11.982	1018.2	634.7	14183	39.3
5/25/01 22:34	639.2	Run 1	11.982	1018.2	632.7	14183	39.1
5/25/01 22:35	639.2	Run 1	11.982	1018.2	632.7	14183	39.1
5/25/01 22:35	639.2	Run 1	11.982	1018.2	632.7	14183	39.1
5/25/01 22:35	641.2	Run 1	11.982	1018.2	634.7	14183	39.3
5/25/01 22:35	641.2	Run 1	11.982	1018.2	634.7	14183	39.3
5/25/01 22:36	647.2	Run 1	11.982	1018.2	640.8	14183	39.6
5/25/01 22:36	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:36	661.3	Run 1	11.982	1018.2	655.0	14183	40.5
5/25/01 22:36	665.3	Run 1	11.982	1018.2	659.0	14183	40.8
5/25/01 22:37	657.3	Run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:37	657.3	Run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:37	663.3	Run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 22:37	659.3	Run 1	11.982	1018.2	652.9	14183	40.4
5/25/01 22:38	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:38	663.3	Run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 22:38	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:38	667.3	Run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:39	661.3	Run 1	11.982	1018.2	655.0	14183	40.5
5/25/01 22:39	655.3	Run 1	11.982	1018.2	648.9	14183	40.1
5/25/01 22:39	657.3	Run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:39	661.3	Run 1	11.982	1018.2	655.0	14183	40.5
5/25/01 22:40	657.3	Run 1	11.982	1018.2	650.9	14183	40.3

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1015 ppm cal	CORRECTED PPM	FLOW, acfm-dry	POUNDS OF CO PER HOUR
5/25/01 22:40	657.3	run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:40	657.3	run 1	11.982	1018.2	650.9	14183	40.3
5/25/01 22:40	661.3	run 1	11.982	1018.2	655.0	14183	40.5
5/25/01 22:41	669.3	run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:41	673.3	run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 22:41	673.3	run 1	11.982	1018.2	667.1	14183	41.3
5/25/01 22:41	675.3	run 1	11.982	1018.2	669.1	14183	41.4
5/25/01 22:42	679.3	run 1	11.982	1018.2	673.2	14183	41.7
5/25/01 22:42	677.3	run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:42	669.3	run 1	11.982	1018.2	663.0	14183	41.0
5/25/01 22:42	663.3	run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 22:43	659.3	run 1	11.982	1018.2	652.9	14183	40.4
5/25/01 22:43	659.3	run 1	11.982	1018.2	652.9	14183	40.4
5/25/01 22:43	663.3	run 1	11.982	1018.2	657.0	14183	40.6
5/25/01 22:43	667.3	run 1	11.982	1018.2	661.0	14183	40.9
5/25/01 22:44	677.3	run 1	11.982	1018.2	671.1	14183	41.5
5/25/01 22:44	683.3	run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 22:44	683.3	run 1	11.982	1018.2	677.2	14183	41.9
5/25/01 22:44	681.3	run 1	11.982	1018.2	675.2	14183	41.8
5/25/01 22:45	685.3	run 1	11.982	1018.2	679.2	14183	42.0
5/25/01 22:45	697.3	run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:45	699.3	run 1	11.982	1018.2	693.4	14183	42.9
5/25/01 22:45	691.3	run 1	11.982	1018.2	685.3	14183	42.4
5/25/01 22:46	687.3	run 1	11.982	1018.2	681.2	14183	42.2
5/25/01 22:46	697.3	run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:46	703.3	run 1	11.982	1018.2	697.4	14183	43.2
5/25/01 22:46	701.3	run 1	11.982	1018.2	695.4	14183	43.0
5/25/01 22:47	699.3	run 1	11.982	1018.2	693.4	14183	42.9
5/25/01 22:47	701.3	run 1	11.982	1018.2	695.4	14183	43.0
5/25/01 22:47	703.3	run 1	11.982	1018.2	697.4	14183	43.2
5/25/01 22:47	705.4	run 1	11.982	1018.2	699.4	14183	43.3
5/25/01 22:48	705.4	run 1	11.982	1018.2	699.4	14183	43.3
5/25/01 22:48	701.3	run 1	11.982	1018.2	695.4	14183	43.0
5/25/01 22:48	695.3	run 1	11.982	1018.2	689.3	14183	42.7
5/25/01 22:48	697.3	run 1	11.982	1018.2	691.3	14183	42.8
5/25/01 22:49	705.4	run 1	11.982	1018.2	699.4	14183	43.3
5/25/01 22:49	703.3	run 1	11.982	1018.2	697.4	14183	43.2
5/25/01 22:49	699.3	run 1	11.982	1018.2	693.4	14183	42.9
5/25/01 22:49	705.4	run 1	11.982	1018.2	699.4	14183	43.3
5/25/01 22:50	711.4	wait	11.982	1018.2			
5/25/01 22:50	711.4	wait	11.982	1018.2			
5/25/01 22:50	711.4	wait	11.982	1018.2			
5/25/01 22:50	713.4	wait	11.982	1018.2			
5/25/01 22:51	701.3	wait	11.982	1018.2			
5/25/01 22:51	703.3	wait	11.982	1018.2			
5/25/01 22:51	701.3	wait	11.982	1018.2			
5/25/01 22:51	689.3	wait	11.982	1018.2			
5/25/01 22:52	757.5	wait	11.982	1018.2			
5/25/01 22:52	909.8	wait	11.982	1018.2			
5/25/01 22:52	993.9	wait	11.982	1018.2			
5/25/01 22:52	1014.0	wait	11.982	1018.2			
5/25/01 22:53	1016.0	1015 ppm cal	11.982	1018.2			
5/25/01 22:53	1016.0	1015 ppm cal	11.982	1018.2			
5/25/01 22:53	1016.0	1015 ppm cal	11.65	1026.2			
5/25/01 22:53	1016.0	1015 ppm cal	11.65	1026.2			
5/25/01 22:54	1016.0	1015 ppm cal	11.65	1026.2			
5/25/01 22:54	1014.0	wait	11.65	1026.2			
5/25/01 22:54	1010.0	wait	11.65	1026.2			
5/25/01 22:54	1012.0	wait	11.65	1026.2			
5/25/01 22:55	995.9	wait	11.65	1026.2			
5/25/01 22:55	863.7	wait	11.65	1026.2			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1010 ppm cal	CORRECTED PPM	FLOW, scfm, dry	POUNDS OF CO PER HOUR
5/25/01 22 55	679 3	wet	11 65	1026 2			
5/25/01 22 55	593 1	wet	11 65	1026 2			
5/25/01 22 56	581 1	594 7 ppm cal	11 65	1026 2			
5/25/01 22 56	581 1	594 7 ppm cal	11 65	1026 2			
5/25/01 22 56	579 1	594 7 ppm cal	11 65	1026 2			
5/25/01 22 56	577 1	594 7 ppm cal	11 65	1026 2			
5/25/01 22 57	577 1	594 7 ppm cal	11 65	1026 2			
5/25/01 22 57	577 1	594 7 ppm cal	11 65	1026 2			
5/25/01 22 57	490 9	wet	11 65	1026 2			
5/25/01 22 57	232 4	wet	11 65	1026 2			
5/25/01 22 58	60 1	wet	11 65	1026 2			
5/25/01 22 58	16 0	wet	11 65	1026 2			
5/25/01 22 58	12 0	0 ppm cal	11 65	1026 2			
5/25/01 22 58	12 0	0 ppm cal	11 65	1026 2			
5/25/01 22 59	12 0	0 ppm cal	11 65	1026 2			
5/25/01 22 59	12 0	0 ppm cal	11 65	1026 2			
5/25/01 22 59	12 0	0 ppm cal	11 65	1026 2			
5/25/01 22 59	12 0	0 ppm cal	11 65	1026 2			
5/25/01 23 00	12 0	0 ppm cal	11 65	1026 2			
5/25/01 23 00	12 0	0 ppm cal	11 65	1026 2			
5/25/01 23 00	12 0	0 ppm cal	11 65	1026 2			
5/25/01 23 00	82 1	wet	11 65	1026 2			
5/25/01 23 01	362 7	wet	11 65	1026 2			
5/25/01 23 01	613 2	wet	11 65	1026 2			
5/25/01 23 01	671 3	wet	11 65	1026 2			
5/25/01 23 01	671 3	wet	11 65	1026 2			
5/25/01 23 02	677 3	run 2	11 65	1026 2	665 9	14405	41 9
5/25/01 23 02	677 3	run 2	11 65	1026 2	665 9	14405	41 9
5/25/01 23 02	677 3	run 2	11 65	1026 2	665 9	14405	41 9
5/25/01 23 02	681 3	run 2	11 65	1026 2	669 9	14405	42 1
5/25/01 23 03	683 3	run 2	11 65	1026 2	671 9	14405	42 2
5/25/01 23 03	683 3	run 2	11 65	1026 2	671 9	14405	42 2
5/25/01 23 03	687 3	run 2	11 65	1026 2	675 9	14405	42 5
5/25/01 23 03	693 3	run 2	11 65	1026 2	682 0	14405	42 9
5/25/01 23 04	693 3	run 2	11 65	1026 2	682 0	14405	42 9
5/25/01 23 04	703 3	run 2	11 65	1026 2	692 0	14405	43 5
5/25/01 23 04	709 4	run 2	11 65	1026 2	698 0	14405	43 9
5/25/01 23 04	705 4	run 2	11 65	1026 2	694 0	14405	43 6
5/25/01 23 05	703 3	run 2	11 65	1026 2	692 0	14405	43 5
5/25/01 23 05	705 4	run 2	11 65	1026 2	694 0	14405	43 6
5/25/01 23 05	705 4	run 2	11 65	1026 2	694 0	14405	43 6
5/25/01 23 05	705 4	run 2	11 65	1026 2	694 0	14405	43 6
5/25/01 23 06	701 3	run 2	11 65	1026 2	690 0	14405	43 4
5/25/01 23 06	701.3	run 2	11 65	1026 2	690 0	14405	43 4
5/25/01 23 06	699 3	run 2	11 65	1026 2	688 0	14405	43 2
5/25/01 23 06	699 3	run 2	11 65	1026 2	688 0	14405	43 2
5/25/01 23 07	695 3	run 2	11 65	1026 2	684 0	14405	43 0
5/25/01 23 07	699 3	run 2	11 65	1026 2	688 0	14405	43 2
5/25/01 23 07	703 3	run 2	11 65	1026 2	692 0	14405	43 5
5/25/01 23 07	703 3	run 2	11 65	1026 2	692 0	14405	43 5
5/25/01 23 08	705 4	run 2	11 65	1026 2	694 0	14405	43 6
5/25/01 23 08	711 4	run 2	11 65	1026 2	700 0	14405	44 0
5/25/01 23 08	715 4	run 2	11 65	1026 2	704 0	14405	44 2
5/25/01 23 08	711 4	run 2	11 65	1026 2	700 0	14405	44 0
5/25/01 23 09	713 4	run 2	11 65	1026 2	702 0	14405	44 1
5/25/01 23 09	719 4	run 2	11 65	1026 2	708 0	14405	44 5
5/25/01 23 09	713 4	run 2	11 65	1026 2	702 0	14405	44 1
5/25/01 23 09	713 4	run 2	11 65	1026 2	702 0	14405	44 1
5/25/01 23 10	711 4	run 2	11 65	1026 2	700 0	14405	44 0
5/25/01 23 10	705 4	run 2	11 65	1026 2	694 0	14405	43 6
5/25/01 23 10	705 4	run 2	11 65	1026 2	698 0	14405	43 9

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1015 ppm cal	CORRECTED PPM	FLOW, scfm-dry	POUNDS OF CO PER HOUR
5/25/01 23:10	707.4	Run 2	11.65	1026.2	696.0	14406	43.7
5/25/01 23:11	705.4	Run 2	11.65	1026.2	694.0	14406	43.6
5/25/01 23:11	707.4	Run 2	11.65	1026.2	696.0	14406	43.7
5/25/01 23:11	707.4	Run 2	11.65	1026.2	696.0	14406	43.7
5/25/01 23:11	703.3	Run 2	11.65	1026.2	692.0	14406	43.5
5/25/01 23:12	701.3	Run 2	11.65	1026.2	690.0	14406	43.4
5/25/01 23:12	705.4	Run 2	11.65	1026.2	694.0	14406	43.6
5/25/01 23:12	705.4	Run 2	11.65	1026.2	694.0	14406	43.6
5/25/01 23:12	701.3	Run 2	11.65	1026.2	690.0	14406	43.4
5/25/01 23:13	703.3	Run 2	11.65	1026.2	692.0	14406	43.5
5/25/01 23:13	699.3	Run 2	11.65	1026.2	688.0	14406	43.2
5/25/01 23:13	697.3	Run 2	11.65	1026.2	686.0	14406	43.1
5/25/01 23:13	701.3	Run 2	11.65	1026.2	690.0	14406	43.4
5/25/01 23:14	699.3	Run 2	11.65	1026.2	688.0	14406	43.2
5/25/01 23:14	699.3	Run 2	11.65	1026.2	688.0	14406	43.2
5/25/01 23:14	701.3	Run 2	11.65	1026.2	690.0	14406	43.4
5/25/01 23:14	701.3	Run 2	11.65	1026.2	690.0	14406	43.4
5/25/01 23:15	703.3	Run 2	11.65	1026.2	692.0	14406	43.5
5/25/01 23:15	699.3	Run 2	11.65	1026.2	688.0	14406	43.2
5/25/01 23:15	695.3	Run 2	11.65	1026.2	684.0	14406	43.0
5/25/01 23:15	695.3	Run 2	11.65	1026.2	684.0	14406	43.0
5/25/01 23:16	703.3	Run 2	11.65	1026.2	692.0	14406	43.5
5/25/01 23:16	706.4	Run 2	11.65	1026.2	694.0	14406	43.5
5/25/01 23:16	713.4	Run 2	11.65	1026.2	702.0	14406	44.1
5/25/01 23:16	723.4	Run 2	11.65	1026.2	712.0	14406	44.7
5/25/01 23:17	725.4	Run 2	11.65	1026.2	714.0	14406	44.9
5/25/01 23:17	729.4	Run 2	11.65	1026.2	718.0	14406	45.1
5/25/01 23:17	731.4	Run 2	11.65	1026.2	720.1	14406	45.3
5/25/01 23:17	737.4	Run 2	11.65	1026.2	726.1	14406	45.6
5/25/01 23:18	737.4	Run 2	11.65	1026.2	726.1	14406	45.6
5/25/01 23:18	737.4	Run 2	11.65	1026.2	726.1	14406	45.6
5/25/01 23:18	733.4	Run 2	11.65	1026.2	722.1	14406	45.4
5/25/01 23:18	737.4	Run 2	11.65	1026.2	726.1	14406	45.6
5/25/01 23:19	733.4	Run 2	11.65	1026.2	722.1	14406	45.4
5/25/01 23:19	727.4	Run 2	11.65	1026.2	716.0	14406	45.0
5/25/01 23:19	725.4	Run 2	11.65	1026.2	714.0	14406	44.9
5/25/01 23:19	725.4	Run 2	11.65	1026.2	714.0	14406	44.9
5/25/01 23:20	731.4	Run 2	11.65	1026.2	720.1	14406	45.3
5/25/01 23:20	725.4	Run 2	11.65	1026.2	714.0	14406	44.9
5/25/01 23:20	719.4	Run 2	11.65	1026.2	708.0	14406	44.5
5/25/01 23:20	721.4	Run 2	11.65	1026.2	710.0	14406	44.6
5/25/01 23:21	723.4	Run 2	11.65	1026.2	712.0	14406	44.7
5/25/01 23:21	725.4	Run 2	11.65	1026.2	714.0	14406	44.9
5/25/01 23:21	727.4	Run 2	11.65	1026.2	716.0	14406	45.0
5/25/01 23:21	723.4	Run 2	11.65	1026.2	712.0	14406	44.7
5/25/01 23:22	721.4	Run 2	11.65	1026.2	710.0	14406	44.6
5/25/01 23:22	725.4	Run 2	11.65	1026.2	714.0	14406	44.9
5/25/01 23:22	721.4	Run 2	11.65	1026.2	710.0	14406	44.6
5/25/01 23:22	717.4	Run 2	11.65	1026.2	706.0	14406	44.4
5/25/01 23:23	719.4	Run 2	11.65	1026.2	708.0	14406	44.5
5/25/01 23:23	723.4	Run 2	11.65	1026.2	712.0	14406	44.7
5/25/01 23:23	725.4	Run 2	11.65	1026.2	714.0	14406	44.9
5/25/01 23:23	731.4	Run 2	11.65	1026.2	720.1	14406	45.3
5/25/01 23:24	727.4	Run 2	11.65	1026.2	716.0	14406	45.0
5/25/01 23:24	735.4	Run 2	11.65	1026.2	724.1	14406	45.5
5/25/01 23:24	759.5	Run 2	11.65	1026.2	748.1	14406	47.0
5/25/01 23:24	767.5	Run 2	11.65	1026.2	756.1	14406	47.5
5/25/01 23:25	767.5	Run 2	11.65	1026.2	756.1	14406	47.5
5/25/01 23:25	761.5	Run 2	11.65	1026.2	750.1	14406	47.1
5/25/01 23:25	759.5	Run 2	11.65	1026.2	748.1	14406	47.0
5/25/01 23:25	761.5	Run 2	11.65	1026.2	750.1	14406	47.1

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1010 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/25/01 23:26	763.5	run 2	11.65	1026.2	752.1	14406	47.3
5/25/01 23:26	763.5	run 2	11.65	1026.2	752.1	14406	47.3
5/25/01 23:26	759.5	run 2	11.65	1026.2	748.1	14406	47.0
5/25/01 23:26	753.4	run 2	11.65	1026.2	742.1	14406	46.6
5/25/01 23:27	753.4	run 2	11.65	1026.2	742.1	14406	46.6
5/25/01 23:27	759.5	run 2	11.65	1026.2	748.1	14406	47.0
5/25/01 23:27	763.5	run 2	11.65	1026.2	752.1	14406	47.3
5/25/01 23:27	759.5	run 2	11.65	1026.2	748.1	14406	47.0
5/25/01 23:28	759.5	run 2	11.65	1026.2	748.1	14406	47.0
5/25/01 23:28	761.5	run 2	11.65	1026.2	750.1	14406	47.1
5/25/01 23:28	761.5	run 2	11.65	1026.2	750.1	14406	47.1
5/25/01 23:28	763.5	run 2	11.65	1026.2	752.1	14406	47.3
5/25/01 23:29	767.5	run 2	11.65	1026.2	756.1	14406	47.5
5/25/01 23:29	777.5	run 2	11.65	1026.2	766.2	14406	48.2
5/25/01 23:29	783.5	run 2	11.65	1026.2	772.2	14406	48.5
5/25/01 23:29	775.5	run 2	11.65	1026.2	764.2	14406	48.0
5/25/01 23:30	767.5	run 2	11.65	1026.2	756.1	14406	47.5
5/25/01 23:30	767.5	run 2	11.65	1026.2	756.1	14406	47.5
5/25/01 23:30	769.5	run 2	11.65	1026.2	758.1	14406	47.6
5/25/01 23:30	775.5	run 2	11.65	1026.2	764.2	14406	48.0
5/25/01 23:31	793.5	run 2	11.65	1026.2	782.2	14406	49.2
5/25/01 23:31	801.5	run 2	11.65	1026.2	790.2	14406	49.7
5/25/01 23:31	797.5	run 2	11.65	1026.2	786.2	14406	49.4
5/25/01 23:31	793.5	run 2	11.65	1026.2	782.2	14406	49.2
5/25/01 23:32	787.5	run 2	11.65	1026.2	776.2	14406	48.8
5/25/01 23:32	785.5	run 2	11.65	1026.2	774.2	14406	48.7
5/25/01 23:32	783.5	run 2	11.65	1026.2	772.2	14406	48.5
5/25/01 23:32	779.5	run 2	11.65	1026.2	768.2	14406	48.3
5/25/01 23:33	781.5	run 2	11.65	1026.2	770.2	14406	48.4
5/25/01 23:33	785.5	run 2	11.65	1026.2	774.2	14406	48.7
5/25/01 23:33	781.5	run 2	11.65	1026.2	770.2	14406	48.4
5/25/01 23:33	781.5	run 2	11.65	1026.2	770.2	14406	48.4
5/25/01 23:34	787.5	run 2	11.65	1026.2	776.2	14406	48.8
5/25/01 23:34	791.5	run 2	11.65	1026.2	780.2	14406	49.0
5/25/01 23:34	795.5	run 2	11.65	1026.2	784.2	14406	49.3
5/25/01 23:34	799.5	run 2	11.65	1026.2	788.2	14406	49.5
5/25/01 23:35	803.5	run 2	11.65	1026.2	792.2	14406	49.8
5/25/01 23:35	803.5	run 2	11.65	1026.2	792.2	14406	49.8
5/25/01 23:35	809.6	run 2	11.65	1026.2	798.2	14406	50.2
5/25/01 23:35	811.6	run 2	11.65	1026.2	800.2	14406	50.3
5/25/01 23:36	795.5	run 2	11.65	1026.2	784.2	14406	49.3
5/25/01 23:36	789.5	run 2	11.65	1026.2	778.2	14406	48.9
5/25/01 23:36	811.6	run 2	11.65	1026.2	800.2	14406	50.3
5/25/01 23:36	831.6	run 2	11.65	1026.2	820.3	14406	51.6
5/25/01 23:37	847.6	run 2	11.65	1026.2	836.3	14406	52.6
5/25/01 23:37	851.6	run 2	11.65	1026.2	840.3	14406	52.8
5/25/01 23:37	847.6	run 2	11.65	1026.2	836.3	14406	52.6
5/25/01 23:37	847.6	run 2	11.65	1026.2	836.3	14406	52.6
5/25/01 23:38	853.6	run 2	11.65	1026.2	842.3	14406	52.9
5/25/01 23:38	871.7	run 2	11.65	1026.2	860.4	14406	54.1
5/25/01 23:38	883.7	run 2	11.65	1026.2	872.4	14406	54.8
5/25/01 23:38	879.7	run 2	11.65	1026.2	868.4	14406	54.6
5/25/01 23:39	869.7	run 2	11.65	1026.2	858.4	14406	53.9
5/25/01 23:39	869.7	run 2	11.65	1026.2	858.4	14406	53.9
5/25/01 23:39	875.7	run 2	11.65	1026.2	864.4	14406	54.3
5/25/01 23:39	869.7	run 2	11.65	1026.2	858.4	14406	53.9
5/25/01 23:40	859.7	run 2	11.65	1026.2	848.4	14406	53.3
5/25/01 23:40	859.7	run 2	11.65	1026.2	848.4	14406	53.3
5/25/01 23:40	855.6	run 2	11.65	1026.2	844.3	14406	53.1
5/25/01 23:40	855.6	run 2	11.65	1026.2	844.3	14406	53.1
5/25/01 23:41	851.5	run 2	11.65	1026.2	840.3	14406	52.8

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1010 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/25/01 23 41	847 6	Run 2	11 65	1026 2	836 3	14406	52 6
5/25/01 23 41	851 6	Run 2	11 65	1026 2	840 3	14406	52 8
5/25/01 23 41	851 6	Run 2	11 65	1026 2	840 3	14406	52 8
5/25/01 23 42	849 6	Run 2	11 65	1026 2	838 3	14406	52 7
5/25/01 23 42	853 6	Run 2	11 65	1026 2	842 3	14406	52 9
5/25/01 23 42	859 7	Run 2	11 55	1026 2	848 4	14406	53 3
5/25/01 23 42	857 7	Run 2	11 65	1026 2	846 4	14406	53 2
5/25/01 23 43	851 6	Run 2	11 65	1026 2	840 3	14406	52 8
5/25/01 23 43	853 6	Run 2	11 55	1026 2	842 3	14406	52 9
5/25/01 23 43	853 6	Run 2	11 65	1026 2	842 3	14406	52 9
5/25/01 23 43	849 6	Run 2	11 65	1026 2	838 3	14406	52 7
5/25/01 23 44	851 6	Run 2	11 65	1026 2	840 3	14406	52 8
5/25/01 23 44	857 7	Run 2	11 65	1026 2	846 4	14406	53 2
5/25/01 23 44	869 7	Run 2	11 65	1026 2	858 4	14406	53 9
5/25/01 23 44	885 7	Run 2	11 55	1026 2	874 4	14406	55 0
5/25/01 23 45	895 7	Run 2	11 65	1026 2	884 4	14406	55 6
5/25/01 23 45	889 7	Run 2	11 65	1026 2	878 4	14406	55 2
5/25/01 23 45	885 7	Run 2	11 65	1026 2	874 4	14406	55 0
5/25/01 23 45	889 7	Run 2	11 65	1026 2	878 4	14406	55 2
5/25/01 23 46	879 7	Run 2	11 65	1026 2	868 4	14406	54 6
5/25/01 23 46	857 7	Run 2	11 65	1026 2	846 4	14406	53 2
5/25/01 23 46	839 6	Run 2	11 65	1026 2	828 3	14406	52 1
5/25/01 23 46	837 6	Run 2	11 55	1026 2	826 3	14406	51 9
5/25/01 23 47	835 6	Run 2	11 65	1026 2	824 3	14406	51 8
5/25/01 23 47	835 6	Run 2	11 65	1026 2	824 3	14406	51 8
5/25/01 23 47	831 6	Run 2	11 65	1026 2	820 3	14406	51 6
5/25/01 23 47	825 6	Run 2	11 65	1026 2	814 3	14406	51 2
5/25/01 23 48	825 6	Run 2	11 65	1026 2	814 3	14406	51 2
5/25/01 23 48	829 6	Run 2	11 66	1026 2	818 3	14406	51 4
5/25/01 23 48	829 6	Run 2	11 66	1026 2	818 3	14406	51 4
5/25/01 23 48	829 6	Run 2	11 66	1026 2	818 3	14406	51 4
5/25/01 23 49	829 6	Run 2	11 65	1026 2	818 3	14406	51 4
5/25/01 23 49	829 6	Run 2	11 66	1026 2	818 3	14406	51 4
5/25/01 23 49	833 6	Run 2	11 65	1026 2	822 3	14406	51 7
5/25/01 23 49	839 6	Run 2	11 66	1026 2	828 3	14406	52 1
5/25/01 23 50	833 6	Run 2	11 65	1026 2	822 3	14406	51 7
5/25/01 23 50	823 6	Run 2	11 66	1026 2	812 3	14406	51 0
5/25/01 23 50	823 6	Run 2	11 66	1026 2	812 3	14406	51 0
5/25/01 23 50	827 6	Run 2	11 66	1026 2	816 3	14406	51 3
5/25/01 23 51	825 6	Run 2	11 65	1026 2	814 3	14406	51 2
5/25/01 23 51	829 6	Run 2	11 66	1026 2	818 3	14406	51 4
5/25/01 23 51	829 6	Run 2	11 66	1026 2	818 3	14406	51 4
5/25/01 23 51	827 6	Run 2	11 65	1026 2	816 3	14406	51 3
5/25/01 23 52	829 6	Run 2	11 65	1026 2	818 3	14406	51 4
5/25/01 23 52	831 6	Run 2	11 65	1026 2	820 3	14406	51 6
5/25/01 23 52	829 6	Run 2	11 66	1026 2	818 3	14406	51 4
5/25/01 23 52	823 6	Run 2	11 65	1026 2	812 3	14406	51 0
5/25/01 23 53	815 6	Run 2	11 65	1026 2	804 3	14406	50 5
5/25/01 23 53	813 6	Run 2	11 66	1026 2	802 2	14406	50 4
5/25/01 23 53	813 6	Run 2	11 66	1026 2	802 2	14406	50 4
5/25/01 23 53	811 5	Run 2	11 66	1026 2	800 2	14406	50 3
5/25/01 23 54	809 6	Run 2	11 55	1026 2	798 2	14406	50 2
5/25/01 23 54	811 6	Run 2	11 65	1026 2	800 2	14406	50 3
5/25/01 23 54	815 6	Run 2	11 65	1026 2	804 3	14406	50 5
5/25/01 23 54	817 6	Run 2	11 55	1026 2	806 3	14406	50 7
5/25/01 23 55	813 6	Run 2	11 55	1026 2	802 2	14406	50 4
5/25/01 23 55	809 6	Run 2	11 55	1026 2	798 2	14406	50 2
5/25/01 23 55	805 5	Run 2	11 55	1026 2	794 2	14406	49 9
5/25/01 23 55	803 5	Run 2	11 55	1026 2	792 2	14406	49 8
5/25/01 23 56	809 6	Run 2	11 65	1026 2	798 2	14406	50 2
5/25/01 23 56	815 6	Run 2	11 65	1026 2	804 3	14406	50 5

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE - TIME	PPM	COMMENTS	ZERO CAL	1015 ppm cal	CORRECTED PPM	FLOW, acfm, dry	POUNDS OF CO PER HOUR
5/25/01 23:56	815.6	run 2	11.65	1026.2	804.3	14406	50.5
5/25/01 23:56	815.6	run 2	11.65	1026.2	804.3	14406	50.5
5/25/01 23:57	821.6	run 2	11.65	1026.2	810.3	14406	50.9
5/25/01 23:57	829.6	run 2	11.65	1026.2	818.3	14406	51.4
5/25/01 23:57	835.6	run 2	11.65	1026.2	824.3	14406	51.8
5/25/01 23:57	837.6	run 2	11.65	1026.2	826.3	14406	51.9
5/25/01 23:58	833.6	run 2	11.65	1026.2	822.3	14406	51.7
5/25/01 23:58	829.6	run 2	11.65	1026.2	818.3	14406	51.4
5/25/01 23:58	827.6	run 2	11.65	1026.2	816.3	14406	51.3
5/25/01 23:58	829.6	run 2	11.65	1026.2	818.3	14406	51.4
5/25/01 23:59	825.6	run 2	11.65	1026.2	814.3	14406	51.2
5/25/01 23:59	815.6	run 2	11.65	1026.2	804.3	14406	50.5
5/25/01 23:59	805.6	run 2	11.65	1026.2	794.2	14406	49.9
5/25/01 23:59	801.5	run 2	11.65	1026.2	790.2	14406	49.7
5/26/01 0:00	799.5	run 2	11.65	1026.2	788.2	14406	49.5
5/26/01 0:00	803.5	run 2	11.65	1026.2	792.2	14406	49.8
5/26/01 0:00	803.5	run 2	11.65	1026.2	792.2	14406	49.8
5/26/01 0:00	805.6	run 2	11.65	1026.2	794.2	14406	49.9
5/26/01 0:01	805.6	run 2	11.65	1026.2	794.2	14406	49.9
5/26/01 0:01	805.6	run 2	11.65	1026.2	794.2	14406	49.9
5/26/01 0:01	815.6	run 2	11.65	1026.2	804.3	14406	50.5
5/26/01 0:01	829.6	run 2	11.65	1026.2	818.3	14406	51.4
5/26/01 0:02	823.6	wait	11.65	1026.2			
5/26/01 0:02	815.6	wait	11.65	1026.2			
5/26/01 0:02	789.5	wait	11.65	1026.2			
5/26/01 0:02	739.4	wait	11.65	1026.2			
5/26/01 0:03	887.7	wait	11.65	1026.2			
5/26/01 0:03	1597.1	wait	11.65	1026.2			
5/26/01 0:03	1959.8	wait	11.65	1026.2			
5/26/01 0:03	1959.8	wait	11.65	1026.2			
5/26/01 0:04	1362.7	wait	11.65	1026.2			
5/26/01 0:04	478.9	wait	11.65	1026.2			
5/26/01 0:04	66.1	wait	11.65	1026.2			
5/26/01 0:04	18.0	wait	11.65	1026.2			
5/26/01 0:05	12.0	0 ppm cal	11.65	1026.2			
5/26/01 0:05	12.0	0 ppm cal	11.65	1026.2			
5/26/01 0:05	12.0	0 ppm cal	11.65	1026.2			
5/26/01 0:06	10.0	0 ppm cal	11.65	1026.2			
5/26/01 0:06	10.0	0 ppm cal	11.65	1026.2			
5/26/01 0:06	12.0	0 ppm cal	11.65	1026.2			
5/26/01 0:06	16.0	wait	11.65	1026.2			
5/26/01 0:06	128.2	wait	11.65	1026.2			
5/26/01 0:07	595.1	wait	11.65	1026.2			
5/26/01 0:07	909.8	wait	11.65	1026.2			
5/26/01 0:07	1030.0	1015 ppm cal	11.65	1026.2			
5/26/01 0:07	1038.0	1015 ppm cal	11.65	1026.2			
5/26/01 0:08	1036.0	1015 ppm cal	11.65	1026.2			
5/26/01 0:08	1026.0	1015 ppm cal	11.65	1026.2			
5/26/01 0:08	935.8	wait	11.047	1032.0			
5/26/01 0:08	765.5	wait	11.047	1032.0			
5/26/01 0:09	635.2	wait	11.047	1032.0			
5/26/01 0:09	607.2	wait	11.047	1032.0			
5/26/01 0:09	603.2	wait	11.047	1032.0			
5/26/01 0:09	601.1	wait	11.047	1032.0			
5/26/01 0:10	601.1	wait	11.047	1032.0			
5/26/01 0:10	595.1	wait	11.047	1032.0			
5/26/01 0:10	657.3	wait	11.047	1032.0			
5/26/01 0:10	725.4	wait	11.047	1032.0			
5/26/01 0:11	805.6	wait	11.047	1032.0			
5/26/01 0:11	835.6	wait	11.047	1032.0			
5/26/01 0:11	845.6	wait	11.047	1032.0			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1019 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/26/01 0:11	847.6	wait	11.047	1032.0			
5/26/01 0:12	845.6	run 3a	11.047	1032.0	829.7	14331	51.9
5/26/01 0:12	841.6	run 3a	11.047	1032.0	825.7	14331	51.6
5/26/01 0:12	845.6	run 3a	11.047	1032.0	829.7	14331	51.9
5/26/01 0:12	851.6	run 3a	11.047	1032.0	835.7	14331	52.2
5/26/01 0:13	857.7	run 3a	11.047	1032.0	841.8	14331	52.6
5/26/01 0:13	853.6	run 3a	11.047	1032.0	837.8	14331	52.4
5/26/01 0:13	847.6	run 3a	11.047	1032.0	831.7	14331	52.0
5/26/01 0:13	845.6	run 3a	11.047	1032.0	829.7	14331	51.9
5/26/01 0:14	843.6	run 3a	11.047	1032.0	827.7	14331	51.7
5/26/01 0:14	843.6	run 3a	11.047	1032.0	827.7	14331	51.7
5/26/01 0:14	845.6	run 3a	11.047	1032.0	829.7	14331	51.9
5/26/01 0:14	849.6	run 3a	11.047	1032.0	833.7	14331	52.1
5/26/01 0:15	851.6	run 3a	11.047	1032.0	835.7	14331	52.2
5/26/01 0:15	849.6	run 3a	11.047	1032.0	833.7	14331	52.1
5/26/01 0:15	845.6	run 3a	11.047	1032.0	829.7	14331	51.9
5/26/01 0:15	847.6	run 3a	11.047	1032.0	831.7	14331	52.0
5/26/01 0:16	853.6	run 3a	11.047	1032.0	837.8	14331	52.4
5/26/01 0:16	855.6	run 3a	11.047	1032.0	839.8	14331	52.5
5/26/01 0:16	849.6	run 3a	11.047	1032.0	833.7	14331	52.1
5/26/01 0:16	853.6	run 3a	11.047	1032.0	837.8	14331	52.4
5/26/01 0:17	871.7	run 3a	11.047	1032.0	855.8	14331	53.5
5/26/01 0:17	871.7	run 3a	11.047	1032.0	855.8	14331	53.5
5/26/01 0:17	869.7	run 3a	11.047	1032.0	853.8	14331	53.4
5/26/01 0:17	869.7	run 3a	11.047	1032.0	853.8	14331	53.4
5/26/01 0:18	865.7	run 3a	11.047	1032.0	849.8	14331	53.1
5/26/01 0:18	867.7	run 3a	11.047	1032.0	851.8	14331	53.2
5/26/01 0:18	875.7	run 3a	11.047	1032.0	859.8	14331	53.7
5/26/01 0:18	873.7	run 3a	11.047	1032.0	857.8	14331	53.6
5/26/01 0:19	861.7	run 3a	11.047	1032.0	845.8	14331	52.9
5/26/01 0:19	857.7	run 3a	11.047	1032.0	841.8	14331	52.6
5/26/01 0:19	861.7	run 3a	11.047	1032.0	845.8	14331	52.9
5/26/01 0:19	861.7	run 3a	11.047	1032.0	845.8	14331	52.9
5/26/01 0:20	863.7	run 3a	11.047	1032.0	847.8	14331	53.0
5/26/01 0:20	869.7	run 3a	11.047	1032.0	853.8	14331	53.4
5/26/01 0:20	869.7	run 3a	11.047	1032.0	853.8	14331	53.4
5/26/01 0:20	869.7	run 3a	11.047	1032.0	853.8	14331	53.4
5/26/01 0:21	865.7	run 3a	11.047	1032.0	849.8	14331	53.1
5/26/01 0:21	863.7	run 3a	11.047	1032.0	847.8	14331	53.0
5/26/01 0:21	871.7	run 3a	11.047	1032.0	855.8	14331	53.5
5/26/01 0:21	877.7	run 3a	11.047	1032.0	861.8	14331	53.9
5/26/01 0:22	879.7	run 3a	11.047	1032.0	863.8	14331	54.0
5/26/01 0:22	877.7	run 3a	11.047	1032.0	861.8	14331	53.9
5/26/01 0:22	883.7	run 3a	11.047	1032.0	867.8	14331	54.2
5/26/01 0:22	887.7	run 3a	11.047	1032.0	871.8	14331	54.5
5/26/01 0:23	881.7	run 3a	11.047	1032.0	865.8	14331	54.1
5/26/01 0:23	877.7	run 3a	11.047	1032.0	861.8	14331	53.9
5/26/01 0:23	879.7	run 3a	11.047	1032.0	863.8	14331	54.0
5/26/01 0:23	881.7	run 3a	11.047	1032.0	865.8	14331	54.1
5/26/01 0:24	887.7	run 3a	11.047	1032.0	871.8	14331	54.5
5/26/01 0:24	891.7	run 3a	11.047	1032.0	875.8	14331	54.7
5/26/01 0:24	891.7	run 3a	11.047	1032.0	875.8	14331	54.7
5/26/01 0:24	895.7	run 3a	11.047	1032.0	879.8	14331	55.0
5/26/01 0:25	917.8	run 3a	11.047	1032.0	901.9	14331	56.4
5/26/01 0:25	913.8	run 3a	11.047	1032.0	897.9	14331	56.1
5/26/01 0:25	901.7	run 3a	11.047	1032.0	885.8	14331	55.4
5/26/01 0:25	893.7	run 3a	11.047	1032.0	877.8	14331	54.9
5/26/01 0:26	899.7	run 3a	11.047	1032.0	883.8	14331	55.2
5/26/01 0:26	905.7	run 3a	11.047	1032.0	889.9	14331	55.6
5/26/01 0:26	899.7	run 3a	11.047	1032.0	883.8	14331	55.2
5/26/01 0:26	899.7	run 3a	11.047	1032.0	883.8	14331	55.2

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1010 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/26/01 0:27	893.7	run 3a	11:047	1032.0	877.5	14331	54.9
5/26/01 0:27	887.7	run 3a	11:047	1032.0	871.5	14331	54.5
5/26/01 0:27	891.7	run 3a	11:047	1032.0	875.5	14331	54.7
5/26/01 0:27	895.7	run 3a	11:047	1032.0	879.5	14331	55.0
5/26/01 0:28	893.7	run 3a	11:047	1032.0	877.5	14331	54.9
5/26/01 0:28	889.7	run 3a	11:047	1032.0	873.5	14331	54.6
5/26/01 0:28	887.7	run 3a	11:047	1032.0	871.5	14331	54.5
5/26/01 0:28	889.7	run 3a	11:047	1032.0	873.5	14331	54.6
5/26/01 0:29	889.7	run 3a	11:047	1032.0	873.5	14331	54.6
5/26/01 0:29	891.7	run 3a	11:047	1032.0	875.5	14331	54.7
5/26/01 0:29	887.7	run 3a	11:047	1032.0	871.5	14331	54.5
5/26/01 0:29	881.7	run 3a	11:047	1032.0	865.5	14331	54.1
5/26/01 0:30	877.7	run 3a	11:047	1032.0	861.6	14331	53.9
5/26/01 0:30	877.7	run 3a	11:047	1032.0	861.6	14331	53.9
5/26/01 0:30	885.7	run 3a	11:047	1032.0	869.5	14331	54.4
5/26/01 0:30	891.7	run 3a	11:047	1032.0	875.5	14331	54.7
5/26/01 0:31	885.7	run 3a	11:047	1032.0	869.5	14331	54.4
5/26/01 0:31	887.7	run 3a	11:047	1032.0	871.5	14331	54.5
5/26/01 0:31	887.7	run 3a	11:047	1032.0	871.5	14331	54.5
5/26/01 0:31	877.7	run 3a	11:047	1032.0	861.6	14331	53.9
5/26/01 0:32	883.7	run 3a	11:047	1032.0	867.5	14331	54.2
5/26/01 0:32	889.7	run 3a	11:047	1032.0	873.5	14331	54.6
5/26/01 0:32	883.7	run 3a	11:047	1032.0	867.5	14331	54.2
5/26/01 0:32	875.7	run 3a	11:047	1032.0	859.6	14331	53.7
5/26/01 0:33	871.7	run 3a	11:047	1032.0	855.6	14331	53.5
5/26/01 0:33	869.7	run 3a	11:047	1032.0	853.6	14331	53.4
5/26/01 0:33	867.7	run 3a	11:047	1032.0	851.6	14331	53.2
5/26/01 0:33	871.7	run 3a	11:047	1032.0	855.6	14331	53.5
5/26/01 0:34	873.7	run 3a	11:047	1032.0	857.6	14331	53.6
5/26/01 0:34	879.7	run 3a	11:047	1032.0	863.5	14331	54.0
5/26/01 0:34	883.7	run 3a	11:047	1032.0	867.5	14331	54.2
5/26/01 0:34	879.7	run 3a	11:047	1032.0	863.5	14331	54.0
5/26/01 0:35	877.7	run 3a	11:047	1032.0	861.6	14331	53.9
5/26/01 0:35	879.7	run 3a	11:047	1032.0	863.5	14331	54.0
5/26/01 0:35	879.7	run 3a	11:047	1032.0	863.5	14331	54.0
5/26/01 0:35	873.7	run 3a	11:047	1032.0	857.6	14331	53.6
5/26/01 0:36	867.7	run 3a	11:047	1032.0	851.6	14331	53.2
5/26/01 0:36	869.7	run 3a	11:047	1032.0	853.6	14331	53.4
5/26/01 0:36	869.7	run 3a	11:047	1032.0	853.6	14331	53.4
5/26/01 0:36	865.7	run 3a	11:047	1032.0	849.6	14331	53.1
5/26/01 0:37	871.7	run 3a	11:047	1032.0	855.6	14331	53.5
5/26/01 0:37	879.7	run 3a	11:047	1032.0	863.5	14331	54.0
5/26/01 0:37	885.7	run 3a	11:047	1032.0	869.5	14331	54.4
5/26/01 0:37	885.7	run 3a	11:047	1032.0	869.5	14331	54.4
5/26/01 0:38	881.7	run 3a	11:047	1032.0	865.5	14331	54.1
5/26/01 0:38	877.7	run 3a	11:047	1032.0	861.6	14331	53.9
5/26/01 0:38	879.7	run 3a	11:047	1032.0	863.5	14331	54.0
5/26/01 0:38	875.7	run 3a	11:047	1032.0	859.6	14331	53.7
5/26/01 0:39	867.7	run 3a	11:047	1032.0	851.6	14331	53.2
5/26/01 0:39	865.7	run 3a	11:047	1032.0	849.6	14331	53.1
5/26/01 0:39	867.7	run 3a	11:047	1032.0	851.6	14331	53.2
5/25/01 0:39	871.7	run 3a	11:047	1032.0	855.6	14331	53.5
5/25/01 0:40	869.7	run 3a	11:047	1032.0	853.6	14331	53.4
5/26/01 0:40	865.7	run 3a	11:047	1032.0	849.6	14331	53.1
5/26/01 0:40	871.7	run 3a	11:047	1032.0	855.6	14331	53.5
5/25/01 0:40	869.7	run 3a	11:047	1032.0	853.6	14331	53.4
5/26/01 0:41	861.7	run 3a	11:047	1032.0	845.6	14331	52.9
5/26/01 0:41	855.6	run 3a	11:047	1032.0	839.6	14331	52.5
5/25/01 0:41	855.6	run 3a	11:047	1032.0	839.6	14331	52.5
5/25/01 0:41	851.6	run 3a	11:047	1032.0	835.7	14331	52.2
5/25/01 0:42	857.7	run 3a	11:047	1032.0	841.6	14331	52.6

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1018 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/26/01 0:42	865.7	run 3a	11.047	1032.0	849.5	14331	53.1
5/26/01 0:42	845.6	run 3a	11.047	1032.0	829.7	14331	51.9
5/26/01 0:42	823.6	run 3a	11.047	1032.0	907.8	14331	50.5
		run 3a Average			856.9		53.5
5/26/01 0:43	813.6	plant upset/delay	11.047	1032.0			
5/26/01 0:43	823.6	plant upset/delay	11.047	1032.0			
5/26/01 0:43	831.6	plant upset/delay	11.047	1032.0			
5/26/01 0:43	823.6	plant upset/delay	11.047	1032.0			
5/26/01 0:44	817.6	plant upset/delay	11.047	1032.0			
5/26/01 0:44	815.6	plant upset/delay	11.047	1032.0			
5/26/01 0:44	813.6	plant upset/delay	11.047	1032.0			
5/26/01 0:44	807.6	plant upset/delay	11.047	1032.0			
5/26/01 0:45	811.6	plant upset/delay	11.047	1032.0			
5/26/01 0:45	825.6	plant upset/delay	11.047	1032.0			
5/26/01 0:45	833.6	plant upset/delay	11.047	1032.0			
5/26/01 0:45	829.6	plant upset/delay	11.047	1032.0			
5/26/01 0:46	825.6	plant upset/delay	11.047	1032.0			
5/26/01 0:46	823.6	plant upset/delay	11.047	1032.0			
5/26/01 0:46	813.6	plant upset/delay	11.047	1032.0			
5/26/01 0:46	799.5	plant upset/delay	11.047	1032.0			
5/26/01 0:47	793.5	plant upset/delay	11.047	1032.0			
5/26/01 0:47	791.5	plant upset/delay	11.047	1032.0			
5/26/01 0:47	789.5	plant upset/delay	11.047	1032.0			
5/26/01 0:47	781.5	plant upset/delay	11.047	1032.0			
5/26/01 0:48	777.5	plant upset/delay	11.047	1032.0			
5/26/01 0:48	781.5	plant upset/delay	11.047	1032.0			
5/26/01 0:48	783.5	plant upset/delay	11.047	1032.0			
5/26/01 0:48	777.5	plant upset/delay	11.047	1032.0			
5/26/01 0:49	781.5	plant upset/delay	11.047	1032.0			
5/26/01 0:49	787.5	plant upset/delay	11.047	1032.0			
5/26/01 0:49	783.5	plant upset/delay	11.047	1032.0			
5/26/01 0:49	777.5	plant upset/delay	11.047	1032.0			
5/26/01 0:50	781.5	plant upset/delay	11.047	1032.0			
5/26/01 0:50	785.5	plant upset/delay	11.047	1032.0			
5/26/01 0:50	785.5	plant upset/delay	11.047	1032.0			
5/26/01 0:50	785.5	plant upset/delay	11.047	1032.0			
5/26/01 0:51	785.5	plant upset/delay	11.047	1032.0			
5/26/01 0:51	791.5	plant upset/delay	11.047	1032.0			
5/26/01 0:51	803.5	plant upset/delay	11.047	1032.0			
5/26/01 0:51	813.6	plant upset/delay	11.047	1032.0			
5/26/01 0:52	817.6	plant upset/delay	11.047	1032.0			
5/26/01 0:52	819.6	plant upset/delay	11.047	1032.0			
5/26/01 0:52	827.6	plant upset/delay	11.047	1032.0			
5/26/01 0:52	833.6	plant upset/delay	11.047	1032.0			
5/26/01 0:53	829.6	plant upset/delay	11.047	1032.0			
5/26/01 0:53	819.6	plant upset/delay	11.047	1032.0			
5/26/01 0:53	807.6	plant upset/delay	11.047	1032.0			
5/26/01 0:53	791.5	plant upset/delay	11.047	1032.0			
5/26/01 0:54	773.5	plant upset/delay	11.047	1032.0			
5/26/01 0:54	759.5	plant upset/delay	11.047	1032.0			
5/26/01 0:54	741.4	plant upset/delay	11.047	1032.0			
5/26/01 0:54	723.4	plant upset/delay	11.047	1032.0			
5/26/01 0:55	711.4	plant upset/delay	11.047	1032.0			
5/26/01 0:55	709.4	plant upset/delay	11.047	1032.0			
5/26/01 0:55	701.3	plant upset/delay	11.047	1032.0			
5/26/01 0:55	685.3	plant upset/delay	11.047	1032.0			
5/26/01 0:56	683.3	plant upset/delay	11.047	1032.0			
5/26/01 0:56	689.3	plant upset/delay	11.047	1032.0			
5/26/01 0:56	693.3	plant upset/delay	11.047	1032.0			
5/26/01 0:56	693.3	plant upset/delay	11.047	1032.0			
5/26/01 0:57	689.3	plant upset/delay	11.047	1032.0			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1016 ppm cal	CORRECTED PPM	FLOW, scfm-dry	POUNDS CO PER HOUR
5/26/01 0 57	677 3	plant upset/delay	11 047	1032 0			
5/26/01 0 57	563 3	plant upset/delay	11 047	1032 0			
5/26/01 0 57	655 3	plant upset/delay	11 047	1032 0			
5/26/01 0 58	657 3	plant upset/delay	11 047	1032 0			
5/26/01 0 58	663 3	plant upset/delay	11 047	1032 0			
5/26/01 0 58	659 3	plant upset/delay	11 047	1032 0			
5/26/01 0 58	661 3	plant upset/delay	11 047	1032 0			
5/26/01 0 59	669 3	plant upset/delay	11 047	1032 0			
5/26/01 0 59	661 3	plant upset/delay	11 047	1032 0			
5/26/01 0 59	655 3	plant upset/delay	11 047	1032 0			
5/26/01 0 59	649 2	plant upset/delay	11 047	1032 0			
5/26/01 1 00	635 2	plant upset/delay	11 047	1032 0			
5/26/01 1 00	621 2	plant upset/delay	11 047	1032 0			
5/26/01 1 00	621 2	plant upset/delay	11 047	1032 0			
5/26/01 1 00	621 2	plant upset/delay	11 047	1032 0			
5/26/01 1 01	617 2	plant upset/delay	11 047	1032 0			
5/26/01 1 01	609 2	plant upset/delay	11 047	1032 0			
5/26/01 1 01	603 2	plant upset/delay	11 047	1032 0			
5/26/01 1 01	601 1	plant upset/delay	11 047	1032 0			
5/26/01 1 02	597 1	plant upset/delay	11 047	1032 0			
5/26/01 1 02	595 1	plant upset/delay	11 047	1032 0			
5/26/01 1 02	593 1	plant upset/delay	11 047	1032 0			
5/26/01 1 02	595 1	plant upset/delay	11 047	1032 0			
5/26/01 1 03	593 1	plant upset/delay	11 047	1032 0			
5/26/01 1 03	589 1	plant upset/delay	11 047	1032 0			
5/26/01 1 03	583 1	plant upset/delay	11 047	1032 0			
5/26/01 1 03	579 1	plant upset/delay	11 047	1032 0			
5/26/01 1 04	581 1	plant upset/delay	11 047	1032 0			
5/26/01 1 04	585 1	plant upset/delay	11 047	1032 0			
5/26/01 1 04	591 1	plant upset/delay	11 047	1032 0			
5/26/01 1 04	589 1	plant upset/delay	11 047	1032 0			
5/26/01 1 05	587 1	plant upset/delay	11 047	1032 0			
5/26/01 1 05	593 1	plant upset/delay	11 047	1032 0			
5/26/01 1 05	603 2	plant upset/delay	11 047	1032 0			
5/26/01 1 05	615 2	plant upset/delay	11 047	1032 0			
5/26/01 1 06	621 2	plant upset/delay	11 047	1032 0			
5/26/01 1 06	615 2	plant upset/delay	11 047	1032 0			
5/26/01 1 06	607 2	plant upset/delay	11 047	1032 0			
5/26/01 1 06	609 2	plant upset/delay	11 047	1032 0			
5/26/01 1 07	613 2	plant upset/delay	11 047	1032 0			
5/26/01 1 07	617 2	plant upset/delay	11 047	1032 0			
5/26/01 1 07	621 2	plant upset/delay	11 047	1032 0			
5/26/01 1 07	623 2	plant upset/delay	11 047	1032 0			
5/26/01 1 08	627 2	plant upset/delay	11 047	1032 0			
5/26/01 1 08	631 2	plant upset/delay	11 047	1032 0			
5/26/01 1 08	627 2	plant upset/delay	11 047	1032 0			
5/26/01 1 08	619 2	plant upset/delay	11 047	1032 0			
5/26/01 1 09	613 2	plant upset/delay	11 047	1032 0			
5/26/01 1 09	613 2	plant upset/delay	11 047	1032 0			
5/26/01 1 09	615 2	plant upset/delay	11 047	1032 0			
5/26/01 1 09	617 2	plant upset/delay	11 047	1032 0			
5/26/01 1 10	613 2	plant upset/delay	11 047	1032 0			
5/26/01 1 10	609 2	plant upset/delay	11 047	1032 0			
5/26/01 1 10	609 2	plant upset/delay	11 047	1032 0			
5/26/01 1 10	617 2	plant upset/delay	11 047	1032 0			
5/26/01 1 11	625 2	plant upset/delay	11 047	1032 0			
5/26/01 1 11	633 2	plant upset/delay	11 047	1032 0			
5/26/01 1 11	659 3	plant upset/delay	11 047	1032 0			
5/26/01 1 11	679 3	plant upset/delay	11 047	1032 0			
5/26/01 1 12	677 3	plant upset/delay	11 047	1032 0			
5/26/01 1 12	677 3	plant upset/delay	11 047	1032 0			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1015 ppm cal	CORRECTED PPM	FLOW, a.c.f.m. dry	POUNDS OF CO PER HOUR
5/26/01 1:12	685.3	plant upset/delay	11.047	1032.0			
5/26/01 1:12	697.3	plant upset/delay	11.047	1032.0			
5/26/01 1:13	697.3	plant upset/delay	11.047	1032.0			
5/26/01 1:13	693.3	plant upset/delay	11.047	1032.0			
5/26/01 1:13	687.3	plant upset/delay	11.047	1032.0			
5/26/01 1:13	683.3	plant upset/delay	11.047	1032.0			
5/26/01 1:14	679.3	plant upset/delay	11.047	1032.0			
5/26/01 1:14	681.3	plant upset/delay	11.047	1032.0			
5/26/01 1:14	679.3	plant upset/delay	11.047	1032.0			
5/26/01 1:14	675.3	plant upset/delay	11.047	1032.0			
5/26/01 1:15	683.3	plant upset/delay	11.047	1032.0			
5/26/01 1:15	685.3	plant upset/delay	11.047	1032.0			
5/26/01 1:15	685.3	plant upset/delay	11.047	1032.0			
5/26/01 1:15	685.3	plant upset/delay	11.047	1032.0			
5/26/01 1:16	681.3	plant upset/delay	11.047	1032.0			
5/26/01 1:16	677.3	plant upset/delay	11.047	1032.0			
5/26/01 1:16	673.3	plant upset/delay	11.047	1032.0			
5/26/01 1:16	675.3	plant upset/delay	11.047	1032.0			
5/26/01 1:17	679.3	plant upset/delay	11.047	1032.0			
5/26/01 1:17	679.3	plant upset/delay	11.047	1032.0			
5/26/01 1:17	679.3	plant upset/delay	11.047	1032.0			
5/26/01 1:17	671.3	plant upset/delay	11.047	1032.0			
5/26/01 1:18	669.3	plant upset/delay	11.047	1032.0			
5/26/01 1:18	669.3	plant upset/delay	11.047	1032.0			
5/26/01 1:18	669.3	plant upset/delay	11.047	1032.0			
5/26/01 1:18	671.3	plant upset/delay	11.047	1032.0			
5/26/01 1:19	667.3	plant upset/delay	11.047	1032.0			
5/26/01 1:19	665.3	plant upset/delay	11.047	1032.0			
5/26/01 1:19	665.3	plant upset/delay	11.047	1032.0			
5/26/01 1:19	671.3	plant upset/delay	11.047	1032.0			
5/26/01 1:20	673.3	plant upset/delay	11.047	1032.0			
5/26/01 1:20	671.3	plant upset/delay	11.047	1032.0			
5/26/01 1:20	673.3	plant upset/delay	11.047	1032.0			
5/26/01 1:20	679.3	plant upset/delay	11.047	1032.0			
5/26/01 1:21	679.3	plant upset/delay	11.047	1032.0			
5/26/01 1:21	675.3	plant upset/delay	11.047	1032.0			
5/26/01 1:21	671.3	plant upset/delay	11.047	1032.0			
5/26/01 1:21	673.3	plant upset/delay	11.047	1032.0			
5/26/01 1:22	677.3	plant upset/delay	11.047	1032.0			
5/26/01 1:22	681.3	plant upset/delay	11.047	1032.0			
5/26/01 1:22	683.3	plant upset/delay	11.047	1032.0			
5/26/01 1:22	697.3	plant upset/delay	11.047	1032.0			
5/26/01 1:23	707.4	plant upset/delay	11.047	1032.0			
5/26/01 1:23	711.4	plant upset/delay	11.047	1032.0			
5/26/01 1:23	705.4	plant upset/delay	11.047	1032.0			
5/26/01 1:23	705.4	plant upset/delay	11.047	1032.0			
5/26/01 1:24	709.4	plant upset/delay	11.047	1032.0			
5/26/01 1:24	711.4	plant upset/delay	11.047	1032.0			
5/26/01 1:24	709.4	plant upset/delay	11.047	1032.0			
5/26/01 1:24	707.4	plant upset/delay	11.047	1032.0			
5/26/01 1:25	705.4	plant upset/delay	11.047	1032.0			
5/26/01 1:25	701.3	plant upset/delay	11.047	1032.0			
5/26/01 1:25	597.3	plant upset/delay	11.047	1032.0			
5/26/01 1:25	583.3	plant upset/delay	11.047	1032.0			
5/26/01 1:26	571.3	plant upset/delay	11.047	1032.0			
5/26/01 1:26	575.3	plant upset/delay	11.047	1032.0			
5/26/01 1:26	579.3	plant upset/delay	11.047	1032.0			
5/26/01 1:26	569.3	plant upset/delay	11.047	1032.0			
5/26/01 1:27	565.3	plant upset/delay	11.047	1032.0			
5/26/01 1:27	563.3	plant upset/delay	11.047	1032.0			
5/26/01 1:27	561.3	plant upset/delay	11.047	1032.0			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1016 ppm cal	CORRECTED PPM	FLOW, acfm dry	POUNDS OF CO PER HOUR
5/26/01 1:27	667.3	plant upset/delay	11.047	1032.0			
5/26/01 1:28	667.3	plant upset/delay	11.047	1032.0			
5/26/01 1:28	661.3	plant upset/delay	11.047	1032.0			
5/26/01 1:28	661.3	plant upset/delay	11.047	1032.0			
5/26/01 1:28	665.3	plant upset/delay	11.047	1032.0			
5/26/01 1:29	661.3	plant upset/delay	11.047	1032.0			
5/26/01 1:29	653.2	plant upset/delay	11.047	1032.0			
5/26/01 1:29	655.3	plant upset/delay	11.047	1032.0			
5/26/01 1:29	659.3	plant upset/delay	11.047	1032.0			
5/26/01 1:30	659.3	plant upset/delay	11.047	1032.0			
5/26/01 1:30	659.3	plant upset/delay	11.047	1032.0			
5/26/01 1:30	665.3	plant upset/delay	11.047	1032.0			
5/26/01 1:30	669.3	plant upset/delay	11.047	1032.0			
5/26/01 1:31	665.3	plant upset/delay	11.047	1032.0			
5/26/01 1:31	659.3	plant upset/delay	11.047	1032.0			
5/26/01 1:31	653.2	plant upset/delay	11.047	1032.0			
5/26/01 1:31	653.2	plant upset/delay	11.047	1032.0			
5/26/01 1:32	659.3	plant upset/delay	11.047	1032.0			
5/26/01 1:32	667.3	plant upset/delay	11.047	1032.0			
5/26/01 1:32	669.3	plant upset/delay	11.047	1032.0			
5/26/01 1:32	661.3	plant upset/delay	11.047	1032.0			
5/26/01 1:33	657.3	plant upset/delay	11.047	1032.0			
5/26/01 1:33	657.3	plant upset/delay	11.047	1032.0			
5/26/01 1:33	655.3	plant upset/delay	11.047	1032.0			
5/26/01 1:33	653.2	plant upset/delay	11.047	1032.0			
5/26/01 1:34	645.2	plant upset/delay	11.047	1032.0			
5/26/01 1:34	639.2	plant upset/delay	11.047	1032.0			
5/26/01 1:34	643.2	plant upset/delay	11.047	1032.0			
5/26/01 1:34	635.2	plant upset/delay	11.047	1032.0			
5/26/01 1:35	627.2	plant upset/delay	11.047	1032.0			
5/26/01 1:35	629.2	plant upset/delay	11.047	1032.0			
5/26/01 1:35	633.2	plant upset/delay	11.047	1032.0			
5/26/01 1:35	629.2	plant upset/delay	11.047	1032.0			
5/26/01 1:36	627.2	plant upset/delay	11.047	1032.0			
5/26/01 1:36	623.2	plant upset/delay	11.047	1032.0			
5/26/01 1:36	623.2	plant upset/delay	11.047	1032.0			
5/26/01 1:36	627.2	plant upset/delay	11.047	1032.0			
5/26/01 1:37	623.2	plant upset/delay	11.047	1032.0			
5/26/01 1:37	613.2	plant upset/delay	11.047	1032.0			
5/26/01 1:37	615.2	plant upset/delay	11.047	1032.0			
5/26/01 1:37	617.2	plant upset/delay	11.047	1032.0			
5/26/01 1:38	615.2	plant upset/delay	11.047	1032.0			
5/26/01 1:38	609.2	plant upset/delay	11.047	1032.0			
5/26/01 1:38	611.2	plant upset/delay	11.047	1032.0			
5/26/01 1:38	621.2	plant upset/delay	11.047	1032.0			
5/26/01 1:39	625.2	plant upset/delay	11.047	1032.0			
5/26/01 1:39	625.2	plant upset/delay	11.047	1032.0			
5/26/01 1:39	621.2	plant upset/delay	11.047	1032.0			
5/26/01 1:39	617.2	plant upset/delay	11.047	1032.0			
5/26/01 1:40	617.2	plant upset/delay	11.047	1032.0			
5/26/01 1:40	615.2	plant upset/delay	11.047	1032.0			
5/26/01 1:40	613.2	plant upset/delay	11.047	1032.0			
5/26/01 1:40	605.2	plant upset/delay	11.047	1032.0			
5/26/01 1:41	601.1	plant upset/delay	11.047	1032.0			
5/26/01 1:41	605.2	plant upset/delay	11.047	1032.0			
5/26/01 1:41	603.2	plant upset/delay	11.047	1032.0			
5/26/01 1:41	599.1	plant upset/delay	11.047	1032.0			
5/26/01 1:42	607.2	plant upset/delay	11.047	1032.0			
5/26/01 1:42	611.2	plant upset/delay	11.047	1032.0			
5/26/01 1:42	607.2	plant upset/delay	11.047	1032.0			
5/26/01 1:42	605.2	plant upset/delay	11.047	1032.0			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1018 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/26/01 1:43	609.2	plant upset/delay	11.047	1032.0			
5/26/01 1:43	605.2	plant upset/delay	11.047	1032.0			
5/26/01 1:43	601.1	plant upset/delay	11.047	1032.0			
5/26/01 1:43	601.1	plant upset/delay	11.047	1032.0			
5/26/01 1:44	597.1	plant upset/delay	11.047	1032.0			
5/26/01 1:44	595.1	plant upset/delay	11.047	1032.0			
5/26/01 1:44	595.1	plant upset/delay	11.047	1032.0			
5/26/01 1:44	595.1	plant upset/delay	11.047	1032.0			
5/26/01 1:45	595.1	run 3b	11.047	1032.0	580.7	14331	35.3
5/26/01 1:45	599.1	run 3b	11.047	1032.0	584.6	14331	36.6
5/26/01 1:45	603.2	run 3b	11.047	1032.0	588.6	14331	36.8
5/26/01 1:45	605.2	run 3b	11.047	1032.0	590.6	14331	36.9
5/26/01 1:46	611.2	run 3b	11.047	1032.0	596.6	14331	37.3
5/26/01 1:46	609.2	run 3b	11.047	1032.0	594.6	14331	37.2
5/26/01 1:46	595.1	run 3b	11.047	1032.0	580.7	14331	36.3
5/26/01 1:46	579.1	run 3b	11.047	1032.0	564.7	14331	35.3
5/26/01 1:47	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 1:47	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:47	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:47	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:48	557.1	run 3b	11.047	1032.0	542.8	14331	33.9
5/26/01 1:48	551.0	run 3b	11.047	1032.0	536.8	14331	33.6
5/26/01 1:48	557.1	run 3b	11.047	1032.0	542.8	14331	33.9
5/26/01 1:48	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:49	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 1:49	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 1:49	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:49	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 1:50	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:50	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:50	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 1:50	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:51	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:51	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 1:51	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:51	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 1:52	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 1:52	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 1:52	575.1	run 3b	11.047	1032.0	560.7	14331	35.1
5/26/01 1:52	573.1	run 3b	11.047	1032.0	558.7	14331	34.9
5/26/01 1:53	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 1:53	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
5/26/01 1:53	581.1	run 3b	11.047	1032.0	566.7	14331	35.4
5/26/01 1:53	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
5/26/01 1:54	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 1:54	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:54	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:54	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:55	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:55	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 1:55	559.1	run 3b	11.047	1032.0	544.8	14331	34.1
5/26/01 1:55	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:56	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:56	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:56	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 1:56	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:57	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 1:57	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 1:57	559.1	run 3b	11.047	1032.0	544.8	14331	34.1
5/26/01 1:57	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 1:58	569.1	run 3b	11.047	1032.0	554.8	14331	34.7

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1016 ppm cal	CORRECTED PPM	FLOW, scfm dry	POUNDS OF CO PER HOUR
5/26/01 1:58	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 1:58	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 1:58	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 1:59	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
5/26/01 1:59	579.1	run 3b	11.047	1032.0	564.7	14331	35.3
5/26/01 1:59	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
5/26/01 1:59	581.1	run 3b	11.047	1032.0	566.7	14331	35.4
5/26/01 2:00	587.1	run 3b	11.047	1032.0	572.7	14331	35.8
5/26/01 2:00	591.1	run 3b	11.047	1032.0	576.7	14331	36.1
5/26/01 2:00	593.1	run 3b	11.047	1032.0	578.7	14331	36.2
5/26/01 2:00	595.1	run 3b	11.047	1032.0	580.7	14331	36.3
5/26/01 2:01	591.1	run 3b	11.047	1032.0	576.7	14331	36.1
5/26/01 2:01	581.1	run 3b	11.047	1032.0	566.7	14331	35.4
5/26/01 2:01	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
5/26/01 2:01	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
5/26/01 2:02	575.1	run 3b	11.047	1032.0	560.7	14331	35.1
5/26/01 2:02	573.1	run 3b	11.047	1032.0	558.7	14331	34.9
5/26/01 2:02	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
5/26/01 2:02	575.1	run 3b	11.047	1032.0	560.7	14331	35.1
5/26/01 2:03	573.1	run 3b	11.047	1032.0	558.7	14331	34.9
5/26/01 2:03	573.1	run 3b	11.047	1032.0	558.7	14331	34.9
5/26/01 2:03	575.1	run 3b	11.047	1032.0	560.7	14331	35.1
5/26/01 2:03	573.1	run 3b	11.047	1032.0	558.7	14331	34.9
5/26/01 2:04	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:04	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 2:04	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 2:04	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:05	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 2:05	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 2:05	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:05	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 2:06	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:06	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:06	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 2:06	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:07	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 2:07	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 2:07	559.1	run 3b	11.047	1032.0	544.8	14331	34.1
5/26/01 2:07	559.1	run 3b	11.047	1032.0	544.8	14331	34.1
5/26/01 2:08	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 2:08	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 2:08	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 2:08	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:09	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 2:09	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 2:09	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 2:09	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 2:10	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 2:10	571.1	run 3b	11.047	1032.0	556.7	14331	34.8
5/26/01 2:10	567.1	run 3b	11.047	1032.0	552.8	14331	34.6
5/26/01 2:10	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 2:11	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 2:11	561.1	run 3b	11.047	1032.0	546.8	14331	34.2
5/26/01 2:11	563.1	run 3b	11.047	1032.0	548.8	14331	34.3
5/26/01 2:11	565.1	run 3b	11.047	1032.0	550.8	14331	34.4
5/26/01 2:12	569.1	run 3b	11.047	1032.0	554.8	14331	34.7
5/26/01 2:12	575.1	run 3b	11.047	1032.0	560.7	14331	35.1
5/26/01 2:12	583.1	run 3b	11.047	1032.0	568.7	14331	35.6
5/26/01 2:12	585.1	run 3b	11.047	1032.0	570.7	14331	35.7
5/26/01 2:13	581.1	run 3b	11.047	1032.0	566.7	14331	35.4
5/26/01 2:13	583.1	run 3b	11.047	1032.0	568.7	14331	35.6

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE - TIME	PPM	COMMENTS	ZERO CAL	1015 ppm cal	CORRECTED PPM	FLOW, scfm, dry	POUNDS OF CO PER HOUR
5/26/01 2:13	583.1	run 3b	11.047	1032.0	568.7	14331	35.6
5/26/01 2:13	577.1	run 3b	11.047	1032.0	562.7	14331	35.2
		run 3b Average			557.1		34.8
5/26/01 2:14	573.1	wait	11.047	1032.0			
5/26/01 2:14	571.1	wait	11.047	1032.0			
5/26/01 2:14	577.1	wait	11.047	1032.0			
5/26/01 2:14	579.1	wait	11.047	1032.0			
5/26/01 2:15	579.1	wait	11.047	1032.0			
5/26/01 2:15	575.1	wait	11.047	1032.0			
5/26/01 2:15	577.1	wait	11.047	1032.0			
5/26/01 2:15	587.1	wait	11.047	1032.0			
5/26/01 2:16	589.1	wait	11.047	1032.0			
5/26/01 2:16	585.1	wait	11.047	1032.0			
5/26/01 2:16	593.1	wait	11.047	1032.0			
5/26/01 2:16	603.2	wait	11.047	1032.0			
5/26/01 2:17	607.2	wait	11.047	1032.0			
5/26/01 2:17	607.2	wait	11.047	1032.0			
5/26/01 2:17	613.2	wait	11.047	1032.0			
5/26/01 2:17	613.2	wait	11.047	1032.0			
5/26/01 2:18	609.2	wait	11.047	1032.0			
5/26/01 2:18	613.2	wait	11.047	1032.0			
5/26/01 2:18	615.2	wait	11.047	1032.0			
5/26/01 2:18	611.2	wait	11.047	1032.0			
5/26/01 2:19	611.2	wait	11.047	1032.0			
5/26/01 2:19	615.2	wait	11.047	1032.0			
5/26/01 2:19	611.2	wait	11.047	1032.0			
5/26/01 2:19	611.2	wait	11.047	1032.0			
5/26/01 2:20	615.2	wait	11.047	1032.0			
5/26/01 2:20	611.2	wait	11.047	1032.0			
5/26/01 2:20	605.2	wait	11.047	1032.0			
5/26/01 2:20	605.2	wait	11.047	1032.0			
5/26/01 2:21	605.2	wait	11.047	1032.0			
5/26/01 2:21	599.1	wait	11.047	1032.0			
5/26/01 2:21	589.1	wait	11.047	1032.0			
5/26/01 2:21	587.1	wait	11.047	1032.0			
5/26/01 2:22	585.1	wait	11.047	1032.0			
5/26/01 2:22	573.1	wait	11.047	1032.0			
5/26/01 2:22	567.1	wait	11.047	1032.0			
5/26/01 2:22	569.1	wait	11.047	1032.0			
5/26/01 2:23	561.1	wait	11.047	1032.0			
5/26/01 2:23	557.1	wait	11.047	1032.0			
5/26/01 2:23	561.1	wait	11.047	1032.0			
5/26/01 2:23	559.1	wait	11.047	1032.0			
5/26/01 2:24	549.0	wait	11.047	1032.0			
5/26/01 2:24	450.8	wait	11.047	1032.0			
5/26/01 2:24	204.4	wait	11.047	1032.0			
5/26/01 2:24	48.1	wait	11.047	1032.0			
5/26/01 2:25	16.0	wait	11.047	1032.0			
5/26/01 2:25	10.0	0 ppm cal	11.047	1032.0			
5/26/01 2:25	12.0	0 ppm cal	11.047	1032.0			
5/26/01 2:25	12.0	0 ppm cal	11.047	1032.0			
5/26/01 2:26	10.0	0 ppm cal	11.047	1032.0			
5/26/01 2:26	10.0	0 ppm cal	11.047	1032.0			
5/26/01 2:26	128.2	wait	11.047	1032.0			
5/26/01 2:26	567.1	wait	11.047	1032.0			
5/26/01 2:27	917.8	wait	11.047	1032.0			
5/26/01 2:27	1026.0	1015 ppm cal	11.047	1032.0			
5/26/01 2:27	1032.0	1015 ppm cal	11.047	1032.0			
5/26/01 2:27	1032.0	1015 ppm cal	11.047	1032.0			
5/26/01 2:28	1036.0	1015 ppm cal	11.047	1032.0			
5/26/01 2:28	1032.0	1015 ppm cal	11.047	1032.0			

Georgia Pacific Bleach Plant - Carbon Monoxide Test

DATE / TIME	PPM	COMMENTS	ZERO CAL	1018 ppm cal	CORRECTED PPM	FLOW, acfm, dry	POUNDS OF CO PER HOUR
5/26/01 2 28	989 9	wait	11 047	1032 0			
5/26/01 2 28	813 6	wait	11 047	1032 0			
5/26/01 2 29	663 3	wait	11 047	1032 0			
5/26/01 2 29	607 2	wait	11 047	1032 0			
5/26/01 2 29	599 1	594 7 ppm cal	11 047	1032 0			
5/26/01 2 29	599 1	594 7 ppm cal	11 047	1032 0			
5/26/01 2 30	601 1	594 7 ppm cal	11 047	1032 0			
5/26/01 2 30	591 1	594 7 ppm cal	11 047	1032 0			
5/26/01 2 30	436 8	wait	11 047	1032 0			
5/26/01 2 30	176 3	wait	11 047	1032 0			
5/26/01 2 31	50 1	wait	11 047	1032 0			
5/26/01 2 31	18 0	wait	11 047	1032 0			
5/26/01 2 31	12 0	wait	11 047	1032 0			
5/26/01 2 31	12 0	wait	11 047	1032 0			
5/26/01 2 32	12 0	wait	11 047	1032 0			
5/26/01 2 32	12 0	wait	11 047	1032 0			
5/26/01 2 32	10 0	wait	11 047	1032 0			
5/26/01 2 32	12 0	wait	11 047	1032 0			
5/26/01 2 33	12 0	wait	11 047	1032 0			
5/26/01 2 33	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 33	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 33	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 34	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 34	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 34	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 34	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 35	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 35	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 35	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 35	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 36	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 36	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 36	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 36	10 0	0 ppm cal	11 047	1032 0			
5/26/01 2 37	4 1	end test	11 047	1032 0			
		Grand Average			716 2		44 71764667
		TEST AVERAGE			716 24	14307	44 72

APPENDIX H

PROJECT PARTICIPANTS

Project Participants

DAVID SALTER	FIELD TESTING CALIBRATIONS CALCULATIONS REPORT PREPARATION
WALTER MOCK	LAB ANALYSIS
BEN MOORE	FIELD TESTING
JOE COOKSEY	CO TESTING
CRAIG COHEN	CO TESTING
GEORGE HAWKINS	FIELD TESTING
HARVEY C. GRAY	REPORT REVIEW

SOURCE TEST REPORT

Georgia-Pacific Corporation
Palatka, Florida

Bleach Plant

October 29-31, 2002

Prepared By:

AAS Inc.
Ambient Air Services, Inc.
106 Ambient Airway • Starke, FL 32091 • (904) 964-8440 • Fax (904) 964-6675

Ambient Air Services, Inc. of Starke, Florida, has completed the testing as described in this report for Georgia-Pacific Corporation's Palatka, Florida Bleach Plant. To the best of our knowledge and abilities, we certify that all information, facts, and test data are true and correct. Information supplied to AASI for use in this report from Georgia-Pacific Corporation is perceived to be accurate and is used as such where necessary. This report was prepared and certified by:

Report Number: 504-02-09

Prepared By:

Randy L Weston
19 November 2002

Reviewed By:

David Sholtes
19 November 2002

EXECUTIVE SUMMARY:

On 29 and 31 October, 2002 Ambient Air Services, Inc. performed the FDEP required permit stack test at Georgia-Pacific Corporation's Palatka, Florida Bleach Plant. During this test all required stack testing parameters were met. Table I summarizes the results of the test.

TABLE I

Georgia-Pacific Corporation Palatka, Florida 29 & 31 October, 2002					
PARAMETER	**TEST RESULTS**				
29 October					
	Permit Limits	R 1	R 2	R 3	Avg
Carbon Monoxide (CO)	N/A	979.0 ppm	788.7 ppm	N/A	883.9 ppm
	46 lb/hr	58.0 lb/hr	44.5 lb/hr	N/A	51.2 lb/hr
Chlorinated HAP (Cl2)	10 ppm	0.233 ppm	0.160 ppm	0.164 ppm	0.186 ppm
	N/A	0.016 lb/hr	0.011 lb/hr	0.012 lb/hr	0.013 lb/hr
31 October					
	Permit Limits	R 1	R 2	R 3	Avg
Carbon Monoxide (CO)	N/A	1155.1 ppm	1212.2 ppm	583.1 ppm	983.5 ppm
	46 lb/hr	72.4 lb/hr	74.6 lb/hr	36.5 lb/hr	61.1 lb/hr
Chlorinated HAP (Cl2)	10 ppm	0.073 ppm	0.020 ppm	0.032 ppm	0.042 ppm
	N/A	0.005 lb/hr	0.001 lb/hr	0.002 lb/hr	0.003 lb/hr

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1.0 Introduction

Georgia-Pacific Corporation contracted with Ambient Air Services Inc. of Starke, Florida to perform the Chlorine and Carbon Monoxide compliance testing on the Bleach Plant located in Palatka, Florida.

This testing was conducted in order to satisfy testing requirements of Permit Number 1070005-010-AC for emission sources associated with the Palatka, Florida Bleach Plant. For the testing perspective the requirements of the permit associated with this facility was tested under one mobilization effort.

A summary of the testing performed is summarized in Table 2.

The testing was conducted on October 29 & 31, 2002. Florida DEP was notified of the test dates.

Table 2

Georgia-Pacific Corporation
Palatka, Florida
29 & 31 October, 2002
Summary of Permit Requirements
Performance Emission Testing

Source Description	Approx. Stack Flow	Tests	EPA Method	No. of Runs	Min. hrs
Bleach Plant	13,135 scfmd	Cl	40CFR60 AppA, Meth 26a	6	1 hour
		CO	40CFR60 AppA, Meth 10	5	1 hour

2.0 Summary and Discussion of Results

2.1 Summary of Results

The following is the summary table for the test conducted with all results in Parts per Million and lbs/hr:

Table 3

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 29, 2002

Carbon Monoxide Emission Summary

RUN NUMBER	START TIME	END TIME	Total Minutes Tested	Flow, SCFM-D	Carbon Monoxide, parts per million	Carbon Monoxide, pounds per hour
1	12:25	13:24	60	12676	979.0	58.0
2	14:33	15:32	60	12068	788.7	44.5
Averages			120	12372	883.9	51.2

Table 4

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 31, 2002

Carbon Monoxide Emission Summary

RUN NUMBER	START TIME	END TIME	Total Minutes Tested	Flow, SCFM-D	Carbon Monoxide, parts per million	Carbon Monoxide, pounds per hour
1	13:30	14:29	60	13401	1155.1	72.4
2	15:47	16:46	60	13171	1212.2	74.6
3	17:10	18:09	60	13375	583.1	36.5
Averages			**180**	**13316**	**983.5**	61.1

Table 5

AASI

Chlorine Emissions Summary

USEPA Method 26A (40 CFR Part 60 Appendix A)

Georgia Pacific

Palatka, Fl.

October 29, 2002

AASI USEPA Method 26A 12 Point Template - Rev 0/11-7-2002

Run			Chlorine Emissions			Volumetric Flow Rates		Stack		Sample Volume	Percent
Date	Number	Time (EDT)	GR/SCFD	PPM	LBS/HR	ACFM	SCFMD	Temp °F	Moisture %	SCFD	Isokinetic
[illegible]	1	12:18 13:23	1.50E-04	0.233	0.016	16316	12775	144.3	10.7	34.421	104.7
[illegible]	2	14:33 15:38	1.03E-04	0.160	0.011	15336	12139	145.0	9.6	32.247	103.3
[illegible]	3	17:00 18:02	1.06E-04	0.164	0.012	16770	13454	142.2	8.8	36.523	105.5
Average			1.20E-04	0.186	0.013	16141	12789	143.8	9.7	34.397	104.5

AASI

Chlorine Emissions Summary

USEPA Method 26A (40 CFR Part 60 Appendix A)

Georgia Pacific

Palatka, Fl.

October 31, 2002

AASI USEPA Method 26A 12 Point Template - Rev 0/11-14-2002

Run			Chlorine Emissions			Volumetric Flow Rates		Stack		Sample Volume	Percent
Date	Number	Time (EDT)	GR/SCFD	PPM	LBS/HR	ACFM	SCFMD	Temp °F	Moisture %	SCFD	Isokinetic
10/23/02	1	13:32 14:43	4.73E-05	0.073	0.005	16387	13401	142.0	7.4	35.830	103.9
10/23/02	2	15:50 16:56	1.29E-05	0.020	0.001	16475	13134.	143.1	9.0	35.928	106.3
10/31/02	3	17:10 18:16	2.06E-05	0.032	0.002	16123	12870	140.3	9.3	35.118	106.1
Average			2.69E-05	0.042	0.003	16328	13135	141.8	8.6	35.625	105.4

3.0 Process Description

3.1 Source Operating Parameters

The following conditions were met and the required information was collected during the compliance test.

1. The Bleach Plant had been stabilized for one hour prior to testing.

2. The production rate, species, Kappa, and ClO2 application rates were recorded during the test.

3.2 Process Description

The absorbance of visible light by wood pulp fibers is caused mainly by lignin, one of the main constituents of wood. Residual lignin remaining after chemical pulping processes is highly colored. It also darkens with age. Most of the lignin is removed during the pulping process. Bleaching is a process whereby chemicals are applied to the pulp to increase its brightness by continuing the delignification process.

Bleaching increases the usefulness of the paper by enhancing its capacity for accepting printed or written images. It is also a means of purifying pulp, increasing its stability, and enhancing some of its properties.

The chemicals used in the Georgia-Pacific Palatka Mill include oxidants (chlorine dioxide, oxygen and peroxide) and an alkali (sodium hydroxide). The bleaching sequence is first a chlorine dioxide stage (D_0), followed by a caustic extraction stage enhanced with oxygen and peroxide (E_{op}), and finally another chlorine dioxide stage (D_1). These chemicals are mixed with pulp suspensions at prescribed pH, temperature, and concentration conditions for a specified time period. Bleaching chemicals are applied sequentially with intermediate washing between stages, because it is not possible to achieve sufficient delignification by the action of any one chemical in a single stage. Reaction times for bleaching chemicals range from a few minutes to several hours, requiring large towers to provide adequate retention time.

4.0 Sampling Point Location

Sample Site Diagram

Facility: Georgia Pacific

Location: Palatka Florida

Source: Bleach Plant

Drawing Date 10/29/02

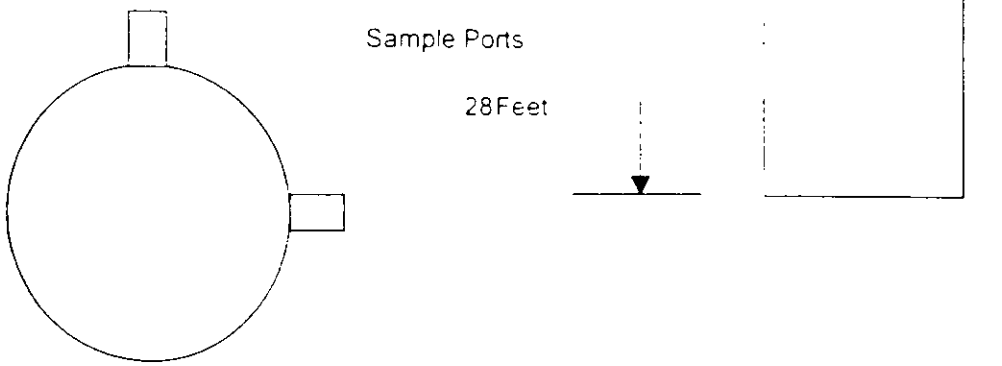
NOT TO SCALE

Stack Diameter: 42 Inches

Diameters Downstream: 8 0

Diameters Upstream 5 7

Chlorine
Method 26a



Sampling Points	
1	1.8
2	6.1
3	12 4
4	29.6
5	35 9
6	40 2

Note: Two equal distances, ninety degree ports. Ports are 4 inches long
Two ports with 6 points per port, 12 total points.

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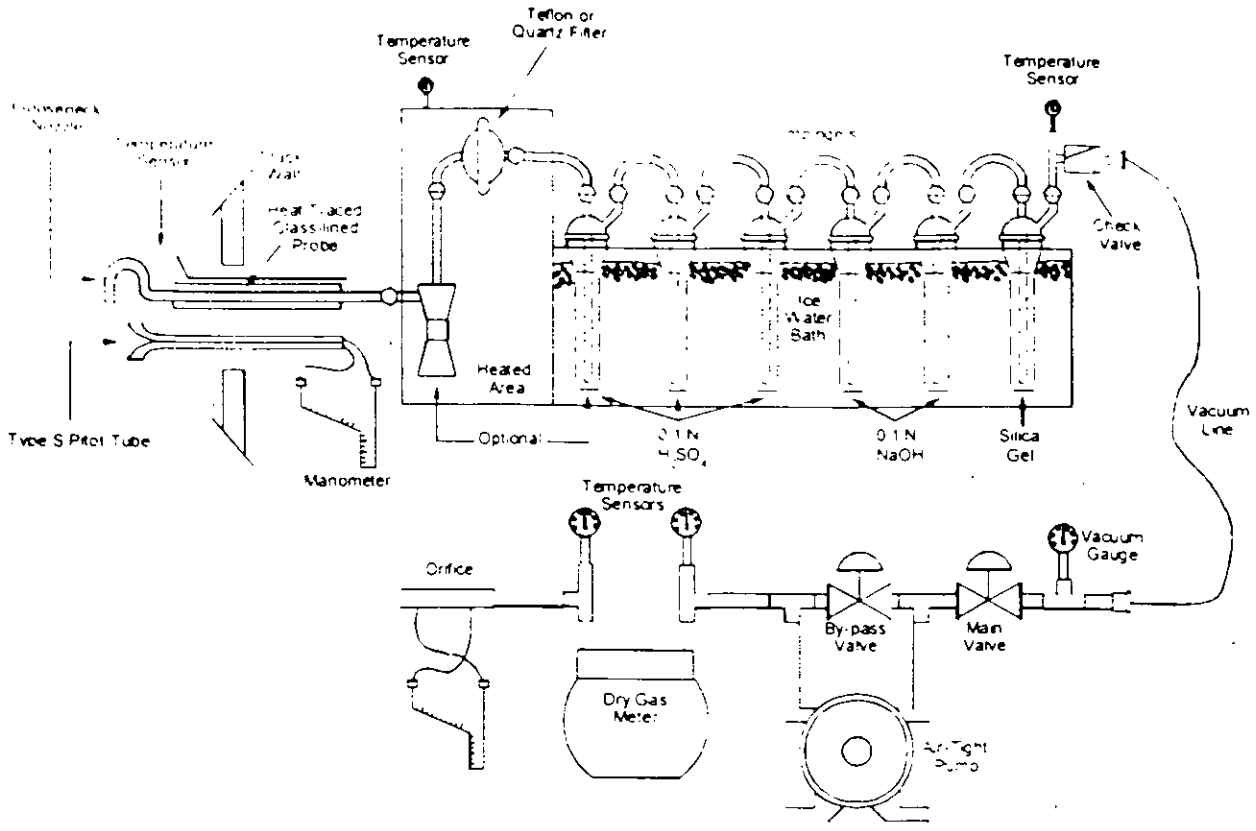
Figure 2-1

5.0 Testing Methodology and Procedures

5.1 Chlorine Testing (Method 26a)

USEPA method 26a was conducted on the Bleach Plant. The following is a synopsis of the method and a diagram illustrating the equipment in use.

Gaseous and particulate pollutants are withdrawn isokinetically from the source and collected in an optional cyclone, on a filter, and in absorbing solutions. The cyclone collects any liquid droplets and is not necessary if the source emissions do not contain them; however, it is preferable to include the cyclone in the sampling train to protect the filter from any liquid present. The filter collects particulate matter including halide salts but is not routinely recovered or analyzed Acidic and alkaline absorbing solutions collect the gaseous hydrogen halides and halogens, respectively. Following sampling of emissions containing liquid droplets, any halides/halogens dissolved in the liquid in the cyclone and on the filter are vaporized to gas and collected in the impingers by pulling conditioned ambient air through the sampling train. The hydrogen halides are solubilized in the acidic solution and form chloride (Cl^-), bromide (Br^-), and fluoride (F^-) ions. The halogens have a very low solubility in the acidic solution and pass through to the alkaline solution where they are hydrolyzed to form a proton (H^+), the halide ion, and the hypohalous acid (HClO or HBrO). Sodium thiosulfate is added to the alkaline solution to assure reaction with the hypohalous acid to form a second halide ion such that 2 halide ions are formed for each molecule of halogen gas. The halide ions in the separate solutions are measured by ion chromatography (IC). If desired, the particulate matter recovered from the filter and the probe is analyzed following the procedures in Method 5.



5.2 Carbon Monoxide Testing (Method 10)

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

APPENDICES

Appendix A	Complete Emission Data - Emissions Run Summaries - Flow Calculation Data
Appendix B	Field Data Sheets - Chlorine and Flow Data Sheets - Carbon Monoxide Data
Appendix C	Laboratory Analysis
Appendix D	Equipment Calibration Data - Carbon Monoxide Analyzer Calibration - Meter Box Annual Calibration - Meter Box Post Test Calibration - Pitot Calibration - Thermocouple Calibration
Appendix E	Sample Chain of Custody
Appendix F	Calibration Gas Certificates
Appendix G	Process Weight Verification
Appendix H	Project Participants

APPENDIX – A

Complete Emission Data
- Emissions Run Summaries
- Flow Calculation Data

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CI Summary Run 1

Facility	Georgia Pacific	**Impinger Condensate**	81.0
Location	Palatka, Fl.	**Silica Gel Condensate**	7.0
Stack	Bleach Plant	**Volume Metered**	37.030
Run Date	10/29/02	**Meter Temp (Deg R)**	572.0
Run Number	1	**Carbon Dioxide, %**	0.0
Start Time	12:18	**Oxygen, %**	20.9
Finish Time	13:23	**Carbon Monoxide, %**	0.0
Weather	Clear, Warm	**Nitrogen, %**	79.1
Total Time (minutes)	60	**Condensate Volume**	88.0
Barometric Pressure	30.03	**Delta H (inches H2O)**	1.2900
Stack Diameter (inches)	42.00	**Stack Pressure**	30.026
Stack Area square feet	9.621	**Stack Temp (Rainkin Degrees)**	604.3
Nozzle Area square feet	0.0004125	**Laboratory Results (ug)**	438.9
Number of Points	12	**Blank Correction**	104.3
Avg of SQRT of V.H.	0.4616	**Total**	334.6
Meter Correction (Y)	1.000		
Nozzle Diameter	0.275		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		4.142
Gas Volume Sampled, STPD		34.421
Total Volume, STP		38.563
Moisture in stack gas, volume fraction		0.107
Dry Stack Gas, volume fraction		0.893
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		27.68
Specific gravity of Stack Gas Relative to Air		0.955
Excess Air (%)		14864.9
Average Stack Velocity, FPM		1695.9
Actual Stack Gas Flow Rate, ACFM		16316
Actual Stack Gas Flow Rate, ACFMD		14570
Stack Gas Flow Rate, SCFMD		12775
Stack Gas Flow Rate Wet, SCFMW		14316
Percent Isokinetic		105
Stack Emissions:	**Grains per DSCF**	0.00[illegible]5
	Pounds per Hour	0.[illegible]8

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CI Summary Run 2

Facility	Georgia Pacific	**Impinger Condensate**	66.0
Location	Palatka, Fl	**Silica Gel Condensate**	6.9
Stack	Bleach Plant	**Volume Metered**	35.145
Run Date	10/29/02	**Meter Temp (Deg R)**	579.3
Run Number	2	**Carbon Dioxide, %**	0.0
Start Time	14:33	**Oxygen, %**	20.9
Finish Time	15:38	**Carbon Monoxide, %**	0.0
Weather	Partial Clouds	**Nitrogen, %**	79.1
Total Time (minutes)	60	**Condensate Volume**	72.9
Barometric Pressure	30.03	**Delta H (inches H2O)**	1.1530
Stack Diameter (inches)	42.00	**Stack Pressure**	30.018
Stack Area square feet	9.621	**Stack Temp (Rainkin Degrees)**	605.0
Nozzle Area square feet	0.0004125	**Laboratory Results (ug)**	320.0
Number of Points	12	**Blank Correction**	104.3
Avg of SQRT of V.H.	0.4345	**Total**	215.7
Meter Correction (Y)	1.000		
Nozzle Diameter	0.275		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		3.431
Gas Volume Sampled, STPD		32.247
Total Volume, STP		35.678
Moisture in stack gas, volume fraction		0.096
Dry Stack Gas, volume fraction		0.904
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		27.8
Specific gravity of Stack Gas Relative to Air		0.959
Excess Air (%)		14864.9
Average Stack Velocity, FPM		1594.0
Actual Stack Gas Flow Rate, ACFM		15336
Actual Stack Gas Flow Rate, ACFMD		13864
Stack Gas Flow Rate, SCFMD		12139
Stack Gas Flow Rate Wet, SCFMW		13428
Percent Isokinetic		103
Stack Emissions:	Grains per DSCF	0.00010
	Pounds per Hour	0.011

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CI Summary Run 3

Facility	Georgia Pacific	Impinger Condensate	68.0
Location	Palatka, Fl.	Silica Gel Condensate	7.1
Stack	Bleach Plant	Volume Metered	38.870
Run Date	10/29/02	Meter Temp (Deg R)	566.0
Run Number	3	Carbon Dioxide, %	0.0
Start Time	17:00	Oxygen, %	20.9
Finish Time	18:02	Carbon Monoxide, %	0.0
Weather	Partial Clouds	Nitrogen, %	79.1
Total Time (minutes)	60	Condensate Volume	75.1
Barometric Pressure	30.03	Delta H (inches H2O)	1.3840
Stack Diameter (inches)	42.00	Stack Pressure	30.019
Stack Area square feet	9.621	Stack Temp (Rainkin Degrees)	602.2
Nozzle Area square feet	0.0004125	Laboratory Results (ug)	354.6
Number of Points	12	Blank Correction	104.3
Avg of SQRT of V.H.	0.4770	Total	250.3
Meter Correction (Y)	1.000		
Nozzle Diameter	0.275		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		3.535
Gas Volume Sampled, STPD		36.523
Total Volume, STP		40.058
Moisture in stack gas, volume fraction		0.088
Dry Stack Gas, volume fraction		0.912
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		27.89
Specific gravity of Stack Gas Relative to Air		0.962
Excess Air (%)		14864.9
Average Stack Velocity, FPM		1743.1
Actual Stack Gas Flow Rate, ACFM		16770
Actual Stack Gas Flow Rate, ACFMD		15294
Stack Gas Flow Rate, SCFMD		13454
Stack Gas Flow Rate Wet, SCFMW		14752
Percent Isokinetic		105
Stack Emissions:	Grains per DSCF	0.00011
	Pounds per Hour	0.012

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CI Summary Run 1

Facility	Georgia Pacific	Impinger Condensate	54.0
Location	Palatka, Fl.	Silica Gel Condensate	7.0
Stack	Bleach Plant	Volume Metered	37.945
Run Date	10/31/02	Meter Temp (Deg R)	564.1
Run Number	1	Carbon Dioxide, %	0.0
Start Time	13.32	Oxygen, %	20.9
Finish Time	14.43	Carbon Monoxide, %	0.0
Weather	Cloudy	Nitrogen, %	79.1
Total Time (minutes)	60	Condensate Volume	61.0
Barometric Pressure	30.14	Delta H (inches H2O)	1.3530
Stack Diameter (inches)	42.00	Stack Pressure	30.128
Stack Area square feet	9.621	Stack Temp (Rainkin Degrees)	602.0
Nozzle Area square-feet	0.0004125	Laboratory Results (ug)	214.2
Number of Points	12	Blank Correction	104.3
Avg of SQRT of V.H.	0.4683	Total	109.9
Meter Correction (Y)	0.998		
Nozzle Diameter	0.275		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF	2.871
Gas Volume Sampled, STPD	35.830
Total Volume, STP	38.701
Moisture in stack gas, volume fraction	0.074
Dry Stack Gas, volume fraction	0.926
Molecular Weight of Stack Gas (Dry Basis)	28.84
Molecular Weight of Stack Gas (Stack conditions)	28.04
Specific gravity of Stack Gas Relative to Air	0.967
Excess Air (%)	14864.9
Average Stack Velocity, FPM	1703.3
Actual Stack Gas Flow Rate, ACFM	16387
Actual Stack Gas Flow Rate, ACFMD	15174
Stack Gas Flow Rate, SCFMD	13401
Stack Gas Flow Rate Wet, SCFMW	14472
Percent Isokinetic	104
Stack Emissions: Grains per DSCF	0.00305
Stack Emissions: Pounds per Hour	3.505

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CI Summary Run 2

Facility	Georgia Pacific	Impinger Condensate	68.0
Location	Palatka, Fl	Silica Gel Condensate	7.1
Stack	Bleach Plant	Volume Metered	38.025
Run Date	10/31/02	Meter Temp (Deg R)	560.2
Run Number	2	Carbon Dioxide, %	0.0
Start Time	15:50	Oxygen, %	20.9
Finish Time	16:56	Carbon Monoxide, %	0.0
Weather	Partial Clouds	Nitrogen, %	79.1
Total Time (minutes)	60	Condensate Volume	75.1
Barometric Pressure	29.95	Delta H (inches H2O)	1.3480
Stack Diameter (inches)	42.00	Stack Pressure	29.940
Stack Area square feet	9.621	Stack Temp (Rainkin Degrees)	603.1
Nozzle Area square feet	0.0004125	Laboratory Results (ug)	134.3
Number of Points	12	Blank Correction	134.3
Avg of SQRT of V.H.	0.4674	Total	0.0
Meter Correction (Y)	0.998		
Nozzle Diameter	0.275		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		3.535
Gas Volume Sampled, STPD		35.928
Total Volume, STP		39.463
Moisture in stack gas, volume fraction		0.090
Dry Stack Gas, volume fraction		0.91
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		27.86
Specific gravity of Stack Gas Relative to Air		0.961
Excess Air (%)		14864.9
Average Stack Velocity, FPM		1712.4
Actual Stack Gas Flow Rate, ACFM		16475
Actual Stack Gas Flow Rate, ACFMD		14992
Stack Gas Flow Rate, SCFMD		13134
Stack Gas Flow Rate Wet, SCFMW		14433
Percent Isokinetic		106
Stack Emissions:	Grains per DSCF	0.00001
	Pounds per Hour	0.001

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AASI USEPA Method 26A 12 Point Template - Rev 0/11-14-2002

CI Summary Run 3

Facility	Georgia Pacific	Impinger Condensate	70.0
Location	Palatka, Fl	Silica Gel Condensate	6.9
Stack	Bleach Plant	Volume Metered	37.000
Run Date	10/31/02	Meter Temp (Deg R)	557.6
Run Number	3	Carbon Dioxide, %	0.0
Start Time	17:10	Oxygen, %	20.9
Finish Time	18:16	Carbon Monoxide, %	0.0
Weather	Partial Clouds	Nitrogen, %	79.1
Total Time (minutes)	60	Condensate Volume	76.9
Barometric Pressure	29.95	Delta H (inches H2O)	1.2970
Stack Diameter (inches)	42.00	Stack Pressure	29.938
Stack Area square feet	9.621	Stack Temp (Rainkin Degrees)	600.3
Nozzle Area square feet	0.0004125	Laboratory Results (ug)	151.1
Number of Points	12	Blank Correction	104.3
Avg of SQRT of V.H.	0.4582	Total	46.8
Meter Correction (Y)	0.998		
Nozzle Diameter	0.275		
Pitot Correction Factor	0.84		

Volume Water Vapor, SCF		3.620
Gas Volume Sampled, STPD		35.118
Total Volume, STP		38.738
Moisture in stack gas, volume fraction		0.093
Dry Stack Gas, volume fraction		0.907
Molecular Weight of Stack Gas (Dry Basis)		28.84
Molecular Weight of Stack Gas (Stack conditions)		27.53
Specific gravity of Stack Gas Relative to Air		0.950
Excess Air (%)		14864.9
Average Stack Velocity, FPM		1675.8
Actual Stack Gas Flow Rate, ACFM		16123
Actual Stack Gas Flow Rate, ACFMD		14624
Stack Gas Flow Rate, SCFMD		12870
Stack Gas Flow Rate Wet, SCFMW		14190
Percent Isokinetic		103
Stack Emissions:	Grains per DSCF	0.00302
	Pounds per Hour	0.332

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AASI USEPA Method 5 24 Point Template - Rev C 11-7-2002

Volumetric Flow Calculations Worksheet

Data Request Entry Area	CI Run 1
Facility	Georgia Pacific
Location	Palatka, Fl.
Source	Bleach Plant
Date	10/29/02
Run Number	1
Start Time	12:18
Finish Time	13:23
Weather	Clear, Warm
Total Time (minutes)	60.00
Number of Points	12
Barometric Pressure	30.03
Static Pressure (inches of water)	-0.05
Stack Diameter (inches)	42.000
Nozzle Diameter (inches)	0.275
Meter Y Factor	1.000
Pitot Factor	0.84
Final Meter Reading (cubic feet)	193.480
Initial Meter Reading (cubic feet)	156.450
Condensate (ml)	81
Silica Gel Weight (grams)	7.0
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	0.0
Nitrogen (percent)	79.1
Laboratory Results (ug)	438.9
Blank Correction	104.3
Isokinetic Rate Factor	6.00

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Field Data Points - CI Run 1				Georgia Pacific		Bleach Plant	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.26	1.56	142	106	106	0.51
	2	0.26	1.56	142	107	107	0.51
	3	0.23	1.38	145	107	107	0.48
	4	0.22	1.32	145	108	108	0.47
	5	0.18	1.08	143	110	110	0.42
	6	0.16	0.96	141	111	111	0.40
2	7	0.26	1.56	144	113	113	0.51
	8	0.27	1.62	145	114	114	0.52
	9	0.22	1.32	148	115	115	0.47
	10	0.18	1.08	148	117	117	0.42
	11	0.18	1.08	145	118	118	0.42
	12	0.16	0.96	143	118	118	0.40

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Volumetric Flow Calculations Worksheet

Data Request Entry Area	CI Run 2
Facility	Georgia Pacific
Location	Palatka, Fl.
Source	Bleach Plant
Date	10/29.02
Run Number	2
Start Time	14:33
Finish Time	15:38
Weather	Partial Clouds
Total Time (minutes)	60.0
Number of Points	12
Barometric Pressure	30.03
Static Pressure (inches of water)	-0.16
Stack Diameter (inches)	42.00
Nozzle Diameter (inches)	0.275
Meter Y Factor	1.000
Pitot Factor	0.84
Final Meter Reading (cubic feet)	230.200
Initial Meter Reading (cubic feet)	195.055
Condensate (ml)	66
Silica Gel Weight (grams)	6.9
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	
Nitrogen (percent)	79.1
Laboratory Results (ug)	320.0
Blank Correction	104.3
Isokinetic Rate Factor	6.04

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Field Data Points - CI Run 2					Georgia Pacific		Bleach Plant
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.21	1.27	145	115	115	0.46
	2	0.2	1.21	145	117	117	0.45
	3	0.16	0.97	146	118	118	0.40
	4	0.16	0.97	147	118	118	0.40
	5	0.16	0.97	145	119	119	0.40
	6	0.12	0.72	139	120	120	0.35
2	7	0.25	1.51	146	120	120	0.50
	8	0.25	1.51	146	120	120	0.50
	9	0.23	1.33	147	121	121	0.47
	10	0.22	1.33	147	121	121	0.47
	11	0.18	1.09	144	121	121	0.42
	12	0.16	0.97	143	121	121	0.40

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AASI USEPA Method 5 24 Point Template - Rev 0 11-7-2002

Volumetric Flow Calculations Worksheet

Data Request Entry Area	CI Run 3
Facility	Georgia Pacific
Location	Palatka, Fl
Source	Bleach Plant
Date	10/29 02
Run Number	3
Start Time	17.00
Finish Time	18:02
Weather	Partial Clouds
Total Time (minutes)	60 0
Number of Points	12
Barometric Pressure	30.03
Static Pressure (inches of water)	-0 15
Stack Diameter (inches)	42.00
Nozzle Diameter (inches)	0.275
Meter Y Factor	1.000
Pitot Factor	0.84
Final Meter Reading (cubic feet)	269.620
Initial Meter Reading (cubic feet)	230.750
Condensate (ml)	68
Silica Gel Weight (grams)	7.1
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	
Nitrogen (percent)	79.1
Laboratory Results (ug)	354.6
Blank Correction	104.3
Isokinetic Rate Factor	6.04

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AASI USEPA Method 5/24 Stack Template - Rev 0/11-7-2002

Field Data Points - CI Run 3				Georgia Pacific		Bleach Plant	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.26	1.57	144	109	109	0.51
	2	0.28	1.69	142	102	102	0.53
	3	0.26	1.57	144	107	107	0.51
	4	0.25	1.51	143	107	107	0.50
	5	0.2	1.21	141	107	107	0.45
	6	0.18	1.09	140	107	107	0.42
2	7	0.26	1.57	141	106	106	0.51
	8	0.28	1.69	143	106	106	0.53
	9	0.22	1.33	144	106	106	0.47
	10	0.2	1.21	142	105	105	0.45
	11	0.18	1.09	142	105	105	0.42
	12	0.18	1.09	140	105	105	0.42

Ambient Air Services, Inc.
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106 Ambient Air Way
Starke, FL 32091
(904) 964-8440

AASI USEPA Method 26A 12 Point Template Rev 0 11-14-2002

Volumetric Flow Calculations Worksheet

Data Request Entry Area	CI Run 1
Facility	Georgia Pacific
Location	Palatka, Fl
Source	Bleach Plant
Date	10/31/02
Run Number	1
Start Time	13:32
Finish Time	14:43
Weather	Cloudy
Total Time (minutes)	60.00
Number of Points	12
Barometric Pressure	30.14
Static Pressure (inches of water)	-0.17
Stack Diameter (inches)	42.000
Nozzle Diameter (inches)	0.275
Meter Y Factor	0.998
Pitot Factor	0.84
Final Meter Reading (cubic feet)	313.155
Initial Meter Reading (cubic feet)	275.210
Condensate (ml)	54
Silica Gel Weight (grams)	7.0
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	0.0
Nitrogen (percent)	79.1
Laboratory Results (ug)	214.2
Blank Correction	104.3
Isokinetic Rate Factor	6.08

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AASI USEPA Method 5/A-1, Point Template - Rev 0 11-14-2002

Field Data Points - CI Run 1				Georgia Pacific		Bleach Plant	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.28	1.70	142	100	101	0.53
	2	0.26	1.58	144	102	100	0.51
	3	0.24	1.46	141	103	99	0.49
	4	0.18	1.09	141	105	100	0.42
	5	0.16	0.97	141	108	101	0.40
	6	0.14	0.85	142	108	102	0.37
2	7	0.27	1.64	141	109	103	0.52
	8	0.29	1.76	141	109	103	0.54
	9	0.27	1.64	142	109	103	0.52
	10	0.24	1.46	142	109	102	0.49
	11	0.18	1.09	144	109	102	0.42
	12	0.16	0.97	143	109	102	0.40

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AASI USEPA Method 26A 12 Point Template - Rev 0/11-14 2002

Volumetric Flow Calculations Worksheet

Data Request Entry Area	CI Run 2
Facility	Georgia Pacific
Location	Palatka, Fl
Source	Bleach Plant
Date	10/31/02
Run Number	2
Start Time	15:50
Finish Time	16:56
Weather	Partial Clouds
Total Time (minutes)	60.0
Number of Points	12
Barometric Pressure	29.95
Static Pressure (inches of water)	-0.14
Stack Diameter (inches)	42.00
Nozzle Diameter (inches)	0.275
Meter Y Factor	0.998
Pitot Factor	0.84
Final Meter Reading (cubic feet)	359.105
Initial Meter Reading (cubic feet)	321.080
Condensate (ml)	68
Silica Gel Weight (grams)	7.1
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	
Nitrogen (percent)	79.1
Laboratory Results (ug)	134.3
Blank Correction	104.3
Isokinetic Rate Factor	6.08

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AASI USEPA Method 2GA 12 Point Template - Rev 0/11-14-2002

Field Data Points - CI Run 2				Georgia Pacific		Bleach Plant	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.27	1.64	140	94	93	0.52
	2	0.28	1.70	141	95	92	0.53
	3	0.24	1.46	143	103	96	0.49
	4	0.22	1.34	145	103	96	0.47
	5	0.18	1.09	144	105	97	0.42
	6	0.16	0.97	144	105	97	0.40
2	7	0.29	1.76	141	105	97	0.54
	8	0.3	1.82	142	105	97	0.55
	9	0.22	1.34	144	108	99	0.47
	10	0.2	1.22	145	108	98	0.45
	11	0.16	0.97	144	108	98	0.40
	12	0.14	0.85	144	108	97	0.37

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AASI USEPA Method 26A 12 Point Template - Rev 0 11-14-2002

Volumetric Flow Calculations Worksheet

Data Request Entry Area	CI Run 3
Facility	Georgia Pacific
Location	Palatka, Fl.
Source	Bleach Plant
Date	10/31/02
Run Number	3
Start Time	17:10
Finish Time	18:16
Weather	Partial Clouds
Total Time (minutes)	60.0
Number of Points	12
Barometric Pressure	29.95
Static Pressure (inches of water)	-0.16
Stack Diameter (inches)	42.00
Nozzle Diameter (inches)	0.275
Meter Y Factor	0.998
Pitot Factor	0.84
Final Meter Reading (cubic feet)	396.405
Initial Meter Reading (cubic feet)	359.405
Condensate (ml)	70
Silica Gel Weight (grams)	6.9
Carbon Dioxide (percent)	0.0
Oxygen (percent)	20.9
Carbon Monoxide (percent)	
Nitrogen (percent)	79.1
Laboratory Results (ug)	151.1
Blank Correction	104.3
Isokinetic Rate Factor	6.08

Ambient Air Services, Inc.
Environmental Consultants

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Starke, FL. 32091
(904) 964-8440

AASI USEPA Method 26A 12 Point Template - Rev 0.11-14-2002

Field Data Points - CI Run 3				Georgia Pacific		Bleach Plant	
Port	Traverse Point	Velocity Head	Meter Orifice	Stack Temp. (°F)	Meter Inlet Temp. (°F)	Meter Outlet Temp. (°F)	Square Root of Velocity Head
1	1	0.28	1.70	138	97	95	0.53
	2	0.26	1.58	140	100	96	0.51
	3	0.22	1.34	142	98	95	0.47
	4	0.2	1.22	140	100	93	0.45
	5	0.16	0.97	139	101	93	0.40
	6	0.14	0.85	142	102	94	0.37
2	7	0.3	1.82	142	102	94	0.55
	8	0.26	1.58	141	102	94	0.51
	9	0.24	1.46	140	102	94	0.49
	10	0.2	1.22	140	102	94	0.45
	11	0.16	0.97	139	103	95	0.40
	12	0.14	0.85	140	102	95	0.37

APPENDIX – B

Field Data Sheets
- Chlorine and Flow Data Sheets
- Carbon Monoxide Data

M CTM-027

HCl

AMBIENT AIR SERVICES
106 AMBIENT AIR WAY
STARKE FL 32091 (904) 964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY: GP Palatka
SOURCE: Bleach
WEATHER: Partial Clouds
TYPE TEST: 027
TESTERS: RW, R
12 PTS. @ 5 MIN/PT = ____ MIN F.D.A. = .94
Y meter = .998 Filter No. = ____
COMMENTS: Nozzle .275, .275, .273 Avg .275

RUN NO: 1
DATE: 10/29/02

BAROMETRIC PRESS: 30.03
METER BOX ID: ~~RS1~~ #10
METER DELTA H: 2.050
PROBE ID: 6 ft
PITOT CORR. FACTOR: 0.84
NOZZLE DIA: 0.275 in.
PROBE TEMP: n/a
STACK ID (IN.)= 72
UP/DOWN STREAM: 28 72

PRE-TEST
Ts = 142 602
Tm = 105 565

TIME START 1218 START VOLUME 156.450
TIME END ____ END VOLUME 193.480

PORT LENGTH (IN) 7"

Factors: F = 6.01

-1.9

9188.69
1529.08

LEAK CHECK
PRE-TEST 0 CFM@15". POST: ____ "Hg.

PITOT LEAK CHECK = ____ AT 3"

VOL. WATER COLLECTED = ____ ML 200 81
WEIGHT MOIS. SILICA GEL = ____ GR

STAT PRESS= -1.9

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORRIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	PROBE GAS TEMP
1	~~0~~ 1225	156.450	.26	1.6	142	106	240	76	5	n/a
2	5 5	159.8	.26	1.6	142	107	247	70	5.5	
3	~~2~~ 10 ~~7.5~~	162.9	.23	1.4	145	107	255	66	5	
4	15 ~~10~~	166.0	.22	~~1.4~~ 1.3	145	108	252	~~66~~ 59	5	
5	3 ~~20~~ ~~12.5~~	169.2	.18	1.1	143	110	220	60	5	
6	25 15	172.1	.16	.96	141	111	260	61	4.5	
2-1	~~4~~ 30 17.5	174.98	.26	1.6	144	113	220	64	5.5	
2	35 ~~20~~	178.0	.~~27~~ 1	1.6	145	114	274	62	5.5	
3	~~5~~ 40 ~~22.5~~	181.6	.22	1.3	148	115	247	62	5.5	
4	45 ~~25~~	~~184.6~~ 184.6	.18	1.1	148	117	208	63	5.5	
5	6 50 ~~27.5~~	187.7	.18	1.1	145	118	264	63	5.5	
6	55 ~~30~~	190.7	.16	.96	143	115	229	64	5	
	60	193.480	—	—	—	—	—	—	—	

a) .005053
b) 1529.08
c) 58.25

CTM-027 HCL

AMBIENT AIR SERVICES
106 AMBIENT AIR WAY
STARKE FL. 32091 (904) 964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY: GP Palatka
SOURCE: Bleach Plant
WEATHER: Partial Clouds
TYPE TEST: CTM-027
TESTERS: RW, RD
12 PTS. @ 5 MIN/PT = 60 MIN F.D.A. = .94
Y meter = 2.998 Filter No. =
COMMENTS:

RUN NO 2
DATE 10/29/02

PRE-TEST- 143 605
Ts = ~~150~~ ~~600~~
Tm = ~~105~~ ~~565~~ 571

BAROMETRIC PRESS. 30.03
METER BOX ID: RS+ 10
METER DELTA H: 2.050
PROBE ID: 13
PITOT CORR FACTOR 0.84
NOZZLE DIA. 0.275 in.
PROBE TEMP N/A
STACK ID (IN.)= 42"
UP/DOWN STREAM 28 22

TIME START 1153 START VOLUME 195,055
TIME END 1538 END VOLUME
PORT LENGTH (IN) 7" Factors: 6.04

static -.16

4286.22
1570 X 170,55 X .005
1536.7

LEAK CHECK:
PRE.TEST 0 CFM@15": POST: .015 8 " Hg.

PITOT LEAK CHECK = OK AT 3"

VOL. WATER COLLECTED = 66 ML
WEIGHT MOIS. SILICA GEL = GR

STAT PRESS= -.16

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORRIFICE PRESS. DROP	STACK GAS TEMP	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg	PROBE GAS TEMP
1-1 ~~1~~	0 ~~25~~	195.055	.21	1.3	~~195~~ HOT	115	125	76	~~20~~ 5	N/A
2	5 ~~5~~	197.7	.2	1.2	145	117	274	60	6	
3 ~~2~~	10 ~~75~~	201.1	.16	.96	146	118	254	59	4.5	
4	15 ~~10~~	205.8	.16	.96	147	118	220	60	4.5	
5 ~~3~~	20 ~~125~~	206.5	.16	.96	145	119	263	56	4.5	
6	25 ~~15~~	209.2	.12	.72	139	120	245	54	4	
2-1 ~~4~~	30 ~~17.5~~	~~3~~ 211.665	.25	1.5	146	120	274	54	5	
2	35 ~~20~~	214.7	.25	1.5	146	120	238	50	5	
3 ~~6~~	40 ~~22.5~~	218.0	.22	1.3	147	121	284	52	5	
4	45 ~~25~~	221.2	.22	1.3	147	121	272	52	5	
5 ~~6~~	50 ~~27.5~~	224.4	.18	1.1	144	121	221	54	5	
6	55 ~~30~~	227.4	.16	.96	143	121	259	55	~~7.5~~	
	60	230.2	—	—	—	—	—	—	—	

a) $(.275^2 \times .94)^2$
b) $(1.6 \times .94) 605$
c) 571×2.05

AMBIENT AIR SERVICES
106 AMBIENT AIR WAY
STARKE FL 32091 (904) 964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY: GP Rialto
SOURCE: Bleach Plant
WEATHER: Partial Clouds PRE-TEST.
TYPE TEST: CFM-027 HCl Ts = 245 605
TESTERS: RW Tm = ~~245~~ 115 585
12 PTS. @ 5 MIN/PT = 60 MIN F.D.A. = .94
Y meter = 0.998 Filter No. =
COMMENTS:

RUN NO 3
DATE 10/29/02
CC
OC
CC

BAROMETRIC PRESS. 30.03
METER BOX ID. ~~RS1~~ ~~FF~~ 10
METER DELTA H: 2.05
PROBE ID. C3
PITOT CORR. FACTOR 0.84
NOZZLE DIA 0.275 in.
PROBE TEMP. N/A
STACK ID (IN.)= 42
UP/DOWN STREAM >8 >2

TIME START 1700 START VOLUME 230.750
TIME END 1802 END VOLUME 269.62
PORT LENGTH (IN) 7" Factors: 6.04

-.15

LEAK CHECK:
PRE-TEST 0 CFM@15". POST: "Hg.
PITOT LEAK CHECK = OK AT 3"
VOL. WATER COLLECTED = 68 ML
WEIGHT MOIS. SILICA GEL = GR

STAT PRESS= -.15

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORRIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGER TEMP.	VACUUM INCHES Hg.	PROBE GAS TEMP
1-1 ~~1~~	~~0~~ 0	230.750	.26	1.6	144	109	250	63	5.5	N/A
2	5 ~~5~~	234.0	.28	1.7	142	102	243	52	5.5	
3 ~~2~~	10 ~~7.5~~	237.5	.26	1.6	144	107	278	51	5.5	
4	15 ~~10~~	240.9	.25	1.6	143	107	240	50	5.5	
5 ~~3~~	20 ~~12.5~~	244.3	.2	1.2	141	107	237	50	5.5	
6	25 ~~15~~	247.5	.18	1.1	140	107	291	50	5	
2-1 ~~4~~	30 ~~17.5~~	250.56	.26	1.6	141	106	222	52	7	
2	35 ~~20~~	254.2	.28	1.7	143	106	278	50	7	
3 ~~5~~	40 ~~22.5~~	257.8	.22	1.3	144	106	263	50	6	
4	45 ~~25~~	261.0	.2	1.2	142	105	225	50	5	
5 ~~6~~	50 ~~27.5~~	264.2	.18	1.1	142	105	225	50	5	
6	55 ~~30~~	266.9	.18	1.1	140	105	242	50	5	
	60	269.620	—	—	—	—	—	—	—	

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY: Georgia-Pacific, Palatka
SOURCE: Bleach Plant
WEATHER: p. cloudy
TYPE TEST: HCl method 26A
TESTERS:
12 PTS. @ 5 MIN/PT = 60 MIN
Y meter = 0.998
COMMENTS:

RUN No. 1
DATE 10/31/02

PRE-TES
Ts =
Tm = 94
F.D.A. = 2.94
Filter No. =

ORSAT
CO2
O2
CO

BAROMETRIC PRESS
METER BOX ID 10
METER DELTA Ha 2.05
PROBE ID
PITOT CORR. FACTOR 0.84
NOZZLE DIA. 0.275 in.
PROBE TEMP. ~250
STACK ID (IN): 42"
PORT LENGTH 6"

TIME START 1332
TIME END 1443

START VOLUME 275.210
END VOLUME
Factors:

F=1570(aXc)/b
a = (Dn^2XFDA)^2
b= (1.6+FDA)Ts
c= Tm X DHa

LEAK CHECK:
PRE.TEST 0.012 CFM@15". POS 0.016/0 "Hg.

PITOT LEAK CHECK = OK AT 3"

VOL.WATER COLLEC = 68 ML STAT.PRESS=
WT. MOIS. SILICA GE = GR

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCIT Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGE TEMP.	VACUUM INCHES Hg
1-1	0	275.210	0.28	1.70	142	100	101	246	64	<5
2	5	78.64	0.26	1.58	144	102	100	256	56	<6
3	10	82.01	0.24	1.45	141	103	99	258	56	<5
4	15	85.32	0.18	1.09	141	105	100	259	55	<5
5	20	88.35	0.16	0.97	141	108	101	260	56	<5
6	25	91.11	0.14	0.85	142	108	102	258	56	<5
2-1	30	94.185	0.27	1.64	141	109	103	261	57	<6
2	35	97.45	0.29	1.76	141	109	103	260	55	<5
3	40	300.74	0.27	1.64	142	109	103	262	55	<6
4	45	04.18	0.24	1.45	142	109	102	259	56	<6
5	50	07.71	0.18	1.09	144	109	102	261	56	<5
6	55	10.44	0.16	0.97	143	109	102	258	56	<5
	60	313.155								

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY: Georgia-Pacific, Palatka
SOURCE: Bleach Plant
WEATHER: cloudy
TYPE TEST: HCl method 26A
TESTERS:
_12_ PTS. @ _5_ MIN/PT = _60_ MIN
Y meter = 0.998
COMMENTS:

RUN No. 2
DATE 10/31/02

PRE-TES
Ts =
Tm =
F.D.A. =

ORSA
CO2
O2
CO

Filter No. =

BAROMETRIC PRESS
METER BOX ID 10
METER DELTA Ha 2.050
PROBE ID
PITOT CORR FACTOR 0.84
NOZZLE DIA 0.275 in.
PROBE TEMP ~250
STACK ID (IN): 42
PORT LENGTH 6

TIME START 1550
TIME END 1656

START VOLUME 321.080
END VOLUME 359.105
Factors:

F=1570(aXc)/b
a=(Dn^2/FDA)^2
b=(1.6-FDA)Ts
c=Tm X DHa

LEAK CHECK:
PRE.TEST 0.014 CFM@15". POS 0.009 "Hg.

PITOT LEAK CHECK = OK AT 3"

VOL.WATER COLLECT = 68 ML STAT.PRESS= -0.14
WT. MOIS. SILICA GEL = GR

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGE TEMP.	VACUUM INCHES Hg.
1-1	0	321.080	0.27	1.64	140	94	93	242	61	<5
2	5	24.27	0.28	1.70	141	95	92	256	55	<6
3	10	28.91	0.24	1.45	143	103	96	238	56	<6
4	15	31.16	0.22	1.34	145	103	96	260	56	<6
5	20	34.18	0.18	1.09	144	105	97	262	56	<5
6	25	37.14	0.16	0.97	144	105	97	259	56	<5
2-1	30	339.69	0.29	1.76	141	105	97	262	55	<6
2	35	43.12	0.30	1.82	142	105	97	260	56	<6
3	40	47.32	0.22	1.34	144	108	99	258	56	<6
4	45	50.51	0.20	1.22	145	108	98	260	57	<6
5	50	53.54	0.16	0.97	144	108	98	261	56	<5
6	55	56.52	0.14	0.85	144	108	97	259	56	<5
	60	359.105								

AMBIENT AIR SERVICES, INC.
STARKE, FL
(904)964-8440

SOURCE SAMPLING FIELD DATA SHEET

FACILITY: Georgia-Pacific, Palatka
SOURCE: Bleach Plant
WEATHER: cloudy
TYPE TEST: HCl method 26A
TESTERS: GH, RB
_12_ PTS. @ _5_ MIN/PT = _60_ MIN
Y meter = 0.998
COMMENTS:

RUN No 3
DATE 10/21/02
PRE-TES
Ts = _____
Tm = _____
F.D.A. = _____
Filter No. = _____
ORSA
CO2 _____
O2 _____
CO _____

BAROMETRIC PRESS _____
METER BOX ID 10
METER DELTA Ha 2.050
PROBE ID _____
PITOT CORR. FACTOR 0.84
NOZZLE DIA. 0.275 in.
PROBE TEMP. ~250
STACK ID (IN). 42
PORT LENGTH 6"

TIME START ~~1730~~ 1710 hrs
TIME END 1816

START VOLUME 359.405
END VOLUME 396.405
Factors: _____

F=1570(aXc)/b
a = (Dn^2XFDA)^2
b= (1.6+FDA)Ts
c= Tm X DHa

LEAK CHECK:
PRE.TEST 0.008 CFM@15". POS 0.006/7 " Hg.
PITOT LEAK CHECK = OK AT 3"
VOL.WATER COLLECT = 70 ML STAT.PRESS= -0.16
WT. MOIS. SILICA GE = GR

PORT & SAMPLE POINT	CLOCK TIME	GAS METER READING	STACK VELOCITY Dp	ORIFICE PRESS. DROP	STACK GAS TEMP.	METER TEMP (F)	METER TEMP (F)	FILTER TEMP. (F)	LAST IMPINGE TEMP.	VACUUM INCHES Hg
1-1	0	359.405	0.30	1.70	138	97	95	243	59	<6
2	5	62.62	0.26	1.58	140	100	96	257	54	<6
3	10	66.36	0.22	1.34	142	98	95	260	54	<6
4	15	69.28	0.20	1.21	140	100	93	257	54	<6
5	20	72.31	0.16	0.97	139	101	93	259	54	<6
6	25	75.50	0.14	0.85	142	102	94	260	54	<6
2-1	30	77.92	0.30	1.82	142	102	94	258	54	<6
2	35	81.40	0.24	1.58	141	102	94	259	55	<6
3	40	84.84	0.24	1.46	140	102	94	262	55	<6
4	45	88.22	0.20	1.21	140	102	94	263	55	<6
5	50	91.11	0.16	0.97	139	103	95	264	56	<6
6	55	93.91	0.14	0.85	140	102	95	263	55	<6
	60	396.405								

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 29, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_M	CO C_{MA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/29/02 12:01	1982.2		1994 CO Cal						
10/29/02 12:02	1929.0								
10/29/02 12:03	982.2								
10/29/02 12:04	995.6		991 CO Cal						
10/29/02 12:05	995.1		991 CO Cal						
10/29/02 12:06	621.1								
10/29/02 12:07	580.7								
10/29/02 12:08	588.0		594 4 CO Cal						
10/29/02 12:09	588.0		594.4 CO Cal						
10/29/02 12:10	588.0		594 4 CO Cal						
10/29/02 12:11	572.3								
10/29/02 12:12	279.5								
10/29/02 12:13	299.1		301.9 CO Cal						
10/29/02 12:14	299.1		301.9 CO Cal						
10/29/02 12:15	299.1		301.9 CO Cal						
10/29/02 12:16	299.1		301.9 CO Cal						
10/29/02 12:17	299.1		301 9 CO Cal						
10/29/02 12:18	234.7								
10/29/02 12:19	10.2								
10/29/02 12:20	4.0		0 CO Cal						
10/29/02 12:21	4.6								
10/29/02 12:22	454.3								
10/29/02 12:23	917.7								
10/29/02 12:24	994.3								
10/29/02 12:25	969.3	1		4.80	996 85	991.00	963.5	12068	54 35
10/29/02 12:26	984.3	1		4.80	996 85	991.00	978.5	12676	57 97
10/29/02 12:27	1002.7	1		4 80	996 85	991 00	996 8	12676	59 06
10/29/02 12:28	987.7	1		4.80	996 65	991 00	981 8	12676	58 17
10/29/02 12:29	981 0	1		4 80	996 85	991.00	975.2	12676	57.78
10/29/02 12:30	996.0	1		4 80	996 85	991.00	990 2	12676	58 67
10/29/02 12:31	1009.3	1		4.80	996 85	991.00	1003.5	12676	59 45
10/29/02 12:32	987.7	1		4.80	996 85	991 00	981 8	12676	58.17
10/29/02 12:33	997.7	1		4 80	996 85	991 00	991.8	12676	58.76
10/29/02 12:34	1004.3	1		4.80	996 85	991 00	998.5	12676	59 16
10/29/02 12:35	996.0	1		4.80	996 85	991 00	990 2	12676	58.67
10/29/02 12:36	992.7	1		4 80	996 85	991.00	986 8	12676	58 47
10/29/02 12:37	976.0	1		4 80	996 85	991.00	970.2	12676	57 48
10/29/02 12:38	961.0	1		4 80	996 85	991 00	955 2	12676	56 59
10/29/02 12:39	954.3	1		4 80	996 85	991 00	948 5	12676	56 20
10/29/02 12:40	972.7	1		4 80	996 85	991 00	966 8	12676	57 28
10/29/02 12:41	959.3	1		4 80	996 85	991 00	953 5	12676	56 50
10/29/02 12:42	949.3	1		4 80	996 85	991 00	943 5	12676	55 90
10/29/02 12:43	977 7	1		4 80	996 85	991 00	971 8	12676	57 58
10/29/02 12 44	971.0	1		4 80	996 85	991 00	965 2	12676	57 19
10/29/02 12 45	974 3	1		4 80	996 85	991 00	968 5	12676	57 38
10/29/02 12.46	981.0	1		4 80	996 85	991 00	975 2	12676	57 78
10/29/02 12 47	956 0	1		4 80	996 85	991 00	950 2	12676	56 30
10/29/02 12 48	966 0	1		4 80	996 85	991 00	960 2	12676	56 89
10/29/02 12 49	957 7	1		4 80	996 85	991 00	951 9	12676	56 40

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_{ad}	CO C_{adA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/29/02 12:50	926.0	1		4.80	996.85	991.00	920.2	12676	54.52
10/29/02 12:51	937.7	1		4.80	996.85	991.00	931.9	12676	55.21
10/29/02 12:52	906.0	1		4.80	996.85	991.00	900.2	12676	53.34
10/29/02 12:53	934.3	1		4.80	996.85	991.00	928.5	12676	55.02
10/29/02 12:54	926.0	1		4.80	996.85	991.00	920.2	12676	54.52
10/29/02 12:55	887.7	1		4.80	996.85	991.00	881.9	12676	52.25
10/29/02 12:56	912.7	1		4.80	996.85	991.00	906.9	12676	53.73
10/29/02 12:57	921.0	1		4.80	996.85	991.00	915.2	12676	54.23
10/29/02 12:58	929.3	1		4.80	996.85	991.00	923.6	12676	54.72
10/29/02 12:59	962.7	1		4.80	996.85	991.00	956.9	12676	56.69
10/29/02 13:00	956.0	1		4.80	996.85	991.00	950.2	12676	56.30
10/29/02 13:01	979.3	1		4.80	996.85	991.00	973.5	12676	57.68
10/29/02 13:02	979.3	1		4.80	996.85	991.00	973.5	12676	57.68
10/29/02 13:03	1002.7	1		4.80	996.85	991.00	996.8	12676	59.06
10/29/02 13:04	1026.0	1		4.80	996.85	991.00	1020.1	12676	60.44
10/29/02 13:05	1011.0	1		4.80	996.85	991.00	1005.1	12676	59.55
10/29/02 13:06	1012.7	1		4.80	996.85	991.00	1006.8	12676	59.65
10/29/02 13:07	1014.3	1		4.80	996.85	991.00	1008.5	12676	59.75
10/29/02 13:08	996.0	1		4.80	996.85	991.00	990.2	12676	58.67
10/29/02 13:09	1014.3	1		4.80	996.85	991.00	1008.5	12676	59.75
10/29/02 13:10	1026.0	1		4.80	996.85	991.00	1020.1	12676	60.44
10/29/02 13:11	1007.7	1		4.80	996.85	991.00	1001.8	12676	59.36
10/29/02 13:12	1036.0	1		4.80	996.85	991.00	1030.1	12676	61.03
10/29/02 13:13	1024.3	1		4.80	996.85	991.00	1018.5	12676	60.34
10/29/02 13:14	1001.0	1		4.80	996.85	991.00	995.1	12676	58.96
10/29/02 13:15	1017.7	1		4.80	996.85	991.00	1011.8	12676	59.95
10/29/02 13:16	1032.7	1		4.80	996.85	991.00	1026.8	12676	60.84
10/29/02 13:17	1027.7	1		4.80	996.85	991.00	1021.8	12676	60.54
10/29/02 13:18	1011.0	1		4.80	996.85	991.00	1005.1	12676	59.55
10/29/02 13:19	1024.3	1		4.80	996.85	991.00	1018.5	12676	60.34
10/29/02 13:20	1026.0	1		4.80	996.85	991.00	1020.1	12676	60.44
10/29/02 13:21	1036.0	1		4.80	996.85	991.00	1030.1	12676	61.03
10/29/02 13:22	1051.0	1		4.80	996.85	991.00	1045.1	12676	61.92
10/29/02 13:23	1034.3	1		4.80	996.85	991.00	1028.4	12676	60.93
10/29/02 13:24	1034.3	1		4.80	996.85	991.00	1028.4	12676	60.93
				Run 1 Average			***979.0***		***57.96***
10/29/02 13:25	1037.7								
10/29/02 13:26	771.0								
10/29/02 13:27	54.0								
10/29/02 13:28	13.8								
10/29/02 13:29	13.8								
10/29/02 13:30	5.6		0 CO Cal						
10/29/02 13:31	723.3								
10/29/02 13:32	1990.0								
10/29/02 13:33	1993.1		994 CO Cal						
10/29/02 13:34	1993.1		994 CO Cal						
10/29/02 13:35	1993.1		994 CO Cal						
10/29/02 13:36	1521.4								
10/29/02 13:37	978.7								
10/29/02 13:38	998.3		991 CO Cal						

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_d	CO C_{adj}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/29/02 13:39	645.1								
10/29/02 13:40	587.4		594.4 CO Cal						
10/29/02 13:41	464.9								
10/29/02 13:42	282.6								
10/29/02 13:43	300.1		301.9 CO Cal						
10/29/02 13:44	204.3								
10/29/02 13:45	212.6								
10/29/02 13:46	1138.3								
10/29/02 13:47	1186.7								
10/29/02 13:48	1184.7								
10/29/02 13:49	1186.7								
10/29/02 13:50	1190.9								
10/29/02 13:51	1201.2								
10/29/02 13:52	1212.5								
10/29/02 13:53	1192.9								
10/29/02 13:54	1207.3								
10/29/02 13:55	1193.9								
10/29/02 13:56	1187.8								
10/29/02 13:57	1191.9								
10/29/02 13:58	1190.9								
10/29/02 13:59	1208.4								
10/29/02 14:00	1241.3								
10/29/02 14:01	1223.8								
10/29/02 14:02	1219.7								
10/29/02 14:03	1213.5								
10/29/02 14:04	1212.5								
10/29/02 14:05	1235.1								
10/29/02 14:06	1251.6								
10/29/02 14:07	1234.1								
10/29/02 14:08	1223.8								
10/29/02 14:09	1224.8								
10/29/02 14:10	1227.9								
10/29/02 14:11	1269.1								
10/29/02 14:12	1271.2								
10/29/02 14:13	1253.7								
10/29/02 14:14	1269.1								
10/29/02 14:15	1250.6								
10/29/02 14:16	1227.9								
10/29/02 14:17	1246.5								
10/29/02 14:18	1245.4								
10/29/02 14:19	1193.9								
10/29/02 14:20	1220.7								
10/29/02 14:21	1215.6								
10/29/02 14:22	1155.8								
10/29/02 14:23	1162.0								
10/29/02 14:24	1153.8								
10/29/02 14:25	1111.6								
10/29/02 14:26	1081.7								
10/29/02 14:27	1051.8								

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_M	CO C_{MA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/29/02 14:28	1024.0								
10/29/02 14:29	1026.1								
10/29/02 14:30	1002.4								
10/29/02 14:31	1007.6								
10/29/02 14:32	978.7								
10/29/02 14:33	961.2	2		4.05	997.8	991	954.5	12068	53.84
10/29/02 14:34	960.2	2		4.05	997.8	991	953.5	12068	53.78
10/29/02 14:35	933.4	2		4.05	997.8	991	926.8	12068	52.28
10/29/02 14:36	940.6	2		4.05	997.8	991	934.0	12068	52.68
10/29/02 14:37	930.3	2		4.05	997.8	991	923.7	12068	52.10
10/29/02 14:38	905.6	2		4.05	997.8	991	899.1	12068	50.71
10/29/02 14:39	923.1	2		4.05	997.8	991	916.5	12068	51.70
10/29/02 14:40	895.3	2		4.05	997.8	991	888.8	12068	50.13
10/29/02 14:41	897.4	2		4.05	997.8	991	890.8	12068	50.25
10/29/02 14:42	901.5	2		4.05	997.8	991	894.9	12068	50.48
10/29/02 14:43	890.2	2		4.05	997.8	991	883.7	12068	49.84
10/29/02 14:44	897.4	2		4.05	997.8	991	890.8	12068	50.25
10/29/02 14:45	880.9	2		4.05	997.8	991	874.4	12068	49.32
10/29/02 14:46	887.1	2		4.05	997.8	991	880.6	12068	49.67
10/29/02 14:47	853.1	2		4.05	997.8	991	846.7	12068	47.76
10/29/02 14:48	857.2	2		4.05	997.8	991	850.8	12068	47.99
10/29/02 14:49	862.4	2		4.05	997.8	991	855.9	12068	48.28
10/29/02 14:50	840.7	2		4.05	997.8	991	834.4	12068	47.06
10/29/02 14:51	856.2	2		4.05	997.8	991	849.8	12068	47.93
10/29/02 14:52	834.5	2		4.05	997.8	991	828.2	12068	46.72
10/29/02 14:53	811.9	2		4.05	997.8	991	805.6	12068	45.44
10/29/02 14:54	821.2	2		4.05	997.8	991	814.8	12068	45.96
10/29/02 14:55	807.8	2		4.05	997.8	991	801.5	12068	45.21
10/29/02 14:56	802.6	2		4.05	997.8	991	796.4	12068	44.92
10/29/02 14:57	789.2	2		4.05	997.8	991	783.0	12068	44.17
10/29/02 14:58	765.6	2		4.05	997.8	991	759.4	12068	42.84
10/29/02 14:59	768.6	2		4.05	997.8	991	762.5	12068	43.01
10/29/02 15:00	756.3	2		4.05	997.8	991	750.2	12068	42.31
10/29/02 15:01	778.9	2		4.05	997.8	991	772.7	12068	43.59
10/29/02 15:02	772.8	2		4.05	997.8	991	766.6	12068	43.24
10/29/02 15:03	763.5	2		4.05	997.8	991	757.3	12068	42.72
10/29/02 15:04	749.1	2		4.05	997.8	991	743.0	12068	41.91
10/29/02 15:05	728.5	2		4.05	997.8	991	722.4	12068	40.75
10/29/02 15:06	730.5	2		4.05	997.8	991	724.5	12068	40.87
10/29/02 15:07	732.6	2		4.05	997.8	991	726.5	12068	40.98
10/29/02 15:08	722.3	2		4.05	997.8	991	716.3	12068	40.40
10/29/02 15:09	736.7	2		4.05	997.8	991	730.6	12068	41.21
10/29/02 15:10	731.6	2		4.05	997.8	991	725.5	12068	40.92
10/29/02 15:11	742.9	2		4.05	997.8	991	736.9	12068	41.56
10/29/02 15:12	727.4	2		4.05	997.8	991	721.4	12068	40.69
10/29/02 15:13	735.7	2		4.05	997.8	991	729.6	12068	41.16
10/29/02 15:14	742.9	2		4.05	997.8	991	736.8	12068	41.56
10/29/02 15:15	735.7	2		4.05	997.8	991	729.6	12068	41.16
10/29/02 15:16	737.7	2		4.05	997.8	991	731.7	12068	41.27

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Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_m	CO C_{ma}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/29/02 15:17	730.5	2		4.05	997.8	991	724.5	12068	40.87
10/29/02 15:18	715.1	2		4.05	997.8	991	709.1	12068	40.00
10/29/02 15:19	731.6	2		4.05	997.8	991	725.5	12068	40.92
10/29/02 15:20	739.8	2		4.05	997.8	991	733.7	12068	41.39
10/29/02 15:21	732.6	2		4.05	997.8	991	726.5	12068	40.98
10/29/02 15:22	730.5	2		4.05	997.8	991	724.5	12068	40.87
10/29/02 15:23	720.2	2		4.05	997.8	991	714.2	12068	40.29
10/29/02 15:24	708.9	2		4.05	997.8	991	702.9	12068	39.65
10/29/02 15:25	723.3	2		4.05	997.8	991	717.3	12068	40.46
10/29/02 15:26	732.6	2		4.05	997.8	991	726.5	12068	40.98
10/29/02 15:27	713.0	2		4.05	997.8	991	707.0	12068	39.88
10/29/02 15:28	706.9	2		4.05	997.8	991	700.9	12068	39.53
10/29/02 15:29	714.1	2		4.05	997.8	991	708.0	12068	39.94
10/29/02 15:30	704.8	2		4.05	997.8	991	698.8	12068	39.42
10/29/02 15:31	740.8	2		4.05	997.8	991	734.7	12068	41.44
10/29/02 15:32	749.1	2		4.05	997.8	991	743.0	12068	41.91
10/29/02 15:33	737.7			*Run 2 Average*			*788.7*		*44.49*
10/29/02 15:34	739.8								
10/29/02 15:35	731.6								
10/29/02 15:36	720.2								
10/29/02 15:37	726.4								
10/29/02 15:38	723.3								
10/29/02 15:39	500.9								
10/29/02 15:40	6.6								
10/29/02 15:41	2.5		0 CO Cal						
10/29/02 15:42	2.5		0 CO Cal						
10/29/02 15:43	2.5		0 CO Cal						
10/29/02 15:44	8.7								
10/29/02 15:45	758.3								
10/29/02 15:46	996.2		991 CO Cal						
10/29/02 15:47	998.3		991 CO Cal						
10/29/02 15:48	850.0								
10/29/02 15:49	731.6								
10/29/02 15:50	716.1								
10/29/02 15:51	716.1								

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Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_M	CO C_{MA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 7:13	684.2								
10/31/02 7:14	691.4								
10/31/02 7:15	698.6								
10/31/02 7:16	687.3								
10/31/02 7:17	679.0								
10/31/02 7:18	229.0								
10/31/02 7:19	15.9								
10/31/02 7:20	8.7		0 cal						
10/31/02 7:21	8.7								
10/31/02 7:22	111.6								
10/31/02 7:23	896.3								
10/31/02 7:24	1019.9								
10/31/02 7:25	1022.0		991 cal						
10/31/02 7:26	1022.0		991 cal						
10/31/02 7:27	1022.0		991 cal						
10/31/02 7:28	1022.0		991 cal						
10/31/02 7:29	1022.0		991 cal						
10/31/02 7:30	1730.5								
10/31/02 7:31	1993.1		1994 cal						
10/31/02 7:32	1993.1		1994 cal						
10/31/02 7:33	1993.1		1994 cal						
10/31/02 7:34	1993.1		1994 cal						
10/31/02 7:35	1993.1		1994 cal						
10/31/02 7:36	1971.4								
10/31/02 7:37	1009.6								
10/31/02 7:38	610.1								
10/31/02 7:39	602.8		594 cal						
10/31/02 7:40	602.8								
10/31/02 7:41	599.8								
10/31/02 7:42	657.4								
10/31/02 7:43	558.6								
10/31/02 7:44	322.7								
10/31/02 7:45	309.4		301 cal						
10/31/02 7:46	309.4								
10/31/02 7:47	315.5								
10/31/02 7:48	583.3						#DIV/0!		#DIV/0
10/31/02 7:49	679.0								
10/31/02 7:50	680.1								
10/31/02 7:51	688.3								
10/31/02 7:52	679.0								
10/31/02 7:53	673.9								
10/31/02 7:54	676.0								
10/31/02 7:55	661.5								
10/31/02 7:56	670.8								
10/31/02 7:57	682.1								
10/31/02 7:58	687.3								
10/31/02 7:59	683.2								
10/31/02 8:00	666.7								
10/31/02 8:01	683.2								

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_w	CO C_{wa}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 8:02	678.0								
10/31/02 8:03	673.9								
10/31/02 8:04	681.1								
10/31/02 8:05	692.4								
10/31/02 8:06	672.9								
10/31/02 8:07	692.4								
10/31/02 8:08	698.6								
10/31/02 8:09	680.1								
10/31/02 8:10	687.3								
10/31/02 8:11	685.2								
10/31/02 8:12	680.1								
10/31/02 8:13	689.3								
10/31/02 8:14	691.4								
10/31/02 8:15	682.1								
10/31/02 8:16	690.4								
10/31/02 8:17	688.3								
10/31/02 8:18	690.4								
10/31/02 8:19	688.3								
10/31/02 8:20	674.9								
10/31/02 8:21	682.1								
10/31/02 8:22	697.6								
10/31/02 8:23	682.1								
10/31/02 8:24	682.1								
10/31/02 8:25	693.5								
10/31/02 8:26	687.3								
10/31/02 8:27	692.4								
10/31/02 8:28	680.1								
10/31/02 8:29	689.3								
10/31/02 8:30	694.5								
10/31/02 8:31	681.1								
10/31/02 8:32	687.3								
10/31/02 8:33	687.3								
10/31/02 8:34	667.7								
10/31/02 8:35	664.6								
10/31/02 8:36	667.7								
10/31/02 8:37	655.4								
10/31/02 8:38	670.8								
10/31/02 8:39	667.7								
10/31/02 8:40	674.9								
10/31/02 8:41	691.4								
10/31/02 8:42	693.5								
10/31/02 8:43	704.8								
10/31/02 8:44	717.2								
10/31/02 8:45	717.2								
10/31/02 8:46	728.5								
10/31/02 8:47	721.3								
10/31/02 8:48	720.2								
10/31/02 8:49	719.2								
10/31/02 8:50	719.2								

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_u	CO C_{uA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 8:51	714.1								
10/31/02 8:52	708.9								
10/31/02 8:53	699.6								
10/31/02 8:54	702.7								
10/31/02 8:55	688.3								
10/31/02 8:56	698.6								
10/31/02 8:57	700.7								
10/31/02 8:58	695.5								
10/31/02 8:59	705.8								
10/31/02 9:00	707.9								
10/31/02 9:01	701.7								
10/31/02 9:02	711.0								
10/31/02 9:03	709.9								
10/31/02 9:04	705.8								
10/31/02 9:05	721.3								
10/31/02 9:06	681.1								
10/31/02 9:07	678.0								
10/31/02 9:08	681.1								
10/31/02 9:09	679.0								
10/31/02 9:10	679.0								
10/31/02 9:11	680.1								
10/31/02 9:12	673.9								
10/31/02 9:13	680.1								
10/31/02 9:14	674.9								
10/31/02 9:15	673.9								
10/31/02 9:16	676.0								
10/31/02 9:17	663.6								
10/31/02 9:18	667.7								
10/31/02 9:19	664.6								
10/31/02 9:20	648.2								
10/31/02 9:21	642.0								
10/31/02 9:22	633.7								
10/31/02 9:23	618.3								
10/31/02 9:24	616.2								
10/31/02 9:25	609.0								
10/31/02 9:26	597.7								
10/31/02 9:27	566.8								
10/31/02 9:28	553.4								
10/31/02 9:29	78.7								
10/31/02 9:30	6.6								
10/31/02 9:31	16.9								
10/31/02 9:32	263.0								
10/31/02 9:33	614.2								
10/31/02 9:34	685.2								
10/31/02 9:35	680.1								
10/31/02 9:36	689.3								
10/31/02 9:37	685.2								
10/31/02 9:38	673.9								
10/31/02 9:39	699.6								

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Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_w	CO C_{wa}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 9:40	700.7								
10/31/02 9:41	686.3								
10/31/02 9:42	686.3								
10/31/02 9:43	690.4								
10/31/02 9:44	673.9								
10/31/02 9:45	679.0								
10/31/02 9:46	691.4								
10/31/02 9:47	680.1								
10/31/02 9:48	696.6								
10/31/02 9:49	689.3								
10/31/02 9:50	680.1								
10/31/02 9:51	679.0								
10/31/02 9:52	676.0								
10/31/02 9:53	671.8								
10/31/02 9:54	681.1								
10/31/02 9:55	670.8								
10/31/02 9:56	678.0								
10/31/02 9:57	668.8								
10/31/02 9:58	661.5								
10/31/02 9:59	661.5								
10/31/02 10:00	660.5								
10/31/02 10:01	654.3								
10/31/02 10:02	666.7								
10/31/02 10:03	664.6								
10/31/02 10:04	658.5								
10/31/02 10:05	674.9								
10/31/02 10:06	671.8								
10/31/02 10:07	666.7								
10/31/02 10:08	677.0								
10/31/02 10:09	685.2								
10/31/02 10:10	673.9								
10/31/02 10:11	671.8								
10/31/02 10:12	659.5								
10/31/02 10:13	662.6								
10/31/02 10:14	666.7								
10/31/02 10:15	650.2								
10/31/02 10:16	656.4								
10/31/02 10:17	660.5								
10/31/02 10:18	649.2								
10/31/02 10:19	658.5								
10/31/02 10:20	661.5								
10/31/02 10:21	654.3								
10/31/02 10:22	663.6								
10/31/02 10:23	662.6								
10/31/02 10:24	659.5								
10/31/02 10:25	678.0								
10/31/02 10:26	672.9								
10/31/02 10:27	667.7								
10/31/02 10:28	671.8								

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Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_d	CO C_{as}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 10:29	670.8								
10/31/02 10:30	676.0								
10/31/02 10:31	680.1								
10/31/02 10:32	670.8								
10/31/02 10:33	660.5								
10/31/02 10:34	664.6								
10/31/02 10:35	658.5								
10/31/02 10:36	664.6								
10/31/02 10:37	662.6								
10/31/02 10:38	658.5								
10/31/02 10:39	672.9								
10/31/02 10:40	662.6								
10/31/02 10:41	653.3								
10/31/02 10:42	666.7								
10/31/02 10:43	664.6								
10/31/02 10:44	678.0								
10/31/02 10:45	678.0								
10/31/02 10:46	671.8								
10/31/02 10:47	680.1								
10/31/02 10:48	684.2								
10/31/02 10:49	672.9								
10/31/02 10:50	681.1								
10/31/02 10:51	677.0								
10/31/02 10:52	666.7								
10/31/02 10:53	667.7								
10/31/02 10:54	661.5								
10/31/02 10:55	656.4								
10/31/02 10:56	655.4								
10/31/02 10:57	652.3								
10/31/02 10:58	662.6								
10/31/02 10:59	649.2								
10/31/02 11:00	657.4								
10/31/02 11:01	661.5								
10/31/02 11:02	661.5								
10/31/02 11:03	678.0								
10/31/02 11:04	666.7								
10/31/02 11:05	654.3								
10/31/02 11:06	673.9								
10/31/02 11:07	672.9								
10/31/02 11:08	669.8								
10/31/02 11:09	676.0								
10/31/02 11:10	666.7								
10/31/02 11:11	680.1								
10/31/02 11:12	674.9								
10/31/02 11:13	666.7								
10/31/02 11:14	679.0								
10/31/02 11:15	680.1								
10/31/02 11:16	672.9								
10/31/02 11:17	682.1								

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Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_w	CO C_{wA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 11:18	673.9								
10/31/02 11:19	687.3								
10/31/02 11:20	691.4								
10/31/02 11:21	679.0								
10/31/02 11:22	690.4								
10/31/02 11:23	686.3								
10/31/02 11:24	681.1								
10/31/02 11:25	691.4								
10/31/02 11:26	693.5								
10/31/02 11:27	699.6								
10/31/02 11:28	704.8								
10/31/02 11:29	700.7								
10/31/02 11:30	695.5								
10/31/02 11:31	700.7								
10/31/02 11:32	694.5								
10/31/02 11:33	697.6								
10/31/02 11:34	697.6								
10/31/02 11:35	701.7								
10/31/02 11:36	699.6								
10/31/02 11:37	687.3								
10/31/02 11:38	680.1								
10/31/02 11:39	688 3								
10/31/02 11:40	686.3								
10/31/02 11:41	689.3								
10/31/02 11:42	700.7								
10/31/02 11:43	695.5								
10/31/02 11:44	699.6								
10/31/02 11:45	695.5								
10/31/02 11:46	703.8								
10/31/02 11:47	701.7								
10/31/02 11:48	706.9								
10/31/02 11:49	700.7								
10/31/02 11:50	705.8								
10/31/02 11:51	697.6								
10/31/02 11:52	701.7								
10/31/02 11:53	704.8								
10/31/02 11:54	698.6								
10/31/02 11:55	695.5								
10/31/02 11:56	704.8								
10/31/02 11:57	693.5								
10/31/02 11:58	694 5								
10/31/02 11:59	698 6								
10/31/02 12:00	686.3								
10/31/02 12:01	694 5								
10/31/02 12:02	699 6								
10/31/02 12:03	689 3								
10/31/02 12:04	703 8								
10/31/02 12:05	699 6								
10/31/02 12:06	699 6								

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Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_w	CO C_{adj}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 12:07	704.8								
10/31/02 12:08	711.0								
10/31/02 12:09	697.6								
10/31/02 12:10	706.9								
10/31/02 12:11	715.1								
10/31/02 12:12	709.9								
10/31/02 12:13	693.5								
10/31/02 12:14	708.9								
10/31/02 12:15	712.0								
10/31/02 12:16	702.7								
10/31/02 12:17	708.9								
10/31/02 12:18	701.7								
10/31/02 12:19	760.4								
10/31/02 12:20	988.0								
10/31/02 12:21	1000.3		Interim Cal 991						
10/31/02 12:22	1000.3								
10/31/02 12:23	789.2								
10/31/02 12:24	56.0								
10/31/02 12:25	4.5		Interim Cal 0						
10/31/02 12:26	3.5								
10/31/02 12:27	103.4								
10/31/02 12:28	628.6								
10/31/02 12:29	717.2								
10/31/02 12:30	702.7								
10/31/02 12:31	705.8								
10/31/02 12:32	708.9								
10/31/02 12:33	708.9								
10/31/02 12:34	696.6								
10/31/02 12:35	702.7								
10/31/02 12:36	700.7								
10/31/02 12:37	699.6								
10/31/02 12:38	695.5								
10/31/02 12:39	702.7								
10/31/02 12:40	706.9								
10/31/02 12:41	703.8								
10/31/02 12:42	699.6								
10/31/02 12:43	700.7								
10/31/02 12:44	692.4								
10/31/02 12:45	701.7								
10/31/02 12:46	714.1								
10/31/02 12:47	706.9								
10/31/02 12:48	730.5								
10/31/02 12:49	719.2								
10/31/02 12:50	719.2								
10/31/02 12:51	735.7								
10/31/02 12:52	729.5								
10/31/02 12:53	723.3								
10/31/02 12:54	738.8								
10/31/02 12:55	753.2								

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Bleach Plant Carbon Monoxide Test

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_d	CO C_w	CO C_{wA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 12:56	764.5								
10/31/02 12:57	791.3								
10/31/02 12:58	805.7								
10/31/02 12:59	824.2								
10/31/02 13:00	852.1								
10/31/02 13:01	875.7								
10/31/02 13:02	887.1								
10/31/02 13:03	900.5								
10/31/02 13:04	941.6.								
10/31/02 13:05	969.4								
10/31/02 13:06	981.8								
10/31/02 13:07	1003.4								
10/31/02 13:08	1006.5								
10/31/02 13:09	1008.6								
10/31/02 13:10	1039.5								
10/31/02 13:11	1036.4								
10/31/02 13:12	1032.3								
10/31/02 13:13	1035.4								
10/31/02 13:14	1015.8								
10/31/02 13:15	1006.5								
10/31/02 13:16	1027.1								
10/31/02 13:17	1038.4								
10/31/02 13:18	1039.5								
10/31/02 13:19	1047.7								
10/31/02 13:20	1064.2								
10/31/02 13:21	1057.0								
10/31/02 13:22	1073.5								
10/31/02 13:23	1094.1								
10/31/02 13:24	1092.0								
10/31/02 13:25	1104.4								
10/31/02 13:26	1106.4								
10/31/02 13:27	1111.56								
10/31/02 13:28	1142.453								
10/31/02 13:29	1165.109		*Begin Run 1*						
10/31/02 13:30	1159.96	1		6.25	1008	991	1141 3	13401	71 49
10/31/02 13:31	1182.615	1		6.25	1008	991	1163 7	13401	72 89
10/31/02 13:32	1194.973	1		6.25	1008	991	1176 0	13401	73 66
10/31/02 13:33	1188.794	1		6.25	1008	991	1169 9	13401	73 28
10/31/02 13:34	1167.168	1		6 25	1008	991	1148 5	13401	71 94
10/31/02 13:35	1166.139	1		6.25	1008	991	1147 4	13401	71 87
10/31/02 13:36	1157.9	1		6.25	1008	991	1139 3	13401	71 36
10/31/02 13:37	1151.722	1		6.25	1008	991	1133 2	13401	70 98
10/31/02 13:38	1162.02	1		6.25	1008	991	1143 4	13401	71 62
10/31/02 13:39	1171.288	1		6.25	1008	991	1152 5	13401	72 19
10/31/02 13:40	1135.245	1		6.25	1008	991	1116 9	13401	69 96
10/31/02 13:41	1149.662	1		6.25	1008	991	1131 1	13401	70 85
10/31/02 13.42	1164.079	1		6.25	1008	991	1145 4	13401	71 75
10/31/02 13 43	1155.841	1		6.25	1008	991	1137 3	13401	71 24
10/31/02 13 44	1170 258	1		6.25	1008	991	1151 5	13401	72 13

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_w	CO C_{wa}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 13:45	1171.288	1		6.25	1008	991	1152 5	13401	72 19
10/31/02 13:46	1153.781	1		6.25	1008	991	1135 2	13401	71 11
10/31/02 13:47	1178.496	1		6.25	1008	991	1159 7	13401	72 64
10/31/02 13:48	1194.973	1		6.25	1008	991	1176 0	13401	73 66
10/31/02 13:49	1194.973	1		6.25	1008	991	1176.0	13401	73 66
10/31/02 13:50	1215.569	1		6.25	1008	991	1196 3	13401	74 94
10/31/02 13:51	1181.585	1		6.25	1008	991	1162 7	13401	72 83
10/31/02 13:52	1190.854	1		6.25	1008	991	1171 9	13401	73 40
10/31/02 13:53	1165.109	1		6.25	1008	991	1146 4	13401	71 81
10/31/02 13:54	1147.602	1		6.25	1008	991	1129.1	13401	70 72
10/31/02 13:55	1141.424	1		6.25	1008	991	1123.0	13401	70 34
10/31/02 13:56	1135.245	1		6.25	1008	991	1116.9	13401	69 96
10/31/02 13:57	1142.453	1		6.25	1008	991	1124 0	13401	70 41
10/31/02 13:58	1144.513	1		6.25	1008	991	1126.0	13401	70 53
10/31/02 13:59	1130.096	1		6.25	1008	991	1111 8	13401	69 64
10/31/02 14:00	1141.424	1		6.25	1008	991	1123 0	13401	70 34
10/31/02 14:01	1115.679	1		6.25	1008	991	1097 5	13401	68 75
10/31/02 14:02	1139.364	1		6.25	1008	991	1121.0	13401	70 21
10/31/02 14:03	1142.453	1		6.25	1008	991	1124 0	13401	70 41
10/31/02 14:04	1132.156	1		6.25	1008	991	1113 8	13401	69 77
10/31/02 14:05	1147.602	1		6.25	1008	991	1129.1	13401	70 72
10/31/02 14:06	1182.615	1		6.25	1008	991	1163 7	13401	72 89
10/31/02 14:07	1173.347	1		6.25	1008	991	1154 6	13401	72 32
10/31/02 14:08	1190.854	1		6.25	1008	991	1171 9	13401	73 40
10/31/02 14:09	1227.926	1		6.25	1008	991	1208 6	13401	75 70
10/31/02 14:10	1205.271	1		6.25	1008	991	1186 2	13401	74 30
10/31/02 14:11	1191.883	1		6.25	1008	991	1172 9	13401	73 47
10/31/02 14:12	1225.866	1		6.25	1008	991	1206 5	13401	75 57
10/31/02 14:13	1212.479	1		6.25	1008	991	1193 3	13401	74 74
10/31/02 14:14	1186.734	1		6.25	1008	991	1167 8	13401	73 15
10/31/02 14:15	1221.747	1		6.25	1008	991	1202.5	13401	75 32
10/31/02 14:16	1196.003	1		6.25	1008	991	1177 0	13401	73 72
10/31/02 14:17	1157.9	1		6.25	1008	991	1139 3	13401	71 36
10/31/02 14:18	1186.734	1		6.25	1008	991	1167 8	13401	73 15
10/31/02 14:19	1186.734	1		6.25	1008	991	1167 8	13401	73 15
10/31/02 14:20	1178.496	1		6.25	1008	991	1159 7	13401	72 64
10/31/02 14:21	1200 122	1		6.25	1008	991	1181 1	13401	73 98
10/31/02 14:22	1172.317	1		6 25	1008	991	1153 6	13401	72 26
10/31/02 14:23	1178.496	1		6.25	1008	991	1159 7	13401	72 64
10/31/02 14:24	1200.122	1		6.25	1008	991	1181 1	13401	73 98
10/31/02 14:25	1184.675	1		6.25	1008	991	1165 8	13401	73 02
10/31/02 14:26	1194.973	1		6.25	1008	991	1176 0	13401	73 66
10/31/02 14:27	1186.734	1		6 25	1008	991	1167 8	13401	73 15
10/31/02 14:28	1185.705	1		6 25	1008	991	1166 8	13401	73 09
10/31/02 14:29	1218.658	1		6 25	1008	991	1199 4	13401	75 13
10/31/02 14:30	1220 718			*Run 1 Average*			*1155.1*		*72.35*
10/31/02 14:31	1206 3								
10/31/02 14 32	1235 164								
10/31/02 14 33	1218 768								

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DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_M	CO C_{MA}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 14:34	159.004								
10/31/02 14:35	6.5951								
10/31/02 14:36	3.5057		Zero CO Cal						
10/31/02 14:37	3.5057		Zero CO Cal						
10/31/02 14:38	8.6546								
10/31/02 14:39	656.3926								
10/31/02 14:40	989.0148								
10/31/02 14:41	995.1935		991 CO Cal						
10/31/02 14:42	995.1935		991 CO Cal						
10/31/02 14:43	1068.309								
10/31/02 14:44	1213.509								
10/31/02 14:45	1194.973								
10/31/02 14:46	1191.883								
10/31/02 14:47	1166.139								
10/31/02 14:48	1138.334								
10/31/02 14:49	1182.615								
10/31/02 14:50	1179.526								
10/31/02 14:51	1163.049								
10/31/02 14:52	1172.317								
10/31/02 14:53	1160.99								
10/31/02 14:54	1174.377								
10/31/02 14:55	1160.99								
10/31/02 14:56	1171.288								
10/31/02 14:57	1190.854								
10/31/02 14:58	1191.883								
10/31/02 14:59	1176.437								
10/31/02 15:00	1190.854								
10/31/02 15:01	1192.913								
10/31/02 15:02	1191.883								
10/31/02 15:03	1215.569								
10/31/02 15:04	1186.734								
10/31/02 15:05	1169.228								
10/31/02 15:06	1178.496								
10/31/02 15:07	1181.585								
10/31/02 15:08	1187.764								
10/31/02 15:09	1217.628								
10/31/02 15:10	1228.956								
10/31/02 15:11	1193.943								
10/31/02 15:12	1201.151								
10/31/02 15:13	1210.42								
10/31/02 15:14	1228.956								
10/31/02 15:15	1200.122								
10/31/02 15:16	1233.075								
10/31/02 15:17	1228.956								
10/31/02 15:18	1199.092								
10/31/02 15:19	1219.688								
10/31/02 15:20	1237.194								
10/31/02 15:21	1208.36								
10/31/02 15:22	1221.747								

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_w	CO C_{dry}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 15:23	1214.539								
10/31/02 15:24	1203.211								
10/31/02 15:25	1205.271								
10/31/02 15:26	1229.986								
10/31/02 15:27	1212.479								
10/31/02 15:28	1200.122								
10/31/02 15:29	1242.343								
10/31/02 15:30	1227.926								
10/31/02 15:31	1227.926								
10/31/02 15:32	1243.373								
10/31/02 15:33	1216.598								
10/31/02 15:34	1221.747								
10/31/02 15:35	1202.181								
10/31/02 15:36	1218.658								
10/31/02 15:37	1213.509								
10/31/02 15:38	1211.449								
10/31/02 15:39	1221.747								
10/31/02 15:40	1209.39								
10/31/02 15:41	1217.628								
10/31/02 15:42	1234.105								
10/31/02 15:43	1216.598								
10/31/02 15:44	1205.271								
10/31/02 15:45	1209.39								
10/31/02 15:46	1194.973		*Begin Run 2*						
10/31/02 15:47	1190.854	2		4	995.5	991	1186.3	13171	73.03
10/31/02 15:48	1209.39	2		4	995.5	991	1204.8	13171	74.17
10/31/02 15:49	1221.747	2		4	995.5	991	1217.1	13171	74.93
10/31/02 15:50	1209.39	2		4	995.5	991	1204.8	13171	74.17
10/31/02 15:51	1240.284	2		4	995.5	991	1235.7	13171	76.07
10/31/02 15:52	1235.135	2		4	995.5	991	1230.5	13171	75.75
10/31/02 15:53	1231.015	2		4	995.5	991	1226.4	13171	75.50
10/31/02 15:54	1245.432	2		4	995.5	991	1240.8	13171	76.39
10/31/02 15:55	1211.449	2		4	995.5	991	1206.8	13171	74.30
10/31/02 15:56	1201.151	2		4	995.5	991	1196.5	13171	73.66
10/31/02 15:57	1229.986	2		4	995.5	991	1225.4	13171	75.44
10/31/02 15:58	1215.569	2		4	995.5	991	1211.0	13171	74.55
10/31/02 15:59	1216.598	2		4	995.5	991	1212.0	13171	74.61
10/31/02 16:00	1223.807	2		4	995.5	991	1219.2	13171	75.06
10/31/02 16:01	1196.003	2		4	995.5	991	1191.4	13171	73.35
10/31/02 16:02	1197.032	2		4	995.5	991	1192.4	13171	73.41
10/31/02 16:03	1182.615	2		4	995.5	991	1178.0	13171	72.52
10/31/02 16:04	1170.258	2		4	995.5	991	1165.7	13171	71.76
10/31/02 16:05	1185.705	2		4	995.5	991	1181.1	13171	72.71
10/31/02 16:06	1177.466	2		4	995.5	991	1172.9	13171	72.21
10/31/02 16:07	1186.734	2		4	995.5	991	1182.1	13171	72.78
10/31/02 16:08	1192.913	2		4	995.5	991	1188.3	13171	73.16
10/31/02 16:09	1198.062	2		4	995.5	991	1193.5	13171	73.47
10/31/02 16:10	1226.896	2		4	995.5	991	1222.3	13171	75.25
10/31/02 16:11	1211.449	2		4	995.5	991	1206.8	13171	74.30

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_w	CO C_{wa}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 16:12	1214.539	2		4	995.5	991	1209.9	13171	74.49
10/31/02 16:13	1219.688	2		4	995.5	991	1215.1	13171	74.80
10/31/02 16:14	1215.569	2		4	995.5	991	1211.0	13171	74.55
10/31/02 16:15	1200.122	2		4	995.5	991	1195.5	13171	73.60
10/31/02 16:16	1198.062	2		4	995.5	991	1193.5	13171	73.47
10/31/02 16:17	1194.973	2		4	995.5	991	1190.4	13171	73.28
10/31/02 16:18	1206.3	2		4	995.5	991	1201.7	13171	73.98
10/31/02 16:19	1210.42	2		4	995.5	991	1205.8	13171	74.23
10/31/02 16:20	1221.747	2		4	995.5	991	1217.1	13171	74.93
10/31/02 16:21	1216.598	2		4	995.5	991	1212.0	13171	74.61
10/31/02 16:22	1208.36	2		4	995.5	991	1203.8	13171	74.11
10/31/02 16:23	1199.092	2		4	995.5	991	1194.5	13171	73.54
10/31/02 16:24	1219.688	2		4	995.5	991	1215.1	13171	74.80
10/31/02 16:25	1216.598	2		4	995.5	991	1212.0	13171	74.61
10/31/02 16:26	1207.33	2		4	995.5	991	1202.7	13171	74.04
10/31/02 16:27	1217.628	2		4	995.5	991	1213.0	13171	74.68
10/31/02 16:28	1211.449	2		4	995.5	991	1206.8	13171	74.30
10/31/02 16:29	1224.837	2		4	995.5	991	1220.2	13171	75.12
10/31/02 16:30	1244.403	2		4	995.5	991	1239.8	13171	76.32
10/31/02 16:31	1240.284	2		4	995.5	991	1235.7	13171	76.07
10/31/02 16:32	1235.135	2		4	995.5	991	1230.5	13171	75.75
10/31/02 16:33	1241.313	2		4	995.5	991	1236.7	13171	76.13
10/31/02 16:34	1231.015	2		4	995.5	991	1226.4	13171	75.50
10/31/02 16:35	1238.224	2		4	995.5	991	1233.6	13171	75.94
10/31/02 16:36	1251.611	2		4	995.5	991	1247.0	13171	76.77
10/31/02 16:37	1236.164	2		4	995.5	991	1231.5	13171	75.82
10/31/02 16:38	1234.105	2		4	995.5	991	1229.5	13171	75.69
10/31/02 16:39	1234.105	2		4	995.5	991	1229.5	13171	75.69
10/31/02 16:40	1232.045	2		4	995.5	991	1227.4	13171	75.56
10/31/02 16:41	1222.777	2		4	995.5	991	1218.2	13171	74.99
10/31/02 16:42	1225.866	2		4	995.5	991	1221.2	13171	75.18
10/31/02 16:43	1233.075	2		4	995.5	991	1228.5	13171	75.63
10/31/02 16:44	1225.866	2		4	995.5	991	1221.2	13171	75.18
10/31/02 16:45	1233.075	2		4	995.5	991	1228.5	13171	75.63
10/31/02 16:46	1241.313	2		4	995.5	991	1236.7	13171	76.13
10/31/02 16:47	1240.284			***Run 2 Average***			***1212.2***		***74.6***
10/31/02 16:48	1232.045								
10/31/02 16:49	1254.701								
10/31/02 16:50	1280.445								
10/31/02 16:51	1276.326								
10/31/02 16:52	1218.658								
10/31/02 16:53	982.836								
10/31/02 16:54	996.2233		991 CO Cal						
10/31/02 16:55	996.2233								
10/31/02 16:56	862.3506								
10/31/02 16:57	81.7697								
10/31/02 16:58	4.5355								
10/31/02 16:59	4.5355		0 CO Cal						
10/31/02 17:00	4.5355								

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_s	CO C_w	CO C_{wa}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 17:01	4.5355								
10/31/02 17:02	4.5355								
10/31/02 17:03	713.031								
10/31/02 17:04	1258.82								
10/31/02 17:05	1270.147								
10/31/02 17:06	1279.416								
10/31/02 17:07	1303.101								
10/31/02 17:08	1293.833								
10/31/02 17:09	1296.922		*Begin Run 3*						
10/31/02 17:10	1322.667	3		4.5	996.5	991	1316.8	12999	80.01
10/31/02 17:11	1314.428	3		4.5	996.5	991	1308.6	12999	79.51
10/31/02 17:12	1292.803	3		4.5	996.5	991	1287.0	12999	78.20
10/31/02 17:13	1296.922	3		4.5	996.5	991	1291.1	12999	78.45
10/31/02 17:14	1282.505	3		4.5	996.5	991	1276.7	12999	77.57
10/31/02 17:15	1256.76	3		4.5	996.5	991	1251.0	12999	76.01
10/31/02 17:16	1223.807	3		4.5	996.5	991	1218.1	12999	74.01
10/31/02 17:17	1246.462	3		4.5	996.5	991	1240.7	12999	75.38
10/31/02 17:18	1213.509	3		4.5	996.5	991	1207.8	12999	73.38
10/31/02 17:19	1224.837	3		4.5	996.5	991	1219.1	12999	74.07
10/31/02 17:20	1255.73	3		4.5	996.5	991	1250.0	12999	75.95
10/31/02 17:21	1256.76	3		4.5	996.5	991	1251.0	12999	76.01
10/31/02 17:22	1245.432	3		4.5	996.5	991	1239.7	12999	75.32
10/31/02 17:23	1259.849	3		4.5	996.5	991	1254.1	12999	76.20
10/31/02 17:24	1260.879	3		4.5	996.5	991	1255.1	12999	76.26
10/31/02 17:25	1267.058	3		4.5	996.5	991	1261.3	12999	76.63
10/31/02 17:26	1287.654	3		4.5	996.5	991	1281.9	12999	77.88
10/31/02 17:27	1280.445	3		4.5	996.5	991	1274.7	12999	77.45
10/31/02 17:28	1263.969	3		4.5	996.5	991	1258.2	12999	76.45
10/31/02 17:29	1277.356	3		4.5	996.5	991	1271.6	12999	77.26
10/31/02 17:30	1294.862	3		4.5	996.5	991	1289.1	12999	78.32
10/31/02 17:31	1281.475	3		4.5	996.5	991	1275.7	12999	77.51
10/31/02 17:32	1269.118	3		4.5	996.5	991	1263.3	12999	76.76
10/31/02 17:33	1268.088	3		4.5	996.5	991	1262.3	12999	76.70
10/31/02 17:34	1252.641	3		4.5	996.5	991	1246.9	12999	75.76
10/31/02 17:35	1231.015	3		4.5	996.5	991	1225.3	12999	74.45
10/31/02 17:36	1248.522	3		4.5	996.5	991	1242.8	12999	75.51
10/31/02 17:37	1234.105	3		4.5	996.5	991	1228.4	12999	74.63
10/31/02 17:38	1242.343	3		4.5	996.5	991	1236.6	12999	75.13
10/31/02 17:39	1253.671	3		4.5	996.5	991	1247.9	12999	75.82
10/31/02 17:40	1234.105	3		4.5	996.5	991	1228.4	12999	74.63
10/31/02 17:41	1227.926	3		4.5	996.5	991	1222.2	12999	74.26
10/31/02 17:42	1250.581	3		4.5	996.5	991	1244.8	12999	75.63
10/31/02 17:43	1240.284	3		4.5	996.5	991	1234.5	12999	75.01
10/31/02 17:44	1247.492	3		4.5	996.5	991	1241.7	12999	75.45
10/31/02 17:45	1254.701	3		4.5	996.5	991	1248.9	12999	75.88
10/31/02 17:46	1238.224	3		4.5	996.5	991	1232.5	12999	74.88
10/31/02 17:47	1240.284	3		4.5	996.5	991	1234.5	12999	75.01
10/31/02 17:48	1256.76	3		4.5	996.5	991	1251.0	12999	76.01
10/31/02 17:49	1249.552	3		4.5	996.5	991	1243.8	12999	75.57

Georgia Pacific - Palatka, Florida

Bleach Plant Carbon Monoxide Test

October 31, 2002

DATA RECORDER PRINTOUT and TEST SUMMARY

Time	CO, ppm	Run Number	COMMENTS	CO C_o	CO C_{ma}	CO C_{ma}	CO, ppm Drift Corrected	Flow, SCFM-Dry	CO, pounds per hour
10/31/02 17:50	1278.386	3		4.5	996.5	991	1272.6	12999	77.32
10/31/02 17:51	1292.803	3		4.5	996.5	991	1287.0	12999	78.20
10/31/02 17:52	1252.641	3		4.5	996.5	991	1246.9	12999	75.76
10/31/02 17:53	1244.403	3		4.5	996.5	991	1238.7	12999	75.26
10/31/02 17:54	1267.058	3		4.5	996.5	991	1261.3	12999	76.63
10/31/02 17:55	1237.194	3		4.5	996.5	991	1231.5	12999	74.82
10/31/02 17:56	1227.926	3		4.5	996.5	991	1222.2	12999	74.26
10/31/02 17:57	1244.403	3		4.5	996.5	991	1238.7	12999	75.26
10/31/02 17:58	1236.164	3		4.5	996.5	991	1230.4	12999	74.76
10/31/02 17:59	1232.045	3		4.5	996.5	991	1226.3	12999	74.51
10/31/02 18:00	1203.211	3		4.5	996.5	991	1197.5	12999	72.76
10/31/02 18:01	1145.543	3		4.5	996.5	991	1139.9	12999	69.26
10/31/02 18:02	1080.666	3		4.5	996.5	991	1075.1	12999	65.32
10/31/02 18:03	1049.772	3		4.5	996.5	991	1044.2	12999	63.45
10/31/02 18:04	1069.338	3		4.5	996.5	991	1063.8	12999	64.63
10/31/02 18:05	1129.066	3		4.5	996.5	991	1123.4	12999	68.26
10/31/02 18:06	1173.347	3		4.5	996.5	991	1167.7	12999	70.95
10/31/02 18:07	1174.377	3		4.5	996.5	991	1168.7	12999	71.01
10/31/02 18:08	1167.168	3		4.5	996.5	991	1161.5	12999	70.57
10/31/02 18:09	1150.692	3		4.5	996.5	991	1145.0	12999	69.57
10/31/02 18:10	1134.215			***Run 3 Average***			***1231.0***		***74.8***
10/31/02 18:11	1163.049								
10/31/02 18:12	350.5449								
10/31/02 18:13	17.9228								
10/31/02 18:14	4.5355		0 CO Cal						
10/31/02 18:15	4.5355								
10/31/02 18:16	149.7359								
10/31/02 18:17	894.274								
10/31/02 18:18	997.2531		991 CO Cal						
10/31/02 18:19	998.2829								
10/31/02 18:20	968.4189								

APPENDIX – C

Laboratory Analysis

TECHNICAL SERVICES, INC.
ENVIRONMENTAL CONSULTANTS

For Ambient Air Services, Inc.
106 AMBIENT AIR WAY
STARKE, FL 32091
Contact: Joe Cooksey

Report Date 11-Nov-02
Date Received 11/01/2002 @ 16 15
Purchase Order #

CERTIFICATE OF ANALYSIS

LAB SAMPLE DESCRIPTION	MATRIX	SAMPLE DATE	SAMPLE TIME	SAMPLED BY
02110037 GP/PALATKA, BLEACH PLANT, RUN 1	IMP. CATCH	10/31/2002	UNKNOWN	
02110038 GP/PALATKA, BLEACH PLANT, RUN 2	IMP. CATCH	10/31/2002	UNKNOWN	
02110039 GP/PALATKA, BLEACH PLANT, RUN 3	IMP. CATCH	10/31/2002	UNKNOWN	
02110040 GP/PALATKA, BLEACH PLANT, RUN 1	IMP. CATCH	10/29/2002	UNKNOWN	
02110041 GP/PALATKA, BLEACH PLANT, RUN 2	IMP. CATCH	10/29/2002	UNKNOWN	
02110042 GP/PALATKA, BLEACH PLANT, RUN 3	IMP. CATCH	10/29/2002	UNKNOWN	
02110043 GP/PALATKA, BLEACH PLANT, FIELD BLANK		UNKNOWN	UNKNOWN	

Respectfully submitted,
Technical Services, Inc

Ambient Air Services, Inc

Lab No	Parameter	Result		Code	Method	Detection Limit
02110037	Chloride in base	214 2	ug/ml Cl-	A	Method 26A	0 02
02110038	Chloride in base	134 3	ug/ml Cl-		Method 26A	0 02
02110039	Chloride in base	151 1	TOTAL UG		Method 26A	0 02
02110040	Chloride in base	438 9	TOTAL UG		Method 26A	0 02
02110041	Chloride in base	320 0	TOTAL UG		Method 26A	0 02
02110042	Chloride in base	354 6	TOTAL UG		Method 26A	0 02
02110043	Chloride in base	104 3	TOTAL UG	A	Method 26A	0 02

Ambient Air Services, Inc

Lab No	Parameter	Date of Analysis	Analysis Time	Analyst	Prep Date
02110037	Chloride in base	11/11/2002		CRB	
02110038	Chloride in base	11/11/2002		CRB	
02110039	Chloride in base	11/11/2002		CRB	
02110040	Chloride in base	11/11/2002		CRB	
02110041	Chloride in base	11/11/2002		CRB	
02110042	Chloride in base	11/11/2002		CRB	
02110043	Chloride in base	11/11/2002		CRB	

APPENDIX – D

Equipment Calibration Data
- Carbon Monoxide Analyzer Calibration
- Annual Meter Calibration
- Post Test Meter Calibration
- Pitot Tube Calibration
- Thermocouple Calibration

Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test

October 29, 2002
Equipment List

Carbon Monoxide Instrument: **Manufacturer -** Thermo Environmental Instruments **Model -** 48 CHL
Serial Number - 63892-341
CO Range - zero to 2000 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Products	Nitrogen	N/A	1200
Low	CO	991.00	Air Liquide	CC121974	Jul-04	800
	CO	1994.00	Air Liquide	CC70989	Jul-04	900
Mid	CO	594.40	Praxair	SA12251	Jan-04	1200
High	CO	301.90	Air Liquide	CC121974	Jul-04	1100

Description of Sampling System :
6', 1/4" SS probe to valve to H_2O condenser to 200 feet 3/8 Teflon sample line to SS pump to instruments
all calibration gases injected direct to probe valve location
Sampling probe located nominally mid of 42" stack

Test Participants :
CO Testing - Joe Cooksey, Ambient Air Services, Inc.
Joe Taylor - Georgia-Pacific Representitive

Other Comments :

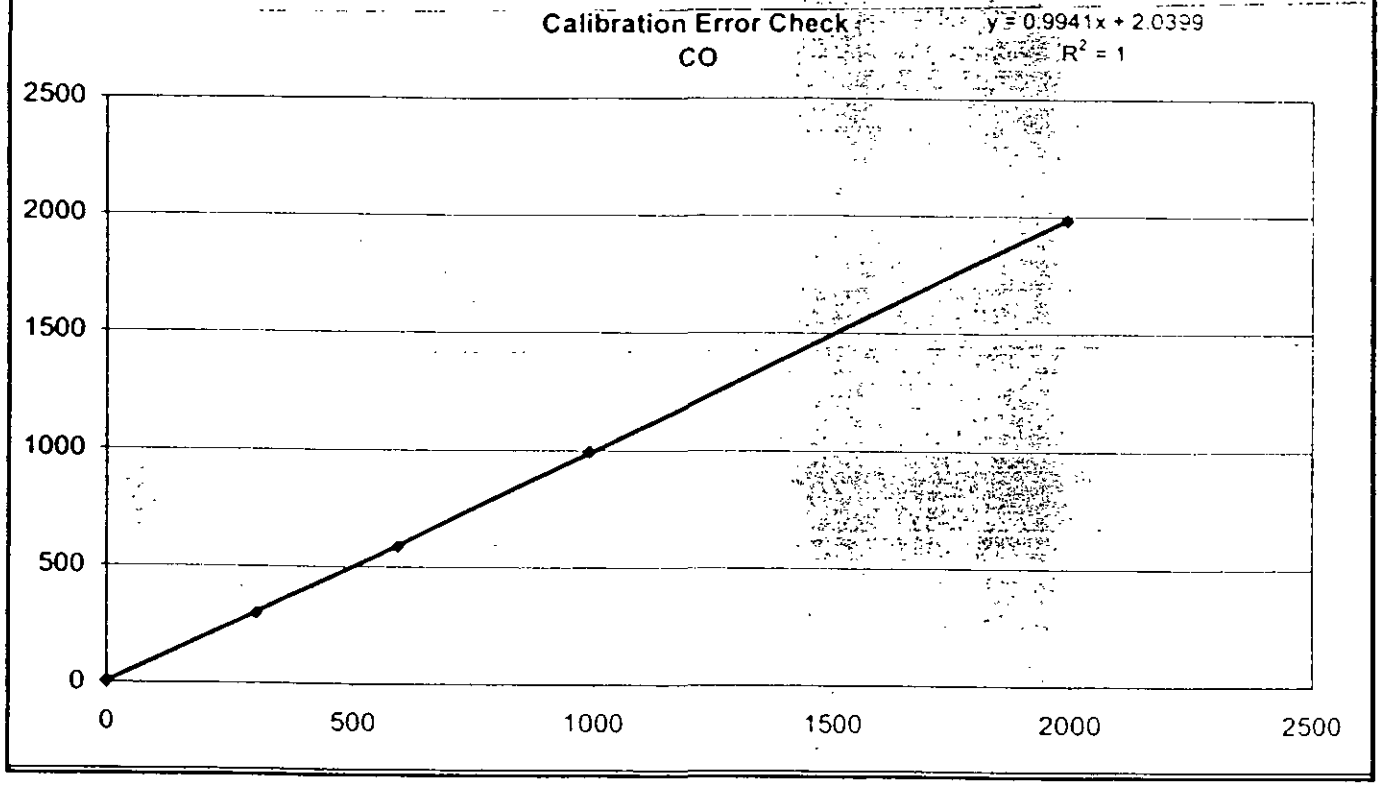
Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test
0
October 29, 2002
Calibration Sheet

Initial Calibration
Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		CO
Zero	0	12:00	4
CO	991	12:00	995.4
CO	1994	12:00	1982.2
CO	594.4	12:00	588
CO	301.9	12:00	299.1

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		CO
Zero	0	12:00	0.20%
CO	991	12:00	0.22%
CO	1994	12:00	-0.59%
CO	594.4	12:00	-0.32%
CO	301.9	12:00	-0.14%



Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test
0
October 29, 2002
Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		CO
Zero	0	13:30	5.6
CO	991	13:30	998.3

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		CO
Zero	0	13:30	0.08%
CO	991	13:30	0.14%

Drift Variables for Run 1

Variable	CO	
Co	4.80	
Cm	996.85	
Cma	991.00	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		CO
Zero	0		2.5
CO	991		997.3

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		CO
Zero	0	0:00	-0.08%
CO	991	0:00	0.09%

Drift Variables for Run 2

Variable	CO	
Co	4.05	
Cm	997.80	
Cma	991	

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc		CO
Zero	0		
CO	991		

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)	Time	Drift Analysis (%)

Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test
0
October 29, 2002
Calibration Sheet

Gas	Conc.		CO
Zero	0	0.00	-0.20%
CO	991	0.00	-49.77%

Drift Variables for Run 3

Variable	CO	
Co	1.25	
Cm	498.65	
Cma	991	

Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test

October 31, 2002
Equipment List

Carbon Monoxide Instrument: **Manufacturer** - Thermo Environmental Instruments **Model** - 48 CHL
Serial Number - 63892-341
CO Range - zero to 2000 ppm

Calibration Gas Standards		Concentration	Manufacturer	Cylinder Number	Expiration Date	PSI
Zero	Zero	0.00	Air Products	Nitrogen	N/A	1200
Low	CO	991.00	Air Liquide	CC121974	Jul-04	800
	CO	1994.00	Air Liquide	CC70989	Jul-04	900
Mid	CO	594.40	Praxair	SA12251	Jan-04	1200
High	CO	301.90	Air Liquide	CC121974	Jul-04	1100

Description of Sampling System :
6', 1/4" SS probe to valve to H_2O condenser to 200 feet 3/8 Teflon sample line to SS pump to instruments
all calibration gases injected direct to probe valve location
Sampling probe located nominally mid of 42" stack

Test Participants :
CO Testing - Randy Weston, Ambient Air Services, Inc.
Joe Taylor, Georgia Pacific Palatka Environmental contact

Other Comments :

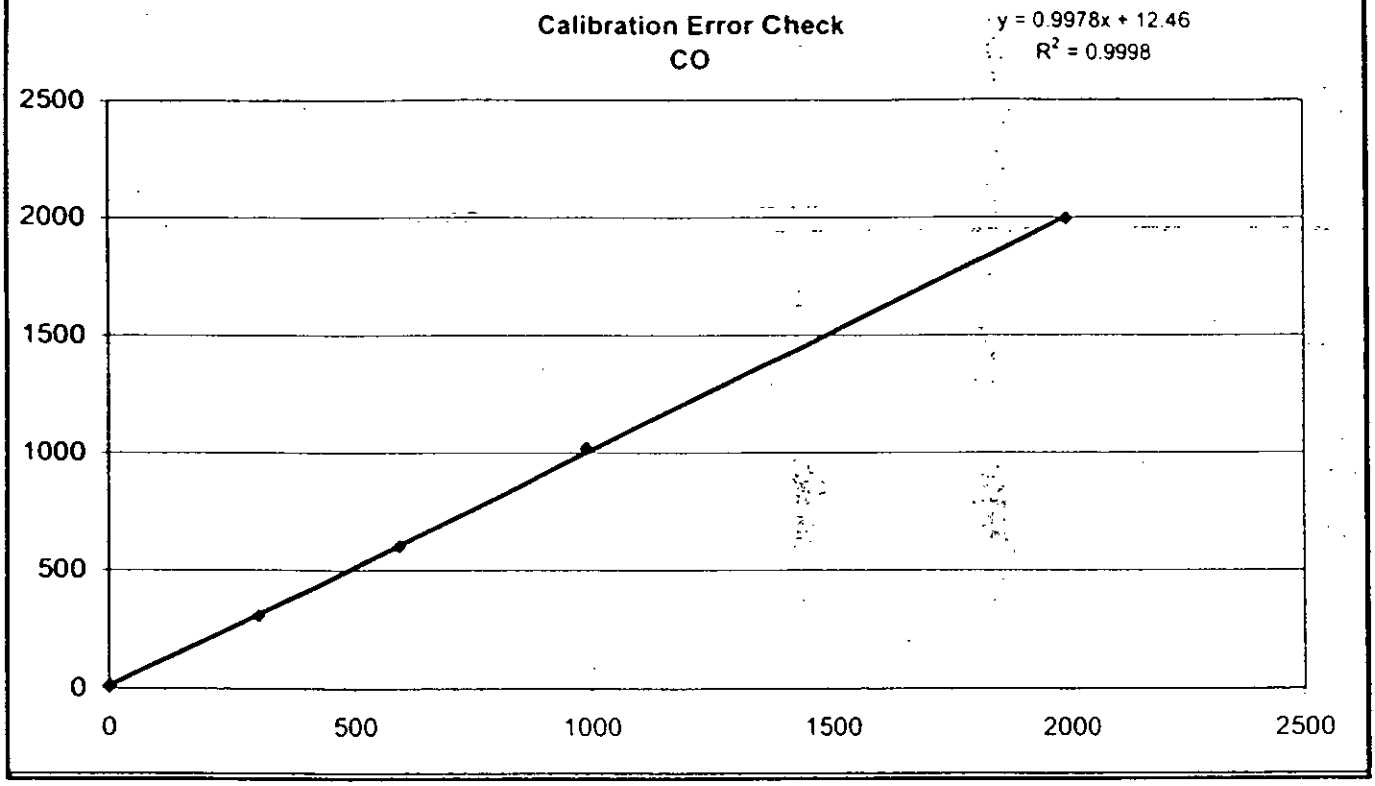
Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test
0
October 31, 2002
Calibration Sheet

Initial Calibration
Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		CO
Zero	0	12:00	9
CO	991	12:00	1021
CO	1994	12:00	1994
CO	594.4	12:00	602
CO	301.9	12:00	309

% Error of Range Table

Inject (ppm)		Time	% Error of Range
Gas	Conc.		CO
Zero	0	12:00	0.45%
CO	991	12:00	1.50%
CO	1994	12:00	0.00%
CO	594.4	12:00	0.38%
CO	301.9	12:00	0.36%



Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test
0
October 31, 2002
Calibration Sheet

Calibration - Post Run 1

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		CO
Zero	0	14:36	3.5
CO	991	14:42	995

Drift Analysis From Initial Calibrations to the End of Run 1

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		CO
Zero	0	14:36	-0.28%
CO	991	14:42	-1.30%

Drift Variables for Run 1

Variable	CO	
Co	6.25	
Cm	1008.00	
Cma	991.00	

Calibration - Post Run 2

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		CO
Zero	0	16:59	4.5
CO	991	16:54	996

Drift Analysis From Initial Calibrations to the End of Run 2

Inject (ppm)		Time	Drift Analysis (%)
Gas	Conc.		CO
Zero	0	16:59	-0.23%
CO	991	16:54	-1.25%

Drift Variables for Run 2

Variable	CO	
Co	4	
Cm	995.50	
Cma	991	

Calibration - Post Run 3

Response Table

Inject (ppm)		Time	Response (ppm)
Gas	Conc.		CO
Zero	0	18.14	4.5
CO	991	18.18	997

Drift Analysis From Initial Calibrations to the End of Run 3

Inject (ppm)	Time	Drift Analysis (%)

Georgia Pacific - Palatka, Florida
Bleach Plant Carbon Monoxide Test
0
October 31, 2002
Calibration Sheet

Gas	Conc.		CO
Zero	0	18:14	-0.23%
CO	991	18:18	-1.20%

Drift Variables for Run 3

Variable	CO
Co	4.5
Cm	996.50
Cma	991

Ambient Air Services, Inc. - Method 5 Dry Gas Meter Annual Calibration

USING CALIBRATED CRITICAL ORIFICES

5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	AASI
Console Serial Number	Box 10
DGM Model Number	6947372
DGM Serial Number	

Calibration Conditions			
Date	Time	5-Sep-02	10 00
Barometric Pressure		29 8	in Hg
Theoretical Critical Vacuum[1]		14 1	in Hg
Calibration Technician		JOE ELLIOTT	

Factors/Conversions		
Std Temp	528	°R
Std Press	29 92	in Hg
K,	17 647	°R/in Hg

[1]For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

[2]The Critical Orifice Coefficient, K', must be entered in English units, $(ft^3 * R^{1/2})/(in.Hg * min)$.

Calibration Data

Run Time	Metering Console					Critical Orifice				
	DGM Orifice	Volume	Volume	Outlet Temp	Outlet Temp	Serial	Coefficient	Amb Temp	Amb Temp	Actual
	ΔH	Initial	Final	Initial	Final	Number		Initial	Final	Vacuum
(θ)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{ami})	(t_{amf})	
min	in H_2O	cubic feet	cubic feet	°F	°F		see above2	°F	°F	in Hg
14 1	2 6	55 603	67 154	92	92	63	0 6213	89	89	21
6 0	4 6	67 154	75 011	98	98	73	0 8486	83	80	19
11 7	1 4	75 011	82 876	99	98	55	0 4793	81	79	22
11 4	0 8	82 876	88 974	98	99	48	0 3740	79	77	24
18 4	0 4	88 974	95 110	99	99	40	0 2511	77	77	24

Results

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	ΔH@	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
$(V_{m(std)})$	$(Q_{m(std)})$	$(Vcr_{(std)})$	$(Q_{cr(std)})$	(Y)	(ΔY)	$(Q_{mcorr(std)})$	$(\Delta H@)$	$(\Delta\Delta H@)$
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
11 060	0 786	11 142	0 790	1 006	0 007	0 790	2 438	0 388
8 480	1 248	8 520	1 087	0 871	-0 128	1 087	2 114	0 063
7 431	0 635	7 191	0 615	0 968	-0 031	0 615	1 978	-0 072
5 753	0 429	6 439	0 481	1 119	0 121	0 481	1 890	-0 160
5 778	0 314	5 941	0 323	1 028	0 030	0 323	1 832	-0 219
				0 998	Y Average		2 050	ΔH@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0 02

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR 40 Part 60, using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3785, certificate # F107, which is traceable to the National Bureau of Standards (N I S T)

Signature Joe Elliott Date 5 Sept 02

Quality Assurance Data Review

Signature [illegible] Date 5 Sept 02

Ambient Air Services, Inc. - Method 5 Post Test Dry Gas Meter Calibration

USING CALIBRATED CRITICAL ORIFICES

3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	AASI
Console Serial Number	Box 10
Pre Test Y Value	0.989
DGM Serial Number	################

Calibration Conditions			
Date	Time	1-Nov-02	13:12
Barometric Pressure		29.9	in Hg
Theoretical Critical Vacuum[1]		14.1	in Hg
Calibration Technician		JE	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	°R/in. Hg

[1]For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

[2]The Critical Orifice Coefficient, K', must be entered in English units, $(ft^3 \cdot °R^{1/2})/(in\ Hg \cdot min)$.

Calibration Data

Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice ΔH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(θ)	(P_m)	(V_m)	(V_m)	(t_m)	(t_m)		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F		see above[2]	°F	°F	in Hg
7.5	2.3	401.578	407.667	72	75	63	0.6213	71	72	21
6.2.9	2.3	407.667	459.392	75	76	63	0.6213	73	74	21
14.5	2.3	459.392	471.442	79	79	63	0.6213	74	75	21

Results

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	ΔH@	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(ΔY)	($Q_{m(avg)(std)}$)	(ΔH@)	(ΔΔH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
6.043	0.808	6.043	0.806	0.998	0.009	0.806	1.995	0.003
50.589	0.815	50.589	0.804	0.987	-0.002	0.804	1.995	0.003
11.861	0.818	11.651	0.804	0.982	-0.007	0.804	1.985	-0.006
				0.989	Y Average		1.992	ΔH@ Average

Note: The Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR 40 Part 60, using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3766, certificate # F107, which is traceable to the National Bureau of Standards (N.I.S.T.)

Signature Joe Ellicott Date 11-01-02

Quality Assurance Data Review

Signature [illegible] Date 11-01-02

AAS Inc. AMBIENT AIR SERVICES INCORPORATED
ENVIRONMENTAL CONSULTANTS

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 11/02/02 PITOT TUBE 6B

Pitot tube assembly level? ✓ (Yes) ____ No

Pitot tube openings damaged? ____ Yes (explain below) ✓ (No)

α_1 = 10 ° (<10°), α_2 = 0.5 ° (<10°), β_1 = 00 ° (<5°),

β_2 = 00 ° (<5°)

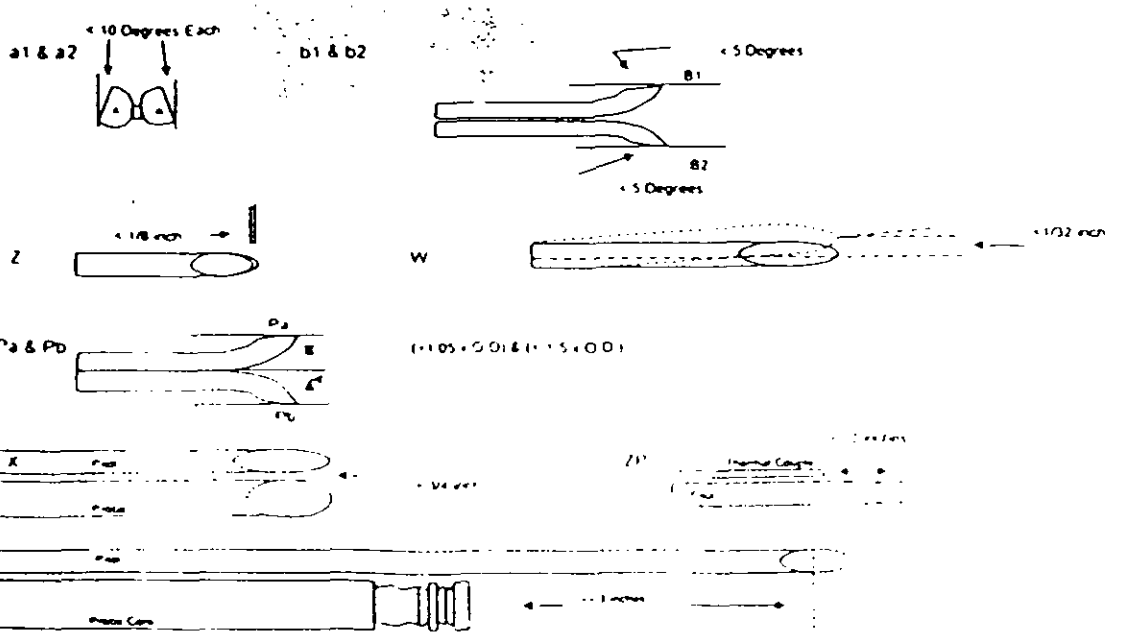
γ = 1.5 °, θ = .5 °, A = 1202 in. = (Pa + Pb)

z = A sin γ = 0031 in.; <0.32 / <1/8 in.

w = A sin θ = 0010 in.; <0.08 / <1/32 in.

P_a .600 in. P_b .602 in. D_t = .375

Calibration required? ____ Yes ✓ (No)



THERMOCOUPLE CALIBRATION FORM

ient Temperature 79 Source CAR PLATE
metric Pressure 30.05 Source
ician's Signature Dave Fairfield

11/02/02 Time 08 30

Standard Thermometer Type MERCURY IN GLASS
Manufacturer PRINCO
Serial Number 0932
Pyrometer Manufacturer ATKINS Model 396E
Serial Number AA-ST #4 Meter Box # 10

EMPERATURE SOURCE (A)		0											
FERENCE RMOMETER	Actual Reading	AMBIENT AIR			BOILING H_2O			ICE BATH					
	Corrected Temperature	79°			212°			32°					
IBRATED THERMOCOUPLE		Indicated Temp	Difference (B)	Percent Diff. (C)	Indicated Temp.	Difference	Percent Diff.	Indicated Temp.	Difference	Percent Diff.	Indicated Temp	Difference	Percent Diff.
ial Number	Location												
B	Stack	79	0		212	0		32	0				
0x 10	Filter	78	-1		211	-1		32	0				
0x 4	Impinger	80	+1		212	0		31	-1				
0x 16	Meter In	79	0		212	0		32	0				
0x 16	Meter Out	79	0		213	+1		33	+1				

ion Tolerances Stack = 1.5% of value, Filter Box = ±5.4°F, Impinger = ±2°F, Meter = ±5.4°F (40CFR Pt 60, App. A Method 5, and QA Handbook Section 3.4, Method 5, page 13, Rev 0)

Type of calibration system used (B) Reference - Indicated = Difference

$$\left| \frac{(\text{ref. temp. °F} + 460) - (\text{indicated temp °F} + 460)}{(\text{reference temp °F} + 460)} \right| \times 100$$

AASI 68A

APPENDIX – E

Sample Chain of Custody

C311C37-1 thru C311C43

Technical Services, Inc.
2901 Danese St., Jacksonville, FL 32206
(904) 353-5761 / fax (904) 358-2908

CHAIN of CUSTODY RECORD

CLIENT NAME & ADDRESS (REPORT TO BE SENT TO): Ambient Air Services, Inc.

REMARKS: $Na_2S_2O_3$ added in sampling @ TSI

PROJ. NO.:

PROJECT NAME/ ADDRESS: GP/Palatka Bleach Plant

SAMPLERS: (SIGNATURE)

Sample Location ID	SAMPLE DATE	TIME	COMP	GRAB	TOTAL NO of Containers	0.1 N NaOH 1/2 L Poly	Amber Glass 0.1 N NaOH	1/2 Gal. Poly w/ NaOH	PARAMETERS
Run 1 Imp. Catch	10/31/02				1	✓			Cl⁻ / BASE
2	↓				1	✓			↓
3 ↓	↓				1	✓			↓
Run 1 Imp Catch	10/29/02				1		✓		↓
2	↓				1		✓		↓
3 ↓	↓				1		✓		↓
Field Blank					1			1	↓

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
		[signature]	10-30-02
[signature]	10-31-02		
		RECEIVED FOR LABORATORY BY: [signature]	11/1/02 1615

02110037 1 thru 02110043 1

Technical Services, Inc.
2901 Danese St., Jacksonville, FL 32206
(904) 353-5761 / fax (904) 358-2908

CHAIN of CUSTODY RECORD

CLIENT NAME & ADDRESS (REPORT TO BE SENT TO)	REMARKS
Ambient Air Services, Inc	

PROJ NO	PROJECT NAME/ADDRESS	TOTAL NO of Containers	BOTTLE MAKEUP
	GP/Palatka Bleach Plant		0.1 N NaOH 4L Poly; Amber Glass 4L 0.1N NaOH

SAMPLERS (SIGNATURE)

Sample Location ID	SAMPLE DATE	TIME	COMP/GRAB	TOTAL NO of Containers	0.1 N NaOH 4L Poly	Amber Glass 4L 0.1N NaOH	PARAMETERS
Run 1 Imp Catch	10/31/02			1	✓		Cl- / BASE
2	↓			1	✓		↓
3	↓			1	✓		↓
Run 1 Imp Catch	10/29/02			1		✓	↓
2	↓			1		✓	↓
3	↓			1		✓	↓
Field Blank				1			↓

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
[signature]	0900 10-30-02	[signature]	10/30/02 09:00
[signature]	11/1/02 1430	H. E. Gray	1430 - 11/1/02
H E Gray	1615 - 11/1/02		
		RECEIVED FOR LABORATORY BY: [signature]	11/1/02 1615

APPENDIX - F

Calibration Gas Certificates

145 Shimersville Road
Bethlehem, PA 18015
Tel (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER PRAXAIR SOUTHEAST **P.O NUMBER** 333045 00

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE 503 2PPM GMIS VS	1680B	CLM-009396	4.0 PPM

ANALYZER READINGS

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

1. **COMPONENT** CARBON MONOXIDE 503 2PPM GM **ANALYZER MAKE-MODEL-S/N** Siemens Ultramat 5E S/N B8-900

ANALYTICAL PRINCIPLE NON DISPERSIVE INFRARED **LAST CALIBRATION DATE** 10 31 00

FIRST ANALYSIS DATE 11/01/00 **SECOND ANALYSIS DATE**

Z		R		C	CONC	Z	R	C	CONC
R	502	Z	1	C	332	CONC. 332.3	R	Z	C	CONC
Z	0	C	332	R	333	CONC. 332.3	Z	C	R	CONC
U/M	ppm			MEAN TEST ASSAY		U/M			MEAN TEST ASSAY

VALUES NOT VALID BELOW 150 PSIG

UNCERTAINTY OF CARBON MONOXIDE ±1 %RPM

THIS CYLINDER NO. CC134911 **CERTIFIED CONCENTRATION**

HAS BEEN CERTIFIED ACCORDING TO SECTION CARBON MONOXIDE 4.0 PPM

OF TRACEABILITY PROTOCOL NO. 694 611 597 AIR BALANCE

PROCEDURE G1

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2015 PSIG

CERTIFICATION DATE 11/01/00

EXPIRATION DATE 11/01/08 TERM

ANALYZED BY *CERTIFIED BY*

Tom Pruitt Wesley Hall

145 Shimersville Road
Bethlehem, PA 18015
Tel (610) 691-2474
Fax (610) 758-8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER PRAXAIR SOUTHEAST **P.O NUMBER** 333045-00

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE 503.2PPM GMIS VS	1680B	CLM 009396	492.4 PPM

ANALYZER READINGS

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

1. **COMPONENT** CARBON MONOXIDE 503.2PPM GMI **ANALYZER MAKE-MODEL-S/N** Siemens Ultramat 5E S/N B8-900

ANALYTICAL PRINCIPLE NON-DISPERSIVE INFRARED **LAST CALIBRATION DATE** 12/31/00

FIRST ANALYSIS DATE 12/27/00 **SECOND ANALYSIS DATE** 01/03 01

Z 0	R 503	C 595	CONC. 595.6	Z 0	R 504	C 595	CONC. 594.1		
R 502	Z 0	C 595	CONC. 595.6	R 504	Z 0	C 595	CONC. 594.1		
Z 1	C 594	R 503	CONC 59[illegible].6	Z 0	C 595	R 504	CONC. 594.1		
U/M PPM		MEAN TEST ASSAY 595.3		U/M PPM		MEAN TEST ASSAY 594.1			

VALUES NOT VALID BELOW 150 PSIG

UNCERTAINTY OF CARBON MONOXIDE ±4 2PPM

THIS CYLINDER NO. SA12251 **CERTIFIED CONCENTRATION**

HAS BEEN CERTIFIED ACCORDING TO SECTION 2.2 CARBON MONOXIDE 594 PPM

OF TRACEABILITY PROTOCOL NO EPA 600/R97/121 2.0 BALANCE N

PROCEDURE

CERTIFIED ACCURACY % NIST TRACEABLE

CYLINDER PRESSURE PSIG

CERTIFICATION DATE

EXPIRATION DATE TERM

ANALYZED BY *CERTIFIED BY*

AIR LIQUIDE

CERTIFICATE of ANALYSIS

Interference-Free Multi-Component EPA Protocol Gases

Cyl. Number: CC121974	Cyl. Pressure:* 1667psig	Document Number: 9032348
Assay Date: 07/23/01	Expiration Date: 07/22/04	Item Number:
Customer: Technical Services	P.O. Number: 070601	Notes:

*Mixture is valid only to 150 psig

COMPONENT Name	REQUESTED Concentration	ASSAY Concentration
Carbon Monoxide	1000 ppm	991 ±15 ppm
Nitrogen	Balance	Balance

EPA Protocol, Section No. 2.0, Procedure G1

NOTE: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/123

REFERENCE STANDARD EMPLOYED FOR ANALYSIS

Standard	SRM	Conc.	Units	Std. Error	Comp.	Balance	Cyl. No.	Exp. Date	Sample
GMIS91	GMIS91	1500.0	ppm	21.0	CO	N2	CC113811	06/22/03	N A

Component 1: Carbon Monoxide Gas Analyzer Employed	Component 2: None Gas Analyzer Employed	Component 3: Gas Analyzer Employed
Manufacturer: KVB/Analect	Manufacturer:	Manufacturer:
Model Number: EN3024	Model Number:	Model Number:
Serial Number: 3024	Serial Number:	Serial Number:
Analytical Principle: FTIR	Analytical Principle:	Analytical Principle:
MPC Calibrated: 07/05/01	MPC Calibrated:	MPC Calibrated:

07/16/01	Trial 1	Trial 2	Trial 3	Units
Zero	-0.11	-0.33	-0.28	
Reference 1	1614.16	1639.01	1648.95	
Reference 2				
Candidate	1061.20	1082.36	1088.32	
Result	974.23	993.65	999.12	ppm
	Mean Result: 989.00			ppm

Component 1

Carbon Monoxide

07/23/01	Trial 1	Trial 2	Trial 3	Units
Zero	-0.02	0.05	0.16	
Reference 1	1673.01	1678.36	1674.41	
Reference 2				
Candidate	1113.28	1105.85	1105.95	
Result	996.79	990.14	990.23	ppm
	Mean Result: 992.39			ppm

Analyst

Air Liquide America Corporation
11426 Fairmont Parkway, La Porte, Texas 77571-6000
Phone (281) 474-8400 Fax (281) 474-8419

AIR LIQUIDE

CERTIFICATE of ANALYSIS

Interference-Free Multi-Component EPA Protocol Gases

Cyl. Number: CC70989	Cyl. Pressure:* 1667psig	Document Number: 9032348
Assay Date: 07/23/01	Expiration Date: 07/22/04	Item Number:
Customer: Technical Services	P.O. Number: 070601	Notes:

*Mixture is valid only to 150 psig

COMPONENT Name	REQUESTED Concentration	ASSAY Concentration
Carbon Monoxide	2000 ppm	1994 ±3% ppm
Nitrogen	Balance	Balance

EPA Protocol Section No. 2.0 — Procedure: G1

NOTE: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/123

REFERENCE STANDARD EMPLOYED FOR ANALYSIS

Standard	Type	Value	Units	Cal. Error	Comp.	Balance	Cyl. No	Exp. Date	Sample No
GMIS91	GMIS91	1500.0	ppm	21.0	CO	N2	CC113811	06/22/03	N A

Component 1: Carbon Monoxide — Gas Analyzer Employed	Component 2: None — Gas Analyzer Employed	Component 3: — Gas Analyzer Employed
Manufacturer: KVB/Analect	Manufacturer:	Manufacturer:
Model Number: EN3024	Model Number:	Model Number:
Serial Number: 3024	Serial Number:	Serial Number:
Analytical Principle: FTIR	Analytical Principle:	Analytical Principle:
MPC Calibrated: 07/05/01	MPC Calibrated:	MPC Calibrated:

07/16/01	Trial 1	Trial 2	Trial 3	Units
Zero	-0.11	-0.33	-0.28	
Reference 1	1614.16	1639.01	1648.95	
Reference 2				
Candidate	2132.25	2176.69	2193.10	
Result	1957.28	1998.07	2013.12	ppm
		Mean Result:	1969.49	ppm

Component 1

Carbon Monoxide

07/23/01	Trial 1	Trial 2	Trial 3	Units
Zero	-0.02	0.05	0.16	
Reference 1	1673.01	1678.36	1674.41	
Reference 2				
Candidate	2226.87	2236.96	2235.43	
Result	1993.92	2002.95	2001.58	ppm
		Mean Result:	1999.49	ppm

Analyst

Air Liquide America Corporation
11426 Fairmont Parkway La Porte Texas 77571-6000
Phone (281) 474-8400 Fax (281) 474-8419

Airgas

Airgas Specialty Gases

Certificate of Analysis: E.P.A. Protocol Gas Mixture

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using assay procedures listed.

Cylinder No:	SG9140092BAL	Order No:	008973-00
Certification Date:	09/9/2002	Expiration Date:	09/9/2005
Cylinder Pressure:	2000	Part No:	E02NI95E15A0077

*Do not use cylinder below 150 psig.

Component	Certified Concentration	Unit of Measure	Accuracy	Procedure	Analytical Principle
Carbon Dioxide	5.049	%	1%	G-1	NDIR
Nitrogen	Balance				
Nox (Reference Value Only)		ppm			

Reference Standard Information

Type	Component	Concentration	Unit	Cylinder Number
Ntrm	Carbon Dioxide	4.204	%	SG9169571BAL

Analytical Data

Component 1: Carbon Dioxide

1st Analysis Date: 09/9/2002

Zero	0.000	Cand	5.046	Ref	4.202
Zero	0.000	Cand	5.045	Ref	4.200
Zero	0.000	Cand	5.046	Ref	4.201

2nd Analysis Date:

Zero		Cand		Ref	
Zero		Cand		Ref	
Zero		Cand		Ref	

Analyzed by: _____ Approved by: _____

APPENDIX – G

Process Data

PRODUCTION DATA FOR OCTOBER 29 AND 31, 2002 CO TESTING

DATE	10/29/02		10/31/02		
RUN	1	2	1	2	3
TIME	1225-1324	1433-1532	1330-1429	1547-1646	1710-1809

Notes: ADTBPH is air-dried tons of bleached pulp per hour
Kappa is the pre-washer kappa
%ClO2 is the %ClO2 applied in that stage

		Do Stage				Eop Stage		D1 Stage		
Run	ADTBPH	%SW	%HW	Kappa	%ClO2	%SW	%HW	%SW	%HW	%ClO2
1 (29th)	49.8	100	0	22.0	2.0	100	0	100	0	0.5
2 (29th)	30.1	100	0	22.4	2.0	100	0	100	0	0.6
1 (31st)	50.0	100	0	22.8	2.2	100	0	100	0	0.7
2 (31st)	50.2	100	0	23.3	2.2	100	0	100	0	0.7
3 (31st)	50.1	100	0	23.3	2.2	100	0	100	0	0.7

THE KAPPA AND %ClO2 APPLIED ARE CONFIDENTIAL BUSINESS INFORMATION.

PRODUCTION AND SCRUBBER DATA FOR OCTOBER 29 AND 31, 2002 CHLORINATED HAP (METHOD 26A) TESTS

DATE	10/29/02			10/31/02		
RUN	1	2	3	1	2	3
TIME	1218-1323	1433-1538	1700-1802	1332-1443	1550-1656	1710-1816

Notes: ADTBPH is air-dried tons of bleached pulp per hour
Kappa is the pre-washer kappa
$\%ClO_2$ is the $\%ClO_2$ applied in that stage

		Do Stage				Eop Stage		D1 Stage		
Run	ADTBPH	%SW	%HW	Kappa	$\%ClO_2$	%SW	%HW	%SW	%HW	$\%ClO_2$
1 (29th)	49 8	100 0	0.0	21.9	2.0	100.0	0 0	100.0	0 0	0 5
2 (29th)	30.1	100.0	0.0	22.4	2.0	100.0	0 0	100 0	0 0	0 7
3 (29th)	30.0	100 0	0.0	22.9	1.6	100.0	0.0	100.0	0 0	0 7
1 (31st)	49 8	100.0	0.0	21.9	2 2	100 0	0 0	100.0	0 0	0 5
2 (31st)	49 8	100 0	0 0	21.9	2 2	100.0	0 0	100.0	0 0	0 5
3 (31st)	49 8	100.0	0.0	21.9	2.2	100.0	0.0	100 0	0 0	0 5

THE KAPPA AND $\%ClO_2$ APPLIED ARE CONFIDENTIAL BUSINESS INFORMATION.

Run	Flow, gpm	pH	Fan Load, %	Fan Amps	Fan Differential, in. H_2O
1 (29th)	1262	9 2	84	15.0	20 8
2 (29th)	1207	8 9	84	15 1	20 8
3 (29th)	1153	9 0	85	15.2	21.1
1 (31st)	1252	9.3	85	15.4	21.3
2 (31st)	1258	9.3	85	15.4	21.3
3 (31st)	1263	9.2	86	15.4	21.4

Cl2 Testing Raw Scrubber Data

Run 1 10/29/02 1218-1323

	Flow, gpm	pH	Fan Load, %	Fan Amps	Scrubber Differential, in H2O
1218-1233	1263	9.2	85	15 2	20 9
1233-1248	1263	9.1	84	15 1	20 9
1248-1303	1263	9 1	84	15 1	20 8
1303-1318	1262	9.0	83	15.0	20 8
Average	1262	9.1	84	15.1	20 9

Cl2 Testing Raw Scrubber Data

Run 2 10/29/02 1433-1538

	Flow, gpm	pH	Fan Load, %	Fan Amps	Scrubber Differential in H2O
1433-1448	1239	8 9	83	15 0	20 8
1448 1503	1228	8 9	83	15 0	20 8
1503 1518	1217	8 9	83	15 0	20 8
1518-1533	1207	8 9	84	15 1	20 9
Average	1223	8.9	84	15.0	20 8

Cl2 Testing Raw Scrubber Data

Run 3 10/29/02 1700-1802

	Flow, gpm	pH	Fan Load, %	Fan Amps	Scrubber Differential, in H2O
1700-1715	1163	9 0	84	15.2	21 1
1715-1730	1159	9.0	84	15 2	21 1
1730-1745	1156	9 0	85	15 2	21 1
1745-1800	1153	9 0	85	15.2	21 1
Average	1158	9 0	84	15 2	21 1

Cl2 Testing Raw Scrubber Data

Run 1 10/31/02 1332-1443

	Flow, gpm	pH	Fan Load, %	Fan Amps	Scrubber Differential, in H2O
1332-1347	1252	9.3	86	15.4	21.4
1347-1402	1252	9.3	85	15.4	21.3
1402-1417	1252	9.3	85	15.4	21.3
1417-1432	1254	9.3	86	15.4	21.3
1432-1447	1254	9.3	86	15.4	21.3
Average	1253	9.3	85	15.4	21.3

Cl2 Testing Raw Scrubber Data

Run 2 10/31/02 1550-1656

	Flow, gpm	pH	Fan Load, %	Fan Amps	Scrubber Differential in H2O
1550-1605	1258	9 3	85	15 4	21 3
1605-1620	1258	9.3	85	15.4	21 4
1620-1635	1259	9.3	85	15 4	21 4
1635-1650	1259	9 3	86	15 4	21 4
Average	1259	9 3	85	15 4	21 4

Cl2 Testing Raw Scrubber Data

Run 3 10/31/02 1710-1816

	Flow, gpm	pH	Fan Load, %	Fan Amps	Scrubber Differential in H2O
1710-1725	1261	9.3	86	15.5	21.4
1725-1740	1261	9.3	86	15.4	21 4
1740-1755	1262	9.3	86	15 5	21 5
1755-1810	1263	9.2	86	15 4	21 5
Average	1262	9 3	86	15.4	21 4

APPENDIX – H

Project Participants

Joe Cooksey of AASI	Report Review
Randy L Weston of AASI	Project Manager Report Preparation Field Testing
George Hawkins of AASI	Field Testing
Roger Dilinger of AASI	Field Testing
Joe Taylor of GP	Testing Support

ATTACHMENT C

Subsection K. This section addresses the following emissions unit(s).

E.U. ID No.	Brief Description
036	Elemental Chlorine Free (ECF) No. 3 Bleach Plant

Emissions Unit 036 consists of an ECF bleach plant. This plant uses chlorine dioxide in the bleaching process. Emissions are controlled by a wet scrubber. This emissions unit is regulated under 40 CFR 63 Subpart S - National Emission Standards for Hazardous Air Pollutants for Pulp Mills, adopted and incorporated by reference in Rule 62-204.800, F.A.C.; Rule 212.400(5), F.A.C., Prevention of Significant Deterioration (PSD): Permit(s) No. PSD-FL-264; Rule 62-212.400(6), F.A.C., and Best Available Control Technology (BACT) Determination, dated June 30, 1999.

The following specific conditions apply to the emissions unit(s) listed above:

Operational Parameters

K.0. The Permittee shall meet the compliance milestones stated in Appendix CP-Compliance Plan.

K.1. Permitted Capacity. Until compliance is demonstrated with the air construction permit issued pursuant to the PSD review identified in the Compliance Schedule of the Compliance Plan, Appendix CP, Condition X.1, the maximum production rate of this emissions unit shall not exceed 840 tons per day of air-dried bleached pulp (ADBP) as a maximum monthly average. [Consent Order OGC File No. 02-1886]

K.2. Hours of Operation. The hours of operation are not restricted, i.e. 8,760 hours per year. [Rules 62-4.1610(2) and 62-210.200(PTE), F.A.C., Construction Permit No. 1070005-006-AC/PSD/FL-264]

Operating Standards

K.3. Bleaching Stage Equipment. The equipment at each bleaching stage, of the No. 3 Bleach Plant, where chlorinated compounds are introduced shall be enclosed and vented into a closed-vent system and routed to the wet scrubber stack for control. The enclosures and closed-vent system shall meet the requirements specified in Condition K.5.
[63.445(b)]

K.4. Chloroform air emissions. To reduce chloroform air emissions to the atmosphere, the No. 3 Bleach Plant shall not use hypochlorite or chlorine for bleaching in the bleaching system or line. [63.445(d)(2), Construction Permit No. 1070005-006-AC/PSD-FL-264]

K.5. Enclosures and Closed-Vent Systems. The enclosure and closed-vent system specified in Condition K.3 for capturing and transporting vent streams that contain HAP shall meet the following requirements:

(a) Each enclosure shall maintain negative pressure at each enclosure or hood opening as demonstrated by the procedures specified in Condition K.18. Each enclosure or hood opening closed during the initial performance test specified in 40 CFR 63.457(a) shall be maintained in the same closed and sealed position as during the performance test at all times except when necessary to use the opening for sampling, inspection, maintenance, or repairs.

(b) Each component of the closed-vent system used to comply with Condition K.3. that is operated at positive pressure and located prior to a control device shall be designed for and operated with no detectable leaks as indicated by an instrument reading of less than 500 parts per million by volume above background, as measured by the procedures specified in Condition K.17..

(c)Each bypass line in the closed-vent system that could divert vent streams containing HAP to the atmosphere without meeting the emission limitations in 40 CFR 63.445 shall comply with either of the following requirements:

(1) On each bypass line, the owner or operator shall install, calibrate, maintain, and operate according to manufacturer's specifications a flow indicator that provides a record of the presence of gas stream flow in the bypass line at least once every 15 minutes. The flow indicator shall be installed in the bypass line in such a way as to indicate flow in the bypass line; or

(2) For bypass line valves that are not computer controlled, the owner or operator shall maintain the bypass line valve in the closed position with a car seal or a seal placed on the valve or closure mechanism in such a way that valve or closure mechanism cannot be opened without breaking the seal.

[63.450]

Emission Limitations and Standards

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting Note: Unless otherwise specified, the averaging time for this condition is based on the specified averaging time of the applicable test method.}

K.6. Carbon Monoxide. Carbon monoxide emissions shall not exceed 46 lbs/hr and 201 tons per year[1]. Carbon monoxide emissions shall be minimized to the extent practicable by efficient bleaching operations.

[1] Compliance issues associated with CO emissions from this emissions unit are addressed within Consent Order OGC File No. 02-1886 until compliance is demonstrated with the air construction permit issued pursuant to the PSD review identified in the Compliance Schedule of the Compliance Plan, Appendix CP, Condition X.1.

[Rule 62-212.410, F.A.C., Construction Permit No. 1070005-006-AC/PSD-FL-264, Consent Order OGC File No. 02-1886]

K.7. Total Chlorinated HAPs. The total chlorinated HAP outlet concentration shall not exceed 10 parts per million by volume
[63.445(c)(2); Construction Permit No. 1070005-006-AC/PSD-FL-264]

K.8. Visible Emissions. Visible Emissions form this emissions unit shall not exceed 20% opacity. The visible emissions limit shall only be effective if the visible emission measurement can be made without being substantially affected by plume mixing or moisture condensation.
[Rule 62-296.320, F.A.C.; Rule 62-296.404(2)(b), F.A.C.; Construction Permit No. 1070005-006-AC/PSD-FL-264]

Excess Emissions

K.9. Excess emissions resulting from startup, shutdown or malfunction of any source shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.
[62-201.700(1), F.A.C.]

K.10. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited.
[Rule 62-210.700(4), F.A.C.]

K.11. Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest.
[Rule 62-210.700(5), F.A.C.]

K.12. In case of excess emissions resulting from malfunctions, each source shall notify the Department or the appropriate Local program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department.
[Rule 62-210.700(6), F.A.C.]

Test Methods and Procedures

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

K.13. Carbon Monoxide. The test method for carbon monoxide emissions shall be EPA Method 10 as incorporated in 40 CFR 60, Appendix A. The compliance testing shall be conducted annually with a frequency base date of 05/25[1].

[1] Compliance issues associated with CO emissions from this emissions unit are addressed within Consent Order OGC File No. 02-1886 until compliance is demonstrated with the air construction permit issued pursuant to the PSD review identified in the Compliance Schedule of the Compliance Plan. Appendix CP, Condition X.1.

[Construction Permit No. 1070005-006-AC/PSD-FL-264, Rule 62-204.800, F.A.C., Consent Order OGC File No. 02-1886]

K.14. Total Chlorinated HAPs. The test method for total chlorinated HAPs shall be EPA Method 26A as incorporated in 40 CFR 60, Appendix A. The compliance testing shall be conducted annually with a frequency base date of 05/26.
[Construction Permit No. 1070005-006-AC/PSD-FL-264; Rule 62-297.310(7)(a)4.c., F.A.C.]

K.15. Visible Emissions. The test method for visible emissions shall be EPA Method 9 as incorporated in 40 CFR 60, Appendix A. The compliance testing shall be conducted annually with a frequency base date of 05/25.
[Construction Permit No. 1070005-006-AC/PSD-FL-264, Rule 62-204.800, F.A.C.]

K.16. Vent sampling port locations and gas stream properties. For purposes of selecting vent sampling port locations and determining vent gas stream properties, required in 40 CFR 63.445, the owner or operator shall comply with the following procedures:

(1) Method 1 or 1A of part 60, appendix A, as appropriate, shall be used for selection of the sampling site as follows:

(i) To sample for vent gas concentrations and volumetric flow rates, the sampling site shall be located prior to dilution of the vent gas stream and prior to release to the atmosphere;

(ii) For determining compliance with percent reduction requirements, sampling sites shall be located prior to the inlet of the control device and at the outlet of the control device; measurements shall be performed simultaneously at the two sampling sites; and

(iii) For determining compliance with concentration limits or mass emission rate limits, the sampling site shall be located at the outlet of the control device.

(2) No traverse site selection method is needed for vents smaller than 0.10 meter (4.0 inches) in diameter.

(3) The vent gas volumetric flow rate shall be determined using Method 2, 2A, 2C, or 2D of part 60, appendix A, as appropriate.

(4) The moisture content of the vent gas shall be measured using Method 4 of part 60, appendix A.

(5) To determine vent gas concentrations, the owner or operator shall collect a minimum of three test runs that are representative of normal conditions and average the resulting pollutant concentrations using the following procedures.

(i) Method 308 in Appendix A of this part shall be used to determine the methanol concentration.

(ii) Except for the modifications specified in paragraphs (b)(5)(ii)(A) through (b)(5)(ii)(K) of this section, Method 26A of part 60, appendix A shall be used to determine chlorine concentration in the vent stream.

(A) *Probe/Sampling Line.* A separate probe is not required. The sampling line shall be an appropriate length of 0.64 cm (0.25 in) OD Teflon® tubing. The sample inlet end of the sampling line shall be inserted into the stack in such a way as to not entrain liquid condensation from the vent gases. The other end shall be connected to the impingers. The length of the tubing may vary from one sampling site to another, but shall be as short as possible in each situation. If sampling is conducted in sunlight, opaque tubing shall be used. Alternatively, if transparent tubing is used, it shall be covered with opaque tape.

(B) *Impinger Train.* Three 30 milliliter (ml) capacity midget impingers shall be connected in series to the sampling line. The impingers shall have regular tapered stems.

Silica gel shall be placed in the third impinger as a desiccant. All impinger train connectors shall be glass and/or Teflon®.

(C) *Critical Orifice.* The critical orifice shall have a flow rate of 200 to 250 ml/min and shall be followed by a vacuum pump capable of providing a vacuum of 640 millimeters of mercury (mm Hg). A 45 millimeter diameter in-line Teflon® 0.8 micrometer filter shall follow the impingers to project the critical orifice and vacuum pump.

(D) The following are necessary for the analysis apparatus:

(*1*) Wash bottle filled with deionized water;

(*2*) 25 or 50 ml graduated burette and stand;

(*3*) Magnetic stirring apparatus and stir bar;

(*4*) Calibrated pH Meter;

(*5*) 150-250 ml beaker or flask; and

(*6*) A 5 ml pipette.

(E) The procedures listed in paragraphs (b)(5)(ii)(E)(*1*) through (b)(5)(ii)(E)(*7*) of this section shall be used to prepare the reagents.

(*1*) To prepare the 1 molarity (M) potassium dihydrogen phosphate solution. dissolve 13.61 grams (g) of potassium dihydrogen phosphate in water and dilute to 100 ml.

(*2*) To prepare the 1 M sodium hydroxide solution (NaOH). dissolve 4.0 g of sodium hydroxide in water and dilute to 100 ml.

(*3*) To prepare the buffered 2 percent potassium iodide solution. dissolve 20 g of potassium iodide in 900 ml water. Add 50 ml of the 1 M potassium dihydrogen phosphate solution and 30 ml of the 1 M sodium hydroxide solution. While stirring solution, measure the pH of solution electrometrically and add the 1 M sodium hydroxide solution to bring pH to between 6.95 and 7.05.

(*4*) To prepare the 0.1 normality (N) sodium thiosulfate solution. dissolve 25 g of sodium thiosulfate. pentahydrate. in 800 ml of freshly boiled and cooled distilled water in a 1-liter volumetric flask. Dilute to volume. To prepare the 0.01 N sodium thiosulfate solution. add 10.0 ml standardized 0.1 N sodium thiosulfate solution to a 100 ml volumetric flask. and dilute to volume with water.

(*5*)To standardize the 0.1 N sodium thiosulfate solution. dissolve 3.249 g of anhydrous potassium bi-iodate. primary standard quality. or 3.567 g potassium iodate dried at 103 +/- 2 degrees Centigrade for 1 hour. in distilled water and dilute to 1000 ml to yield a 0.1000 N solution. Store in a glass-stoppered bottle. To 80 ml distilled water, add, with constant stirring. 1 ml concentrated sulfuric acid. 10.00 ml 0.1000 N anhydrous potassium bi-iodate. and 1 g potassium iodide. Titrate immediately with 0.1 n sodium thiosulfate titrant until the yellow color of the liberated iodine is almost discharged. Add 1 ml starch indicator solution and continue titrating until the blue color disappears. The normality of the sodium thiosulfate solution is inversely proportional to the ml of sodium thiosulfate solution consumed:

$$\text{Normality of Sodium Thiosulfate} = \frac{1}{\text{ml Sodium Thiosulfate Consumed}}$$

(6) To prepare the starch indicator solution, add a small amount of cold water to 5 g starch and grind in a mortar to obtain a thin paste. Pour paste into 1 L of boiling distilled water, stir, and let settle overnight. Use clear supernate for starch indicator solution.

(7) To prepare the 10 percent sulfuric acid solution, add 10 ml of concentrated sulfuric acid to 80 ml water in an 100 ml volumetric flask. Dilute to volume.

(F) The procedures specified in paragraphs (b)(5)(ii)(F)(1) through (b)(5)(ii)(F)(5) of this section shall be used to perform the sampling.

(1) Preparation of Collection Train. Measure 20 ml buffered potassium iodide solution into each of the first two impingers and connect probe, impingers, filter, critical orifice, and pump. The sampling line and the impingers shall be shielded from sunlight.

(2) Leak and Flow Check Procedure. Plug sampling line inlet tip and turn on pump. If a flow of bubbles is visible in either of the liquid impingers, tighten fittings and adjust connections and impingers. A leakage rate not in excess of 2 percent of the sampling rate is acceptable. Carefully remove the plug from the end of the probe. Check the flow rate at the probe inlet with a bubble tube flow meter. The flow should be comparable or slightly less than the flow rate of the critical orifice with the impingers off-line. Record the flow and turn off the pump.

(3) Sample Collection. Insert the sampling line into the stack and secure it with the tip slightly lower than the port height. Start the pump, recording the time. End the sampling after 60 minutes, or after yellow color is observed in the second in-line impinger. Record time and remove the tubing from the vent. Recheck flow rate at sampling line inlet and turn off pump. If the flow rate has changed significantly, redo sampling with fresh capture solution. A slight variation (less than 5 percent) in flow may be averaged. With the inlet end of the line elevated above the impingers, add about 5 ml water into the inlet tip to rinse the line into the first impinger.

(4) Sample Analysis. Fill the burette with 0.01 N sodium thiosulfate solution to the zero mark. Combine the contents of the impingers in the beaker or flask. Stir the solution and titrate with thiosulfate until the solution is colorless. Record the volume of the first endpoint (TN, ml). Add 5 ml of the 10 percent sulfuric acid solution, and continue the titration until the contents of the flask are again colorless. Record the total volume of titrant required to go through the first and to the second endpoint (TA, ml). If the volume of neutral titer is less than 0.5 ml, repeat the testing for a longer period of time. It is important that sufficient lighting be present to clearly see the endpoints, which are

determined when the solution turns from pale yellow to colorless. A lighted stirring plate and a white background are useful for this purpose.

(5) Interferences. Known interfering agents of this method are sulfur dioxide and hydrogen peroxide. Sulfur dioxide, which is used to reduce oxidant residuals in some bleaching systems, reduces formed iodine to iodide in the capture solution. It is therefore a negative interference for chlorine, and in some cases could result in erroneous negative chlorine concentrations. Any agent capable of reducing iodine to iodide could interfere in this manner. A chromium trioxide impregnated filter will capture sulfur dioxide and pass chlorine and chlorine dioxide. Hydrogen peroxide, which is commonly used as a bleaching agent in modern bleaching systems, reacts with iodide to form iodine and thus can cause a positive interference in the chlorine measurement. Due to the chemistry involved, the precision of the chlorine analysis will decrease as the ratio of chlorine dioxide to chlorine increases. Slightly negative calculated concentrations of chlorine may occur when sampling a vent gas with high concentrations of chlorine dioxide and very low concentrations of chlorine.

(6) The minimum sampling time for each of the three test runs shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at approximately equal intervals in time, such as 15 minute intervals during the test run.

(G) The following calculation shall be performed to determine the corrected sampling flow rate:

$$S_c = \frac{S_u(BP - PW)(293)}{(760)(273 + t)}$$

where:

S_C = Corrected (dry standard) sampling flow rate, liters per minute;
S_U = Uncorrected sampling flow rate, L/min;
BP = Barometric pressure at time of sampling;
PW = Saturated partial pressure of water vapor, mm Hg at temperature; and
t = Ambient temperature, °C.

(H) The following calculation shall be performed to determine the moles of chlorine in the sample:

Cl_2 Moles = 1/8000 (5 T_N - T_A) x N_{Thio}

where:

T_N = Volume neutral titer, ml;
T_A = Volume acid titer (total), ml; and
N_{Thio} = Normality of sodium thiosulfate titrant.

(I) The following calculation shall be performed to determine the concentration of chlorine in the sample:

$$ClO_2\ Moles = 1/4000\,(T_A - T_N) \times N_{Thio}$$

where:

T_A = Volume acid titer (total), ml;
T_N = Volume neutral titer, ml; and
N_{Thio} = Normality of sodium thiosulfate titrant.

(K) The following calculation shall be performed to determine the concentration of chlorine dioxide in the sample:

$$ClO_2\ ppmv = \frac{6010(T_A - T_N) \times N_{Thio}}{S_c \times t_s}$$

where:

S_C = Corrected (dry standard) sampling flow rate, liters per minute;
t_S = Time sampled, minutes;
T_A = Volume acid titer (total), ml;
T_N = Volume neutral titer, ml; and
N_{Thio} = Normality of sodium thiosulfate titrant.

(iii) Any other method that measures the total HAP or methanol concentration that has been demonstrated to the Administrator's satisfaction.

(6) The minimum sampling time for each of the three runs per method shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at approximately equal intervals in time, such as 15 minute intervals during the run.
[63.457(b)]

K.17. Detectable leak procedures. To measure detectable leaks for closed-vent systems as specified in Condition K.5., the owner or operator shall comply with the following:

(1) Method 21, of Part 60, Appendix A; and

(2) The instrument specified in Method 21 shall be calibrated before use according to the procedures specified in Method 21 on each day that leak checks are performed. The following calibration gases shall be used:

(i) Zero air (less than 10 parts per million by volume of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 parts per million by volume methane or n-hexane.
[63.457(d)]

K.18. Negative pressure procedures. To demonstrate negative pressure at process equipment enclosure openings as specified in Condition K.5., the owner or operator shall use one of the following procedures:

(1) An anemometer to demonstrate flow into the enclosure opening;

(2) Measure the static pressure across the opening;

(3) Smoke tubes to demonstrate flow into the enclosure opening; or

(4) Any other industrial ventilation test method demonstrated to the Administrator's satisfaction.
[63.457(e)]

Please reference the Permit No., Facility ID No., and appropriate Emissions Unit(s) ID No(s). on all correspondence, test report submittals, applications, etc.

K.19. Bleaching HAP concentration measurement. For purposes of complying with the bleaching system requirements in § 63.445, the owner or operator shall measure the total HAP concentration as the sum of all individual chlorinated HAPs or as chlorine.
[63.457(h)]

Continuous Monitoring Requirements

K.20. The permittee shall install, calibrate, certify, operate, and maintain according to the manufacturer's specifications, a continuous monitoring system (CMS, as defined in §63.2) as specified in Condition K.21. The CMS shall include a continuous recorder.
[63.453(a), Construction Permit No. 1070005-006-AC/PSD-FL-264]

K.21. A CMS shall be operated to measure the following parameters:
(1) The pH or the oxidation/reduction potential of the gas scrubber effluent;
(2) Fan amperage of the bleaching system vent gas fan*; and
(3) The gas scrubber liquid influent flow rate.

*EPA Approved Alternative Monitoring Parameter dated December 22, 2000.
[63.453(c), Construction Permit No. 1070005-006-AC/PSD-FL-264]

K.22. Enclosure and Closed-Vent System. The enclosure and closed-vent system shall comply with the following requirements:

(1) For each enclosure opening, a visual inspection of the closure mechanism specified in K.5.(a) shall be performed at least once every 30 days to ensure the opening is maintained in the closed position and sealed.

(2) The closed-vent system shall be visually inspected every 30 days and at other times as requested by the Administrator. The visual inspection shall include inspection of ductwork, piping, enclosures, and connections to covers for visible evidence of defects.

(3) For positive pressure closed-vent systems or portions of closed-vent systems, demonstrate no detectable leaks as specified in Condition K.5.(b) measured initially and annually by the procedures in Condition K.17..

(4) Demonstrate initially and annually that each enclosure opening is maintained at negative pressure as specified in Condition K.18..

(5) The valve or closure mechanism specified in Condition K.5.(c)(2) shall be inspected at least once every 30 days to ensure that the valve is maintained in the closed position and the emission point gas stream is not diverted through the bypass line.

(6) If an inspection required by paragraphs (1) through (5) of this Condition identifies visible defects in ductwork, piping, enclosures or connections to covers required by Condition K.5., or if an instrument reading of 500 parts per million by volume or greater above background is measured, or if enclosure openings are not maintained at negative pressure, then the following corrective actions shall be taken as soon as practicable.

(i) A first effort to repair or correct the closed-vent system shall be made as soon as practicable but no later than 5 calendar days after the problem is identified.

(ii) The repair or corrective action shall be completed no later than 15 calendar days after the problem is identified. Delay of repair or corrective action is allowed if the repair or corrective action is technically infeasible without a process unit shutdown or if the owner or

operator determines that the emissions resulting from immediate repair would be greater than the emissions likely to result from delay of repair. Repair of such equipment shall be completed by the end of the next process unit shutdown.
[63.453(k)]

K.23. Wet Scrubber Operating Parameters. The wet scrubber shall be operated in a manner consistent with the minimum pH of the scrubbing medium effluent at 9.1 s.u., the minimum fan motor loading of 85% (15.3 amps), and the minimum scrubber recirculation flow rate of 1,229 gpm. Operation of the wet scrubber below these minimum operating parameter values or failure to perform procedures required by 40 CFR 63 Subpart S shall constitute a violation of Condition K.7. and be reported as a period of excess emissions.

{Permitting Note: Unless otherwise specified, the averaging time for this condition is based on the specified averaging time of the applicable test method.}
[63.453(o), Applicant Request dated 12/20/02]

Recordkeeping Requirements

K.24. The permittee shall maintain daily records of the following information in order to document continuous compliance with Condition Nos. K.1., K.6.., K.7., and K.21.:

- Quantity of pulp processed through the No. 3 Bleach Plant in air-dried bleach tons.
- Scrubber parameters monitored per Condition K.21.

K.25. The permittee shall comply with the recordkeeping requirements of 40 CFR 63.10, as shown in Table 1 of 40 CFR Part 63 Subpart S.
[63.454(a)]

K.26. Enclosure Opening, Closed-Vent System and Closed Collection System. For each applicable enclosure opening, closed-vent system, and closed collection system, the owner or operator shall prepare and maintain a site-specific inspection plan including a drawing or schematic of the components of applicable affected equipment and shall record the following information for each inspection:

(1) Date of inspection;
(2) The equipment type and identification;
(3) Results of negative pressure tests for enclosures;
(4) Results of leak detection tests;
(5) The nature of the defect or leak and the method of detection (i.e., visual inspection or instrument detection);
(6) The date the defect or leak was detected and the date of each attempt to repair the defect or leak;
(7) Repair methods applied in each attempt to repair the defect or leak:
(8) The reason for the delay if the defect or leak is not repaired within 15 days after discovery;
(9) The expected date of successful repair of the defect or leak if the repair is not completed within 15 days;
(10) The date of successful repair of the defect or leak;

(11) The position and duration of opening of bypass line valves and the condition of any valve seals; and

(12) The duration of the use of bypass valves on computer controlled valves.
[63.454(b)]

K.27. New affected Process Equipment. The permittee shall record the CMS parameters specified in §63.453 and meet the requirements specified in Condition K.25., for any new affected process equipment that becomes subject to the standards of 40 CFR Part 63 Subpart S due to a process change or modification.
[63.454(d)]

Reporting Requirements

K.28. The permittee shall comply with the reporting requirements of 40 CFR Part 63. Subpart A as specified in Table 1 of Subpart S.
[63.455(a)]

Common Conditions - F.A.C. Test Requirements

K.29. This emissions unit is also subject to applicable F.A.C. Test Requirements in Subsection N.

Common Conditions - Periodic Monitoring

K.30. This emissions unit is also subject to applicable Periodic Monitoring Requirements in Subsection P.

Appendix CP- Compliance Plan

X.1. Compliance Schedule. The following dates shall be met to satisfy measurable progress milestones for the facility to come into compliance with Conditions A.10., K.6., and K.7.

E.U. ID. No.	Milestone	Milestone Date
036 014	Responsible Official to enter into a consent order agreement with Department concerning the No. 3 ECF Bleach Plant, and initiate agreements concerning any other non-compliant conditions.	November 12, 2002
036	Facility to submit a complete application, including completed responses to Department requests for additional information, for an air construction permit/PSD Determination.	February 1, 2003
Facility	Responsible Official to submit "Certification of Compliance", addressing the entire facility, indicating what is not in compliance, when non-compliance started, the degree or amount of non-compliance, the duration of non-compliant operations, steps taken to identify and correct non-compliant conditions, and actions (with time table), to correct any current non-compliant conditions and achieve compliance.	March 1, 2003
036	Initiation of on-site construction and/or installation of emission control equipment or process change authorized by air construction permit	No later than 3 months from the date of issuance of the resulting air construction permit/PSD Determination
036	Completion of on-site construction or installation of emission control equipment or process change authorized by air construction permit	No later than 9 months from the date of issuance of the resulting air construction permit/PSD Determination
036	Compliance Testing conducted and test reports submitted pursuant to requirements of air construction permit	Pursuant to the timeframes established in the air construction permit/PSD Determination
014	Compliance Testing conducted and test reports submitted for the No. 4 Power Boiler	April 1, 2003
036	Submittal of Title V Operation Permit Revision for the incorporation of the air construction permit/PSD Determination for the No. 3 ECF Bleach Plant	At least 90 days prior to expiration of air construction permit, but no later than 180 days after commencement of operation

036	Final Compliance	No later than 11 months from the date of issuance of the resulting air construction permit/PSD Determination
Facility	Responsible Official to submit "Certification of Compliance", addressing the entire facility, indicating what is not in compliance, when non-compliance started, the degree or amount of non-compliance, the duration of non-compliant operations, steps taken to identify and correct non-compliant conditions, and actions (with time table), to correct any current non-compliant conditions and achieve compliance.	No later than 12 months from the date of issuance of the resulting air construction permit/PSD Determination

X.2. Permitted Capacity. Until compliance is demonstrated with the air construction permit issued pursuant to the PSD review identified in the Compliance Schedule of Condition X.1, above, the maximum throughput rate of this emissions unit shall not exceed 840 tons per day of air-dried bleached pulp (ADBP) as a maximum monthly average.
[Consent Order OGC File No. 02-1886]

X.3. Recordkeeping. The Permittee shall maintain material throughput logs that indicate the type and amount of material used daily.
[Consent Order OGC File No. 02-1886]