# SOURCE TEST REPORT

Georgia-Pacific Corporation
Palatka, Florida

## Bleach Plant

October 29-31, 2002

Prepared By:

AAS Inc.
Ambient Air Services, Inc.
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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<br>Palatka, Florida<br>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<br>Palatka, Florida<br>29 & 31 October, 2002<br>Summary of Permit Requirements<br>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

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## 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 |
| 10/29/02 | 1 | 12:18<br>13:23 | 1.50E-04 | 0.233 | 0.016 | 16316 | 12775 | 144.3 | 10.7 | 34.421 | 104.7 |
| 10/29/02 | 2 | 14:33<br>15:38 | 1.03E-04 | 0.160 | 0.011 | 15336 | 12139 | 145.0 | 9.6 | 32.247 | 103.3 |
| 10/29/02 | 3 | 17:00<br>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** |

Table 6

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## 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 |
| 10/31/02 | 1 | 13:32<br>14:43 | 4.73E-05 | 0.073 | 0.005 | 16387 | 13401 | 142.0 | 7.4 | 35.830 | 103.9 |
| 10/31/02 | 2 | 15:50<br>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<br>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

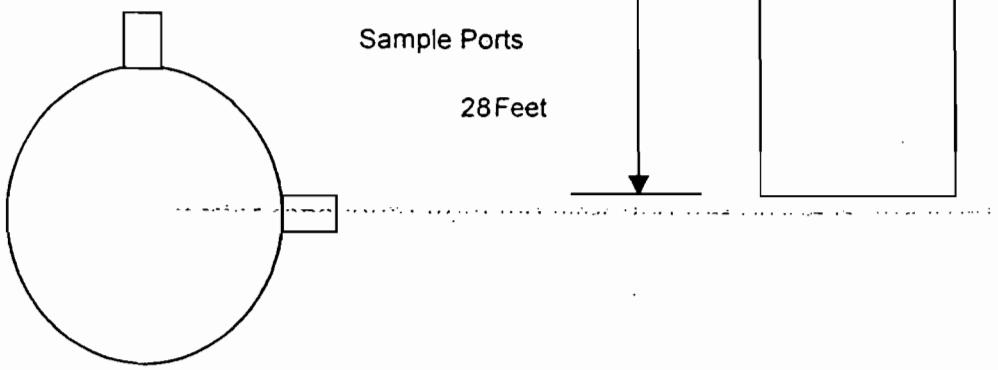
**NOT TO SCALE**

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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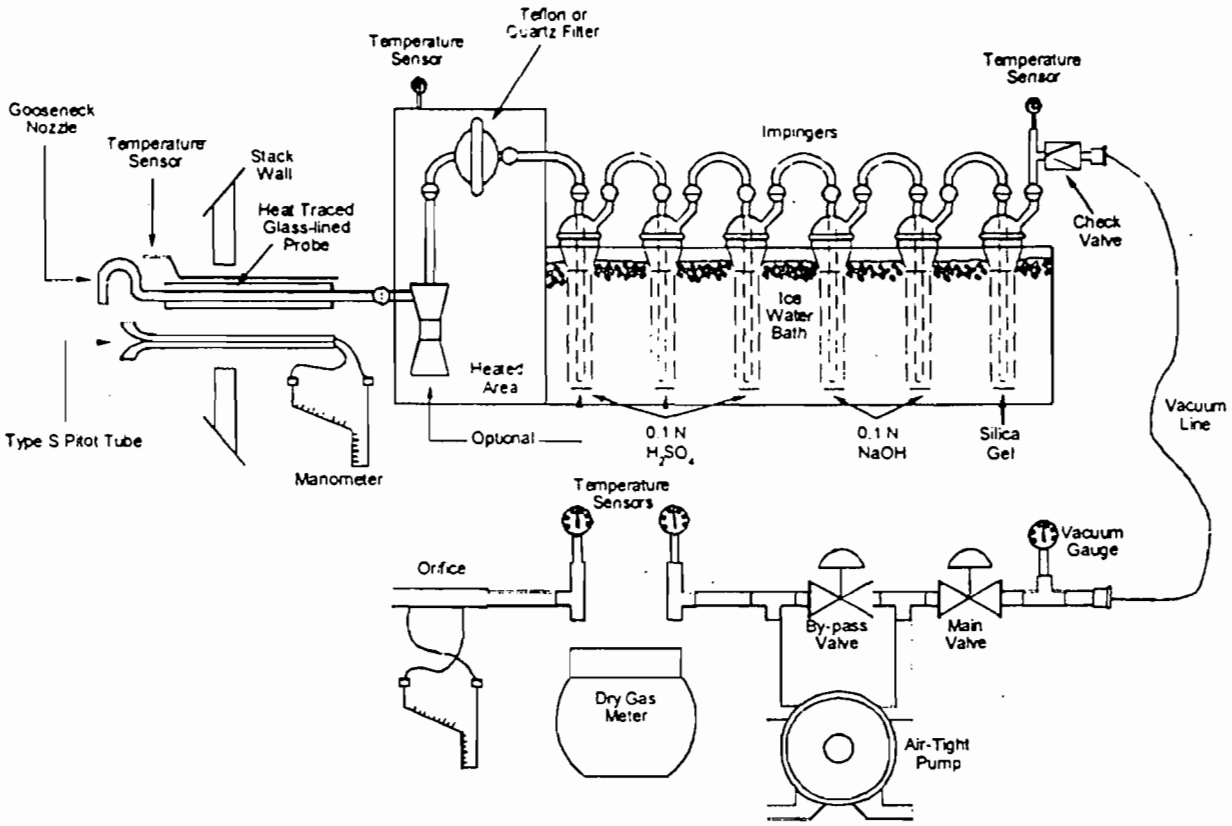
Figure 2-1

## 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

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# APPENDIX – A

Complete Emission Data
- Emissions Run Summaries
- Flow Calculation Data

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

## 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 | | 14306 |
| Percent Isokinetic | | 105 |
| Stack Emissions: | Grains per DSCF | 0.00015 |
| | Pounds per Hour | 0.016 |

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

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

## 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 | | 106 |
| Stack Emissions: | Grains per DSCF | 0.00011 |
| | Pounds per Hour | 0.012 |

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

## CI Summary Run 1

| | | | |
|---|---|---|---|
| Facility | Georgia Pacific | Implnger 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 | 0.00005 |
| | Pounds per Hour | 0.005 |

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

## 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 | 104.3 |
| Avg of SQRT of V.H. | 0.4674 | Total | 30.0 |
| 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) | | 27.83 |
| Specific gravity of Stack Gas Relative to Air | | 0.960 |
| 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 | | 106 |
| Stack Emissions: | Grains per DSCF | 0.00002 |
| | Pounds per Hour | 0.002 |

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Environmental Consultants
106 Ambient Air Way
Starke, FL. 32091
(904) 964-8440

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

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

| 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 | 0.26 | 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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AASI USEPA Method 5 24 Point Template - Rev 0/11-7-2002

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

| 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 | 0.21 | 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 | 0.22 | 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 Point 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 |

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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 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 26A 12 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 26A 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.
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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 - Cl 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 — RUN No. 1
SOURCE: Bleach — DATE: 10/29/02
WEATHER: Partial Clouds — PRE-TEST.
TYPE TEST: 027 — Ts = 142 602 — CO2 ____
TESTERS: RW, R — Tm = 105 565 — O2 20.9
12 PTS. @ 5 MIN/PT = ____ MIN F.D.A. = .94 — CO ____
BAROMETRIC PRESS. 30.03
METER BOX ID: ~~RS1~~ #10
METER DELTA H: 2.050
PROBE ID: 6B
PITOT CORR. FACTOR 0.84
NOZZLE DIA. 0.275 in.
PROBE TEMP. N/A
STACK ID (IN.)= 42
UP/DOWN STREAM 28 72
Y meter = .998 Filter No. = ____
COMMENTS: Nozzle .275, .275, .273 Avg .275

| | | | | |
|---|---|---|---|---|
| TIME | START | 1218 | START VOLUME | 156.450 |
| TIME | END | | END VOLUME | 193.480 |

-1.9

9188.69
1529.08

PORT LENGTH (IN) 7" Factors: F = 6.01

LEAK CHECK: PRE.TEST 0 CFM@15". POST: ____ " Hg.
PITOT LEAK CHECK = ____ AT 3"
VOL. WATER COLLECTED = ML ~~206~~ 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 ~~2.5~~ | 156.450 | .26 | 1.6 | 142 | 106 | 240 | 76 | 5 | N/A | a) .005053 |
| 2 | 5 5 | 159.8 | .26 | 1.6 | 142 | 107 | 247 | 70 | 5.5 | | b) 1529.08 |
| 3 ~~2~~ | 10 ~~7.5~~ | 162.9 | .23 | 1.4 | 145 | 107 | 255 | 66 | 5 | | c) 1158.25 |
| 4 | 15 ~~10~~ | 166.0 | .22 | ~~1.4~~ 1.3 | 145 | 108 | 222 | ~~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~~ | 1.6 | 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~~ 184.9 | .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 | 118 | 229 | 64 | 5 | | |
| | 60 | 193.480 | — | — | — | — | — | — | — | | |

CTM-027 206
HCL 406

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 = 0.998 Filter No. =
COMMENTS:

RUN No. 2
DATE: 10/29/02

PRE-TEST
Ts = ~~140~~ 135 ~~600~~ 605
Tm = ~~105~~ 111 ~~565~~ 571

CO2 _____
O2 20.9
CO _____

BAROMETRIC PRESS. 30.03
METER BOX ID: ~~RS1~~ 10
METER DELTA H: 2.050
PROBE ID: 6B
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 | 1133 | START VOLUME | 195,055 |
| TIME | END | 1538 | END VOLUME | |

static -.16

PORT LENGTH (IN) 7" Factors: 6.04

9286.22
1570 X 1.170,55 X 1.005 05
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 ~~2.5~~ | 195,055 | .21 | 1.3 | ~~195~~ ~~HSR~~ | 115 | 125 | 76 | ~~205~~ | N/A | a) $(.275^2 \times .94)^2$ |
| 2 | 5 ~~5~~ | 177.7 | .2 | 1.2 | 145 | 117 | 274 | 60 | 6 | | b) $(1.6 \times .94) 605$ |
| 3 ~~2~~ | 10 ~~7.5~~ | 201.1 | .16 | .96 | 146 | 118 | 254 | 59 | 4.5 | | c) $571 \times 2.05$ |
| 4 | 15 ~~10~~ | 205.8 | .16 | .96 | 147 | 118 | 220 | 60 | 4.5 | | |
| 5 ~~3~~ | 20 ~~12.5~~ | 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 ~~5~~ | 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 | 4.5 | | |
| | 60 | 230.2 | — | — | — | — | — | — | — | | |

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 PRE-TEST.
TYPE TEST: CTM-027 HCl
TESTERS: RW
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

BAROMETRIC PRESS. 30.03
METER BOX ID: ~~RS1~~ #10
METER DELTA H: 2.05
PROBE ID: 6.13
PITOT CORR. FACTOR 0.84
NOZZLE DIA. 0.275 in.
PROBE TEMP. N/A
STACK ID (IN.)= 42
UP/DOWN STREAM >8 >2

Ts = 245 605
Tm = ~~Amb~~ 115 585

CO2
O2
CO

| | | | | | |
|---|---|---|---|---|---|
| TIME | START | 1700 | START VOLUME | 230.750 | -.15 |
| TIME | END | 1802 | END VOLUME | 269.62 | |

PORT LENGTH (IN) 7" Factors: 6.04

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~~ 2.5 | 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 Filter No. =
COMMENTS:

RUN No. 1
DATE: 10/31/02
PRE-TES
Ts =
Tm = 94 - 85d
F.D.A. = 0.94
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 | START VOLUME | 275.210 |
| TIME END | 1443 | 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 COLLECT = 68 ML
WT. MOIS. SILICA GEL = GR
STAT.PRESS=

| 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 | 275.210 | 0.28 | 1.70 | 142 | 100 | 101 | 246 | 64 | <5 | A) 0.0051<br>b) 251 Ts<br>c) 1088 = 1161<br>T(144) = 6.08 |
| 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 | --- | --- | --- | --- | --- | --- | --- | --- | |

1-1 0
2 5
3 10
4 15
5 20
6 25
2-1 30
2 35
3 40
4 45
5 50
6 55

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 Filter No. =
COMMENTS:

RUN No. 2
DATE: 10/31/02

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

ORSAT:
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 | 1550 | START VOLUME | 321.080 |
| TIME END | 1656 | END VOLUME | 359.105 |

Factors:

F=1570(aXc)/b
a = (Dn^2XFDA)^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
WT. MOIS. SILICA GEL = GR

STAT.PRESS= -0.14

| 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 | 243 | 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 | 258 | 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, RR
__12_ PTS. @ _5___ MIN/PT = _60__ MIN
Y meter = 0.998
COMMENTS:

RUN No. 3
DATE: 10/31/03
ORSAT:
CO2 _____
O2 _____
CO _____

PRE-TES
Ts = _____
Tm = _____
F.D.A. = _____
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 | ~~1710~~ 1710 | START VOLUME | 359.405 |
| TIME END | 1816 | 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
WT. MOIS. SILICA GEL = GR

STAT.PRESS= -0.16

| 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 | 996.85 | 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 |

**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 12:50 | 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 |
| 10/29/02 13:25 | 1037.7 | | | ***Run 1 Average*** | | | ***979.0*** | | ***57.96*** |
| 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 | | 1994 CO Cal | | | | | | |
| 10/29/02 13:34 | 1993.1 | | 1994 CO Cal | | | | | | |
| 10/29/02 13:35 | 1993.1 | | 1994 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 | | | | | | |

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 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 | | | | | | | | |

**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 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 | 736.8 | 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 |

## APPENDIX – H

## Project Participants

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

# 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 |

# 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 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 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 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 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 |

# 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 |

# 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.***

# APPENDIX – G

## Process Data

# Airgas

Airgas Specialty Gases
12722 South Wentworth Ave
Chicago, IL 60628
773.785.3000 Fax: 773.785 1
www.airgas.com

## *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: _____

AIR LIQUIDE

# CERTIFICATE of ANALYSIS

## Interference-Free Multi-Component EPA Protocol Gases

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

*Mixture is valid only to 150 psig

| COMPONENT Name | REQUESTED Concentration | ASSAY Concentration |
|---|---|---|
| Carbon Monoxide | 2000 ppm | 1994 ±30 pp |
| Nitrogen | Balance | Balance |

EPA Protocol, Section No. 2.3, Procedure G1

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

REFERENCE STANDARD EMPLOYED FOR ANALYSIS

| Std Name | Std # | 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<br>Gas Analyzer Employed | Component 2: None<br>Gas Analyzer Employed | Component 3:<br>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: | 1989.491 | 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

AIR LIQUIDE™

# CERTIFICATE of ANALYSIS

## Interference-Free Multi-Component EPA Protocol Gases

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

*Mixture is valid only to 150 psig

| COMPONENT Name | REQUESTED Concentration | ASSAY Concentration |
|---|---|---|
| Carbon Monoxide | 1000 ppm | 991 ±15 |
| 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**

| Std Name | Std # | 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

PRAXAIR

BEST AVAILABLE COPY

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 GMIS 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. 595.6 | | 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 2.2 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 | 594.7PPM |
| AIR | BALANCE |

*ANALYZED BY* JOHN PRIBISH *CERTIFIED BY* KEVIN [illegible]

*Making Our Planet More Productive*

PRAXAIR

BEST AVAILABLE COPY

**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 [illegible]

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Z | R 503 | C 301 | CONC. 301.3 | 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. 302.5 | Z 0 | C 303 | R 504 | CONC. 302.5 |
| 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
HAS BEEN CERTIFIED ACCORDING TO SECTION 2.2
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 01/01/04 TERM

CERTIFIED CONCENTRATION

| | |
|---|---|
| CARBON MONOXIDE | 301.9PPM |
| AIR | BALANCE |

*ANALYZED BY* JOHN PRIBISH

*CERTIFIED BY* KEVIN BRADY

*Making Our Planet More Productive*

# APPENDIX - F

## Calibration Gas Certificates

Best Available Copy

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

02110037-1 thru 02110043-1

# CHAIN of CUSTODY RECORD

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

REMARKS

PROJ. NO.

PROJECT NAME/ ADDRESS:
GP/Pathca
Bleach Plant

SAMPLERS: (SIGNATURE)

| Sample Location ID | SAMPLE DATE | TIME | COMP/GRAB | TOTAL NO. of Containers | BOTTLE MAKEUP: 0.1 N NaOH 4L Poly | BOTTLE MAKEUP: Amber Glass 1/2 gal N/A | 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 |
|---|---|---|---|
| Ron Wellington | 0900 10-30-02 | D.W Garfield | 10/30/02 09:00 |
| D.W Garfield | 11/1/02 1430 | A. C. Gray | 1430 - 11/1/02 |
| A C Gray | 1515 - 11/1/02 | | |
| | | RECEIVED FOR LABORATORY BY: Debra J. Dalton | DATE/TIME 11/1/02 1615 |

Best Available Copy

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

0211037-1 thru 0211043-1

# CHAIN of CUSTODY RECORD

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

REMARKS:
Naz S2O3 added in Sampling @ TS

PROJ. NO.

PROJECT NAME/ ADDRESS:
GP/Pottka
Bleach Plant

SAMPLERS: (SIGNATURE)

| Sample Location ID | SAMPLE DATE | TIME | COMP | GRAB | TOTAL NO. of Containers | BOTTLE MAKEUP: 0.1 N NaOH ½ L. Poly | Amber Glass 0.1 N NaOH | ½ 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 |
| RELINQUISHED BY: | DATE/TIME | RECEIVED BY: H. C. Gray | DATE/TIME 1430 - 11/1/02 |
| RELINQUISHED BY: H C Gray | DATE/TIME 1515 - 11/1/02 | RECEIVED BY: | DATE/TIME |
| | | RECEIVED FOR LABORATORY BY: Debra S. Dalton | DATE/TIME 11/1/02 1615 |

# APPENDIX – E

## Sample Chain of Custody

# THERMOCOUPLE CALIBRATION FORM

Date 11/02/02 Time 08:30 Standard Thermometer Type MERCURY IN GLASS
Ambient Temperature 79 Source GP PALATKA Manufacturer PRINCO
Barometric Pressure 30.05 Source Serial Number 0932
Technician's Signature Pyrometer Manufacturer ATKINS Model 396 E
Serial Number AASI #4 Meter Box # 10

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMPERATURE SOURCE (A) | | | | | | | | | | | | | |
| REFERENCE THERMOMETER | Actual Reading | AMBIENT AIR | | | BOILING $H_2O$ | | | ICE BATH | | | | | |
| | Corrected Temperature | 79° | | | 212° | | | 32° | | | | | |
| CALIBRATED THERMOCOUPLE | | | | | | | | | | | | | |
| Serial Number | Location | Indicated Temp. | Difference (B) | Percent Diff. (C) | Indicated Temp. | Difference | Percent Diff. | Indicated Temp. | Difference | Percent Diff. | Indicated Temp. | Difference | Percent Diff. |
| 6B | Stack | 79 | 0 | | 212 | 0 | | 32 | 0 | | | | |
| Box 10 | Filter | 78 | -1 | | 211 | -1 | | 32 | 0 | | | | |
| Box 4 | Impinger | 80 | +1 | | 212 | 0 | | 31 | -1 | | | | |
| Box 10 | Meter In | 79 | 0 | | 212 | 0 | | 32 | 0 | | | | |
| Box 10 | Meter Out | 79 | 0 | | 213 | +1 | | 33 | +1 | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Comments:

Calibration 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

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)

$\alpha_1$ = 10 ° (<10°), $\alpha_2$ = 0.5 ° (<10°), $\beta_1$ = 00 ° (<5°),

$\beta_2$ = 0.0 ° (<5°)

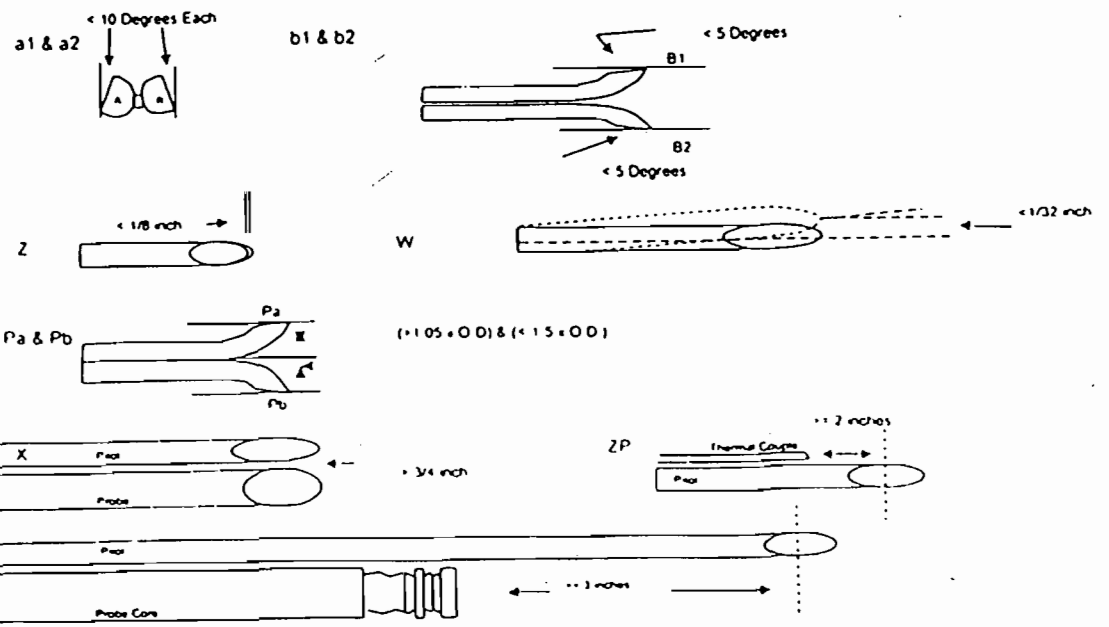
$\gamma$ = 1.5 °, $\theta$ = .5 °, A = 1.202 in. = (Pa + Pb)

z = A sin $\gamma$ = 0.031 in.; <0.32 / <1/8 in.

w = A sin $\theta$ = 0010 in.; <0.08 / <1/32 in.

$P_a$ 1600 in. $P_b$ 1602 in. $D_t$ = .375

Calibration required? ____ Yes ✓ (No)



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 | oR/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 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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) | ($P_m$) | ($V_{mi}$) | ($V_{mf}$) | ($t_{mi}$) | ($t_{mf}$) | | K' | ($t_{amb}$) | ($t_{amb}$) | |
| min | in $H_2O$ | cubic feet | cubic feet | °F | °F | | see above2 | °F | °F | in Hg |
| 7.5 | 2.3 | 401.578 | 407.667 | 72 | 75 | 63 | 0.6213 | 71 | 72 | 21 |
| 62.9 | 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) | ($Q_{m(std)(corr)}$) | (ΔH@) | (ΔΔH@) |
| cubic feet | cfm | cubic feet | cfm | | | cfm | in H2O | |
| 6.056 | 0.808 | 6.043 | 0.806 | 0.998 | 0.009 | 0.806 | 1.995 | 0.003 |
| 51.255 | 0.815 | 50.589 | 0.804 | 0.987 | -0.002 | 0.804 | 1.995 | 0.003 |
| 11.863 | 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: 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 Elbertsen Date 11-01-02

Quality Assurance Data Review:

Signature [illegible] Date 11-01-02

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 |
| $K_1$ | 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, $(ft^3 \cdot {}^\circ R^{1/2})/(in.Hg \cdot min)$.

**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) | ($P_m$) | ($V_m$) | ($V_{mf}$) | ($t_{mi}$) | ($t_{mf}$) | | K' | ($t_{amb}$) | ($t_{amb}$) | |
| min | in $H_2O$ | cubic feet | cubic feet | °F | °F | | see above2 | °F | °F | in Hg |
| 14.1 | 2.8 | 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 |
| 13.4 | 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) | ($Q_{m(std)(corr)}$) | (ΔH@) | (ΔΔH@) |
| cubic feet | cfm | cubic feet | cfm | | | cfm | in H2O | |
| 11.080 | 0.786 | 11.142 | 0.790 | 1.006 | 0.007 | 0.790 | 2.438 | 0.388 |
| 7.489 | 1.248 | 6.520 | 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 Dan Hunt III Date 5 Sept 02

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 | |

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*

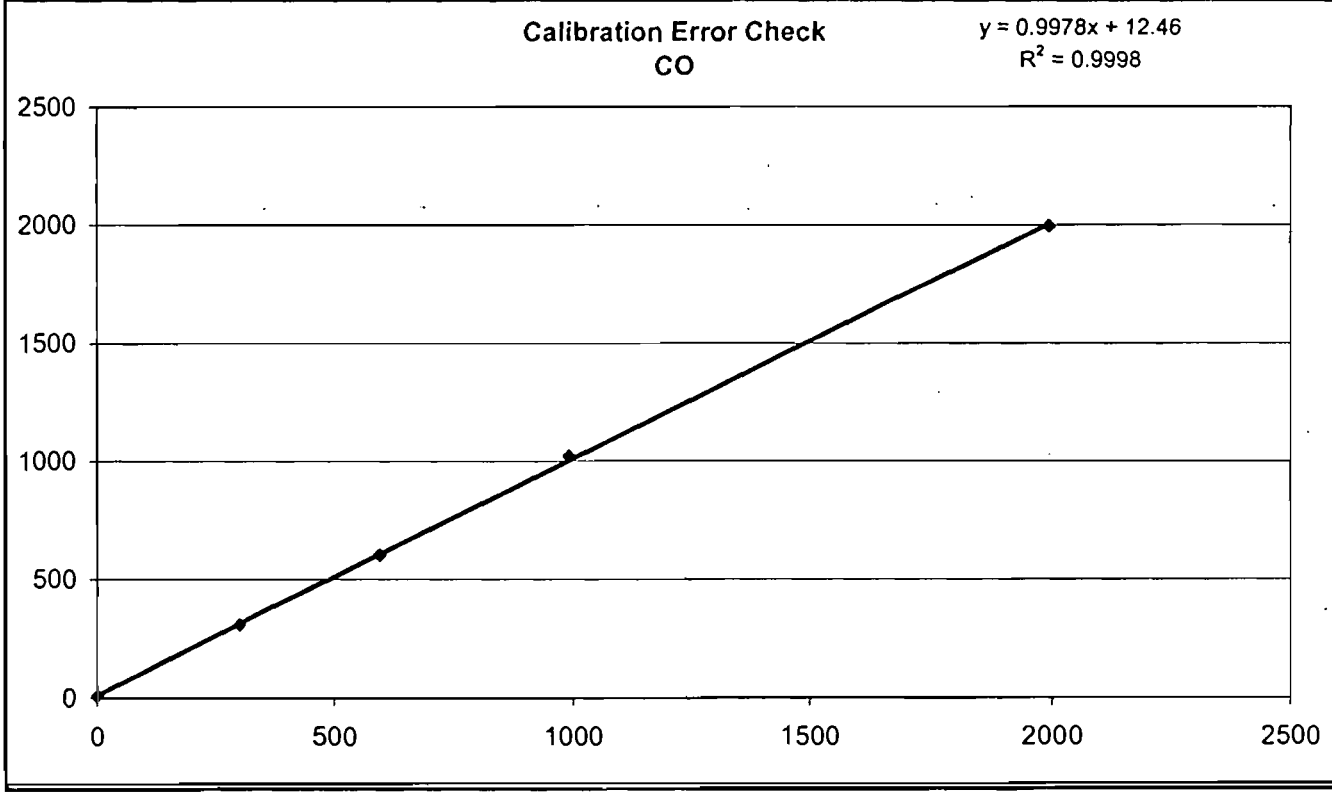
## Initial Calibration

### 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**

**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 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
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*

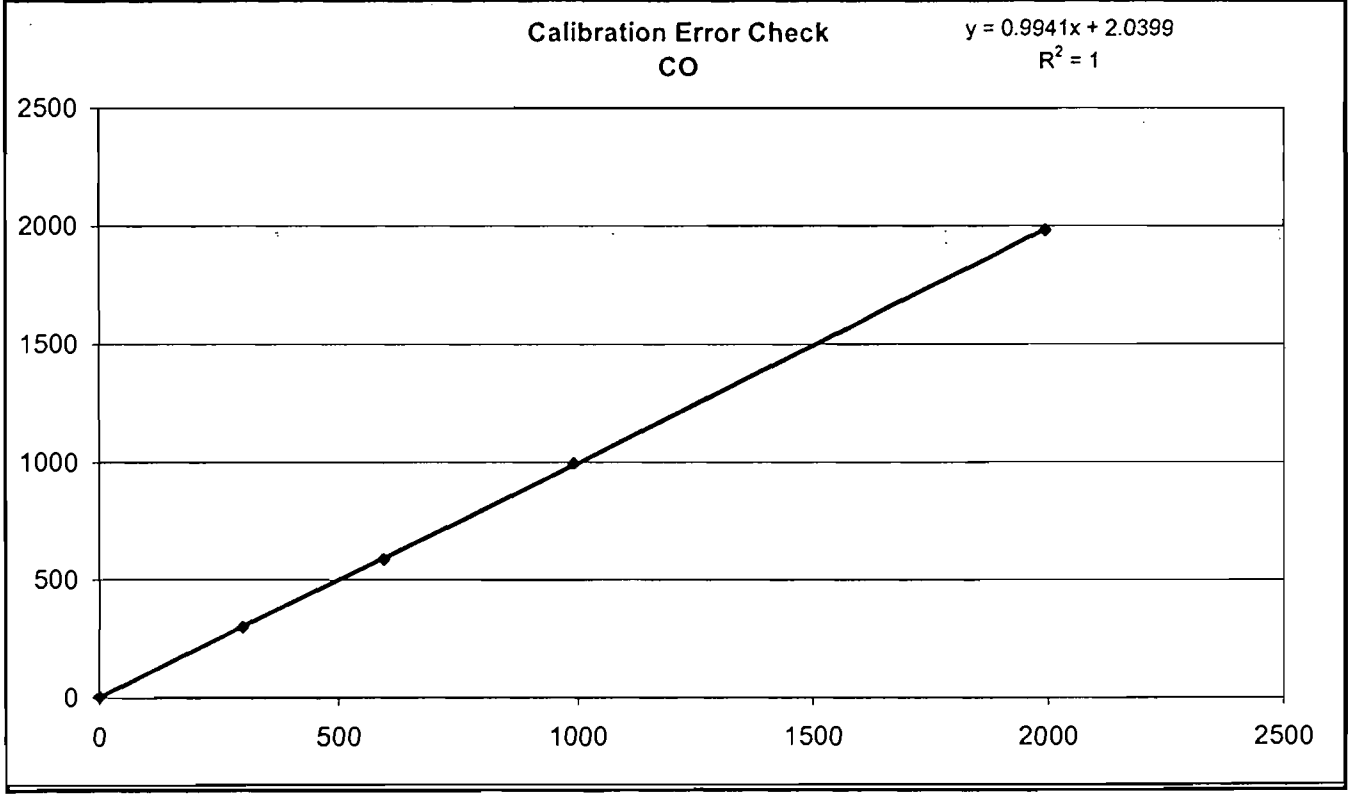
## Initial Calibration

### 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**

**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 :**

# APPENDIX – D

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

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 | |

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 |

# TECHNICAL SERVICES, INC.
## ENVIRONMENTAL CONSULTANTS

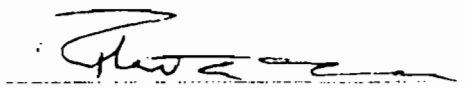
For Ambient Air Services, Inc.
106 AMBIENT AIR WAY
STARKE, FL 32091
Contact: Joe Cooksey

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

## CERTIFICATE OF ANALYSIS

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

Respectfully submitted,
Technical Services, Inc.



# APPENDIX – C

## Laboratory Analysis

**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 $C_M$ | 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 | | | | | | | | |

**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 $C_M$ | CO $C_{SA}$ | 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 $C_M$ | CO $C_{MA}$ | 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 $C_o$ | CO $C_d$ | CO $C_{dc}$ | 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 $C_o$ | 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 $C_o$ | CO $C_M$ | CO $C_{MA}$ | 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 | 1236.164 | | | | | | | | |
| 10/31/02 14:33 | 1118.768 | | | | | | | | |

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 $C_{MA}$ | 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 |

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 $C_d$ | CO $C_{MA}$ | 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 | | | | | | | | |

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 $C_d$ | CO $C_{dA}$ | 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 | | | | | | | | |

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 $C_M$ | CO $C_{MA}$ | 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 | | | | | | | | |

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 $C_M$ | CO $C_{MA}$ | 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 | | | | | | | | |

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 $C_M$ | CO $C_{MA}$ | 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 | | | | | | | | |

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 $C_M$ | CO $C_{MA}$ | 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 $C_M$ | 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 | | | | | | | | |

**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 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 | | | | | | | | |