Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

READY MIXED CONCRETE EMISSION FACTORS FINAL REPORT

$PM_{2.5}$, $PM_{10-2.5}$, PM_{10}, and Total Particulate Matter Emissions From Truck Loading and Central Mix Operations

Ready Mixed Concrete Research Foundation

Prepared for:

Ready Mixed Concrete Research Foundation
900 Spring Street
Silver Spring, Maryland 20910

Prepared by:

John Richards, Ph.D., P.E. and Todd Brozell, P.E.
Air Control Techniques, P.C.
301 E Durham Road
Cary, North Carolina 27513
(919) 460-7811

Initial Report, August 2004
Revised Report Based on U.S. EPA Comments: November 2005
Air Control Techniques, P.C. File 877

TABLE OF CONTENTS

		Page Number
1.0	**SUMMARY**	**1**
1.1	Purpose and Scope	1
1.2	Particulate Matter Emission Factors	2
1.3	Study Procedures	12
2.0	**TEST PROGRAM OBJECTIONS, LOCATIONS, & PROCEDURES**	**13**
2.1	Emission Factors Test Program Objectives	13
2.2	Test Locations	13
2.3	Test Procedures	13
	2.3.1 Total, PM_{10}, $PM_{10-2.5}$, and $PM_{2.5}$ Particulate Concentration Measurements	13
	2.3.2 Flue Gas Velocity and Volumetric Flow Rate – EPA Method 2	17
	2.3.3 Flue Gas Composition and Molecular Weight – EPA Method 3	17
	2.3.4 Flue Gas Moisture Content – EPA Method 4	18
	2.3.5 Hood Capture Efficiency and Fabric Filter Outlet Concentration - Ambient PM_{10} Compendium Method IO-1.3	18
2.4	Process Description and Operation	20
	2.4.1 Ready Mixed Concrete Company, Truck Mix Wake Forest, NC	20
	2.4.2 Ready Mixed Concrete Company, Central Mix, Wake Forest, NC	24
	2.4.3 S.T. Wooten Corporation, Central Mix, Raleigh, NC	27
	2.4.4 Chandler Concrete Plant, Truck Mix, Troutville, VA	29
	2.4.5 Concrete Supply Plant, Truck Mix, Rock Hill, SC	30
	2.4.6 RMC Carolina Materials Plant, Central Mix, Raleigh, NC	33
2.5	Monitoring of Process Conditions	36
3.0	**TEST RESULTS**	**37**
3.1	Process Operating Conditions	37
	3.1.1 Production Rates and Mix Characteristics	37
	3.1.2 Raw Material Size Distributions, Moisture Levels, and Silt Content	40
3.2	Wind Speed and Direction	41
3.3	$PM_{2.5}$, $PM_{10-2.5}$, PM_{10}, and Total Particulate Matter Emission Factors	43
4.	**QUALITY ASSURANCE AND QUALITY CONTROL ACTIVITIES**	**50**
4.1	QA/QC Procedures for Sample Treatment and Analysis	50
	4.1.1 Leak Checks	50
	4.1.2 S-Type Pitot Tube Calibration	50
	4.1.3 Sample Nozzle Calibration	50
	4.1.4 Temperature Monitor Calibration	50
	4.1.5 Dry Gas Meter Calibration	50
	4.1.6 Moisture Scale Calibration	50
	4.1.7 Particulate Sampling Using Conditional Test Method 040	50
4.2	QA/QC Checks for Data Reduction, Validation and Reporting	51
	4.2.1 Sample Recovery and Custody	51
	4.2.2 Sample Identification	52
	4.2.3 Quality Assurance Results	52
4.3	TEOM Monitor Calibration	53
4.4	Particulate Matter Distribution at Fabric Filter Outlet Duct	54
5.	**TEST PARTICIPANTS AND OBSERVERS**	**55**

TABLES

		Page Number
Table 1-1.	Truck Mix Emission Factor Results	3
Table 1-2	Central Mix Emission Factor Results	3
Table 1-3	Truck Mix Uncontrolled Emission Factor Results	5
Table 1-4	Central Mix Uncontrolled Emission Factor Results	5
Table 1-5	Emission Factor Predictive Equation Parameters	9
Table 1-6	Example Emission Factor Changes Due to Control Measures	11
Table 3-1	Wake Forest RMCC Truck Mix Production Data	37
Table 3-2	Wake Forest RMCC Central Mix Production Data	38
Table 3-3	S.T. Wooten Concrete Central Mix Production Data	38
Table 3-4	Chandler Concrete Truck Mix Production Data	39
Table 3-5	Concrete Supply Truck Mix Production Data	39
Table 3-6	RMC Carolina Materials Central Mix Production Data	40
Table 3-7	Raw Material Particle Size Distribution, Moisture Levels, and Silt Content	41
Table 3-8	Wind Speed Averages	42
Table 3-9	Wake Forest RMCC Truck Mix Emissions Data	43
Table 3-10	Wake Forest RMCC Central Mix Emissions Data	44
Table 3-11	S.T. Wooten Central Mix Emissions Data	45
Table 3-12	Chandler Concrete, Troutville Truck Mix Emissions Data	46
Table 3-13	Concrete Supply, Rock Hill Truck Mix Emissions Data	47
Table 3-14	RMC Carolina Materials Central Mix Emissions Data	48
Table 4-1	Sample Identification	52
Table 4-2	Quality Assurance Results	53
Table 4-3	Nephelometer Quality Assurance Test, RMC Carolina Materials, Fabric Filter Outlet Test #3, May 20, 2004	54

FIGURES

Figure 1-1	Comparison of AP42 and RMC Research Foundation Controlled Emission Factors	2
Figure 1-2	Truck Mix Emission Factor Data, AP42 Section 11.12, References 9 and 10	7
Figure 1-3	Central Mix Emission Factor Data, AP42 Section 11.12, References 9 and 10	7
Figure 1-4	PM_{10} Emission Rates as a Function of the Production Rate in Tons per Hour of Cement and Flyash (Truck Mix)	8
Figure 1-5	PM_{10} Emission Rates as a Function of the Production Rate in Tons per Hour of Cement and Flyash (Central Mix)	8
Figure 1-6	Truck Mix PM_{10} Emission Factors Based on Equation 1-2	10
Figure 1-7	Central Mix PM_{10} Emission Factors Based on Equation 1-2	10
Figure 2-1	EPA CTM 040 Sampling Head	15
Figure 2-2	Sampling Rate Requirements of Conditional Test Method 040	15
Figure 2-3	Sampling Train Components	16

PHOTOGRAPHS

Photograph 1	RMCC Truck Hood System and the Sampling Arrays	21

Photograph 2 RMCC Truck Hood System and the Sampling Arrays 21
Photograph 3 RMCC TEOM Fan System and Sampling Duct 22
Photograph 4 RMCC TEOM and Sampling Duct 22
Photograph 5 RMCC Fabric Filter Inlet and Outlet Ducts, Truck Mix Tests 23
Photograph 6 RMCC Temporary Outlet Duct Connection to Fabric Filter Outlet Duct 23
Photograph 7 RMCC Central Mix Transfer Area Sampling Array 24
Photograph 8 RMCC Central Mix Transfer to Truck Sampling Array 25
Photograph 9 RMCC Fabric Filter Inlet Test Location, Central Mix Test 25
Photograph 10 RMCC Fabric Filter Inlet Ducts, Prior to Testing 26
Photograph 11 S.T. Wooten Central Mix Operation Inlet Sampling Array 27
Photograph 12 S.T. Wooten Truck Inlet Sampling Array 28
Photograph 13 S.T. Wooten Fabric Filter Inlet Duct Test Location 28
Photograph 14 S.T. Wooten Fabric Tilter Outlet Duct Test Location and TEOM Inlet 29
Photograph 15 Chandler Concrete Truck Loading Enclosures 30
Photograph 16 Concrete Supply Truck Mix Sampling Array 31
Photograph 17 Concrete Supply Truck Mix Inlet Operation Sampling Array 31
Photograph 18 Concrete Supply Array Duct Test Location and TEOM Inlet 32
Photograph 19 Concrete Supply Fabric Filter Outlet Duct Test Location and TEOM Inlet 32
Photograph 20 Concrete Supply fabric Filter Inlet Duct Test Location 33
Photograph 21 RMC Carolina Materials Central Mix Operation Inlet Sampling Array 34
Photograph 22 RMC Carolina Materials Truck Inlet Sampling Array 35
Photograph 23 RMC Carolina Materials Fabric Filter Inlet Duct Test Locations 35
Photograph 24 RMC Carolina Materials Fabric Filter Outlet Duct Test Location 36

APPENDICES

Appendix A PM_{10} TEOM Data 1

Appendix B Field Data Sheets 153

Appendix C Plant Production Data 282

Appendix D Wind Speed and Direction Data 390

Appendix E Equipment Calibration Data 458

Appendix F Element One, Inc. Particulate Matter Test Reports 508

Appendix G Research Triangle Institute, Baghouse Outlet Test Report 665

Appendix H Sample Emission Factor Calculations 670

1. SUMMARY

1.1 PURPOSE AND SCOPE

The Ready Mixed Concrete Research Foundation (RMC Research Foundation) has sponsored this emission factor test program at ready mixed concrete facilities located in North Carolina, Virginia, and South Carolina. The purpose of this project is to prepare an updated and expanded set of AP42, Chapter 11.12 emission factors for total particulate matter, PM_{10}, $PM_{10-2.5}$, and $PM_{2.5}$ from truck mix and central mix process operations at ready mixed concrete plants.

The 1995 edition of AP42 Section 11.12[1] has total particulate and PM_{10} emission factors based on only one central mix plant and two truck mix plants. These EPA emission factors were based, in part, on subjective visible emission observations, and the measured data had considerable scatter. EPA rated the factors as D for truck mix operations and E for central mix operations.

The 1995 edition of AP42 Section 11.12 does not have any emission factor data applicable to $PM_{10-2.5}$ and $PM_{2.5}$. Information concerning these two forms of particulate matter is needed by the Ready Mixed Concrete Industry and regulatory agencies due to the anticipated promulgation of new nationwide ambient air quality standards applicable to these two forms of particulate matter.

Three truck mix operations and three central mix operations are included in the scope of this test program. This test report presents the results of December 2003, February 2004, and May 2004 emission factor testing at the (1) Ready Mixed Concrete Company, Inc. (RMCC) truck mix and central mix operations at the Wake Forest, North Carolina plant, (2) the S.T. Wooten central mix plant in Raleigh, North Carolina, (3) the Chandler Concrete truck mix plant in Troutville, Virginia, (4) the Concrete Supply truck mix plant in Rock Hill, South Carolina, and (5) the RMC Carolina Materials central mix plant in Raleigh, North Carolina.

The criteria used by the RMC Research Foundation in choosing the plants to be tested included (1) the availability of process equipment representative of the U.S. Ready Mixed Concrete Industry, (2) facility locations within 200 miles of Raleigh, North Carolina to minimize travel related costs, and (3) sufficient anticipated plant throughput at the time of the test program. All of these plants have fugitive dust capture systems and fabric filters. The RMC Research Foundation and Air Control Techniques, P.C. believe that these plant sites are representative of most plants in the U.S. based on the following facts: (1) ready mixed processes are highly uniform from region-to-region in the U.S. due to state DOT and other customer product specifications, (2) processing equipment manufactured for ready mixed plants is highly consistent throughout the U.S., and (3) the types of control systems are very similar throughout the U.S.

---

[1] The January 1995 edition of AP42, Section 11.12 contains the presently applicable emission factors for Ready Mixed Concrete Industry sources.

1.2 Emission Factor Test Results

The results of the RMC Research Foundation emission factor test program indicate that the hood capture efficiencies at Ready Mixed Concrete plants are substantially higher than those specified in the 1995 edition of AP42 Section 11.12. Truck mix operations demonstrated hood capture efficiencies ranging from 93% to 99.5%, well above the 71% average values (range of 58% to 85%) published in AP42. Central mix operations demonstrated hood capture efficiencies ranging from 97.2% to 99.3%, well above the 94% average value (range of 84% to 99%) published in AP42.

The total particulate matter and PM_{10} particulate matter emissions measured in this RMC Research Foundation study are substantially below the emissions reported in the 1995 edition of AP42 Section 11.12. The RMC Research Foundation study emissions for central mix operations are below those of truck mix operations; however, the differences are considerably smaller than suggested by the 1995 AP42 emission factors. The RMC Research Foundation and 1995 EPA emission factors are summarized in Figure 1-1.

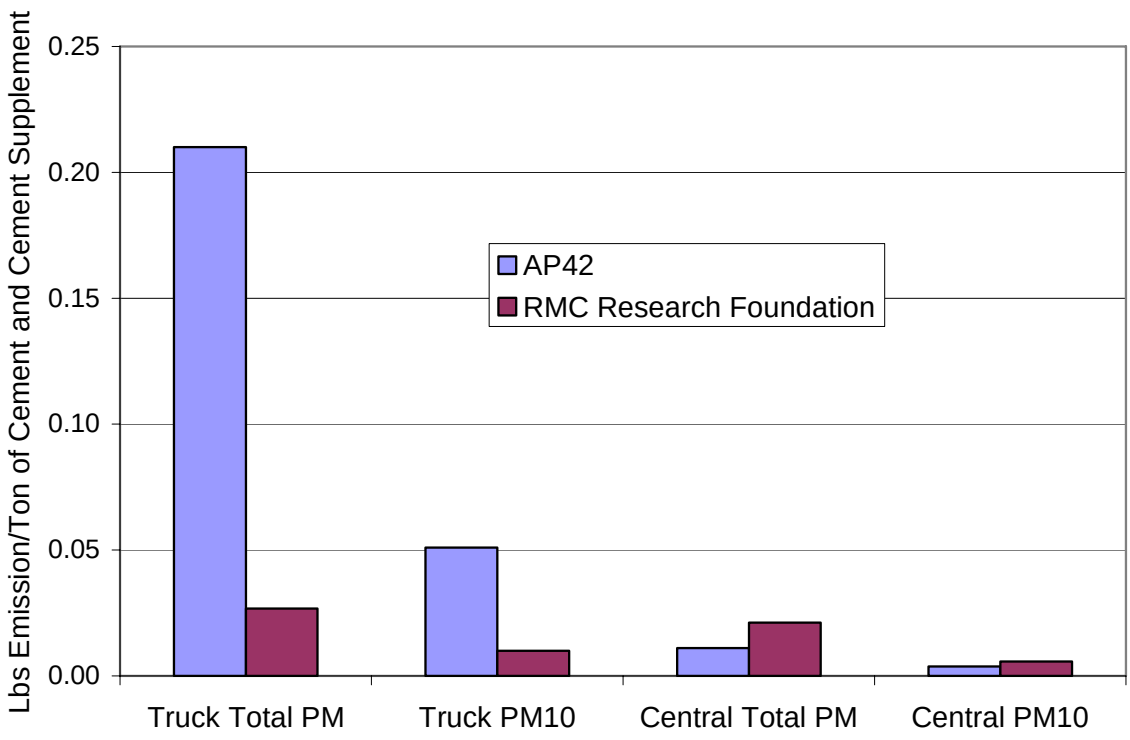


Figure 1-1. Comparison of AP42 and RMC Research Foundation Controlled Emission Factors

The results of the controlled[2] emission factor tests are summarized in Table 1-1 for the truck mix sources and Table 1-2 for the central mix sources. The RMC Research Foundation emission factors for filterable particulate matter and PM_{10} particulate matter are compared

[2] Controlled emissions are the total of emissions from the fabric filter used to control the mixing operation plus the fugitive emissions not captured by the hood.

with previously published AP42 emission factors (controlled conditions). No emission factors were previously available for $PM_{10-2.5}$ (termed "coarse particulate matter") and $PM_{2.5}$ (termed "fine particulate matter").

Table 1-1. Truck Mix Controlled Emission Factor Results[1]

Emission Factors	RMCC Raleigh Truck Mix (Controlled)	Chandler Concrete Truck Mix (Controlled)	Concrete Supply Truck Mix (Controlled)	RMC Research Foundation Truck Mix Average	AP42 Fifth Edition Truck Mix (Controlled)	Ratio, RMC Research Foundation compared to EPA
Emission Factors	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Ratio
Total Particulate Matter	0.0094	0.0512	0.0197	0.0268	0.2100	0.13
PM_{10}	0.0039	0.0225	0.0035	0.0100	0.0510	0.20
$PM_{10-2.5}$	0.0033	0.0195	0.0032	0.0086	No Data	No Data
$PM_{2.5}$	0.0007	0.0031	0.0003	0.0013	No Data	No Data
Collection Efficiency						
Truck Hood, %	99.5	93.1	99.3	97.3	71	0.093[2]

1. All emission factors expressed as pounds of mass per ton of cement and cement supplement processed
2. Ratio calculated based on penetration; 100% - 97.3% for RMC Research Foundation tests, 100% - 71% for previous tests

Table 1-2. Central Mix Controlled Emission Factor Results[1]

Emission Factors	RMCC Raleigh Central Mix (Controlled)	S.T. Wooten Raleigh Central Mix (Controlled)	RMC Carolina Materials Raleigh Central Mix (Controlled)	RMC Research Foundation Central Mix Average	AP42 Fifth Edition Central Mix (Controlled)	Ratio, RMC Research Foundation compared to EPA
Emission Factors	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Ratio
Total Particulate Matter	0.0042	0.0402	0.0191	0.0212	0.0110	1.93
PM_{10}	0.0028	0.0095	0.0049	0.0057	0.0038	1.50
$PM_{10-2.5}$	0.0014	0.0087	0.0043	0.0048	No Data	No Data
$PM_{2.5}$	0.0014	0.0007	0.0006	0.0009	No Data	No Data
Collection Efficiency						
Central Mix Hood, %	99.3	97.5	97.2	98.0	94.0	0.33[2]

1. All emission factors expressed as pounds of mass per ton of cement and cement supplement processed
2. Ratio calculated based on penetration; 100% - 98% for RMC Research Foundation tests, 100% - 94% for previous tests

The controlled particulate matter emission factors measured during the RMC Research Foundation tests are substantially lower than those presently in AP42, Section 11.12. The differences in the emission factors, especially for truck mix operations, are greater than anticipated at the start of the study. To clarify the reasons for the differences, Air Control Techniques, P.C. has evaluated the EPA emission factors and the test programs used to develop these EPA factors. The EPA test programs were conducted in ready mixed concrete plants in Maryland and Virginia during the fall of 1993[3].

The previous emission factors for controlled conditions were based on qualitative and subjective visible emission observations of hood capture efficiencies at two truck mix operations and one central mix operation. Visible emission observers assigned a capture efficiency value to each truck and central mix loading operation. These collection efficiencies were used along with the inlet particulate matter loadings to the fabric filter control system to estimate the particulate matter emissions not captured by the hood over the mixing and loading operation.

Due to the development of new particulate matter monitoring instruments, the qualitative procedure used by EPA observers at the plants tested by EPA is no longer needed. The differences in the controlled emission factors measured in the RMC Research Foundation study and in the earlier EPA studies are primarily due to the following factors.

- Improved hood designs for capture of particulate matter emissions
- Improved truck designs to minimize fugitive dust emissions and material spillage
- Possible underestimation of hood capture efficiencies by EPA using subjective visible emission observation techniques

Air Control Techniques, P.C. believes that the previously reported EPA hood capture efficiencies are not representative of present practices in the Ready Mixed Concrete Industry and of the five plants tested in this project. Data provided in Table 15.1 of the AP42 Section 11.12 Support Document indicates that the silt loadings on the paved roads of the two plants tested EPA ranged from 7 to 67 grams per square meter. These values suggest that these two plants were experiencing hood capture problems.

High fugitive dust plume opacities and heavy silt loadings were not observed by Air Control Techniques, P.C. personnel at any of the plant operations tested in this program. Accordingly, the controlled condition emission factors reported by EPA in the 2001 edition of AP42 Section 11.12 do not appear to be representative of operations similar to the six plants tested and of the modern Ready Mixed Concrete Industry.

The uncontrolled emission factors were determined by summing the particulate matter emissions to the inlet of the fabric filter plus the fugitive emissions escaping capture. The uncontrolled emissions are summarized in Table 1-3 for truck mix operations and Table 1-4 for central mix operations.

Table 1-3. Truck Mix Uncontrolled Emission Factor Results[1]

[3] The test reports concerning loading operations are references 9 and 10 of AP42 Section 11.12.

Emission Factors	RMCC Raleigh Truck Mix (Controlled)	Chandler Concrete Truck Mix (Controlled)	Concrete Supply Truck Mix (Controlled)	RMC Research Foundation Truck Mix Average	AP42 Fifth Edition Truck Mix (Controlled)	Ratio, RMC Research Foundation compared to EPA
Emission Factors	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Ratio
Total Particulate Matter	2.112	0.559	1.716	1.462	0.61	2.4
PM_{10}	0.721	0.239	0.294	0.418	0.21	1.99
$PM_{10-2.5}$	0.62	0.205	0.269	0.365	No Data	No Data
$PM_{2.5}$	0.101	0.034	0.025	0.053	No Data	No Data
Collection Efficiency						
Truck Hood, %	99.5	93.1	99.3	97.3	71	0.093[2]

1. All emission factors expressed as pounds of mass per ton of cement and cement supplement processed
2. Ratio calculated based on penetration; 100% - 97.3% for RMC Research Foundation tests, 100% - 71% for previous tests

Table 1-4. Central Mix Uncontrolled Emission Factor Results[1]

Emission Factors	RMCC Raleigh Central Mix (Controlled)	S.T. Wooten Raleigh Central Mix (Controlled)	RMC Carolina Materials Raleigh Central Mix (Controlled)	RMC Research Foundation Central Mix Average	AP42 Fifth Edition Central Mix (Controlled)	Ratio, RMC Research Foundation compared to EPA
Emission Factors	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Lbs./ton	Ratio
Total Particulate Matter	0.147	1.254	0.654	0.685	0.22	3.11
PM_{10}	0.053	0.331	0.16	0.181	0.078	2.32
$PM_{10-2.5}$	0.044	0.306	0.140	0.164	No Data	No Data
$PM_{2.5}$	0.009	0.025	0.020	0.018	No Data	No Data
Collection Efficiency						
Central Mix Hood, %	99.3	97.5	97.2	98.0	94.0	0.33[2]

1. All emission factors expressed as pounds of mass per ton of cement and cement supplement processed
2. Ratio calculated based on penetration; 100% - 98% for RMC Research Foundation tests, 100% - 94% for previous tests

All of the RMC Research Foundation and EPA emission factor data summarized in Tables 1-1 through 1-4 are expressed in a format of pounds of emission per unit of cement (including

cement supplement if present).[4] There are two major problems associated with this emission factor format.

(1) Plant operators can minimize emissions only by limiting cement and cement supplement loading rates.

(2) There are no means available to tailor the emission factors to site-specific conditions that affect particulate matter emissions.

To determine if this emission factor format is appropriate, Air Control Techniques, P.C. has reviewed the variability of both emission factors data sets: (1) the data from this study and (2) the previously available EPA data. As summarized below, the use of emission factors expressed solely on production rate is not sufficient.

The EPA measured emission factors for truck mix and central mix operations as a function of the tons of cement and supplement loaded are shown in Figures 1-2 and 1-3. These figures demonstrate that EPA experienced a very high level of data variability in the 1993 tests used to develop the 1995 AP42 emission factors in Section 11.12. If the cement and cement supplement loading rates were a logical basis for the emission factor calculation, the data shown in Figures 1-2 and 1-3 would ramp upward as the production rate increased. No such trend is apparent. The extent of the data variability and the lack of an increase in measured emissions with increased cement and cement supplement loading rate suggest that there are parameters in addition to the loading rates of cement and cement supplements that affect emissions.

Analyses of the data developed in this RMC Research Foundation sponsored project also did not show any strong relationship between the measured emissions and the tons per hour of cement and supplement. For example, Figure 1-4 illustrates that there is no clear relationship between the tons of cement and supplement loaded and the PM_{10} emissions per hour from truck loading operations expressed in pounds per hour. The RMC Research Foundation data for central mix operations summarized in Figure 1-5 indicate that there is some relationship between emissions and cement and cement supplement loading rate; however, substantial variability continues to exist, especially at high loading rates.

The variability of the emission rate versus production rate data in the RMC Research Foundation studies and the older EPA studies indicates that parameters other than cement and cement supplement loading rates affect particulate matter emissions.

A review of the RMC Research Foundation data and the previously available EPA data indicates that the variables useful in explaining most of the emission factor data are (1) the moisture content of the cement and cement supplement and (2) the wind speed in the area immediately adjacent to the loading operations. The moisture and wind data compiled during the RMC Research Foundation test programs were analyzed with the measured emission factor data to determine if an alternative form of the particulate matter emission factors could be developed. These two parameters were chosen because both are commonly associated with fugitive dust emissions from a variety of mineral process industry sources. Other factors that conceivably influence emission factors include (1) truck positioning, (2) wind direction

[4] Cement supplement includes flyash and other supplements such as “Newcem” discussed in EPA reference 9.

relative to the loading "alley," (3) and hood characteristics. However, all three of these conditions are difficult to quantify in a manner consistent with the use of emission factors.

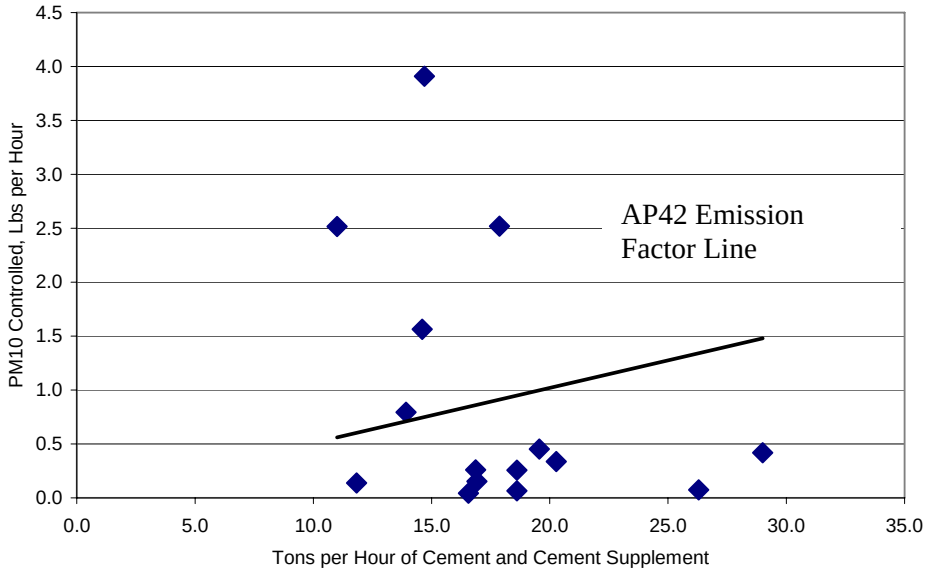


Figure 1-2. Truck Mix Emission Factor Data, EPA AP42 Section 11.12 References 9 and 10
(Note: Data should be on a line with a slope of 0.051 lbs PM_{10}/ton of cement.)

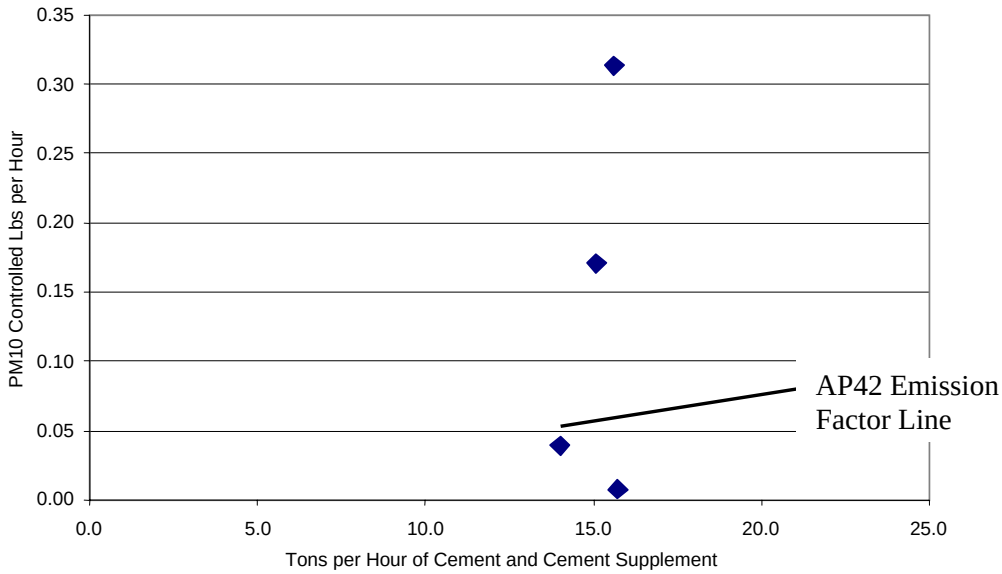


Figure 1-3.
Central Mix Emission Factor Data, EPA AP42 Section 11.12 Reference 9
(Note: Data should be a line with a slope of 0.0038 lbs PM_{10}/ton of cement.)

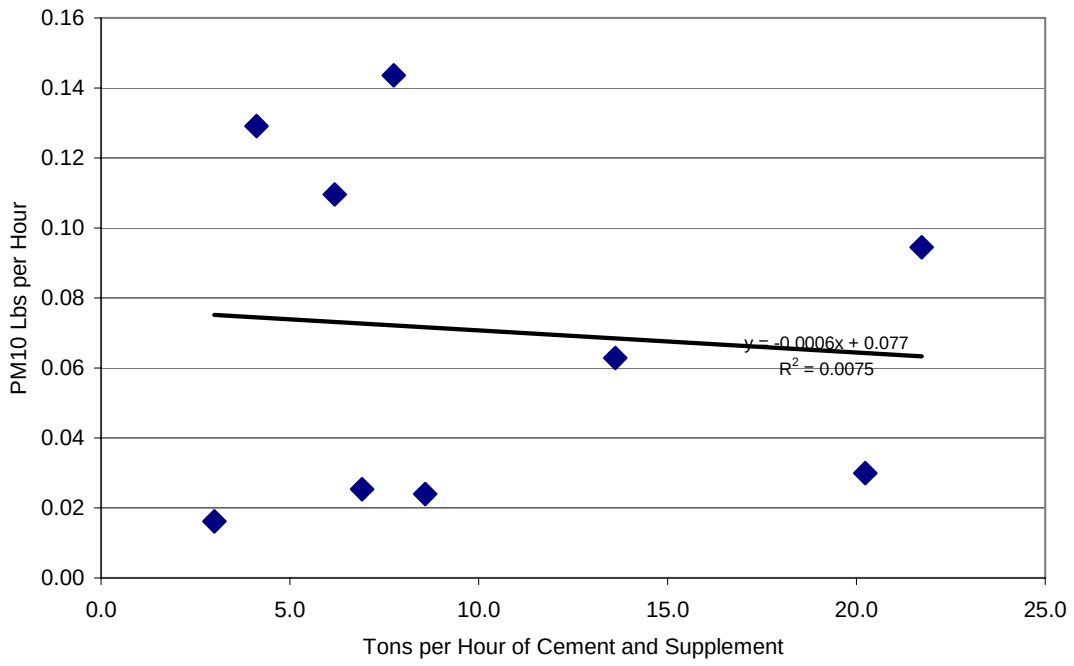


Figure 1-4. PM_{10} Emission Rate as a Function of the Production Rate in Tons per Hour of Cement and Flyash (RMC Foundation Data for Truck Mix Operations)

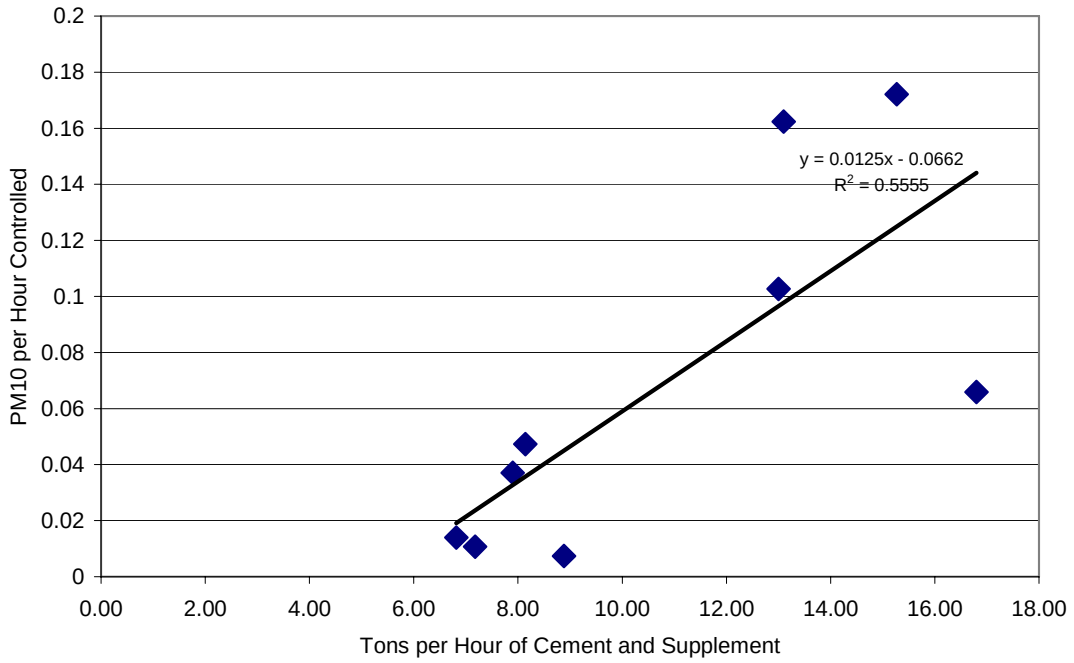


Figure 1-5. PM_{10} Emission Rate as a Function of the Production Rate in Tons per Hour of Cement and Flyash (RMC Foundation Data for Central Mix Operations)

Air Control Techniques, P.C. used the EPA equation presented in AP42 Section 13.2 for loading mineral material on a storage pile as a basis for these analyses. This has an emission factor in a format expressed by Equation 1-1. Emission factor prediction equations in this general format were developed by Air Control Techniques, P.C. to predict the controlled emissions from the ready mix concrete plants tested as part of the RMC Research Foundation Study.

$$E = k(0.0032)\left[\frac{\left(\frac{U}{5}\right)^{a}}{\left(\frac{M}{2}\right)^{b}}\right] \quad \text{[pound (Lb)/ton]} \qquad (1\text{-}1)$$

Where:

E	=	Emission factor in Lbs./ton of product
k	=	Particle size multiplier (dimensionless)
U	=	Wind speed, meters per second (m/s) or miles per hour (mph)
M	=	Moisture (% by weight)
a,b		Exponents

Analyses of the RMC Research Foundation test program data indicate that Equation 1-2 provides a good prediction of the measured emission factor data.

$$E = k(0.0032)\left[\frac{U^{a}}{M^{b}}\right] \qquad (1\text{-}2)$$

E	=	Emission factor in Lbs./ton of cement and cement supplement
k	=	Particle size multiplier (dimensionless)
U	=	Wind speed, meters per second (m/s) or miles per hour (mph)
M	=	Minimum moisture (% by weight) of cement and cement supplement
a,b		Exponents

The parameters for Equation 1-2 are summarized in Table 1-5. These parameters provide the best fit of the measured emission factor data for controlled particulate matter emissions.

Table 1-5. Emission Factor Predictive Equation Parameters

Parameter	Parameter Category	Truck Mix Operations	Central Mix Operations
Particle size multiplier (k)	Total PM	1.30	1.30
	PM_{10}	0.35	0.35
	$PM_{10-2.5}$	0.30	0.30
	$PM_{2.5}$	0.05	0.05
Exponents (a,b)	a	2	0.3
	b	0.2	0.8

Figures 1-6 and 1-7 compare the measured PM_{10} emission factors and the emission factors predicted by Equation 1-2 for truck mix and central mix operations.

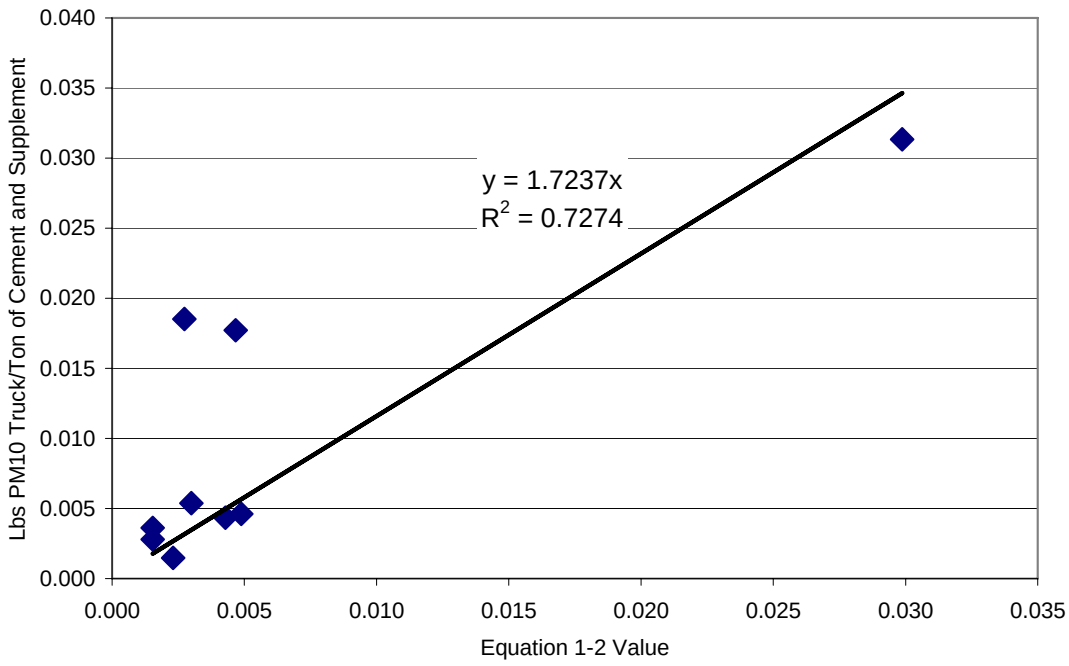


Figure 1-6. Truck Mix PM_{10} Emission Factors Based on Equation 1-2

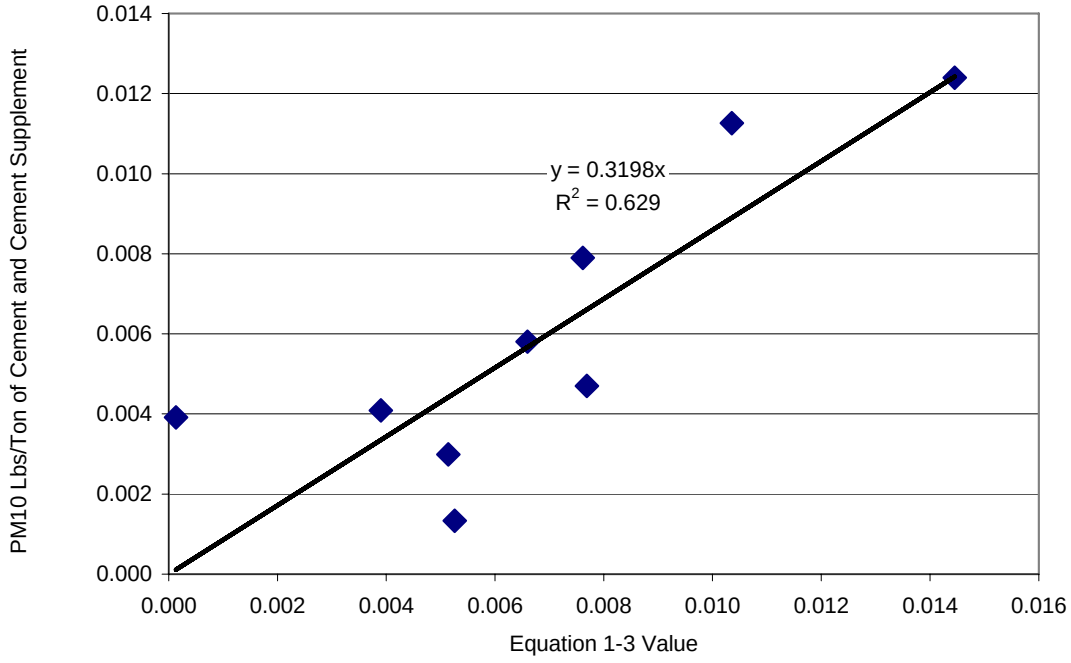


Figure 1-7. Central Mix PM_{10} Emission Factors Based on Equation 1-2

Emission factors for truck mix and central mix operations based on Equation 1-2 minimize the variability associated with emission factors based solely on production rate. The inclusion of wind speed and moisture content parameters provides a means for ready mixed plants to tailor the emission factors to their site-specific conditions.

Ready mixed plant operators can minimize emissions to satisfy regulatory demands without necessarily restricting the production rate. The examples provided in Table 1-6 illustrate the impact on emission factors relating to relatively small changes in the moisture content and local wind speeds.

Table 1-6. Example Emission Factor Changes Due to Control Measures

Parameter	Operating Condition	Truck Mix			Central Mix		
		Value	Equation 1-2 Emission Factor	Percent Reduction in Emission Factor	Value	Equation 1-2 Emission Factor	Percent Reduction in Emission Factor
Wind Speed	Baseline Condition	1.5 mph	0.0074	56.8%	2.7 mph	0.00331	26.0%
	Revised Condition	1.0 mph	0.0032		1 mph	0.00245	
Moisture	Baseline Condition	0.07%	0.0074	25.7%	0.09%	0.003312	47.2%
	Revised Condition	0.20%	0.0055		0.2%	0.001749	

To achieve the reduced emission factors illustrated in Table 1-6, ready mixed concrete plant operators could shield the loading areas to reduce the local wind velocities at the point of material transfer and/or slightly increase the moisture content of the cement or cement supplement immediately prior to the material transfer operation.

The examples shown in Table 1-6 illustrate that the truck mix operations appear to be especially sensitive to the wind speed in the immediate vicinity of the material transfer operation. The central mix operations appear to be especially sensitive to the moisture content of the cement and/or cement supplement. These observations are consistent with the results of the RMC Research Foundation test program results. These observations are also generally consistent with the previously compiled EPA data cited in the 1995 edition of AP42 Section 11.12.

Based on these analyses of the emission factor data, Air Control Techniques, P.C. recommends that the AP42 emission factors for truck mix and central mix operations be modified to be based on Equation 1-2. This equation substantially increases the flexibility for ready mixed plant operators to minimize emissions without the need to restrict production rates.

1.3 Study Procedures

All of the RMC Research Foundation data summarized in this report were obtained using a test protocol provided by the RMC Research Foundation to the U.S. Environmental Protection Agency and State agencies more than thirty days prior to the start of the test program. Quality assurance and quality control data compiled during the study validate the test results.

2.0 TEST PROGRAM OBJECTIVES, LOCATIONS & PROCEDURES

2.1 Emission Factors Test Program Objectives

This emission factor-testing program is concerned with particulate matter emissions from truck mix operations and central mix operations. The presently applicable emission factors for total particulate matter and PM_{10} particulate matter for these two sources are listed in Tables 1-1 and 1-2. No emission factors for $PM_{2.5}$ and $PM_{10-2.5}$ are presently published in EPA's AP42 emission factor database. The objectives of this emission factor test program are to accurately measure the emission factors for total particulate matter[5], PM_{10}[6], $PM_{10-2.5}$ (termed "coarse particulate matter"), and $PM_{2.5}$ (termed "fine particulate matter") from truck mix and central mix process operations at ready mixed concrete plants.

2.2 Test Locations

The test program was designed to provide emission factor data at the following locations at ready mixed concrete plants.

- Outlet of the fabric filter collector serving the mixing operation
- Inlet to the fabric filter collector serving the mixing operation
- Fugitive emissions from the mixing operations and trucks

The inlets to the fabric filters were tested using EPA reference methods in conventional ducts. During the tests at RMCC Wake Forest, EPA reference method tests were also conducted in the fabric filter outlet ducts. During the subsequent tests at S.T. Wooten Raleigh, Chandler Concrete Troutville, Concrete Supply Rock Hill, and RMC Carolina Materials Raleigh, the fabric filter outlet PM_{10} emissions were measured using a continuous particulate matter monitor that was sensitive to the low mass loadings present in the effluent gas streams from the fabric filters.

Fugitive emissions from the mixing operations were measured simultaneously with the tests at the inlet and outlet to the fabric filter. The fugitive emissions were captured in a set of sampling arrays that were located immediately adjacent to the fugitive emission points.

2.3 Test Procedures

2.3.1 Total, PM_{10}, $PM_{10-2.5}$, and $PM_{2.5}$ Particulate Concentration Measurements

U.S. EPA Conditional Test Method 040 was conducted at the inlets of the mixing operation fabric filter particulate matter control devices to simultaneously measure the concentrations of (1) total particulate matter, (2) PM_{10} particulate matter, (3) $PM_{10-2.5}$ particulate matter, and (4) $PM_{2.5}$ particulate matter. The PM_{10}, $PM_{10-2.5}$, and $PM_{2.5}$ emission concentrations were measured directly in this sampling train by partitioning the captured particulate matter into several size ranges. PM_{10} was measured as the sum of the $PM_{10-2.5}$ and $PM_{2.5}$ particulate

[5] Total particulate matter is the sum of PM_{10} particulate matter and super coarse (greater than 10 micrometer) particulate matter.
[6] PM_{10} is the sum of coarse ($PM_{10-2.5}$) and fine ($PM_{2.5}$) particulate matter.

matter. Total particulate matter was measured as the sum of PM_{10} particulate matter and all of the solids having a size greater than 10 micrometers that were captured in the cyclone and sampling train. There is a possible bias to higher-than-true total particulate matter concentration results due to the geometry of the PM_{10} cyclone, the short length of the sampling nozzle, and the inertia of particles larger than 10 micrometers in the sampled gas stream. Despite this possible bias, it was decided to measure the total particulate matter using the CTM 040 sampling train due to the ability to collect data in all size ranges simultaneously.

During the tests at RMCC Wake Forest, EPA CTM 040 was also used at the fabric filter outlet; however, the total particulate matter catch weights in the sampling trains ranged from only 1.0 to 2.3 milligrams. These small catch weights were distributed in several different particle size fractions. Air Control Techniques, P.C. determined that tests sponsored by EPA[7] in 1993 also experienced low catch weights. To minimize data precision problems at these low catch weights, Air Control Techniques, P.C. proposed to the RMC Research Foundation to modify the fabric filter outlet tests procedures to use a tapered element oscillating microbalance (TEOM) continuous particulate matter monitor. This instrument is sensitive down to particulate matter concentrations of less than 10 micrograms per cubic meter and is, therefore, very appropriate for testing low concentration particulate matter gas streams. During the tests at S.T. Wooten (central mix), Chandler Concrete (truck mix), Concrete Supply (truck mix) and RMC Carolina Materials (central mix), a PM_{10} TEOM was used at the fabric filter outlet, and EPA CTM 040 was used only at the fabric filter inlet.

CTM 040 was originally developed by Air Control Techniques, P.C. in 1996 based on EPA research conducted in the mid-1980s. EPA previously reviewed the method, assigned the number "CTM 040," and made it available through its website since 1999. The method has been used extensively for the simultaneous measurement of $PM_{10,}$ $PM_{10\text{-}2.5}$, and $PM_{2.5}$. A complete summary of the method is available in the Conditional Test Methods section of EPA's website. EPA's promulgation of the method is in-progress.

The CTM 040 sampling train consisted of a PM_{10} cyclone followed by a $PM_{2.5}$ cyclone. A 47 mm filter was mounted after the $PM_{2.5}$ cyclone. This sampling train was identical to the EPA Method 201A (40 CFR Part 60, Appendix A, Method 201A) sampling train except that a $PM_{2.5}$ cyclone was inserted between the PM_{10} cyclone and the filter. Both cyclones and the filter were coupled closely together so that the entire sampling head shown in Figure 2-1 could be positioned entirely in the gas stream in large ducts. Due to the small size of the fabric filter inlet ducts at all of the plants tested[8], only a portion of the sampling head was inside the duct at some of the traverse points.

[7] EPA References 9 and 10 in AP42 Section 11.12.

[8] The large majority of the fabric filter inlet and outlet ducts used at Ready Mixed Concrete plants in the U.S. are less than 24 inches, and most are less than 18 inches. The sampling conditions at the RMCC plant are typical of plants throughout the U.S.

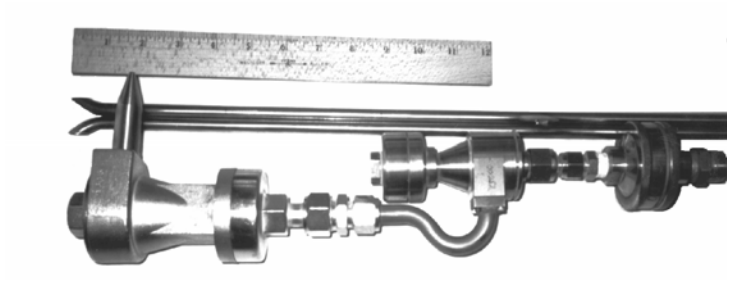


Figure 2-1. EPA Conditional Test Method 040 Sampling Head

As with Method 201A, the CTM 040 sampling system is a constant sampling rate technique. It is important to maintain the actual sample gas flow rate in each of the cyclones at a rate that provides the desirable particle collection efficiencies. The PM_{10} cyclone must collect particles that have a D_{50} (particle size collected with 50% efficiency) between 9.0 and 11.0 micrometers in order to be consistent with Method 201A. The $PM_{2.5}$ cyclone (the cyclone on the right side in Figure 2-1) should optimally have a cut diameter between 2.25 and 2.75 micrometers. Using the cyclone performance curves, Air Control Techniques, P.C. calculated the sampling rates necessary to simultaneously satisfy the required PM_{10} cyclone and cyclone $PM_{2.5}$ D_{50} ranges. The area between the two solid lines in Figure 2-2 demonstrates that this range is very small for ready mixed concrete plants and other sources operating at ambient gas temperatures.

A sampling time of two hours was used at the outlet of the RMCC fabric filter to ensure that catch weights of both the PM_{10} and $PM_{2.5}$ cyclones could be analyzed gravimetrically.

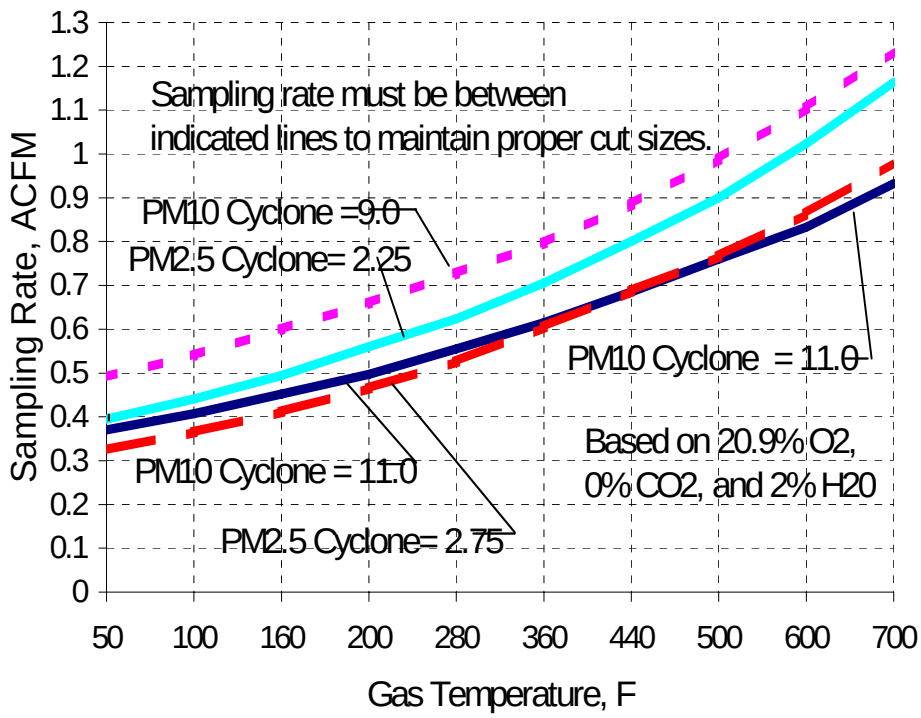


Figure 2-2. Sampling Rate Requirements of CTM 040

CTM 040 was conducted at the RMCC fabric filter inlet and outlet sampling locations and at the inlets of the S.T. Wooten, Chandler Concrete, Concrete Supply, and RMC Carolina Materials plants in accordance with all applicable EPA sampling and quality assurance requirements. Each test consisted of a set of three 1-hour test runs per test location. Particulate matter samples were withdrawn isokinetically (100% ± 20%) from the test locations.

Following the CTM 040 sampling head shown in Figure 2-1, the sampling train consisted of a set of impingers, a dry gas meter, control valves, a vacuum pump, and an orifice meter as shown in Figure 2-3. The impingers were used to measure the sample stream moisture content in accordance with EPA Method 4 (40 CFR Part 60, Appendix A, Method 4) and to protect the vacuum pump by condensing and removing water vapor from the sampling gas stream. The sampling train components shown in Figure 2-3 were used to accurately measure the sample gas flow rate and sampling nozzle capture velocities.

The CTM 040 sampling train was charged with 100 ml of deionized, distilled (DI) water in each of the first two impingers. The third impinger was kept empty, and the fourth contained preweighed silica gel. The set of four impingers was kept in an ice-filled cold box to ensure high efficiency moisture removal from the sample gas stream.

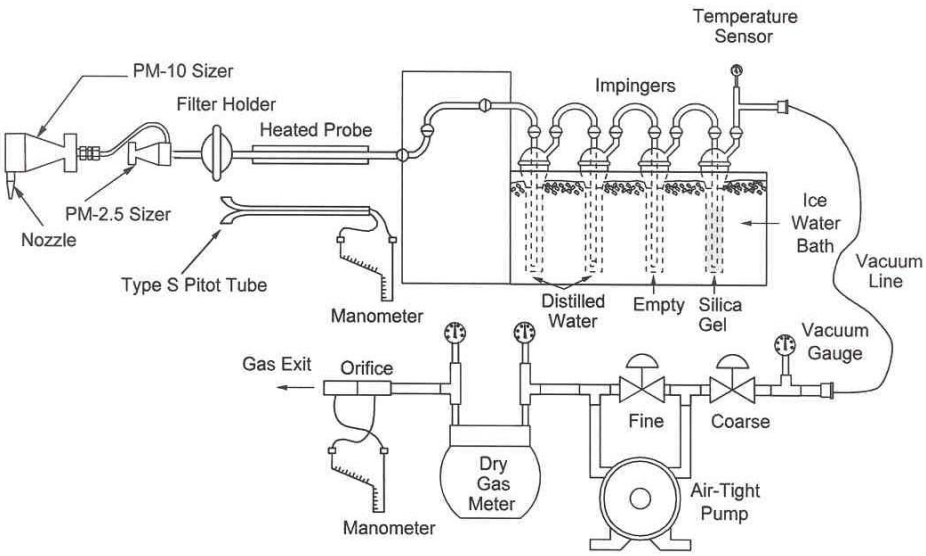


Figure 2-3. Sampling Train Components

The combined cyclone sampling head was recovered using a nylon brush and ultra-pure acetone rinse. The particulate matter was divided into four separate sample jars.

Sample Jar #1, Particulate Matter > 10 micrometers

- Solids and acetone rinse from the PM_{10} cup
- Acetone rinse of the nozzle
- Acetone rinse of the PM_{10} cyclone

Sample Jar #2, Particulate Matter ≤ 10 micrometers and > 2.5 micrometers

- PM_{10} cyclone turnaround cup (above the inner downcomer line)
- Brushed and acetone rinsed solids from the downcomer line
- Solids from the $PM_{2.5}$ cyclone cup
- Acetone rinse of the $PM_{2.5}$ cyclone

Sample Jar #3, Particulate Matter ≤ 2.5 micrometers

- Brushed and acetone rinsed solids from the downcomer line
- Acetone rinse from front half of the filter holder

Sample Jar #4, Particulate Matter ≤ 2.5 micrometers

- Filter

The total particulate matter catch weights were measured as the sum of all the particulate matter recovered from the combined cyclone sampling assembly (sample jars #1 through #4). PM_{10} particulate matter was measured as the quantity of all solids recovered from sample jars #2, #3, and #4. $PM_{2.5}$ particulate matter was measured as the quantity of solids recovered from sample jars #3 and #4. $PM_{10-2.5}$ was measured as the material recovered in sample jar #2. An acetone blank was analyzed and subtracted from the particulate catch weights using the volume of acetone rinse used for each sample jar.

The DI water reagent was returned to the original 1,000 ml glass jar and weighed. The weight was recorded on the label, and the liquid level was marked. The silica gel was returned to the original tared container and weighed. The weight was recorded on the label. The volume of water vapor condensed in the impingers and the volume of water vapor collected in the silica gel were summed and entered into moisture content calculations.

EPA Method 5 analytical procedures were used to analyze the filter and the three front half acetone rinses for particulate matter.

2.3.2 Flue Gas Velocity and Volumetric Flow Rate - EPA Method 2

The flue gas velocity and volumetric flow rates during the CTM 040 tests were determined according to the procedures outlined in U.S. EPA Reference Method 2. Velocity measurements were made using S-type Pitot tubes conforming to the geometric specifications outlined in Method 2. Accordingly, each Pitot tube was assigned a coefficient of 0.84. Velocity pressures were measured with fluid manometers. Effluent gas temperatures were measured with chromel-alumel thermocouples equipped with hand-held digital readouts. A cyclonic flow check was performed prior to the CTM 040 tests at each sampling location.

2.3.3 Flue Gas Composition and Molecular Weight - EPA Method 3

Flue gas analyses and calculation of flue gas dry molecular weight were performed in accordance with EPA Method 3. A gas sample was withdrawn from a stainless steel probe attached to the CTM 040 sampling head. Moisture was removed from the sample gas by means of a knockout jar located prior to the aspirator. Oxygen and carbon dioxide were determined using a Fyrite® apparatus.

2.3.4 Flue Gas Moisture Content - EPA Method 4

The sample gas stream moisture contents were determined using EPA Method 4. The impingers were connected in series and were charged with 100 milliliters of deionized, distilled water in the first two impingers. The impingers were contained in an ice bath to assure condensation of the flue gas stream moisture. Any moisture that was not condensed in the impingers was captured in the silica gel in the fourth impinger.

2.3.5 Hood Capture Efficiency and Fabric Filter Outlet Concentrations - Ambient PM_{10} Compendium Method IO-1.3

The presently available hood capture efficiency data were obtained during 1993 tests sponsored by EPA at two plants: one in Maryland and one in Virginia. In both test programs, EPA used qualitative visible emission evaluations to estimate capture efficiency. Air Control Techniques, P.C. has determined that this subjective evaluation technique is no longer necessary due to the development of new monitoring instruments, such as the R&P TEOM that has been adopted by EPA as an ambient air reference test method. Based on this instrument, Air Control Techniques, P.C. designed and used a downwind sampling array to quantify the capture efficiency of the ready mixed concrete plant hood systems. This sampling array design was based on the sampling principles adopted by EPA in Method 5D (40 CFR Part 60, Appendix A, Method 5D) used for sampling open top fabric filter systems. This sampling array is also similar to the traversing hood system designed and used by Air Control Techniques, P.C. to measure fugitive particulate matter emissions[9] from sloped vibrating screens at stone crushing plants.

Air Control Techniques, P.C. used a set of downwind sampling arrays mounted vertically on the side walls of the truck loading area and at the inlet of central mixing operations to measure the fugitive dust mass flux through a defined 200 square foot area[10]. Due to space constraints, the downwind sampling arrays were limited to a 140 square foot area for all of the following tests at both truck and central mix facilities. The sampling arrays were mounted directly adjacent to the transfer operations, and portions of the arrays were close to parts of the truck receiving concrete. There were sixty sampling points in the set of two arrays; this number of points exceeds the requirements of EPA Method 5D. The area monitored by the sampling arrays included all of the downwind area subject to dispersion of the fugitive particulate matter. The gas transport velocities through all sampling tubes and ductwork were maintained at a minimum of 3,500 feet per minute to prevent settling of dust in the tubes and ductwork. Method 22 visual observations were conducted during the run. These observations also provided qualitative supporting information concerning the fugitive particulate matter concentrations.

Each of the sampling arrays was ducted together to yield a single sample gas stream. This gas stream was directed past an enlarged duct with the intake for an ambient TEOM monitor meeting the requirements of Method IO-1.3. The gas flow rate through this enclosure was maintained at less than 5 mph. The TEOM had a PM_{10} sampling head and operated at a flow

[9] The emission factors measured using the screening operation traversing hood system have been published in AP42 Section 11.19.2 (Fifth Edition, 1995).
[10] The array area for the inlet to the central mixer was limited to 140 square feet due to space constraints.

rate of 16.67 liters per minute. The TEOM was operated in accordance with Method IO-1.3. The instrument was calibrated in accordance with Section 12.1 of Method IO-1.3.

The TEOM instrument was mounted on a secure base. The instrument was protected from severe vibration. The TEOM was equilibrated prior to the start of the first test run on each test day.

The fugitive PM_{10} emissions (PM_{10} escaping the plant hood system) were measured by multiplying the measured ambient PM_{10} concentration by the ambient air flow rate through the sampling array. A Davis Instruments, Inc. meteorological monitoring station was located within 20 feet of the sampling arrays and at the same elevation as the sampling arrays to measure the wind direction and wind speed through the arrays. During the initial set of tests at the RMCC Plant in December 2003, Air Control Techniques, P.C. determined that the meteorological monitoring equipment was subject to swirling and suppressed winds caused by the deflection of ambient wind by the plant equipment and trucks in the immediate vicinity of the monitoring equipment. Accordingly, Air Control Techniques, P.C. obtained confirming wind speed data from a local meteorological monitoring station located within ten miles of the plant site. During the tests at S.T. Wooten, Chandler Concrete, Concrete Supply, and RMC Carolina Materials, Air Control Techniques, P.C. used multiple wind speed and direction monitoring stations on the plant site located in areas immediately adjacent to the sampling array to provide confirmation data. Wind pennants were also mounted on the arrays to provide a direct indication of wind direction through the array. The tests at S.T. Wooten, Chandler Concrete, Concrete Supply, and RMC Carolina Materials were also videotaped to provide a visual indication of the wind speed and direction during the tests periods.

All of the particulate matter measured by the TEOM during the time that the equipment being tested was operating was assumed to originate as fugitive emissions from the mixing operation being tested. This approach introduced a bias to lower-than-true capture efficiency due to the presence of ambient PM_{10} in the ambient air upwind of the plant and due to other fugitive PM_{10} sources in the plant area (i.e. roadways and truck exhaust). There were no practical means to identify and correct for these other sources of PM_{10} on a continuous basis.

During the initial set of tests at the RMCC plant sources, Air Control Techniques, P.C. determined that the particulate matter catch weights were extremely low due to the high efficiency of the fabric filter. Air Control Techniques, P.C revised the testing procedures prior to the tests at S.T. Wooten, Chandler Concrete, Concrete Supply, and RMC Carolina Materials to address this issue. A second TEOM monitor was used to provide a more sensitive and precise measurement of particulate matter emissions from the fabric filter. The entire fabric filter outlet gas stream was captured and directed through a duct with a TEOM monitor installed. The TEOM was used to provide a continuous indication of the PM_{10} concentration in the fabric filter effluent gas stream. Total particulate matter emissions were calculated based on (1) the measured PM_{10} emissions from the fabric filter and (2) the total PM/ PM_{10} ratio at the inlet to the fabric filter. The total PM/ PM_{10} ratio was checked based on scanning electron microscopy sizing of filter samples obtained at the fabric filter outlet.

2.4 Process Description and Operation

The plants in this emission factor test program produce ready mixed concrete used for construction. The plants included both central and truck mixing operations.

Stone, sand, cement, and water are combined with various additives depending on the customer's requirements to produce concrete. These raw materials are conveyed to the concrete truck mixer (truck mix) or plant concrete mixer (central mix) by conveyor belts and gravity feed hoppers. In the truck mix process, the raw materials are transferred dry into the concrete truck mixer and then mixed in route to the customer. In the central mix process, the raw materials are mixed in the plant central mix before they are transferred wet to the concrete truck mixer. The plants tested use a hood system for collection of fugitive emissions during transfer of raw materials (truck mix) and concrete (central mix). The hood system is then ducted to a fabric filter.

2.4.1 Ready Mixed Concrete Company, Truck Mix, Wake Forest, NC

The truck mix process at the Wake Forest RMCC plant conveys dry raw materials to the concrete truck mixer. The truck mix process is located on the west side of the process and hopper tower. The sampling arrays on this process were located on the downwind East and North sides of RMCC's truck hood system. The fabric filter controlling the truck hood system is located north of the process and hopper tower.

Both the inlet and outlet of this fabric filter were tested in order to develop the emission factors. Photographs 1 and 2 show the truck hood system and the Method 5 D-sampling arrays. Photographs 3 and 4 show the sampling arrays fan system and TEOM test location. Photographs 5 and 6 show the fabric filter inlet and outlet test locations. It was necessary to extend the outlet stack of the fabric filter by using a temporary duct to ensure that the sampling location conformed to U.S. EPA Method 1 criteria.

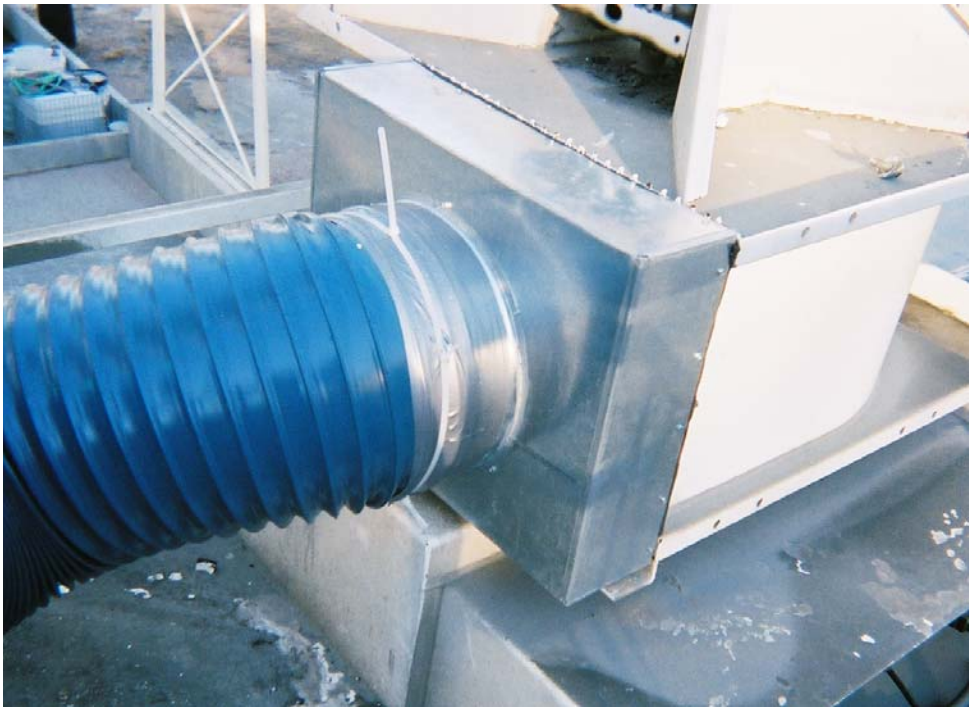
Photograph 1. RMCC Truck Hood System and the Sampling Arrays

Photograph 2. RMCC Truck Hood System and the Sampling Arrays

Photograph 3. RMCC TEOM Fan System and Sampling Duct

Photograph 4. RMCC TEOM and Sampling Duct

Photograph 5. RMCC Fabric Filter Inlet and Outlet Ducts, Truck Mix Test



Photograph 6. RMCC Temporary Outlet Duct Connection to Fabric Filter Outlet Duct

2.4.2 Ready Mixed Concrete Company, Central Mix, Wake Forest, NC

The central mix process at the Wake Forest RMCC facility conveys dry raw materials to the central mixer and then pours wet, mixed material to the truck. The Wake Forest RMCC central mix process is located on the east side of the process and hopper tower. On this process, the sampling arrays were located on the north side of the central mix transfer area and on the north side of the raw material belt. This raw material belt conveys dry raw materials to the central mixer. The selection of a sampling array location was based on the predominant wind direction, visible emissions (diesel from trucks), and accessibility.

The fabric filter controlling the fugitive emissions from the central mixer hood system is located north of the process and hopper tower. The fabric filter is the same fabric filter used for the truck mix process. With this system, only one type mix, truck or central, can be operated at a time. The fabric filter has two separate inlet ducts (one for the truck mix and one for the central mix) that are wyed together prior to entering the fabric filter. Valves on each of the inlet ducts are wired so that as one opens, the other closes, thus allowing emissions to be captured from one process at a time. Both the inlet and outlet of this fabric filter were tested in order to develop the emission factors. Photographs 7 and 8 show the raw material conveyor inlet to the central mixer (main emission point) and the central mixer outlet to the truck. Both areas were tested simultaneously using sampling arrays and the emissions were combined.

Photograph 7. RMCC Central Mix Transfer Area Sampling Array

The fabric filter inlet test location is shown in Photograph 9. The same fabric filter outlet test location was used for both truck and central mix tests. Photograph 10 shows a side view of the fabric filter inlet ducts prior to testing.

Photograph 8. RMCC Central Mix Transfer to Truck Sampling Array

Photograph 9. RMCC Fabric Filter Inlet Test Location, Central Mix Test

Photograph 10. RMCC Fabric Filter Inlet Ducts Prior to Testing

2.4.3 S.T. Wooten Plant, Central Mix, Raleigh, NC

This plant uses a central mixing process. The mixer and truck loading areas were tested using the Method 5D sampling arrays and the TEOM PM_{10} monitor. The 5D sampling array at the inlet to the central mixer was located immediately adjacent to the mixer entrance as shown in Photograph 11. The 5D sampling array for the truck loading operation was located immediately adjacent to the loading chute of the truck as shown in Photograph 12. Both of the arrays were located downwind of the point of fugitive emissions.

The plant uses a hood above the conveyor leading to the mixer to capture particulate matter emissions. The gas stream from this hood and from the cement and flyash silos is controlled by a pulse jet fabric filter located on the north side of the mixing process. The mixing operation tests were conducted only during periods when the cement and flyash silos were not being filled. During these non-filling periods, the gas flow rates in the ducts serving the silos were negligible. Accordingly, the emissions measured at the fabric filter inlet and outlet (Photograph 13) were due solely to the mixing operation. The fabric filter inlet duct was tested using CTM 040. The sampling location was installed to conform as closely to Method 1 as possible.

The fabric filter outlet was tested using a TEOM PM_{10} monitor. This monitor was mounted in the center of an outlet duct (Photograph 14) that was sized to reduce the gas velocity to approximately 5 miles per hour. The total gas flow rate in the duct was measured using EPA Methods 2 through 4.

Photograph 11. S.T. Wooten Central Mix Operation Inlet Sampling Array

Photograph 12. S.T. Wooten Truck Inlet Sampling Array

Photograph 13. S.T. Wooten Fabric Filter Inlet Duct Test Location

Photograph 14. S.T. Wooten Fabric Filter Outlet Duct Test Location and TEOM Inlet

2.4.4 Chandler Concrete Plant, Truck Mix, Troutville, VA

Chandler Concrete operates a truck mix process. The truck loading operation is conducted in a semi-enclosed area open on the east and west side (Photograph 15) where the trucks only back in for loading. The hood collecting fugitive emissions from truck loading is ducted to a pulse jet fabric filter located south of the loading enclosure. This fabric filter also serves the cement and flyash storage silos. The mixing operation was tested only during periods when the silos were not being filled. Accordingly, the fabric filter inlet and outlet emissions were due solely to the mixing operation.

The sampling arrays for the mixing operation were located on the east side of the truck loading area in order to take advantage of the normal west to southwest wind direction. The particulate matter captured in the arrays was ducted past a TEOM used to measure PM_{10} on a continuous basis. The wind speed and direction of ambient air moving past the truck loading operation and through the arrays were measured by a set of two Davis meteorological monitoring stations mounted on the array and the top of the baghouse.

Photograph 15. Chandler Concrete Truck Loading Enclosure

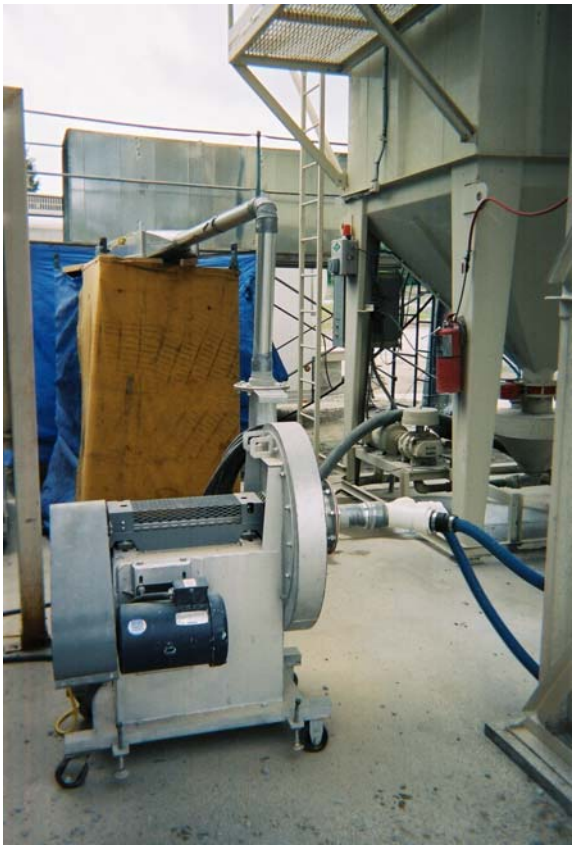
2.4.5 Concrete Supply Plant, Truck Mix, Rock Hill, SC

Concrete Supply operates a truck mix process. The truck mix process at the Rock Hill, SC plant conveys dry raw materials to the concrete truck mixer. The sampling arrays on this process were located on the downwind North and East sides of Concrete Supply's truck hood system. The fabric filter controlling the truck hood system is located northeast of the process and hopper tower. This fabric filter also serves the cement and flyash storage silos. The mixing operation was tested only during periods when the silos were not being filled. Accordingly, the fabric filter inlet and outlet emissions were due solely to the mixing operation.

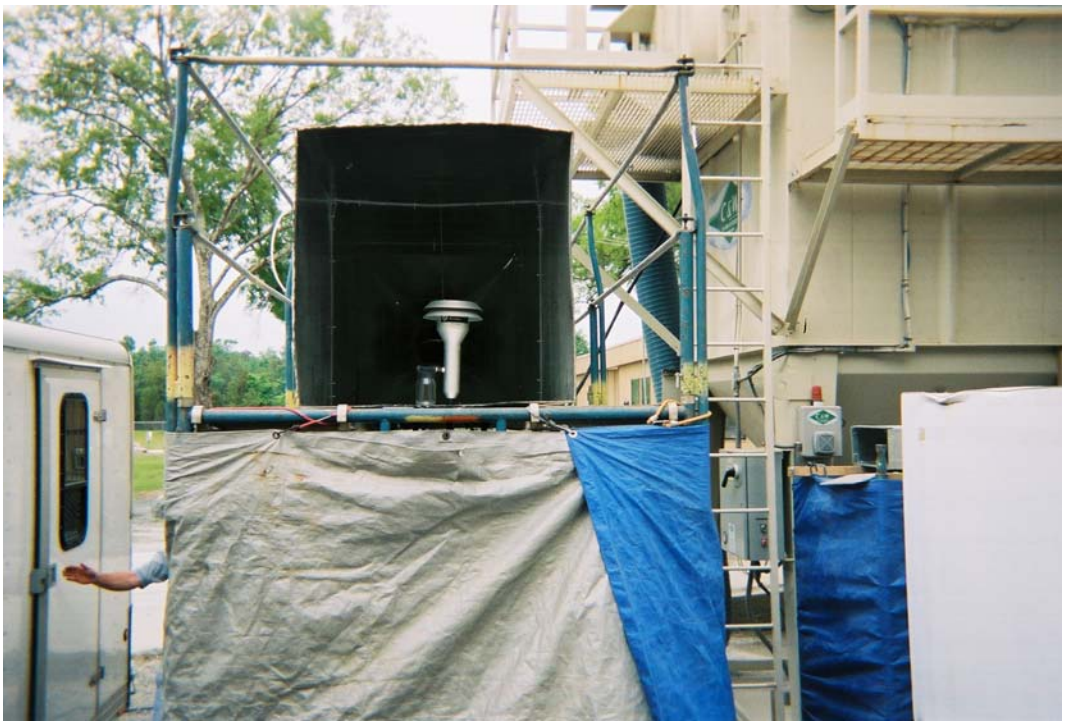
Photographs 16 and 17 show the truck hood system and the Method 5 D-sampling arrays. Photographs 18 and 19 show the sampling arrays, fan system and TEOM test locations. Photograph 20 shows the fabric filter inlet test location. It was necessary to extend the outlet stack of the fabric filter by using a temporary duct to ensure that the sampling location conformed to U.S. EPA Method 1 criteria.

Photograph 16. Concrete Supply Truck Mix Sampling Array

Photograph 17. Concrete Supply Truck Mix Inlet Operation Sampling Array



Photograph 18. Concrete Supply Array Duct Test Location and TEOM Inlet



Photograph 19. Concrete Supply Fabric Filter Outlet Duct Test Location and TEOM Inlet

Photograph 20. Concrete Supply Fabric Filter Inlet Duct Test Location

2.4.6 RMC Carolina Materials Plant, Central Mix, Raleigh, NC

This plant uses a central mixing process. The mixer and truck loading areas were tested using the Method 5D testing arrays and the TEOM PM_{10} monitor. The 5D sampling array at the inlet to the central mixer was located immediately adjacent to the mixer entrance as shown in Photograph 21. The 5D sampling array for the truck loading operation was located immediately adjacent to the loading chute of the truck as shown in Photograph 22. Both arrays were located downwind of the point of fugitive emissions.

The plant uses a hood above the conveyor leading to the mixer to capture particulate matter emissions. The discharge point of the conveyor into the central mixer is in a semi-enclosed area open on the north and south sides (Photograph 22). The gas stream from this hood and from the cement and flyash silos is controlled by a pulse jet fabric filter located on the west side of the mixing process. The mixing operation tests were conducted only during periods when the cement and flyash silos were not being filled. During these non-filling periods, the gas flow rates in the ducts serving the silos were negligible. Accordingly, the emissions measured at the fabric filter inlet and outlet (Photograph 23) were due solely to the mixing operation. The fabric filter inlet duct was tested using CTM 040. The sampling location was installed to conform as closely to Method 1 as possible.

The fabric filter outlet was tested using a TEOM PM_{10} monitor. This monitor was mounted in the center of an outlet duct (Photograph 24) that was sized to reduce the gas velocity to

approximately 5 miles per hour. The total gas flow rate in the duct was measured using EPA Methods 2 through 4.

Photograph 21. RMC Carolina Materials Central Mix Operation Inlet Sampling Array

Photograph 22. RMC Carolina Materials Truck Inlet Sampling Array

Photograph 23. RMC Carolina Materials Fabric Filter Inlet Duct Test Location

Photograph 24. RMC Carolina Materials Fabric Filter Outlet Duct Test Location

2.5 Monitoring of Process Conditions

A number of variables potentially influence the particulate matter emission rates from the concrete mix operations.

- Raw material moisture levels
- Raw material silt contents
- Raw material size distribution
- Concrete raw material mix
- Production rates
- Wind speed
- Wind direction

All of these variables were monitored during the test runs. The test results are summarized in Section 3.

3. TEST RESULTS

3.1 Process Operating Conditions

3.1.1 Production Rates and Mix Characteristics

The total amount of concrete processed by the concrete mixing trucks during each test run was recorded in units of yards. The five plants tested recorded the amount of each raw material used for each order. The mix composition information and processing rate information are summarized for each test run in Table 3-1 through 3-6. All of the processes operated in a normal manner during the test program.

Table 3-1. Wake Forest, RMCC Truck Mix Production Data

Parameters	Truck Mix Run # 1	Truck Mix Run # 2	Truck Mix Run # 3	Averages
Test Date	12/8/03	12/8/03	12/9/03	N/A
Run Start Time	9:01	12:14	7:53	N/A
Run Stop Time	11:12	14:14	10:03	N/A
Number of Truck Loads	11	6	7	8
Sand, lbs.	104,440	30,280	80,360	71,693
Stone 67 Size, lbs.	118,840	25,480	72,440	72,253
Stone 78 Size, lbs.	14,480	9,960	20,680	15,040
Cement, lbs.	28,170	9,540	21,480	19,730
Flyash, lbs.	9,350	2,460	7,180	6,330
Liquid Air, lbs.	26.06	4.56	19.50	16.71
Water Reducer, lbs.	11.81	16.94	37.25	22.00
Retarder, lbs.	0	0	0	0
High Range Water Reducer, lbs.	0	3.44	0	1.15
Calcium Accelerator, lbs.	175	0	71.88	82.29
Non-Chloride Accelerator, lbs.	210	0	0	70
Water, lbs.	9,552	1,872	5,552	5,658.7
Total Process Weight, lbs.	285,255	79,617	207,821	190,897.7
Total Process Weight, tons	142.6	39.8	103.9	95.4
Total Process Weight, yards	75	23	54	50.7
Tons / Yard	1.91	1.77	1.92	1.87

Table 3-2. Wake Forest, RMCC Central Mix Production Data				
Parameters	Run # 1	Run # 2	Run # 3	Averages
Test Date	12/10/03	12/11/03	12/11/03	N/A
Run Start Time	8:22	7:31	12:21	N/A
Run Stop Time	13:24	9:37	15:35	N/A
Number of Truck Loads	5	7	7	6.3
Sand, lbs.	66,560	96,560	88,640	83,920
Stone 67 Size, lbs.	88,240	124,120	113,240	108,533
Stone 78 Size, lbs.	0	0	0	0
Cement, lbs.	22,230	29,680	26,320	26,076.7
Flyash, lbs.	4,770	7,430	6,970	6,390
Liquid Air, lbs.	14.44	21.88	21.5	19.27
Water Reducer, lbs.	34.81	11.88	45.31	30.67
Retarder, lbs.	0	0	0	0
High Range Water Reducer, lbs.	0	0	0	0
Calcium Accelerator, lb	65.63	66.25	17.50	49.79
Non-Chloride Accelerator, lbs.	0	280	0	93.3
Water, lbs.	3,160	6,564	3,888	4,537.3
Total Process Weight, lbs	185,075	264,734	239,142	296,317
Total Process Weight, tons	92.5	132.4	119.6	114.8
Total Process Weight, yards	49	69	64	60.7
Tons / Yard	1.89	1.92	1.87	1.89

Table 3-3. S.T. Wooten Concrete Central Mix Production Data				
Parameters	Run # 1	Run # 2	Run # 3	Averages
Test Date	3/2/04	3/2/04	3/2/04	N/A
Run Start Time	9:10	11:12	13:04	N/A
Run Stop Time	10:10	12:12	14:05	N/A
Number of Truck Loads	5	5	6	5.3
Sand, lbs.	41,380	68,780	79,100	63,090
Stone 57 Size, lbs.	53,620	88,800	101,880	81,433
Cement, lbs.	12,540	19,310	23,800	18,550
Flyash, lbs.	3,460	6,580	7,190	5,743
Liquid Air, lbs.	5.43	6.18	9.06	6.90
Polyheed, lbs.	52.5	157.25	153.5	121.1
Water, lbs.	2,804	6,192	6,885	5,294
Total Process Weight, lbs	113,862	189,815	219,018	174,238
Total Process Weight, tons	56.94	94.91	109.51	87.12
Total Process Weight, yards	29.500	50.000	57.50	45.67
Tons / Yard	1.98	1.90	1.90	1.93

Table 3-4. Chandler Concrete Truck Mix Production Data				
Parameters	Run # 1	Run # 2	Run # 3	Averages
Test Date	3/17/04	3/17/04	3/18/04	N/A
Run Start Time	7:17	9:17	12:40	N/A
Run Stop Time	8:34	13:21	14:50	N/A
Number of Truck Loads	4	4	4	4
Stone 57, lbs.	43,180	28,700	56,960	42,946.7
Limestone, lbs.	33,040	17,220	28,260	26,173.3
Type 1-2 Cement, lbs.	12,245	6,690	11,915	10,283.3
Castle	5,100	6,620	19,120	10,280.0
Flyash, lbs.	1,220	1,495	4,105	2,273.3
Liquid Air, lbs.	1.75	2.25	3.00	2.33
Water Reducer, lbs.	12.81	14.50	38.38	21.90
Polarset, lbs.	69	0	0	23.0
Water, lbs.	5315.95	2,995.96	6,993.36	5,101.8
Total Process Weight, lbs.	100,185	63,738	127,395	97,105.7
Total Process Weight, tons	50.092	31.869	63.697	48.6
Total Process Weight, yards	24.5	14.50	32.0	23.7
Tons / Yard	2.03	2.16	1.99	2.1

Table 3-5. Concrete Supply Truck Mix Production Data				
Parameters	Run # 1	Run # 2	Run # 3	Averages
Test Date	5/12/04	5/12/04	5/13/04	N/A
Run Start Time	7:50	10:07	9:06	N/A
Run Stop Time	8:50	11:06	10:10	N/A
Number of Truck Loads	8	9	5	7.3
Sand, lbs.	95,731	80,700	51,080	75,837
Stone, lbs.	130,660	107,130	66,750	101,513
Type 1-2 Cement, lbs.	38,490	33,525	21,380	31,131
Flyash, lbs.	1,785	9,160	5,910	5,618
Water, lbs.	11,082.16	9,897.17	6,225.37	9,068.23
Water Reducer, lbs.	58.5	55.31	6.5	40.1
Liquid Air, lbs.	3.81	13.88	10.06	9.25
M.S. Sand, lbs.	5,970	26,150	17,740	16,620
Retarder, lbs.	42.81	29.13	46.56	39.29
Adva, lbs.	53.13	0	0	17.71
Delvo, lbs	75.06	0	0	25.02
Total Process Weight, lbs.	283,951	266,660	169,148	239,919
Total Process Weight, tons	141.976	133.330	84.574	119.96
Total Process Weight, yards	71.250	67.20	43.00	60.48
Tons / Yard	1.99	1.99	1.97	1.98

Table 3-6. RMC Carolina Materials Central Mix Production Data				
Parameters	Run # 1	Run # 2	Run # 3	Averages
Test Date	5/19/04	5/19/04	5/20/04	N/A
Run Start Time	8:10	10:08	8:52	N/A
Run Stop Time	9:09	11:11	9:52	N/A
Number of Truck Loads	5	4	8	5.7
Sand, lbs.	65,120	39,700	81,320	62,046
Stone, lbs.	78,860	51,840	100,700	77,133
Type 1-2 Cement, lbs.	20,860	13,100	27,280	20,413
Flyash, lbs.	4,990	3,190	6,580	4,920
Water, lbs.	66,092.4	40,256.28	61,763.04	56,037.24
Water Reducer, lbs.	64.69	34.94	67.31	55.65
Liquid Air, lbs.	0	3.06	18.25	7.10
Retarder, lbs.	0	0	6.5	2.2
Total Process Weight, lbs.	235,987	148,124	277,735	220,614
Total Process Weight, tons	117.994	74.052	138.868	110.307
Total Process Weight, yards	45.0	29.0	58.0	44
Tons / Yard	2.62	2.55	2.42	2.51

3.1.2 Raw Materials Size Distribution, Moisture Levels, and Silt Content

The raw materials for both the truck and central mix processes come from the same sources and, therefore, were sampled only once at the Wake Forest, RMCC plant. The raw material size distribution, moisture levels, and silt contents are summarized in Table 3-7.

Table 3-7. Raw Material Particle Size Distribution, Moisture Levels and Silt Contents

Raw Material	Date of Test	Time Sample Taken	% Greater than 75 mm	% Greater than 19 mm	% Greater than #20 Mesh	% Greater than 100 Mesh	% Greater than 200 Mesh	Pan % Less than # 200 Mesh (Silt)	% Moisture
RMCC, Wake Forest Plants (Truck Mix and Central Mix)									
Sand	12/8/03	13:00	0.0	0.0	41.06	56.61	1.56	0.77	12.87[11]
Stone	12/8/03	13:00	0.0	33.59	64.93	0.77	0.34	0.38	1.44
Cement	12/8/03	14:00	0.0	0.0	0.0	79.96	10.01	10.03	0.27
Flyash	12/9/03	08:07	0.0	0.0	0.0	4.14	11.13	84.73	0.21
S.T. Wooten, Raleigh Plant									
Cement	3/2/04	11:52	0.0	0.0	0.0	37.7	12.5	49.8	0.30
Flyash	3/2/04	13:06	0.0	0.0	0.31	1.78	10.3	87.6	0.09
Sand	3/2/04	9:11	0.0	0.0	19.3	79.1	0.7	0.8	6.3
Stone	3/2/04	11:18	0.0	18.8	78.9	1.1	0.4	0.8	1.1
Chandler Concrete, Troutville Plant									
Cement	3/16/04	13:15	0.0	0.0	0.0	73.5	21.94	4.56	0.39
Flyash	3/16/04	13:22	0.0	0.0	37.2	3.18	9.63	86.81	0.16
Sand	3/16/04	10:57	0.0	0.0	5.80	92.57	1.43	0.2	8.01
Stone	3/16/04	12:24	0.0	9.92	89.05	0.35	0.18	0.50	2.07
Concrete Supply, Rock Hill Plant									
Cement	5/11/04	13:15	0.0	0.0	0.09	80.68	18.12	1.11	0.31
Flyash	5/11/04	14:38	0.0	0.0	0.189	3.89	12.28	83.64	0.07
Sand	5/11/04	15:21	0.0	0.0	24.96	72.59	1.96	0.48	3.43
Stone	5/11/04	16:33	0.0	18.87	80.41	0.17	0.11	0.44	0.46
RMC Carolina Materials, Raleigh Plant									
Cement	5/18/04	15:13	0.0	0.0	0.70	91.74	5.26	2.30	1.07
Flyash	5/18/04	16:13	0.0	0.0	0.24	4.07	26.87	68.82	0.19
Sand	5/18/04	12:45	0.0	0.0	23.89	73.25	2.25	0.62	7.70
Stone	5/18/04	17:08	0.0	22.05	76.94	0.39	0.19	0.42	0.86

3.2 Wind Speed and Direction

Meteorological data were monitored on a continuous basis on the downwind side of the process being tested. During the first test run at the RMCC plant, it was determined that the wind speed and direction were erratic due to constant truck traffic moving from the loading areas to the wash-off area and to the topography of the surrounding plant area. Earth berms and trees surround the plant and form a bowl shaped depression around the plant. The topography causes swirling wind conditions, especially during truck movement in and out of the loading areas. For this reason, the data were erratic and could not be used to evaluate wind direction. Air Control Techniques, P.C. visually observed wind direction to confirm that fugitive emissions were passing through the array. The rapid response of the TEOM monitor to the fugitive emissions during each truck and central mixer loading operation also provided

[11] The sand moisture content of 12.87% is higher than levels in some parts of the U.S. This sand moisture value has been confirmed for this facility.

direct confirmation that the wind was in the appropriate direction during the test program. Table 3-8 summarizes the average wind speeds during both the truck and central mix tests for the five plants tested.

Table 3-8. Wind Speed Averages

Test Run	Average Wind Speed, MPH
RMCC Wake Forest	
Truck Mix Run # 1	1.1
Truck Mix Run # 2	1.4
Truck Mix Run # 3	1[1]
Average	1.2
RMCC Wake Forest	
Central Mix Run # 1	1[1]
Central Mix Run # 2	2.7
Central Mix Run # 3	2.5
Average	2.1
S.T. Wooten, Raleigh	
Central Mix Run # 1	7.0
Central Mix Run # 2	8.2
Central Mix Run # 3	2.7
Average	6.0
Chandler Concrete[2]	
Truck Mix Run # 1	1.7
Truck Mix Run # 2	4.3
Truck Mix Run # 3	1.3
Average	2.4
Concrete Supply	
Truck Mix Run # 1	1.1
Truck Mix Run # 2	1.5
Truck Mix Run # 3	1.6
Average	1.4
RMC Carolina Materials	
Central Mix Run # 1	7.1
Central Mix Run # 2	4.4
Central Mix Run # 3	1.5
Average	4.3

1. One mph was used as a default value during tests in which the meteorological monitoring station was blocked by trucks being loaded.
2. Wind speed was potentially biased low due to wind blocking effect of truck on meteorological monitoring station.

3.3 $PM_{2.5}$, $PM_{10-2.5}$, PM_{10}, and Total Particulate Matter Emission Factors

The truck and central mix emission factors were calculated from the measured fabric filter inlet and outlet particulate matter concentrations and the measured fugitive particulate matter emissions captured by the sampling arrays. The calculations for fugitive emissions captured by the sampling arrays and measured by the TEOM monitor are shown in example calculations in Appendix H of this report. The average wind speeds were measured during each test in conjunction with the PM_{10} particulate matter concentration measurements to determine the fugitive PM_{10} mass fluxes from the hood areas.

The upwind ambient PM_{10} concentrations were not subtracted from the baseline data sets of the sampling arrays when calculating the emission factors. Furthermore, diesel exhaust emissions from the concrete trucks were not subtracted from the sampling array data sets. The inclusion of both the upwind PM_{10} particulate matter and diesel particulate matter biases the hood capture efficiencies to lower-than-true levels and biases the emission factors to higher-than-true levels. Tables 3-9 and 3-14 present the truck and central mix emissions data.

Table 3-9. Wake Forest RMCC Truck Mix Emissions Data

Test Results	Run # 1 12/8/03	Run # 2 12/8/03	Run # 3 12/9/03	Averages
Method 5 D-Sampling Array Results				
Average Array PM_{10} Particulate Concentration, ug/m^3	36.1	130.5	64.6	77.1
Measured PM_{10} Emissions Thru Array, lbs./hour	0.0026	0.0120	0.0043	0.0063
Calculated Total Emissions Thru Array, lbs./hour	0.0084	0.0465	0.0116	0.0222
Calculated $PM_{2.5}$ Emissions Thru Array, lbs./hour	0.0003	0.0012	0.0006	0.0007
Calculated $PM_{10-2.5}$ Emissions Thru Array, lbs./hour	0.0023	0.0109	0.0036	0.0056
Fabric Filter Results				
Fabric Filter Inlet, Total Particulate Concentration, lbs./hr	3.2497	3.9991	32.1562	13.1350
Fabric Filter Outlet, Total Particulate Concentration, lbs./hr	0.0214	0.0139	0.0211	0.0188
Fabric Filter Inlet, PM_{10} Particulate Concentration, lbs./hr	1.0090	1.0351	11.8126	4.6189
Fabric Filter Outlet, PM_{10} Particulate Concentration, lbs./hr	0.0214	0.0042	0.0211	0.0156
Fabric Filter Inlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.1247	0.0989	1.7750	0.6662
Fabric Filter Outlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.00005	0.0014	0.00703	0.0028
Fabric Filter Inlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.8843	0.9362	10.0376	3.9527
Fabric Filter Outlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.0214	0.0028	0.0141	0.0128
Particulate Size Ratios based on Fabric Filter Inlet Data				
Total / PM_{10} for TEOM Total Calculation	3.22	3.86	2.72	3.27
$PM_{2.5}$ / PM_{10} for TEOM $PM_{2.5}$ Calculation	0.12	0.10	0.15	0.12
$PM_{10-2.5}/PM_{10}$ Ratio for TEOM $PM_{10-2.5}$ Calculation	0.88	0.90	0.85	0.88
Emission Factor Results				
Average Plant Production Levels During Tests, Tons/Hour	8.58	3.00	6.91	6.16
Total Particulate Emission Factor, lbs./ton	0.00347	0.02011	0.00468	0.00942
Total PM_{10} Emission Factor, lbs./ton	0.00280	0.00538	0.00362	0.00393
Total $PM_{10-2.5}$ Emission Factor, lbs./ton	0.00276	0.00452	0.00253	0.00327
Total $PM_{2.5}$ Emission Factor, lbs./ton	0.00003	0.00086	0.00109	0.00066
Collection Efficiencies				
Fabric Filter Total Efficiency	99.3%	99.7%	99.9%	99.6%
Truck Hood PM_{10} Efficiency	99.7%	98.8%	99.9%	99.5%
System Collection Efficiency	97.6%	98.4%	99.8%	98.6%

Table 3-10. Wake Forest RMCC Central Mix Emissions Data

Test Results	Run # 1 12/10/03	Run # 2 12/11/03	Run # 3 12/11/03	Averages
Method 5 D-Sampling Array Results				
Average Array PM_{10} Particulate Concentration, ug/m^3	18.8	16.4	57.9	31.0
Measured PM_{10} Emissions Thru Array, lbs./hour	0.0009	0.0020	0.0067	0.0032
Calculated Total Emissions Thru Array, lbs./hour	0.0029	0.0053	0.0178	0.0087
Calculated $PM_{2.5}$ Emissions Thru Array, lbs./hour	0.0003	0.0003	0.0010	0.0005
Calculated $PM_{10-2.5}$ Emissions Thru Array, lbs./hour	0.0006	0.0018	0.0057	0.0027
Fabric Filter Results				
Fabric Filter Inlet, Total Particulate Concentration, lbs./hr	0.6950	1.5389	1.3322	1.1887
Fabric Filter Outlet, Total Particulate Concentration, lbs./hr	0.0270	0.0198	0.0262	0.0243
Fabric Filter Inlet, PM_{10} Particulate Concentration, lbs./hr	0.2094	0.5922	0.4987	0.4334
Fabric Filter Outlet, PM_{10} Particulate Concentration, lbs./hr	0.0270	0.0128	0.0148	0.0182
Fabric Filter Inlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.0617	0.0799	0.0729	0.0715
Fabric Filter Outlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.0170	0.0000	0.0103	0.0091
Fabric Filter Inlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.1477	0.5123	0.4258	0.3619
Fabric Filter Outlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.0099	0.0128	0.0046	0.0091
Particulate Size Ratios based on Fabric Filter Inlet Data				
Total / PM_{10} for TEOM Total Calculation	3.32	2.60	2.67	2.86
$PM_{2.5}$ / PM_{10} for TEOM $PM_{2.5}$ Calculation	0.29	0.13	0.15	0.19
$PM_{10-2.5}/PM_{10}$ Ratio for TEOM $PM_{10-2.5}$ Calculation	0.71	0.87	0.85	0.81
Emission Factor Results				
Average Plant Production Levels During Tests, Tons/Hour	6.82	8.88	7.18	7.63
Total Particulate Emission Factor, lbs./ton	0.00431	0.00232	0.00612	0.00425
Total PM_{10} Emission Factor, lbs./ton	0.00401	0.00134	0.00299	0.00278
Total $PM_{10-2.5}$ Emission Factor, lbs./ton	0.00153	0.00130	0.00142	0.00142
Total $PM_{2.5}$ Emission Factor, lbs./ton	0.00249	0.00003	0.00157	0.00136
Collection Efficiencies				
Fabric Filter Total Efficiency	96.1%	98.7%	98.0%	97.6%
Truck Hood PM_{10} Efficiency	99.6%	99.7%	98.7%	99.3%
System Collection Efficiency	86.7%	97.5%	95.7%	93.3%

Table 3-11. S.T. Wooten Central Mix Emissions Data

Test Results	Run # 1 3/2/04	Run # 2 3/2/04	Run # 3 3/2/04	Averages
Method 5 D-Sampling Array Results				
Average Array PM_{10} Particulate Concentration, ug/m^3	80.86	426.70	402.62	303.4
Measured PM_{10} Emissions Thru Array, lbs./hour	0.0261	0.1616	0.0501	0.0792
Calculated Total Emissions Thru Array, lbs./hour	0.1088	0.9414	0.1119	0.3874
Calculated $PM_{2.5}$ Emissions Thru Array, lbs./hour	0.0023	0.0136	0.0029	0.0063
Calculated $PM_{10-2.5}$ Emissions Thru Array, lbs./hour	0.0238	0.1480	0.0471	0.0730
Fabric Filter Results				
Fabric Filter Inlet, Total Particulate Concentration, lbs./hr	13.46	14.82	12.74	13.67
Fabric Filter Outlet, Total Particulate Concentration, lbs./hr	0.047	0.049	0.274	0.123
Fabric Filter Inlet, PM_{10} Particulate Concentration, lbs./hr	3.22	2.54	5.7	3.82
Fabric Filter Outlet, PM_{10} Particulate Concentration, lbs./hr	0.011	0.008	0.122	0.047
Fabric Filter Inlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.28	0.21	0.33	0.28
Fabric Filter Outlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.00098	0.00070	0.0071	0.00294
Fabric Filter Inlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	2.94	2.33	5.36	3.55
Fabric Filter Outlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.0103	0.0076	0.1152	0.0444
Particulate Size Ratios based on Fabric Filter Inlet Data				
Total / PM_{10} for TEOM Total Calculation	4.17	5.83	2.24	4.08
$PM_{2.5}$ / PM_{10} for TEOM $PM_{2.5}$ Calculation	0.09	0.08	0.06	0.08
$PM_{10-2.5}/PM_{10}$ Ratio for TEOM $PM_{10-2.5}$ Calculation	0.91	0.92	0.94	0.92
Emission Factor Results				
Average Plant Production Levels During Tests, Tons/Hour	7.90	13.10	15.27	12.09
Total Particulate Emission Factor, lbs./ton	0.01972	0.07560	0.02526	0.04020
Total PM_{10} Emission Factor, lbs./ton	0.00470	0.01240	0.01127	0.00945
Total $PM_{10-2.5}$ Emission Factor, lbs./ton	0.00428	0.01131	0.01061	0.00873
Total $PM_{2.5}$ Emission Factor, lbs./ton	0.00042	0.00109	0.00065	0.00072
Collection Efficiencies				
Fabric Filter Total Efficiency	99.6%	99.7%	97.9%	99.0%
Truck Hood PM_{10} Efficiency	99.2%	94.0%	99.1%	97.5%
System Collection Efficiency	98.8%	93.3%	97.0%	96.4%

Table 3-12. Chandler Concrete, Troutville Truck Mix Emissions Data

Test Results	Run # 1 12/8/03	Run # 2 12/8/03	Run # 3 12/9/03	Averages
Method 5 D-Sampling Array Results				
Average Array PM_{10} Particulate Concentration, ug/m^3	983.4	495.3	1511.2	996.6
Measured PM_{10} Emissions Thru Array, lbs./hour	0.0786	0.0991	0.0886	0.0887
Calculated Total Emissions Thru Array, lbs./hour	0.1623	0.2099	0.2410	0.2044
Calculated $PM_{2.5}$ Emissions Thru Array, lbs./hour	0.0163	0.0098	0.0108	0.0123
Calculated $PM_{10-2.5}$ Emissions Thru Array, lbs./hour	0.0622	0.0893	0.0777	0.0764
Fabric Filter Results				
Fabric Filter Inlet, Total Particulate Concentration, lbs./hr	2.52	1.80	5.62	3.32
Fabric Filter Outlet, Total Particulate Concentration, lbs./hr	0.065	0.064	0.150	0.093
Fabric Filter Inlet, PM_{10} Particulate Concentration, lbs./hr	1.221	0.851	2.066	1.380
Fabric Filter Outlet, PM_{10} Particulate Concentration, lbs./hr	0.031	0.030	0.055	0.039
Fabric Filter Inlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.254	0.084	0.252	0.197
Fabric Filter Outlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.007	0.003	0.007	0.005
Fabric Filter Inlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.967	0.767	1.814	1.183
Fabric Filter Outlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.025	0.027	0.048	0.033
Particulate Size Ratios based on Fabric Filter Inlet Data				
Total / PM_{10} for TEOM Total Calculation	2.07	2.12	2.72	2.30
$PM_{2.5}$ / PM_{10} for TEOM $PM_{2.5}$ Calculation	0.21	0.10	0.12	0.14
$PM_{10-2.5}/PM_{10}$ Ratio for TEOM $PM_{10-2.5}$ Calculation	0.79	0.90	0.88	0.86
Emission Factor Results				
Average Plant Production Levels During Tests, Tons/Hour	6.19	4.12	7.75	6.02
Total Particulate Emission Factor, lbs./ton	0.03673	0.06647	0.05045	0.05122
Total PM_{10} Emission Factor, lbs./ton	0.01771	0.03133	0.01853	0.02252
Total $PM_{10-2.5}$ Emission Factor, lbs./ton	0.01395	0.02823	0.01623	0.01947
Total $PM_{2.5}$ Emission Factor, lbs./ton	0.00377	0.00311	0.00230	0.00306
Collection Efficiencies				
Fabric Filter Total Efficiency	97.4%	96.5%	97.3%	97%
Truck Hood PM_{10} Efficiency	94.0%	89.6%	95.9%	93.1%
System Collection Efficiency	91.0%	84.8%	93.0%	89.6%

Table 3-13. Concrete Supply, Rock Hill Truck Mix Emissions Data

Test Results	Run # 1 5/12/04	Run # 2 5/12/04	Run # 3 5/13/04	Averages
Method 5 D-Sampling Array Results				
Average Array PM_{10} Particulate Concentration, ug/m^3	351.0	854.6	527.0	577.5
Measured PM_{10} Emissions Thru Array, lbs./hour	0.0170	0.0585	0.0378	0.0378
Calculated Total Emissions Thru Array, lbs./hour	0.0885	0.2154	0.2897	0.1979
Calculated $PM_{2.5}$ Emissions Thru Array, lbs./hour	0.0025	0.0049	0.0026	0.0034
Calculated $PM_{10-2.5}$ Emissions Thru Array, lbs./hour	0.0145	0.0536	0.0351	0.0344
Fabric Filter Results				
Fabric Filter Inlet, Total Particulate Concentration, lbs./hr	15.992	24.505	43.483	27.99
Fabric Filter Outlet, Total Particulate Concentration, lbs./hr	0.070	0.132	0.192	0.131
Fabric Filter Inlet, PM_{10} Particulate Concentration, lbs./hr	3.071	6.654	5.668	5.131
Fabric Filter Outlet, PM_{10} Particulate Concentration, lbs./hr	0.013	0.036	0.025	0.025
Fabric Filter Inlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.456	0.561	0.393	0.470
Fabric Filter Outlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.002	0.003	0.002	0.002
Fabric Filter Inlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	2.615	6.093	5.275	4.6609
Fabric Filter Outlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.011	0.033	0.023	0.023
Particulate Size Ratios based on Fabric Filter Inlet Data				
Total / PM_{10} for TEOM Total Calculation	5.21	3.68	7.67	5.52
$PM_{2.5}$ / PM_{10} for TEOM $PM_{2.5}$ Calculation	0.15	0.08	0.07	0.10
$PM_{10-2.5}/PM_{10}$ Ratio for TEOM $PM_{10-2.5}$ Calculation	0.85	0.92	0.93	0.90
Emission Factor Results				
Average Plant Production Levels During Tests, Tons/Hour	20.24	21.73	13.91	18.63
Total Particulate Emission Factor, lbs./ton	0.00783	0.01599	0.03538	0.01973
Total PM_{10} Emission Factor, lbs./ton	0.00148	0.00435	0.00461	0.00348
Total $PM_{10-2.5}$ Emission Factor, lbs./ton	0.00126	0.00399	0.00427	0.00317
Total $PM_{2.5}$ Emission Factor, lbs./ton	0.00022	0.00036	0.00034	0.00031
Collection Efficiencies				
Fabric Filter Total Efficiency	99.6%	99.5%	99.6%	99.5%
Truck Hood PM_{10} Efficiency	99.4%	99.1%	99.3%	99.3%
System Collection Efficiency	99.0%	98.6%	98.9%	98.8%

Table 3-14. RMC Carolina Materials Central Mix Emissions Data

Test Results	Run # 1 5/19/04	Run # 2 5/19/04	Run # 3 5/20/04	Averages
Method 5 D-Sampling Array Results				
Average Array PM_{10} Particulate Concentration, ug/m^3	309.2	223.7	193.3	242.1
Measured PM_{10} Emissions Thru Array, lbs./hour	0.1013	0.0456	0.0132	0.0534
Calculated Total Emissions Thru Array, lbs./hour	0.3972	0.1761	0.0601	0.2111
Calculated $PM_{2.5}$ Emissions Thru Array, lbs./hour	0.0072	0.0083	0.0013	0.0056
Calculated $PM_{10-2.5}$ Emissions Thru Array, lbs./hour	0.0942	0.0373	0.0119	0.0478
Fabric Filter Results				
Fabric Filter Inlet, Total Particulate Concentration, lbs./hr	7.580	5.823	10.254	7.886
Fabric Filter Outlet, Total Particulate Concentration, lbs./hr	0.0056	0.0064	0.0058	0.0060
Fabric Filter Inlet, PM_{10} Particulate Concentration, lbs./hr	1.934	1.508	2.245	1.896
Fabric Filter Outlet, PM_{10} Particulate Concentration, lbs./hr	0.0014	0.0017	0.0013	0.0015
Fabric Filter Inlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.137	0.274	0.219	0.2098
Fabric Filter Outlet, $PM_{2.5}$ Particulate Concentration, lbs./hr	0.0001	0.0003	0.0001	0.0002
Fabric Filter Inlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	1.797	1.235	2.027	1.6860
Fabric Filter Outlet, $PM_{10-2.5}$ Particulate Concentration, lbs./hr	0.001	0.001	0.001	0.001
Particulate Size Ratios based on Fabric Filter Inlet Data				
Total / PM_{10} for TEOM Total Calculation	3.92	3.86	4.57	4.12
$PM_{2.5}$ / PM_{10} for TEOM $PM_{2.5}$ Calculation	0.07	0.18	0.10	0.12
$PM_{10-2.5}/PM_{10}$ Ratio for TEOM $PM_{10-2.5}$ Calculation	0.93	0.82	0.90	0.88
Emission Factor Results				
Average Plant Production Levels During Tests, Tons/Hour	13.01	8.15	16.82	12.66
Total Particulate Emission Factor, lbs./ton	0.03097	0.02240	0.00392	0.01909
Total PM_{10} Emission Factor, lbs./ton	0.00790	0.00581	0.00086	0.00485
Total $PM_{10-2.5}$ Emission Factor, lbs./ton	0.00733	0.00475	0.00078	0.00429
Total $PM_{2.5}$ Emission Factor, lbs./ton	0.000561	0.0010555	0.0000835	0.00057
Collection Efficiencies				
Fabric Filter Total Efficiency	99.9%	99.9%	99.9%	99.9%
Truck Hood PM_{10} Efficiency	95.0%	97.1%	99.4%	97.2%
System Collection Efficiency	94.7%	96.9%	99.4%	97.0%

The total particulate matter and PM_{10} particulate matter emission factors measured for the three truck mix sources tested are substantially below the values measured during previous EPA tests summarized in AP42 Section 11.12. The hood capture efficiencies observed during the tests at RMCC, Chandler, and Concrete Supply were substantially higher than the values reported by EPA based on qualitative visual observations. Air Control Techniques, P.C. believes that the higher efficiencies for truck mix operations reported in the RMC Research Foundation tests are due primarily to the following.

- Improved fugitive particulate matter measurement techniques now available due to the development and promulgation of the TEOM PM_{10} monitoring technique
- Improved capture systems installed at ready mixed concrete plants
- Improved truck loading operations

The TEOM monitoring system and the sampling array provide for the accurate measurement of fugitive particulate matter emissions from the truck and central mixing loading operations. This method is substantially more accurate than the qualitative visual observations used by EPA personnel during previous tests.

The ready mixed concrete industry has improved the design of hoods used to capture particulate matter during truck and central mixer loading. The extent of hood enclosure around the transfer operation has reduced fugitive dust emissions. Accordingly, some of the data presently presented in AP42 Section 11.12 are out-of-date.

During the tests at RMCC Wake Forest, there were two spills due to improper truck positioning. Material transfer to the improperly positioned trucks caused moderate-to-high PM_{10} spikes in the TEOM monitored sampling array. Air Control Techniques, P.C. believes that these spills are the primary source of fugitive emissions. In a review of the field notes compiled by EPA during the 1993 tests, it is apparent that the plants being tested had a relatively high frequency of spills. This is one possible reason why the capture efficiencies reported by EPA ranged from 71% for truck mix operations to 94% for central mix operations.

4. QUALITY ASSURANCE AND QUALITY CONTROL ACTIVITIES

4.1 QA/QC Procedures for Sample Treatment and Analysis

All of the tests were conducted using QA/QC procedures established by EPA and Air Control Techniques, P.C. for CTM 040. Problems encountered before a test run were identified and corrected prior to sampling.

4.1.1 Leak Checks

Pretest and posttest leak checks were conducted on each sampling train used in all CTM 040 tests. The observed leak rates must be below 0.02 actual cubic feet per minute to be acceptable. Posttest leak checks were completed with the dual cyclone removed. This is a standard CTM 040 procedure to ensure that the particles in the cyclone catch cups are not re-entrained into subsequent stages.

4.1.2 S-Type Pitot Tube Calibration

All S-type Pitot tubes used in this project conformed to EPA guidelines concerning construction and geometry. Pitot tubes were inspected prior to use. If the specified guidelines were met, a Pitot tube coefficient of 0.84 was used. Information pertaining to S-type Pitot tubes is presented in detail in Section 3.1.1 of EPA Publication No. 600/4-77-027b. Only S-type Pitot tubes meeting the required EPA specifications were used in this project.

4.1.3 Sample Nozzle Calibration

Stainless steel nozzles were used for isokinetic sampling. All nozzles were thoroughly cleaned, visually inspected, and calibrated according to the procedure outlined in Section 3.4.2 of EPA Publication No. 600/4-77-027b.

4.1.4 Temperature Monitor Calibration

The thermocouples used in this project were calibrated using the procedures described in Section 3.4.2 of EPA Publication No. 600/4-77-027b. Each temperature sensor was calibrated at a minimum of 3 points over the anticipated range of use against an NIST-traceable mercury in glass thermometer.

4.1.5 Dry Gas Meter Calibration

All dry gas meters were fully calibrated to determine the volume correction factor prior to field use. Post-tests calibration checks were performed as soon as possible after the equipment was returned to the shop. Pre-and post-test calibrations agreed within ±5 percent. The calibration procedure is documented in Section 3.3.2 of EPA Publication No. 600/4-77-237b.

4.1.6 Moisture Scale Calibration

The scales used at the test location to determine flue gas moisture content were calibrated using a standard set of weights.

4.1.7 Particulate Sampling Using CTM 040

Standard operating procedures described in the PCA protocol and CTM 040 were followed. Prior to conducting the test, the sampling trains were tested to confirm proper operation and to

determine the sampling nozzles that were needed to achieve isokinetic sampling conditions. The gas flow velocities at the sampling locations were measured using EPA Method 2. An S-type Pitot tube was used for these velocity measurements. The S-type Pitot tube was visually inspected before each run. Each leg of the Pitot tube was leak checked before and after each run. Proper orientation of the S-type Pitot tube was maintained throughout each measurement. The yaw and the pitch axis of the S-type Pitot tube was maintained 90 degrees to the airflow. Checks for cyclonic flow were completed at each sampling location before the start of the first test run.

4.2 QA/QC Checks for Data Reduction, Validation and Reporting

Daily quality audits were conducted using data quality indicators that require the review of the recording and transfer of raw data, calculations, and documentation of testing procedures. All data and calculations for air flow rates and isokinetic sampling rates were recorded manually and then transferred to a portable computer. The calculations were verified by independent, manual checks.

Any suspect data or outliers were noted and identified with respect to the nature of the problem and potential effect on data quality.

4.2.1 Sample Recovery and Custody

All samples were recovered by Air Control Techniques, P.C. personnel using standard EPA procedures. Sample recovery was performed in the Air Control Techniques, P.C. mobile laboratory. All sampling equipment was sealed to prevent contamination during transport to the laboratory. All chemicals used for sampling train preparation and sample recovery were American Chemical Society ACS, High Performance Liquid Chromatography (HPLC) or pesticide grade.

The list of the samples recovered from each of the reference method tests are summarized below.

<u>CTM 040</u>

- Sample Jar #1, Particulate Matter > 10 micrometers
- Sample Jar #2, Particulate Matter ≤ 10 micrometers and > 2.5 micrometers
- Sample Jar #3, Particulate Matter ≤ 2.5 micrometers
- Sample Jar #4, Filter, Filterable Particulate Matter ≤ 2.5 micrometers
- Acetone blank (1 per acetone lot)
- Silica gel (impinger 4 for moisture determination)

All of the samples were labeled immediately after recovery. The samples were packed in boxes and sealed. A chain of custody record and sample log were maintained during the emissions study. Air Control Techniques, P.C. delivered the sample boxes to the laboratory along with the appropriate chain of custody record forms.

4.2.2 Sample Identification

The test runs were identified using the procedures described in Table 4-1. For example the Wake Forest RMCC plant, the first CTM 040 run for the truck mix at the inlet to the fabric filter was designated as WF-T-IN-Pre4-1.

Table 4-1. Sample Identification

Plant	Mix Type	Test Location	Method	Runs	Run Numbers
Wake Forest	Truck	Fabric Filter Inlet	Pre-4	1,2,3	WF-T-In-Pre4-1,2,3
Wake Forest	Truck	Fabric Filter Outlet	Pre-4	1,2,3	WF-T-Out-Pre4-1,2,3
Wake Forest	Central	Fabric Filter Inlet	Pre-4	1,2,3	WF-C-In-Pre4-1,2,3
Wake Forest	Central	Fabric Filter Outlet	Pre-4	1,2,3	WF-C-Out-Pre4-1,2,3
S.T. Wooten	Central	Fabric Filter Inlet	Pre-4	1,2,3	ST-C-In-Pre4-1,2,3
Troutville	Truck	Fabric Filter Inlet	Pre-4	1,2,3	TV-T-Pre4-1,2,3
Concrete Supply	Truck	Fabric Filter Inlet	Pre-4	1,2,3	CS-T-IN-Pre4-1,2,3
RMC Carolina Materials	Central	Fabric Filter Inlet	Pre-4	1,2,3	RMC-C-IN-Pre4-1,2,3

4.2.3 Quality Assurance Results

Not all of the sample runs met the results acceptability criteria as defined by CTM 040. A summary of the quality assurance results for the CTM 040 tests is presented in Table 4-2.

All of the isokinetic results are consistent with the exception of one test run that was not within the CTM 040 criteria of 80% to 120%. Three of the PM_{10} (cyclone I) D_{50} values are also not consistent with the CTM 040 requirement of D_{50} values equal to or greater than 9.0 micrometers and equal to or less than 11.0 micrometers. Two of the $PM_{2.5}$ (cyclone IV) D_{50} values are not consistent with the CTM 040 requirement of D_{50} values equal to or greater than 2.25 micrometers and equal to or less than 2.75 micrometers. Because all of the D_{50} values in this test program are greater than 10 micrometers, some particles with aerodynamic diameters greater than 10 micrometers were included in the PM_{10} catch. This means that there is a slight bias to larger-than-actual PM_{10} emissions. Because two D_{50} values in this test program were less than 2.25 micrometers, there was a slight bias to smaller than actual $PM_{2.5}$ emissions. Based on the very low catch weights observed during the test run, the impact of these biases was considered to be negligible.

The cut size problems experienced in several test runs were due to the very narrow acceptable sampling rate range for ambient temperature sources shown in Figure 2-2. The average stack temperature for the twenty four test runs was 53.8 degrees Fahrenheit. Because CTM 040 is a constant sampling rate method, there is very little allowance for flow adjustments once sampling has begun; therefore, with such a narrow flow criteria, calculations were based on satisfying the $PM_{2.5}$ cut sizes prior to the PM_{10} and isokinetic criteria. Adjustments of the sampling rate by even 0.01 ACFM (an extremely small value in emission sampling) to allow lower PM_{10} cyclone D_{50} values might have caused out-of-specification $PM_{2.5}$ cyclone D_{50} values.

4.3 TEOM Monitor Calibration

Leak checks were performed according to Rupprecht and Patashnick's (R&P) performance audits in the field prior to sampling and immediately following the final day of sampling. R&P also completed a multi-point calibration of the sample flow rate prior to shipment. This calibration was conducted using an NIST traceable flow rate standard that is accurate to ± 2%. A single point verification of the sample flow rate was conducted by Air Control Techniques, P.C. upon arrival of the monitor and prior to testing.

The temperature and pressure calibration checks are documented in Appendix E of this report and were conducted using calibrated equipment. The temperature checks were conducted with a K-type thermocouple and electronic hand-held readout.

Table 4-2. Quality Assurance Results

Parameter	Cyclonic flow, degrees	Isokinetics, (%)	Cyclone I D_{50}, Micrometers	Cyclone IV D_{50}, Micrometers	Pre-leak check, DSCFM With Cyclone	Post-leak check, DSCFM Without Cyclones	Average Stack Temp, Degrees ºF
Requirement	<20°	80-120	9.0-11.0	2.25-2.75	<0.02	<0.02	N/A
WF-T-In-Pre4-1	1.0	104.0	10.91	2.30	0.000	0.000	38.3
WF-T-In-Pre4-2	1.0	105.0	10.86	2.30	0.008	0.000	40.5
WF-T-In-Pre4-3	1.0	98.4	11.16	2.39	0.001	0.000	33.5
WF-T-Out-Pre4-1	5.3	77.1	11.68	2.58	0.000	0.000	42.0
WF-T-Out-Pre4-2	5.3	86.8	10.73	2.26	0.000	0.000	50.7
WF-T-Out-Pre4-3	5.3	84.0	10.80	2.27	0.000	0.000	34.7
WF-C-In-Pre4-1	2.3	118.4	10.77	2.27	0.007	0.002	46.8
WF-C-In-Pre4-2	2.3	110.8	10.94	2.33	0.002	0.001	46.2
WF-C-In-Pre4-3	2.3	110.2	10.91	2.33	0.000	0.000	54.2
WF-C-Out-Pre4-1	5.3	87.4	10.82	2.28	0.000	0.000	49.0
WF-C-Out-Pre4-2	5.3	105.4	10.96	2.34	0.001	0.000	46.0
WF-C-Out-Pre4-3	5.3	91.2	11.03	2.38	0.002	0.000	54.7
ST-C-Pre4-1	1.0	101.0	10.52	2.21	0.000	0.000	63.8
ST-C-Pre4-2	1.0	100.4	10.66	2.25	0.000	0.000	66.3
ST-C-Pre4-3	1.0	99.2	10.68	2.25	0.000	0.000	66.5
TV-T-Pre4-1	6.8	104.8	10.83	2.30	0.003	0.000	37.7
TV-T-Pre4-2	6.8	105.4	10.90	2.33	0.000	0.004	38.5
TV T-Pre4-3	6.8	104.2	10.84	2.34	0.003	0.000	56.7
CS-T-IN-Pre4-1	2.2	119.6	10.66	2.26	0.000	0.000	67.5
CS-T-IN-Pre4-2	2.2	119.1	10.82	2.32	0.000	0.000	72.2
CS-T-IN-Pre4-3	2.2	119.5	10.75	2.29	0.000	0.000	67.3
RMC-C-IN-Pre4-1	3.3	111.0	10.64	2.24	0.001	0.001	71.2
RMC-C-IN-Pre4-2	3.3	109.6	10.78	2.30	0.000	0.000	75.8
RMC-C-IN-Pre4-3	3.3	109.8	10.64	2.25	0.000	0.000	71.8

The extensive quality assurance protocol built into the TEOM instrument will cause alarms and stop sampling if any parameters are out of specification. These data were scanned for any monitoring problems that could potentially affect the adequacy of the observed PM_{10} concentrations. No problems were detected. Air Control Techniques, P.C. believes that the R&P TEOM monitor performed well throughout the test program.

4.4 Particulate Matter Distribution at Fabric Filter Outlet Duct

The distribution of PM_{10} at the outlet duct of the RMC Carolina Materials Plant in Raleigh was evaluated to confirm that the location of the TEOM provided representative PM_{10} particulate matter concentration data. The outlet of the duct was sampled using a MIE, Inc. Nephelometer with a PM_{10} cyclone separator. The outlet duct was divided into twelve separate traverse points, and the nephelometer probe was positioned at each point for a total of one minute. Six ten-second PM_{10} concentration values were averaged to determine the PM_{10} concentration at the traverse point. A total of three separate nephelometer runs were completed. The results of the nephelometer test runs are summarized in Table 4-3.

Table 4-3. Nephelometer Quality Assurance Test, RMC Carolina Materials, Fabric Filter Outlet Test #3, May 20, 2004

	Nephelometer Test Run			Average
	1	2	3	
Time	9:02-9:12	9:14-9:26	9:40-9:52	NA
TEOM PM_{10}, $\mu g/M^3$	89.5	85.6	89.9	88.3
Nephelometer PM_{10}, $\mu g/M^3$	83.1	84.2	85.8	84.4
Nephelometer PM_{10}, St. Dev. $\mu g/M^3$	6.2	7.6	11.0	8.3
Nephelometer Sampling Points	12	12	12	12

The nephelometer data confirmed that the distribution of PM_{10} across the outlet duct was very uniform.

5.0 TEST PARTICIPANTS AND OBSERVERS

The RMC Research Foundation Project Manager for this testing project is Mr. Edward R. Herbert, III. The Air Control Techniques, P.C. project manager is Mr. John Richards, Ph.D., P.E. Mr. Todd Brozell, P.E. supervised the design of the sampling array and the on-site testing programs. Addresses and phone numbers of these individuals are provided below.

Mr. Edward R. Herbert, III
Director of Environmental Affairs
National Ready Mixed Concrete Association
900 Spring Street
Silver Spring, Maryland 20910
Tel: (240) 485-1154
eherbert@nrmca.org

Mr. John Richards, Ph.D., P.E.
Mr. Todd Brozell, P.E.
Air Control Techniques, P.C.
301 E. Durham Road
Cary, North Carolina, 27513
Tel: (919) 460-7811 Fax: (919) 460-7897
john.richards@aircontroltechniques.com
todd.brozell@aircontroltechniques.com

Dr. John Richards was responsible for project management and coordination with NRMCA. Mr. Todd Brozell, P.E. assisted Dr. Richards in project management and test program coordination. Mr. Danny Speer, Mr. Steve Helms and Mr. Dennis Holzschuh assisted Mr. Brozell on-site.

Element One, Inc performed the particulate sample analyses. The project manager for this laboratory is listed below.

Mr. Bruce Hawks
President
Element One, Inc.
5022-C Wrightsville Av.
Wilmington, North Carolina 28403
Tel: (910) 793-0128 Fax 910-792-6853
E1lab@hotmail.com

Mr. Mike Aldridge representing the North Carolina Department Environmental Health and Natural Resources, and Mr. Larry Spence representing the Ready Mixed Concrete Company observed portions of the testing at RMCC.

APPENDIX A

PM_{10} TEOM DATA

APPENDIX A1

RMCC TRUCK MIX

PM_{10} TEOM DATA

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.		
8-Dec-03	9:01:00	57.9	0.1	1.002	START	Run 1
8-Dec-03	9:01:20	56.6	0.2	1.002		
8-Dec-03	9:01:40	56.8	0.2	1.002		
8-Dec-03	9:02:00	54.8	0.2	1.002		
8-Dec-03	9:02:20	52.2	0.2	1.002		
8-Dec-03	9:02:40	51.4	0.2	1.002		
8-Dec-03	9:03:00	53.5	0.2	1.002		
8-Dec-03	9:03:20	54.1	0.3	1.002		
8-Dec-03	9:03:40	53.6	0.3	1.002		
8-Dec-03	9:04:00	50.1	0.3	1.002		
8-Dec-03	9:04:20	48	0.3	1.002		
8-Dec-03	9:04:40	47.9	0.3	1.002		
8-Dec-03	9:05:00	46.7	0.3	1.002		
8-Dec-03	9:05:20	44.3	0.4	1.002		
8-Dec-03	9:05:40	42.2	0.4	1.002		
8-Dec-03	9:06:00	40.6	0.4	1.002		
8-Dec-03	9:06:20	39.7	0.4	1.002		
8-Dec-03	9:06:40	38.2	0.5	1.002		
8-Dec-03	9:07:00	38.9	0.5	1.002		
8-Dec-03	9:07:20	37.1	0.5	1.002		
8-Dec-03	9:07:40	35.8	0.5	1.002		
8-Dec-03	9:08:00	35.2	0.5	1.002		
8-Dec-03	9:08:20	34.9	0.5	1.002		
8-Dec-03	9:08:40	33.1	0.6	1.002		
8-Dec-03	9:09:00	33.3	0.6	1.002		
8-Dec-03	9:09:20	31.2	0.6	1.002		
8-Dec-03	9:09:40	32.7	0.6	1.002		
8-Dec-03	9:10:00	33	0.6	1.002		
8-Dec-03	9:10:20	33.1	0.6	1.002		
8-Dec-03	9:10:40	29.7	0.6	1.002		
8-Dec-03	9:11:00	28.1	0.6	1.002		
8-Dec-03	9:11:20	29.8	0.6	1.002		
8-Dec-03	9:11:40	29.3	0.6	1.002		
8-Dec-03	9:12:00	29.6	0.6	1.002		
8-Dec-03	9:12:20	29.6	0.6	1.002		
8-Dec-03	9:12:40	29.8	0.6	1.002		
8-Dec-03	9:13:00	33	0.6	1.002		
8-Dec-03	9:13:20	36.7	0.6	1.002		
8-Dec-03	9:13:40	37.5	0.7	1.002		
8-Dec-03	9:14:00	38.6	0.7	1.002		
8-Dec-03	9:14:20	38.5	0.7	1.002		
8-Dec-03	9:14:40	36.7	0.7	1.002		
8-Dec-03	9:15:00	35.5	0.7	1.002		
8-Dec-03	9:15:20	36.5	0.7	1.002		
8-Dec-03	9:15:40	37.1	0.7	1.002		
8-Dec-03	9:16:00	36.6	0.7	1.002		
8-Dec-03	9:16:20	36	0.7	1.002		
8-Dec-03	9:16:40	35.9	0.7	1.002		
8-Dec-03	9:17:00	34.6	0.8	1.002		
8-Dec-03	9:17:20	33.8	0.8	1.002		

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	9:17:40	33.8	0.8	1.002
8-Dec-03	9:18:00	33.1	0.8	1.002
8-Dec-03	9:18:20	34.6	0.8	1.002
8-Dec-03	9:18:40	31.7	0.8	1.002
8-Dec-03	9:19:00	30.5	0.8	1.002
8-Dec-03	9:19:20	30.3	0.8	1.002
8-Dec-03	9:19:40	30.8	0.9	1.002
8-Dec-03	9:20:00	31.5	0.9	1.002
8-Dec-03	9:20:20	31.2	0.9	1.002
8-Dec-03	9:20:40	33.1	0.9	1.002
8-Dec-03	9:21:00	31.4	0.9	1.002
8-Dec-03	9:21:20	30.4	0.9	1.002
8-Dec-03	9:21:40	29.2	0.9	1.002
8-Dec-03	9:22:00	29.7	0.9	1.002
8-Dec-03	9:22:20	26.9	0.9	1.002
8-Dec-03	9:22:40	24.9	1	1.002
8-Dec-03	9:23:00	22.9	1	1.002
8-Dec-03	9:23:20	22.6	1	1.002
8-Dec-03	9:23:40	21.7	1	1.002
8-Dec-03	9:24:00	22	1	1.002
8-Dec-03	9:24:20	23.1	1.1	1.002
8-Dec-03	9:24:40	22.4	1.1	1.002
8-Dec-03	9:25:00	24	1.1	1.002
8-Dec-03	9:25:20	24.9	1.1	1.002
8-Dec-03	9:25:40	22.7	1.2	1.002
8-Dec-03	9:26:00	22	1.2	1.002
8-Dec-03	9:26:20	19.2	1.2	1.002
8-Dec-03	9:26:40	18	1.2	1.002
8-Dec-03	9:27:00	20.1	1.3	1.002
8-Dec-03	9:27:20	22	1.3	1.002
8-Dec-03	9:27:40	23.9	1.3	1.002
8-Dec-03	9:28:00	26	1.3	1.002
8-Dec-03	9:28:20	27.4	1.3	1.002
8-Dec-03	9:28:40	26.8	1.3	1.002
8-Dec-03	9:29:00	25.7	1.4	1.002
8-Dec-03	9:29:20	24.1	1.4	1.002
8-Dec-03	9:29:40	23.4	1.4	1.002
8-Dec-03	9:30:00	22.7	1.4	1.002
8-Dec-03	9:30:20	22.4	1.4	1.002
8-Dec-03	9:30:40	21.3	1.4	1.002
8-Dec-03	9:31:00	19.4	1.4	1.002
8-Dec-03	9:31:20	17.1	1.4	1.002
8-Dec-03	9:31:40	15.4	1.5	1.002
8-Dec-03	9:32:00	15.4	1.5	1.002
8-Dec-03	9:32:20	15.5	1.5	1.002
8-Dec-03	9:32:40	14.5	1.5	1.002
8-Dec-03	9:33:00	14.3	1.5	1.002
8-Dec-03	9:33:20	13.3	1.5	1.002
8-Dec-03	9:33:40	14.8	1.5	1.002
8-Dec-03	9:34:00	16.1	1.5	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	9:34:20	16.5	1.5	1.002
8-Dec-03	9:34:40	17.4	1.5	1.002
8-Dec-03	9:35:00	15.8	1.5	1.002
8-Dec-03	9:35:20	15.3	1.5	1.002
8-Dec-03	9:35:40	16.2	1.6	1.002
8-Dec-03	9:36:00	15.7	1.6	1.002
8-Dec-03	9:36:20	15.7	1.6	1.002
8-Dec-03	9:36:40	15	1.6	1.002
8-Dec-03	9:37:00	15.5	1.6	1.002
8-Dec-03	9:37:20	16.3	1.6	1.002
8-Dec-03	9:37:40	15.4	1.6	1.002
8-Dec-03	9:38:00	14.8	1.6	1.002
8-Dec-03	9:38:20	15.8	1.6	1.002
8-Dec-03	9:38:40	16.6	1.6	1.002
8-Dec-03	9:39:00	18.4	1.6	1.002
8-Dec-03	9:39:20	16.8	1.6	1.002
8-Dec-03	9:39:40	14.2	1.7	1.002
8-Dec-03	9:40:00	15.8	1.7	1.002
8-Dec-03	9:40:20	14.4	1.7	1.002
8-Dec-03	9:40:40	13.5	1.7	1.002
8-Dec-03	9:41:00	15.8	1.7	1.002
8-Dec-03	9:41:20	17.2	1.7	1.002
8-Dec-03	9:41:40	15.3	1.8	1.002
8-Dec-03	9:42:00	14.3	1.8	1.002
8-Dec-03	9:42:20	12.8	1.8	1.002
8-Dec-03	9:42:40	14.1	1.8	1.002
8-Dec-03	9:43:00	16	1.8	1.002
8-Dec-03	9:43:20	16.1	1.8	1.002
8-Dec-03	9:43:40	13.8	1.8	1.002
8-Dec-03	9:44:00	13.4	1.9	1.002
8-Dec-03	9:44:20	12	1.9	1.002
8-Dec-03	9:44:40	12.2	1.9	1.002
8-Dec-03	9:45:00	13.3	1.9	1.002
8-Dec-03	9:45:20	15.4	1.9	1.002
8-Dec-03	9:45:40	14.2	2	1.002
8-Dec-03	9:46:00	15.3	2	1.002
8-Dec-03	9:46:20	15.8	2	1.002
8-Dec-03	9:46:40	16.5	2	1.002
8-Dec-03	9:47:00	14.9	2	1.002
8-Dec-03	9:47:20	13.7	2.1	1.002
8-Dec-03	9:47:40	14.7	2.1	1.002
8-Dec-03	9:48:00	13.9	2.1	1.002
8-Dec-03	9:48:20	14.9	2.1	1.002
8-Dec-03	9:48:40	14.6	2.1	1.002
8-Dec-03	9:49:00	14.1	2.2	1.002
8-Dec-03	9:49:20	12.8	2.2	1.002
8-Dec-03	9:49:40	14	2.2	1.002
8-Dec-03	9:50:00	12.3	2.2	1.002
8-Dec-03	9:50:20	12.2	2.2	1.002
8-Dec-03	9:50:40	10.3	2.2	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	9:51:00	9.9	2.3	1.002
8-Dec-03	9:51:20	8.7	2.3	1.002
8-Dec-03	9:51:40	8.9	2.3	1.002
8-Dec-03	9:52:00	9.9	2.3	1.002
8-Dec-03	9:52:20	11.1	2.3	1.002
8-Dec-03	9:52:40	13.7	2.3	1.002
8-Dec-03	9:53:00	16.4	2.3	1.002
8-Dec-03	9:53:20	16.9	2.4	1.002
8-Dec-03	9:53:40	18.6	2.4	1.002
8-Dec-03	9:54:00	19.2	2.4	1.002
8-Dec-03	9:54:20	17.7	2.4	1.002
8-Dec-03	9:54:40	16.5	2.5	1.002
8-Dec-03	9:55:00	17.9	2.5	1.002
8-Dec-03	9:55:20	17.1	2.5	1.002
8-Dec-03	9:55:40	16.7	2.5	1.002
8-Dec-03	9:56:00	17.2	2.5	1.002
8-Dec-03	9:56:20	16.2	2.6	1.002
8-Dec-03	9:56:40	14.3	2.6	1.002
8-Dec-03	9:57:00	13.9	2.6	1.002
8-Dec-03	9:57:20	12.4	2.7	1.002
8-Dec-03	9:57:40	12.7	2.7	1.002
8-Dec-03	9:58:00	13.7	2.7	1.002
8-Dec-03	9:58:20	15	2.7	1.002
8-Dec-03	9:58:40	15.5	2.7	1.002
8-Dec-03	9:59:00	16.2	2.8	1.002
8-Dec-03	9:59:20	14.9	2.8	1.002
8-Dec-03	9:59:40	12.9	2.8	1.002
8-Dec-03	10:00:00	13.7	2.8	1.002
8-Dec-03	10:00:20	11.8	2.9	1.002
8-Dec-03	10:00:40	11.5	2.9	1.002
8-Dec-03	10:01:00	12	2.9	1.002
8-Dec-03	10:01:20	12.7	2.9	1.002
8-Dec-03	10:01:40	12.1	2.9	1.002
8-Dec-03	10:02:00	11.1	3	1.002
8-Dec-03	10:02:20	10.3	3	1.002
8-Dec-03	10:02:40	10.2	3	1.002
8-Dec-03	10:03:00	11.8	3.1	1.002
8-Dec-03	10:03:20	12.1	3.1	1.002
8-Dec-03	10:03:40	12.8	3.1	1.002
8-Dec-03	10:04:00	10.9	3.2	1.002
8-Dec-03	10:04:20	10.2	3.2	1.002
8-Dec-03	10:04:40	11.3	3.2	1.002
8-Dec-03	10:05:00	10.5	3.3	1.002
8-Dec-03	10:05:20	11.3	3.3	1.002
8-Dec-03	10:05:40	13.4	3.3	1.002
8-Dec-03	10:06:00	11.2	3.4	1.002
8-Dec-03	10:06:20	10.6	3.4	1.002
8-Dec-03	10:06:40	8.6	3.4	1.002
8-Dec-03	10:07:00	10.1	3.5	1.002
8-Dec-03	10:07:20	8.4	3.5	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	10:07:40	6.3	3.6	1.002
8-Dec-03	10:08:00	8.3	3.6	1.002
8-Dec-03	10:08:20	9	3.6	1.002
8-Dec-03	10:08:40	10.7	3.6	1.002
8-Dec-03	10:09:00	13.3	3.7	1.002
8-Dec-03	10:09:20	15	3.7	1.002
8-Dec-03	10:09:40	15.5	3.7	1.002
8-Dec-03	10:10:00	17	3.7	1.002
8-Dec-03	10:10:20	17.7	3.7	1.002
8-Dec-03	10:10:40	20.5	3.8	1.002
8-Dec-03	10:11:00	17.9	3.8	1.002
8-Dec-03	10:11:20	17.9	3.8	1.002
8-Dec-03	10:11:40	16.7	3.8	1.002
8-Dec-03	10:12:00	18.9	3.9	1.002
8-Dec-03	10:12:20	19.5	3.9	1.002
8-Dec-03	10:12:40	19.8	3.9	1.002
8-Dec-03	10:13:00	19.7	3.9	1.002
8-Dec-03	10:13:20	20.4	4	1.002
8-Dec-03	10:13:40	20.4	4	1.002
8-Dec-03	10:14:00	19.9	4	1.002
8-Dec-03	10:14:20	20.6	4	1.002
8-Dec-03	10:14:40	20.2	4	1.002
8-Dec-03	10:15:00	20.3	4	1.002
8-Dec-03	10:15:20	20.6	4	1.002
8-Dec-03	10:15:40	19.8	4	1.002
8-Dec-03	10:16:00	20.6	4.1	1.002
8-Dec-03	10:16:20	19.1	4.1	1.002
8-Dec-03	10:16:40	18.4	4.1	1.002
8-Dec-03	10:17:00	17.6	4.2	1.002
8-Dec-03	10:17:20	20.8	4.2	1.002
8-Dec-03	10:17:40	22.6	4.2	1.002
8-Dec-03	10:18:00	25.2	4.2	1.002
8-Dec-03	10:18:20	26.3	4.2	1.002
8-Dec-03	10:18:40	29.1	4.2	1.002
8-Dec-03	10:19:00	31.8	4.2	1.002
8-Dec-03	10:19:20	33.1	4.2	1.002
8-Dec-03	10:19:40	34.7	4.3	1.002
8-Dec-03	10:20:00	35.4	4.3	1.002
8-Dec-03	10:20:20	33.8	4.3	1.002
8-Dec-03	10:20:40	33.6	4.3	1.002
8-Dec-03	10:21:00	32.9	4.3	1.002
8-Dec-03	10:21:20	31.7	4.3	1.002
8-Dec-03	10:21:40	31.8	4.3	1.002
8-Dec-03	10:22:00	30.8	4.4	1.002
8-Dec-03	10:22:20	32.1	4.4	1.002
8-Dec-03	10:22:40	30.8	4.4	1.002
8-Dec-03	10:23:00	28.3	4.4	1.002
8-Dec-03	10:23:20	27.1	4.4	1.002
8-Dec-03	10:23:40	25.6	4.5	1.002
8-Dec-03	10:24:00	26	4.5	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	10:24:20	27.1	4.5	1.002
8-Dec-03	10:24:40	30.1	4.5	1.002
8-Dec-03	10:25:00	29.1	4.6	1.002
8-Dec-03	10:25:20	27.3	4.6	1.002
8-Dec-03	10:25:40	28	4.6	1.002
8-Dec-03	10:26:00	26.6	4.7	1.002
8-Dec-03	10:26:20	24.9	4.7	1.002
8-Dec-03	10:26:40	25.6	4.8	1.002
8-Dec-03	10:27:00	26.4	4.8	1.002
8-Dec-03	10:27:20	25.8	4.9	1.002
8-Dec-03	10:27:40	23.5	4.9	1.002
8-Dec-03	10:28:00	22.7	5	1.002
8-Dec-03	10:28:20	20.7	5	1.002
8-Dec-03	10:28:40	21.6	5.1	1.002
8-Dec-03	10:29:00	21.9	5.1	1.002
8-Dec-03	10:29:20	21.5	5.2	1.002
8-Dec-03	10:29:40	22.8	5.2	1.002
8-Dec-03	10:30:00	25.9	5.2	1.002
8-Dec-03	10:30:20	26.4	5.3	1.002
8-Dec-03	10:30:40	27.4	5.3	1.002
8-Dec-03	10:31:00	27.6	5.3	1.002
8-Dec-03	10:31:20	26	5.4	1.002
8-Dec-03	10:31:40	24.9	5.4	1.002
8-Dec-03	10:32:00	25.3	5.4	1.002
8-Dec-03	10:32:20	24	5.5	1.002
8-Dec-03	10:32:40	23.6	5.5	1.002
8-Dec-03	10:33:00	24.5	5.6	1.002
8-Dec-03	10:33:20	23.2	5.6	1.002
8-Dec-03	10:33:40	23.9	5.6	1.002
8-Dec-03	10:34:00	24.1	5.7	1.002
8-Dec-03	10:34:20	22	5.7	1.002
8-Dec-03	10:34:40	20	5.7	1.002
8-Dec-03	10:35:00	23.9	5.7	1.002
8-Dec-03	10:35:20	30.3	5.8	1.002
8-Dec-03	10:35:40	36.7	5.8	1.002
8-Dec-03	10:36:00	42.2	5.9	1.002
8-Dec-03	10:36:20	47.1	5.9	1.002
8-Dec-03	10:36:40	52.2	5.9	1.002
8-Dec-03	10:37:00	63.1	6	1.002
8-Dec-03	10:37:20	76.2	6	1.002
8-Dec-03	10:37:40	84.5	6.1	1.002
8-Dec-03	10:38:00	91.8	6.1	1.002
8-Dec-03	10:38:20	96.2	6.2	1.002
8-Dec-03	10:38:40	100.6	6.2	1.002
8-Dec-03	10:39:00	105.5	6.3	1.002
8-Dec-03	10:39:20	108.2	6.3	1.002
8-Dec-03	10:39:40	110.8	6.4	1.002
8-Dec-03	10:40:00	113.8	6.4	1.002
8-Dec-03	10:40:20	117.7	6.4	1.002
8-Dec-03	10:40:40	121.5	6.5	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	10:41:00	121.9	6.5	1.002
8-Dec-03	10:41:20	122.3	6.6	1.002
8-Dec-03	10:41:40	121.2	6.6	1.002
8-Dec-03	10:42:00	121.1	6.6	1.002
8-Dec-03	10:42:20	118.6	6.6	1.002
8-Dec-03	10:42:40	116.6	6.7	1.002
8-Dec-03	10:43:00	115.3	6.7	1.002
8-Dec-03	10:43:20	113.7	6.8	1.002
8-Dec-03	10:43:40	111.7	6.8	1.002
8-Dec-03	10:44:00	108.2	6.9	1.002
8-Dec-03	10:44:20	104.9	6.9	1.002
8-Dec-03	10:44:40	102.2	7	1.002
8-Dec-03	10:45:00	98.4	7	1.002
8-Dec-03	10:45:20	94.4	7	1.002
8-Dec-03	10:45:40	90.9	7	1.002
8-Dec-03	10:46:00	89.1	7.1	1.002
8-Dec-03	10:46:20	86.4	7.1	1.002
8-Dec-03	10:46:40	82.7	7.1	1.002
8-Dec-03	10:47:00	78.8	7.1	1.002
8-Dec-03	10:47:20	77.7	7.2	1.002
8-Dec-03	10:47:40	75.5	7.2	1.002
8-Dec-03	10:48:00	70.3	7.2	1.002
8-Dec-03	10:48:20	67.7	7.2	1.002
8-Dec-03	10:48:40	66.3	7.3	1.002
8-Dec-03	10:49:00	64.7	7.4	1.002
8-Dec-03	10:49:20	61.3	7.4	1.002
8-Dec-03	10:49:40	58.3	7.4	1.002
8-Dec-03	10:50:00	54.9	7.5	1.002
8-Dec-03	10:50:20	53.4	7.5	1.002
8-Dec-03	10:50:40	50.9	7.6	1.002
8-Dec-03	10:51:00	49.6	7.6	1.002
8-Dec-03	10:51:20	48.6	7.7	1.002
8-Dec-03	10:51:40	47.9	7.7	1.002
8-Dec-03	10:52:00	45.2	7.7	1.002
8-Dec-03	10:52:20	43.1	7.7	1.002
8-Dec-03	10:52:40	41.9	7.6	1.002
8-Dec-03	10:53:00	40.5	7.6	1.002
8-Dec-03	10:53:20	39.9	7.7	1.002
8-Dec-03	10:53:40	38.6	7.7	1.002
8-Dec-03	10:54:00	39.4	7.7	1.002
8-Dec-03	10:54:20	40.7	7.8	1.002
8-Dec-03	10:54:40	41.3	7.8	1.002
8-Dec-03	10:55:00	40.3	7.9	1.002
8-Dec-03	10:55:20	41	7.9	1.002
8-Dec-03	10:55:40	41	7.9	1.002
8-Dec-03	10:56:00	39.8	8	1.002
8-Dec-03	10:56:20	39.1	8	1.002
8-Dec-03	10:56:40	38.9	8.1	1.002
8-Dec-03	10:57:00	36.9	8.1	1.002
8-Dec-03	10:57:20	35.4	8.1	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
8-Dec-03	10:57:40	33	8.2	1.002	
8-Dec-03	10:58:00	32.5	8.2	1.002	
8-Dec-03	10:58:20	31.2	8.3	1.002	
8-Dec-03	10:58:40	30.4	8.3	1.002	
8-Dec-03	10:59:00	30.1	8.4	1.002	
8-Dec-03	10:59:20	32.9	8.4	1.002	
8-Dec-03	10:59:40	34.6	8.4	1.002	
8-Dec-03	11:00:00	36.8	8.4	1.002	
8-Dec-03	11:00:20	38.2	8.5	1.002	
8-Dec-03	11:00:40	40.4	8.5	1.002	
8-Dec-03	11:01:00	44.3	8.5	1.002	
8-Dec-03	11:01:20	49.3	8.5	1.002	
8-Dec-03	11:01:40	51.8	8.6	1.002	
8-Dec-03	11:02:00	54	8.6	1.002	
8-Dec-03	11:02:20	56.1	8.6	1.002	
8-Dec-03	11:02:40	57.7	8.6	1.002	
8-Dec-03	11:03:00	57.5	8.6	1.002	
8-Dec-03	11:03:20	58.9	8.6	1.002	
8-Dec-03	11:03:40	60.6	8.6	1.002	
8-Dec-03	11:04:00	61.5	8.5	1.002	
8-Dec-03	11:04:20	61.7	8.5	1.002	
8-Dec-03	11:04:40	60.3	8.5	1.002	
8-Dec-03	11:05:00	59	8.5	1.002	
8-Dec-03	11:05:20	57.3	8.4	1.002	
8-Dec-03	11:05:40	56.5	8.4	1.002	
8-Dec-03	11:06:00	55.8	8.4	1.002	
8-Dec-03	11:06:20	53.9	8.4	1.002	
8-Dec-03	11:06:40	53.2	8.4	1.002	
8-Dec-03	11:07:00	52.9	8.5	1.002	
8-Dec-03	11:07:20	56.4	8.4	1.002	
8-Dec-03	11:07:40	65.1	8.4	1.002	
8-Dec-03	11:08:00	75.5	8.4	1.002	
8-Dec-03	11:08:20	82.8	8.4	1.002	
8-Dec-03	11:08:40	90.4	8.4	1.002	
8-Dec-03	11:09:00	95.2	8.4	1.002	
8-Dec-03	11:09:20	98.6	8.5	1.002	
8-Dec-03	11:09:40	99.5	8.4	1.002	
8-Dec-03	11:10:00	99.2	8.4	1.002	
8-Dec-03	11:10:20	100.3	8.4	1.002	
8-Dec-03	11:10:40	100.6	8.4	1.002	
8-Dec-03	11:11:00	101.4	8.4	1.002	
8-Dec-03	11:11:20	99.1	8.4	1.002	
8-Dec-03	11:11:40	96.9	8.4	1.002	
8-Dec-03	11:12:00	94.8	8.4	1.002	Stop Run1
		36.0			Average
8-Dec-03	12:14:00	22.2	9.4	1.001	Start Run 2
8-Dec-03	12:14:20	23.4	9.4	1.001	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	12:14:40	23.7	9.3	1.001
8-Dec-03	12:15:00	25.3	9.3	1.001
8-Dec-03	12:15:20	26	9.3	1.001
8-Dec-03	12:15:40	27.4	9.3	1.001
8-Dec-03	12:16:00	27.2	9.4	1.001
8-Dec-03	12:16:20	26.5	9.4	1.001
8-Dec-03	12:16:40	27.1	9.3	1.001
8-Dec-03	12:17:00	39.2	9.3	1.001
8-Dec-03	12:17:20	66.1	9.3	1.001
8-Dec-03	12:17:40	110.1	9.3	1.001
8-Dec-03	12:18:00	174.5	9.3	1.001
8-Dec-03	12:18:20	263.8	9.3	1.001
8-Dec-03	12:18:40	382.3	9.3	1.001
8-Dec-03	12:19:00	493.6	9.3	1.001
8-Dec-03	12:19:20	582.2	9.4	1.001
8-Dec-03	12:19:40	650.7	9.4	1.001
8-Dec-03	12:20:00	704.1	9.4	1.001
8-Dec-03	12:20:20	751.4	9.4	1.001
8-Dec-03	12:20:40	792.1	9.4	1.001
8-Dec-03	12:21:00	821.3	9.3	1.001
8-Dec-03	12:21:20	840.5	9.3	1.001
8-Dec-03	12:21:40	848.5	9.4	1.001
8-Dec-03	12:22:00	848.9	9.4	1.001
8-Dec-03	12:22:20	842.9	9.4	1.001
8-Dec-03	12:22:40	833 5	9.4	1.001
8-Dec-03	12:23:00	818.1	9.5	1.001
8-Dec-03	12:23:20	800.6	9.5	1.001
8-Dec-03	12:23:40	779.4	9.5	1.001
8-Dec-03	12:24:00	758.1	9.5	1.001
8-Dec-03	12:24:20	733.7	9.5	1.001
8-Dec-03	12:24:40	708.1	9.6	1.001
8-Dec-03	12:25:00	682.4	9.6	1.001
8-Dec-03	12:25:20	656.9	9.6	1.001
8-Dec-03	12:25:40	630.5	9.6	1.001
8-Dec-03	12:26:00	605	9.6	1.001
8-Dec-03	12:26:20	579.2	9.5	1.001
8-Dec-03	12:26:40	554.3	9.5	1.001
8-Dec-03	12:27:00	527.9	9.5	1.001
8-Dec-03	12:27:20	501.8	9.5	1.001
8-Dec-03	12:27:40	478.5	9.5	1.001
8-Dec-03	12:28:00	456.5	9.5	1.001
8-Dec-03	12:28:20	434.6	9.5	1.001
8-Dec-03	12:28:40	413.9	9.5	1.001
8-Dec-03	12:29:00	395.5	9.5	1.001
8-Dec-03	12:29:20	384.5	9.5	1.001
8-Dec-03	12:29:40	372	9.4	1
8-Dec-03	12:30:00	357.7	9.4	1
8-Dec-03	12:30:20	344.4	9.5	1
8-Dec-03	12:30:40	334	9.4	1
8-Dec-03	12:31:00	321.9	9.4	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	12:31:20	311.7	9.4	1
8-Dec-03	12:31:40	299.5	9.4	1
8-Dec-03	12:32:00	286.6	9.4	1
8-Dec-03	12:32:20	274.5	9.4	1
8-Dec-03	12:32:40	264.7	9.4	1
8-Dec-03	12:33:00	256.3	9.4	1
8-Dec-03	12:33:20	245.6	9.4	1
8-Dec-03	12:33:40	236.4	9.4	1
8-Dec-03	12:34:00	231.9	9.3	1
8-Dec-03	12:34:20	235.3	9.3	1
8-Dec-03	12:34:40	238.1	9.3	1
8-Dec-03	12:35:00	239	9.2	1
8-Dec-03	12:35:20	235.8	9.2	1
8-Dec-03	12:35:40	235.4	9.2	1
8-Dec-03	12:36:00	231.7	9.3	1
8-Dec-03	12:36:20	226.2	9.2	1
8-Dec-03	12:36:40	221.8	9.2	1
8-Dec-03	12:37:00	216	9.2	1
8-Dec-03	12:37:20	210.7	9.2	1
8-Dec-03	12:37:40	205	9.3	1
8-Dec-03	12:38:00	199.6	9.3	1
8-Dec-03	12:38:20	192.7	9.3	1
8-Dec-03	12:38:40	185.1	9.2	1
8-Dec-03	12:39:00	176.7	9.2	1
8-Dec-03	12:39:20	169.1	9.2	1
8-Dec-03	12:39:40	162.7	9.2	1
8-Dec-03	12:40:00	155	9.1	1
8-Dec-03	12:40:20	147.5	9.1	1
8-Dec-03	12:40:40	141	9.1	1
8-Dec-03	12:41:00	133	9.1	1
8-Dec-03	12:41:20	127.5	9.1	1
8-Dec-03	12:41:40	122.3	9.1	1
8-Dec-03	12:42:00	117.7	9.1	1
8-Dec-03	12:42:20	111.6	9.1	1
8-Dec-03	12:42:40	106.8	9.1	1
8-Dec-03	12:43:00	101.2	9.1	1
8-Dec-03	12:43:20	98.5	9.1	1
8-Dec-03	12:43:40	94	9.1	1
8-Dec-03	12:44:00	90.6	9.1	1
8-Dec-03	12:44:20	87.4	9.1	1
8-Dec-03	12:44:40	84.6	9.1	1
8-Dec-03	12:45:00	82.5	9.1	1
8-Dec-03	12:45:20	79.1	9.2	1
8-Dec-03	12:45:40	82.1	9.1	1
8-Dec-03	12:46:00	97.1	9.1	1
8-Dec-03	12:46:20	119.5	9.1	1
8-Dec-03	12:46:40	138.4	9.1	1
8-Dec-03	12:47:00	154	9.1	1
8-Dec-03	12:47:20	163.6	9.1	1
8-Dec-03	12:47:40	172	9.1	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	12:48:00	179.4	9	1
8-Dec-03	12:48:20	182.6	8.9	1
8-Dec-03	12:48:40	185	8.9	1
8-Dec-03	12:49:00	186.7	8.9	1
8-Dec-03	12:49:20	188.6	8.9	1
8-Dec-03	12:49:40	185.8	9	1
8-Dec-03	12:50:00	184.6	8.9	1
8-Dec-03	12:50:20	183.6	9	1
8-Dec-03	12:50:40	182.8	8.9	1
8-Dec-03	12:51:00	181.4	9	1
8-Dec-03	12:51:20	177.9	9	1
8-Dec-03	12:51:40	173.9	9	1
8-Dec-03	12:52:00	172.9	9	1
8-Dec-03	12:52:20	170.4	9	1
8-Dec-03	12:52:40	169.3	9	1
8-Dec-03	12:53:00	165.7	9	1
8-Dec-03	12:53:20	162.9	9	1
8-Dec-03	12:53:40	159.1	9	1
8-Dec-03	12:54:00	155.4	9	1
8-Dec-03	12:54:20	151.7	9	1
8-Dec-03	12:54:40	146	9	1
8-Dec-03	12:55:00	139.4	9	1
8-Dec-03	12:55:20	135	9	1
8-Dec-03	12:55:40	130.1	9	1
8-Dec-03	12:56:00	127	9	1
8-Dec-03	12:56:20	119.8	9	1
8-Dec-03	12:56:40	114.6	9	1
8-Dec-03	12:57:00	111.1	9	1
8-Dec-03	12:57:20	105.9	9	1
8-Dec-03	12:57:40	102.4	9	1
8-Dec-03	12:58:00	98.1	9	1
8-Dec-03	12:58:20	93.5	9	1
8-Dec-03	12:58:40	90.5	9	1
8-Dec-03	12:59:00	86.8	9	1
8-Dec-03	12:59:20	81.2	9	1
8-Dec-03	12:59:40	79.2	9	1
8-Dec-03	13:00:00	81.1	9.1	1
8-Dec-03	13:00:20	82.2	9	1
8-Dec-03	13:00:40	84.7	9	1
8-Dec-03	13:01:00	86.2	9	1
8-Dec-03	13:01:20	85.3	9	1
8-Dec-03	13:01:40	84.6	9	1
8-Dec-03	13:02:00	83.5	9	1
8-Dec-03	13:02:20	82.4	9	1
8-Dec-03	13:02:40	82.4	9.1	1
8-Dec-03	13:03:00	81.1	9.1	1
8-Dec-03	13:03:20	80.3	9.1	1
8-Dec-03	13:03:40	79.8	9.1	1
8-Dec-03	13:04:00	77.6	9.1	1
8-Dec-03	13:04:20	75.5	9.1	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	13:04:40	73.2	9.1	1
8-Dec-03	13:05:00	68.7	9.1	1
8-Dec-03	13:05:20	65.2	9.1	1
8-Dec-03	13:05:40	62.7	9.2	1
8-Dec-03	13:06:00	61.2	9.2	1
8-Dec-03	13:06:20	60.8	9.2	1
8-Dec-03	13:06:40	58.2	9.2	1
8-Dec-03	13:07:00	54.3	9.2	1
8-Dec-03	13:07:20	50.7	9.2	1
8-Dec-03	13:07:40	48.9	9.3	1
8-Dec-03	13:08:00	47.8	9.3	1
8-Dec-03	13:08:20	45.1	9.3	1
8-Dec-03	13:08:40	43.9	9.3	1
8-Dec-03	13:09:00	41.5	9.3	1
8-Dec-03	13:09:20	38.9	9.3	1
8-Dec-03	13:09:40	39.1	9.3	1
8-Dec-03	13:10:00	38.7	9.3	1
8-Dec-03	13:10:20	36.1	9.4	1
8-Dec-03	13:10:40	35.3	9.4	1
8-Dec-03	13:11:00	36.1	9.4	1
8-Dec-03	13:11:20	35.1	9.4	1
8-Dec-03	13:11:40	34.5	9.4	1
8-Dec-03	13:12:00	32.8	9.4	1
8-Dec-03	13:12:20	32.3	9.4	1
8-Dec-03	13:12:40	32.2	9.4	1
8-Dec-03	13:13:00	32.1	9.4	1
8-Dec-03	13:13:20	31.4	9.4	1
8-Dec-03	13:13:40	29.4	9.4	1
8-Dec-03	13:14:00	30.3	9.4	1
8-Dec-03	13:14:20	30.9	9.4	1
8-Dec-03	13:14:40	29.6	9.4	1
8-Dec-03	13:15:00	28.8	9.4	1
8-Dec-03	13:15:20	28.4	9.4	1
8-Dec-03	13:15:40	28.4	9.4	1
8-Dec-03	13:16:00	27.5	9.5	1
8-Dec-03	13:16:20	28.1	9.5	1
8-Dec-03	13:16:40	26.4	9.5	1
8-Dec-03	13:17:00	25.8	9.5	1
8-Dec-03	13:17:20	24.3	9.5	1
8-Dec-03	13:17:40	24.7	9.5	1
8-Dec-03	13:18:00	23.9	9.5	1
8-Dec-03	13:18:20	23.5	9.5	1
8-Dec-03	13:18:40	24.2	9.4	1
8-Dec-03	13:19:00	24.8	9.4	1
8-Dec-03	13:19:20	23.2	9.4	1
8-Dec-03	13:19:40	22.5	9.3	1
8-Dec-03	13:20:00	22.2	9.3	1
8-Dec-03	13:20:20	21.9	9.3	1
8-Dec-03	13:20:40	23.6	9.3	1
8-Dec-03	13:21:00	24.8	9.2	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	13:21:20	25.4	9.2	1
8-Dec-03	13:21:40	26.1	9.2	1
8-Dec-03	13:22:00	26.9	9.2	1
8-Dec-03	13:22:20	28	9.2	1
8-Dec-03	13:22:40	28.9	9.2	1
8-Dec-03	13:23:00	28.5	9.2	1
8-Dec-03	13:23:20	28.9	9.2	1
8-Dec-03	13:23:40	28.2	9.2	1
8-Dec-03	13:24:00	27.7	9.2	1
8-Dec-03	13:24:20	27.6	9.2	1
8-Dec-03	13:24:40	27.6	9.2	1
8-Dec-03	13:25:00	26.6	9.2	1
8-Dec-03	13:25:20	26.4	9.2	1
8-Dec-03	13:25:40	23.8	9.3	1
8-Dec-03	13:26:00	23.6	9.2	1
8-Dec-03	13:26:20	22.9	9.3	1
8-Dec-03	13:26:40	23.3	9.2	1
8-Dec-03	13:27:00	24	9.2	1
8-Dec-03	13:27:20	23.7	9.3	1
8-Dec-03	13:27:40	22.5	9.3	1
8-Dec-03	13:28:00	22.8	9.3	0.999
8-Dec-03	13:28:20	22.6	9.3	1
8-Dec-03	13:28:40	21.7	9.3	1
8-Dec-03	13:29:00	20.7	9.3	1
8-Dec-03	13:29:20	20.2	9.3	1
8-Dec-03	13:29:40	19.7	9.3	1
8-Dec-03	13:30:00	21.2	9.3	1
8-Dec-03	13:30:20	21.5	9.3	1
8-Dec-03	13:30:40	22.3	9.3	1
8-Dec-03	13:31:00	21.9	9.3	1
8-Dec-03	13:31:20	22.3	9.3	1
8-Dec-03	13:31:40	21.7	9.3	1
8-Dec-03	13:32:00	20.3	9.3	1
8-Dec-03	13:32:20	20.6	9.3	1
8-Dec-03	13:32:40	21.2	9.4	1
8-Dec-03	13:33:00	21.4	9.4	1
8-Dec-03	13:33:20	21.2	9.4	1
8-Dec-03	13:33:40	21.2	9.4	0.999
8-Dec-03	13:34:00	20.8	9.4	0.999
8-Dec-03	13:34:20	21	9.4	0.999
8-Dec-03	13:34:40	20.9	9.4	0.999
8-Dec-03	13:35:00	20.3	9.3	0.999
8-Dec-03	13:35:20	21.2	9.3	0.999
8-Dec-03	13:35:40	20	9.3	0.999
8-Dec-03	13:36:00	19	9.3	0.999
8-Dec-03	13:36:20	19.2	9.3	0.999
8-Dec-03	13:36:40	18.5	9.3	0.999
8-Dec-03	13:37:00	17.9	9.3	0.999
8-Dec-03	13:37:20	17.5	9.3	0.999
8-Dec-03	13:37:40	16	9.3	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	13:38:00	15.3	9.3	0.999
8-Dec-03	13:38:20	15.5	9.3	0.999
8-Dec-03	13:38:40	16.2	9.3	0.999
8-Dec-03	13:39:00	15.1	9.3	0.999
8-Dec-03	13:39:20	15.7	9.3	0.999
8-Dec-03	13:39:40	15.5	9.3	0.999
8-Dec-03	13:40:00	17.4	9.3	0.999
8-Dec-03	13:40:20	19	9.3	0.999
8-Dec-03	13:40:40	17.9	9.3	0.999
8-Dec-03	13:41:00	16.2	9.4	0.999
8-Dec-03	13:41:20	16.1	9.4	0.999
8-Dec-03	13:41:40	15.1	9.4	0.999
8-Dec-03	13:42:00	16.2	9.4	0.999
8-Dec-03	13:42:20	16.6	9.4	0.999
8-Dec-03	13:42:40	17.2	9.4	0.999
8-Dec-03	13:43:00	16.1	9.4	0.999
8-Dec-03	13:43:20	16.8	9.4	0.999
8-Dec-03	13:43:40	16.7	9.4	0.999
8-Dec-03	13:44:00	16.7	9.4	0.999
8-Dec-03	13:44:20	18.2	9.4	0.999
8-Dec-03	13:44:40	17.6	9.4	0.999
8-Dec-03	13:45:00	18.7	9.4	0.999
8-Dec-03	13:45:20	19.6	9.4	0.999
8-Dec-03	13:45:40	23.4	9.4	0.999
8-Dec-03	13:46:00	30.3	9.4	0.999
8-Dec-03	13:46:20	37.3	9.4	0.999
8-Dec-03	13:46:40	43.4	9.5	0.999
8-Dec-03	13:47:00	48.1	9.5	0.999
8-Dec-03	13:47:20	51.7	9.5	0.999
8-Dec-03	13:47:40	54.8	9.5	0.999
8-Dec-03	13:48:00	57.5	9.5	0.999
8-Dec-03	13:48:20	58.3	9.6	0.999
8-Dec-03	13:48:40	60.9	9.5	0.999
8-Dec-03	13:49:00	61.7	9.5	0.999
8-Dec-03	13:49:20	61.2	9.5	0.999
8-Dec-03	13:49:40	61.8	9.5	0.999
8-Dec-03	13:50:00	61.1	9.5	0.999
8-Dec-03	13:50:20	59.7	9.5	0.999
8-Dec-03	13:50:40	58.7	9.5	0.999
8-Dec-03	13:51:00	57.7	9.6	0.999
8-Dec-03	13:51:20	56.2	9.6	0.999
8-Dec-03	13:51:40	54.7	9.6	0.999
8-Dec-03	13:52:00	53.2	9.6	0.999
8-Dec-03	13:52:20	52.7	9.6	0.999
8-Dec-03	13:52:40	53.2	9.6	0.999
8-Dec-03	13:53:00	52.5	9.6	0.999
8-Dec-03	13:53:20	51.1	9.7	0.999
8-Dec-03	13:53:40	48.8	9.7	0.999
8-Dec-03	13:54:00	47.6	9.7	0.999
8-Dec-03	13:54:20	46.9	9.7	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
8-Dec-03	13:54:40	45.8	9.7	0.999
8-Dec-03	13:55:00	46.2	9.7	0.999
8-Dec-03	13:55:20	45.8	9.7	0.999
8-Dec-03	13:55:40	44.5	9.6	0.999
8-Dec-03	13:56:00	42.8	9.6	0.999
8-Dec-03	13:56:20	42.6	9.6	0.999
8-Dec-03	13:56:40	43.7	9.7	0.999
8-Dec-03	13:57:00	43.4	9.7	0.999
8-Dec-03	13:57:20	42.6	9.7	0.999
8-Dec-03	13:57:40	40.8	9.7	0.999
8-Dec-03	13:58:00	42.6	9.7	0.999
8-Dec-03	13:58:20	46.3	9.8	0.999
8-Dec-03	13:58:40	50.5	9.8	0.999
8-Dec-03	13:59:00	54.8	9.7	0.999
8-Dec-03	13:59:20	56.9	9.8	0.999
8-Dec-03	13:59:40	59.2	9.8	0.999
8-Dec-03	14:00:00	59.6	9.8	0.999
8-Dec-03	14:00:20	60.7	9.8	0.999
8-Dec-03	14:00:40	61.5	9.8	0.999
8-Dec-03	14:01:00	62.3	9.8	0.999
8-Dec-03	14:01:20	60.4	9.8	0.999
8-Dec-03	14:01:40	59.6	9.8	0.999
8-Dec-03	14:02:00	58.5	9.8	0.999
8-Dec-03	14:02:20	57.6	9.8	0.999
8-Dec-03	14:02:40	55.6	9.8	0.999
8-Dec-03	14:03:00	54.8	9.8	0.999
8-Dec-03	14:03:20	54.1	9.8	0.999
8-Dec-03	14:03:40	53.3	9.8	0.999
8-Dec-03	14:04:00	54.6	9.8	0.999
8-Dec-03	14:04:20	54.1	9.8	0.999
8-Dec-03	14:04:40	54.7	9.8	0.999
8-Dec-03	14:05:00	53.5	9.8	0.999
8-Dec-03	14:05:20	54.7	9.8	0.999
8-Dec-03	14:05:40	56	9.8	0.999
8-Dec-03	14:06:00	56.2	9.8	0.999
8-Dec-03	14:06:20	56.2	9.9	0.999
8-Dec-03	14:06:40	55.9	9.9	0.999
8-Dec-03	14:07:00	54.9	9.9	0.999
8-Dec-03	14:07:20	55	9.9	0.999
8-Dec-03	14:07:40	55.6	9.9	0.999
8-Dec-03	14:08:00	56.5	9.8	0.999
8-Dec-03	14:08:20	57.8	9.8	0.999
8-Dec-03	14:08:40	58.5	9.9	0.999
8-Dec-03	14:09:00	58.4	9.8	0.999
8-Dec-03	14:09:20	58	9.9	0.999
8-Dec-03	14:09:40	57.4	9.8	0.999
8-Dec-03	14:10:00	57.9	9.9	0.999
8-Dec-03	14:10:20	58.4	9.9	0.999
8-Dec-03	14:10:40	59.3	9.9	0.999
8-Dec-03	14:11:00	60.4	9.9	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
8-Dec-03	14:11:20	61	9.9	0.999	
8-Dec-03	14:11:40	60.8	9.9	0.999	
8-Dec-03	14:12:00	60.9	9.9	0.999	
8-Dec-03	14:12:20	60.5	9.9	0.999	
8-Dec-03	14:12:40	60.5	9.9	0.999	
8-Dec-03	14:13:00	59.9	9.9	0.999	
8-Dec-03	14:13:20	58.5	9.9	0.999	
8-Dec-03	14:13:40	57.7	9.9	0.999	
8-Dec-03	14:14:00	57.1	9.8	0.999	Stop Run 2
		130.5			Average
		78.4			After 1230

Date	Time	Mass Conc	Amb Temp	Amb Pres	
9-Dec-03	7:53:00	0	-1.6	1.002	Start Run #3
9-Dec-03	7:53:20	0	-1.6	1.002	
9-Dec-03	7:53:40	0	-1.6	1.002	
9-Dec-03	7:54:00	0	-1.6	1.002	
9-Dec-03	7:54:20	0	-1.6	1.002	
9-Dec-03	7:54:40	0	-1.6	1.002	
9-Dec-03	7:55:00	0	-1.6	1.002	
9-Dec-03	7:55:20	0	-1.6	1.002	
9-Dec-03	7:55:40	0	-1.6	1.002	
9-Dec-03	7:56:00	0	-1.6	1.002	
9-Dec-03	7:56:20	0	-1.6	1.002	
9-Dec-03	7:56:40	0	-1.6	1.002	
9-Dec-03	7:57:00	13.6	-1.6	1.002	
9-Dec-03	7:57:20	15.2	-1.6	1.002	
9-Dec-03	7:57:40	15.3	-1.5	1.002	
9-Dec-03	7:58:00	15.7	-1.5	1.002	
9-Dec-03	7:58:20	18.4	-1.5	1.002	
9-Dec-03	7:58:40	19.1	-1.5	1.002	
9-Dec-03	7:59:00	21.1	-1.5	1.002	
9-Dec-03	7:59:20	22.7	-1.5	1.002	
9-Dec-03	7:59:40	24	-1.5	1.002	
9-Dec-03	8:00:00	27	-1.5	1.002	
9-Dec-03	8:00:20	29.9	-1.5	1.002	
9-Dec-03	8:00:40	31.5	-1.4	1.002	
9-Dec-03	8:01:00	31.5	-1.5	1.002	
9-Dec-03	8:01:20	33.1	-1.4	1.002	
9-Dec-03	8:01:40	34.6	-1.4	1.002	
9-Dec-03	8:02:00	35.2	-1.4	1.002	
9-Dec-03	8:02:20	36.5	-1.4	1.002	
9-Dec-03	8:02:40	37.4	-1.4	1.002	
9-Dec-03	8:03:00	40	-1.4	1.002	
9-Dec-03	8:03:20	41.8	-1.4	1.002	
9-Dec-03	8:03:40	43	-1.4	1.002	
9-Dec-03	8:04:00	44.1	-1.4	1.002	
9-Dec-03	8:04:20	44.7	-1.4	1.002	
9-Dec-03	8:04:40	45.4	-1.4	1.002	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
9-Dec-03	8:05:00	46.5	-1.4	1.002
9-Dec-03	8:05:20	47.1	-1.4	1.002
9-Dec-03	8:05:40	46	-1.4	1.002
9-Dec-03	8:06:00	46.5	-1.4	1.002
9-Dec-03	8:06:20	46.7	-1.3	1.002
9-Dec-03	8:06:40	47.3	-1.3	1.002
9-Dec-03	8:07:00	46.9	-1.3	1.002
9-Dec-03	8:07:20	46.7	-1.3	1.002
9-Dec-03	8:07:40	46.4	-1.3	1.002
9-Dec-03	8:08:00	45.1	-1.2	1.002
9-Dec-03	8:08:20	45.8	-1.2	1.002
9-Dec-03	8:08:40	45.5	-1.2	1.002
9-Dec-03	8:09:00	45.4	-1.2	1.002
9-Dec-03	8:09:20	45	-1.2	1.002
9-Dec-03	8:09:40	44	-1.2	1.002
9-Dec-03	8:10:00	45	-1.1	1.002
9-Dec-03	8:10:20	47.6	-1.1	1.002
9-Dec-03	8:10:40	51	-1.1	1.002
9-Dec-03	8:11:00	55.2	-1.1	1.002
9-Dec-03	8:11:20	57.4	-1.1	1.002
9-Dec-03	8:11:40	59	-1.1	1.002
9-Dec-03	8:12:00	59	-1.1	1.002
9-Dec-03	8:12:20	60.6	-1.1	1.002
9-Dec-03	8:12:40	62.4	-1.1	1.002
9-Dec-03	8:13:00	62.7	-1	1.002
9-Dec-03	8:13:20	63	-1	1.002
9-Dec-03	8:13:40	63.2	-1	1.002
9-Dec-03	8:14:00	62.7	-1	1.002
9-Dec-03	8:14:20	61.5	-1	1.002
9-Dec-03	8:14:40	61.7	-0.9	1.002
9-Dec-03	8:15:00	61.6	-0.9	1.002
9-Dec-03	8:15:20	61.6	-0.9	1.002
9-Dec-03	8:15:40	62.4	-0.9	1.002
9-Dec-03	8:16:00	61	-0.9	1.002
9-Dec-03	8:16:20	58.7	-0.8	1.002
9-Dec-03	8:16:40	58.1	-0.8	1.002
9-Dec-03	8:17:00	56.7	-0.8	1.002
9-Dec-03	8:17:20	58.1	-0.8	1.002
9-Dec-03	8:17:40	57.8	-0.7	1.002
9-Dec-03	8:18:00	58.4	-0.7	1.002
9-Dec-03	8:18:20	59.5	-0.7	1.002
9-Dec-03	8:18:40	59.1	-0.7	1.002
9-Dec-03	8:19:00	59	-0.7	1.002
9-Dec-03	8:19:20	57.3	-0.6	1.002
9-Dec-03	8:19:40	57	-0.6	1.002
9-Dec-03	8:20:00	56.6	-0.6	1.002
9-Dec-03	8:20:20	57.2	-0.6	1.002
9-Dec-03	8:20:40	55.2	-0.6	1.002
9-Dec-03	8:21:00	53.7	-0.6	1.002
9-Dec-03	8:21:20	52.9	-0.5	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
9-Dec-03	8:21:40	51.3	-0.5	1.002
9-Dec-03	8:22:00	50	-0.5	1.002
9-Dec-03	8:22:20	50.5	-0.5	1.002
9-Dec-03	8:22:40	51.6	-0.5	1.002
9-Dec-03	8:23:00	53.5	-0.4	1.002
9-Dec-03	8:23:20	56.8	-0.4	1.002
9-Dec-03	8:23:40	59.8	-0.4	1.002
9-Dec-03	8:24:00	62.6	-0.3	1.002
9-Dec-03	8:24:20	64.9	-0.3	1.002
9-Dec-03	8:24:40	67.1	-0.3	1.002
9-Dec-03	8:25:00	69.9	-0.3	1.002
9-Dec-03	8:25:20	69.2	-0.2	1.002
9-Dec-03	8:25:40	69.8	-0.2	1.002
9-Dec-03	8:26:00	71	-0.2	1.002
9-Dec-03	8:26:20	71	-0.2	1.002
9-Dec-03	8:26:40	70.7	-0.1	1.002
9-Dec-03	8:27:00	70.7	-0.1	1.002
9-Dec-03	8:27:20	69.9	-0.1	1.002
9-Dec-03	8:27:40	69.7	-0.1	1.002
9-Dec-03	8:28:00	70	0	1.002
9-Dec-03	8:28:20	70.7	0	1.002
9-Dec-03	8:28:40	71.5	0	1.002
9-Dec-03	8:29:00	70.9	0	1.002
9-Dec-03	8:29:20	70.2	0.1	1.002
9-Dec-03	8:29:40	69.1	0.1	1.002
9-Dec-03	8:30:00	66.4	0.1	1.002
9-Dec-03	8:30:20	65.7	0.1	1.002
9-Dec-03	8:30:40	63.8	0.2	1.002
9-Dec-03	8:31:00	66.5	0.2	1.002
9-Dec-03	8:31:20	77.5	0.2	1.002
9-Dec-03	8:31:40	91	0.3	1.002
9-Dec-03	8:32:00	101.9	0.3	1.002
9-Dec-03	8:32:20	112.8	0.3	1.002
9-Dec-03	8:32:40	121.7	0.3	1.002
9-Dec-03	8:33:00	129	0.4	1.002
9-Dec-03	8:33:20	133.3	0.5	1.002
9-Dec-03	8:33:40	135.1	0.5	1.002
9-Dec-03	8:34:00	136.8	0.5	1.002
9-Dec-03	8:34:20	136.7	0.6	1.002
9-Dec-03	8:34:40	135.8	0.6	1.002
9-Dec-03	8:35:00	134.7	0.6	1.002
9-Dec-03	8:35:20	133.7	0.6	1.002
9-Dec-03	8:35:40	131.3	0.7	1.002
9-Dec-03	8:36:00	129.2	0.7	1.002
9-Dec-03	8:36:20	127.2	0.7	1.002
9-Dec-03	8:36:40	128.3	0.7	1.002
9-Dec-03	8:37:00	130.6	0.7	1.002
9-Dec-03	8:37:20	132.9	0.7	1.002
9-Dec-03	8:37:40	134	0.8	1.002
9-Dec-03	8:38:00	133.3	0.8	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
9-Dec-03	8:38:20	131.8	0.7	1.002
9-Dec-03	8:38:40	129.3	0.8	1.002
9-Dec-03	8:39:00	128.4	0.8	1.002
9-Dec-03	8:39:20	125.9	0.8	1.002
9-Dec-03	8:39:40	123.4	0.8	1.002
9-Dec-03	8:40:00	120.9	0.8	1.002
9-Dec-03	8:40:20	117.7	0.8	1.002
9-Dec-03	8:40:40	113.7	0.8	1.002
9-Dec-03	8:41:00	109.8	0.8	1.002
9-Dec-03	8:41:20	106.6	0.8	1.002
9-Dec-03	8:41:40	104.7	0.8	1.002
9-Dec-03	8:42:00	101.4	0.9	1.002
9-Dec-03	8:42:20	98.3	0.9	1.002
9-Dec-03	8:42:40	95.5	0.8	1.002
9-Dec-03	8:43:00	93.4	0.8	1.002
9-Dec-03	8:43:20	90.4	0.8	1.002
9-Dec-03	8:43:40	86.4	0.9	1.002
9-Dec-03	8:44:00	83.2	0.9	1.002
9-Dec-03	8:44:20	80.3	0.9	1.002
9-Dec-03	8:44:40	78.1	0.9	1.002
9-Dec-03	8:45:00	75	0.9	1.002
9-Dec-03	8:45:20	73.4	0.9	1.002
9-Dec-03	8:45:40	71.3	0.9	1.002
9-Dec-03	8:46:00	68.2	0.9	1.002
9-Dec-03	8:46:20	65.9	0.9	1.002
9-Dec-03	8:46:40	63.9	0.9	1.002
9-Dec-03	8:47:00	62	0.9	1.002
9-Dec-03	8:47:20	60.5	0.9	1.002
9-Dec-03	8:47:40	59.2	0.9	1.002
9-Dec-03	8:48:00	58.1	0.9	1.002
9-Dec-03	8:48:20	56.9	0.9	1.002
9-Dec-03	8:48:40	56.4	0.9	1.002
9-Dec-03	8:49:00	54.5	0.9	1.002
9-Dec-03	8:49:20	52.6	0.9	1.002
9-Dec-03	8:49:40	50.2	0.9	1.002
9-Dec-03	8:50:00	48.7	0.9	1.002
9-Dec-03	8:50:20	47.3	0.9	1.002
9-Dec-03	8:50:40	46.5	0.8	1.002
9-Dec-03	8:51:00	45.2	0.8	1.002
9-Dec-03	8:51:20	45.1	0.8	1.002
9-Dec-03	8:51:40	43.8	0.8	1.002
9-Dec-03	8:52:00	43.4	0.8	1.002
9-Dec-03	8:52:20	42.7	0.8	1.002
9-Dec-03	8:52:40	41.8	0.8	1.002
9-Dec-03	8:53:00	41.5	0.8	1.002
9-Dec-03	8:53:20	40.8	0.8	1.002
9-Dec-03	8:53:40	39.9	0.9	1.002
9-Dec-03	8:54:00	39.2	0.9	1.002
9-Dec-03	8:54:20	38.7	0.9	1.002
9-Dec-03	8:54:40	39.1	0.9	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
9-Dec-03	8:55:00	39.1	0.9	1.002
9-Dec-03	8:55:20	39.2	0.9	1.002
9-Dec-03	8:55:40	38.2	0.9	1.002
9-Dec-03	8:56:00	37	1	1.002
9-Dec-03	8:56:20	37.4	1	1.002
9-Dec-03	8:56:40	38.9	1	1.002
9-Dec-03	8:57:00	39.5	1	1.002
9-Dec-03	8:57:20	38.5	1	1.002
9-Dec-03	8:57:40	38.7	1	1.002
9-Dec-03	8:58:00	39.3	1	1.002
9-Dec-03	8:58:20	38.8	1	1.002
9-Dec-03	8:58:40	37.5	1	1.002
9-Dec-03	8:59:00	36.8	1	1.002
9-Dec-03	8:59:20	37	1	1.002
9-Dec-03	8:59:40	36.5	1.1	1.002
9-Dec-03	9:00:00	36.6	1.1	1.002
9-Dec-03	9:00:20	36.3	1.1	1.002
9-Dec-03	9:00:40	34.9	1.1	1.002
9-Dec-03	9:01:00	35.2	1.1	1.002
9-Dec-03	9:01:20	34.2	1.1	1.002
9-Dec-03	9:01:40	34.4	1.1	1.002
9-Dec-03	9:02:00	33.5	1.1	1.002
9-Dec-03	9:02:20	32.7	1.1	1.002
9-Dec-03	9:02:40	31.4	1.1	1.002
9-Dec-03	9:03:00	31.4	1.2	1.002
9-Dec-03	9:03:20	31.1	1.2	1.002
9-Dec-03	9:03:40	31.6	1.2	1.002
9-Dec-03	9:04:00	32.8	1.2	1.002
9-Dec-03	9:04:20	32.6	1.2	1.002
9-Dec-03	9:04:40	31.3	1.2	1.002
9-Dec-03	9:05:00	30.1	1.3	1.002
9-Dec-03	9:05:20	30.1	1.3	1.002
9-Dec-03	9:05:40	29.8	1.3	1.002
9-Dec-03	9:06:00	28.8	1.3	1.002
9-Dec-03	9:06:20	28.7	1.3	1.002
9-Dec-03	9:06:40	27.8	1.4	1.002
9-Dec-03	9:07:00	27.5	1.4	1.002
9-Dec-03	9:07:20	28.1	1.4	1.002
9-Dec-03	9:07:40	28.1	1.4	1.002
9-Dec-03	9:08:00	29	1.4	1.002
9-Dec-03	9:11:00	28.5	1.7	1.002
9-Dec-03	9:11:20	28.9	1.7	1.002
9-Dec-03	9:11:40	28.3	1.7	1.002
9-Dec-03	9:12:00	29	1.7	1.002
9-Dec-03	9:12:20	28.9	1.8	1.002
9-Dec-03	9:12:40	29.1	1.8	1.002
9-Dec-03	9:13:00	29.2	1.8	1.002
9-Dec-03	9:13:20	29	1.8	1.002
9-Dec-03	9:13:40	28.5	1.9	1.002
9-Dec-03	9:14:00	28.7	1.9	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
9-Dec-03	9:14:20	28.7	1.9	1.002
9-Dec-03	9:14:40	29.6	1.9	1.002
9-Dec-03	9:15:00	31	2	1.002
9-Dec-03	9:15:20	31	2	1.002
9-Dec-03	9:15:40	30.8	2	1.002
9-Dec-03	9:16:00	30.5	2	1.002
9-Dec-03	9:16:20	31.5	2	1.002
9-Dec-03	9:16:40	31.2	2.1	1.002
9-Dec-03	9:17:00	31.6	2.1	1.002
9-Dec-03	9:17:20	32	2.1	1.002
9-Dec-03	9:17:40	34.4	2.1	1.002
9-Dec-03	9:18:00	35.7	2.2	1.002
9-Dec-03	9:18:20	36.8	2.2	1.002
9-Dec-03	9:18:40	38.9	2.2	1.002
9-Dec-03	9:19:00	39.9	2.2	1.002
9-Dec-03	9:19:20	39.1	2.2	1.002
9-Dec-03	9:19:40	39.2	2.3	1.002
9-Dec-03	9:20:00	38.7	2.3	1.002
9-Dec-03	9:20:20	38.4	2.3	1.002
9-Dec-03	9:20:40	39	2.3	1.002
9-Dec-03	9:21:00	40.2	2.4	1.002
9-Dec-03	9:21:20	40.5	2.4	1.002
9-Dec-03	9:21:40	41.7	2.4	1.002
9-Dec-03	9:22:00	42.3	2.4	1.002
9-Dec-03	9:22:20	42.9	2.4	1.002
9-Dec-03	9:22:40	44.6	2.5	1.002
9-Dec-03	9:23:00	45.8	2.5	1.002
9-Dec-03	9:23:20	45.5	2.5	1.002
9-Dec-03	9:23:40	45.7	2.6	1.002
9-Dec-03	9:24:00	46.1	2.6	1.002
9-Dec-03	9:24:20	46.6	2.6	1.002
9-Dec-03	9:24:40	46	2.6	1.002
9-Dec-03	9:25:00	45.3	2.7	1.002
9-Dec-03	9:25:20	45.9	2.7	1.002
9-Dec-03	9:25:40	45.5	2.7	1.002
9-Dec-03	9:26:00	44.3	2.7	1.002
9-Dec-03	9:26:20	44.9	2.8	1.002
9-Dec-03	9:26:40	46	2.8	1.002
9-Dec-03	9:27:00	45.8	2.8	1.002
9-Dec-03	9:27:20	45.6	2.8	1.002
9-Dec-03	9:27:40	45.4	2.8	1.002
9-Dec-03	9:28:00	50	2.9	1.002
9-Dec-03	9:28:20	61.4	2.9	1.002
9-Dec-03	9:28:40	73.8	2.9	1.002
9-Dec-03	9:29:00	84.6	2.9	1.002
9-Dec-03	9:29:20	92.8	3	1.002
9-Dec-03	9:29:40	99.5	3	1.002
9-Dec-03	9:30:00	107.5	3	1.002
9-Dec-03	9:30:20	121.2	3	1.002
9-Dec-03	9:30:40	134.6	3.1	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
9-Dec-03	9:31:00	145.7	3.1	1.002
9-Dec-03	9:31:20	154.4	3.1	1.002
9-Dec-03	9:31:40	159.7	3.1	1.002
9-Dec-03	9:32:00	163.1	3.1	1.002
9-Dec-03	9:32:20	166	3.2	1.002
9-Dec-03	9:32:40	166.2	3.2	1.002
9-Dec-03	9:33:00	165.2	3.2	1.002
9-Dec-03	9:33:20	163	3.2	1.002
9-Dec-03	9:33:40	160.8	3.3	1.002
9-Dec-03	9:34:00	159.8	3.3	1.002
9-Dec-03	9:34:20	159.7	3.3	1.002
9-Dec-03	9:34:40	158.7	3.3	1.002
9-Dec-03	9:35:00	156	3.3	1.002
9-Dec-03	9:35:20	153	3.4	1.002
9-Dec-03	9:35:40	150.2	3.4	1.002
9-Dec-03	9:36:00	147.3	3.4	1.002
9-Dec-03	9:36:20	142.9	3.4	1.002
9-Dec-03	9:36:40	140.4	3.4	1.002
9-Dec-03	9:37:00	138.4	3.4	1.002
9-Dec-03	9:37:20	137.2	3.4	1.002
9-Dec-03	9:37:40	136.4	3.5	1.002
9-Dec-03	9:38:00	134.8	3.5	1.002
9-Dec-03	9:38:20	133.2	3.5	1.002
9-Dec-03	9:38:40	131.4	3.5	1.002
9-Dec-03	9:39:00	129	3.5	1.002
9-Dec-03	9:39:20	126.7	3.6	1.002
9-Dec-03	9:39:40	127.5	3.6	1.002
9-Dec-03	9:40:00	131.5	3.6	1.002
9-Dec-03	9:40:20	134.9	3.6	1.002
9-Dec-03	9:40:40	137	3.6	1.002
9-Dec-03	9:41:00	139.8	3.6	1.002
9-Dec-03	9:41:20	140.6	3.7	1.002
9-Dec-03	9:41:40	140.8	3.7	1.002
9-Dec-03	9:42:00	142.1	3.7	1.002
9-Dec-03	9:42:20	142	3.7	1.002
9-Dec-03	9:42:40	141.9	3.7	1.002
9-Dec-03	9:43:00	140.6	3.7	1.002
9-Dec-03	9:43:20	136.9	3.8	1.002
9-Dec-03	9:43:40	133.4	3.8	1.002
9-Dec-03	9:44:00	131.7	3.8	1.002
9-Dec-03	9:44:20	128.2	3.8	1.002
9-Dec-03	9:44:40	124.7	3.8	1.002
9-Dec-03	9:45:00	121.7	3.8	1.002
9-Dec-03	9:45:20	117.7	3.8	1.002
9-Dec-03	9:45:40	114.5	3.9	1.002
9-Dec-03	9:46:00	111	3.9	1.002
9-Dec-03	9:46:20	106.9	3.9	1.002
9-Dec-03	9:46:40	103.7	3.9	1.002
9-Dec-03	9:47:00	100.9	3.9	1.002
9-Dec-03	9:47:20	99	4	1.002

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
9-Dec-03	9:47:40	96.1	4	1.002	
9-Dec-03	9:48:00	92.9	4	1.002	
9-Dec-03	9:48:20	91.4	4	1.002	
9-Dec-03	9:48:40	88.6	4	1.002	
9-Dec-03	9:49:00	85.6	4.1	1.002	
9-Dec-03	9:49:20	82.7	4.1	1.002	
9-Dec-03	9:49:40	79.4	4.1	1.002	
9-Dec-03	9:50:00	76.4	4.1	1.002	
9-Dec-03	9:50:20	73.1	4.1	1.002	
9-Dec-03	9:50:40	70.2	4.1	1.002	
9-Dec-03	9:51:00	66.5	4.2	1.002	
9-Dec-03	9:51:20	64	4.2	1.002	
9-Dec-03	9:51:40	60.7	4.2	1.002	
9-Dec-03	9:52:00	58.2	4.2	1.002	
9-Dec-03	9:52:20	57.5	4.2	1.002	
9-Dec-03	9:52:40	54.8	4.2	1.002	
9-Dec-03	9:53:00	52.2	4.2	1.002	
9-Dec-03	9:53:20	51.1	4.2	1.002	
9-Dec-03	9:53:40	50	4.2	1.002	
9-Dec-03	9:54:00	48.9	4.2	1.002	
9-Dec-03	9:54:20	47.4	4.2	1.002	
9-Dec-03	9:54:40	46	4.2	1.002	
9-Dec-03	9:55:00	44.3	4.2	1.002	
9-Dec-03	9:55:20	43.1	4.3	1.002	
9-Dec-03	9:55:40	41.1	4.3	1.002	
9-Dec-03	9:56:00	39.7	4.3	1.002	
9-Dec-03	9:56:20	38.7	4.3	1.002	
9-Dec-03	9:56:40	37.7	4.3	1.002	
9-Dec-03	9:57:00	37.9	4.3	1.002	
9-Dec-03	9:57:20	37.1	4.3	1.002	
9-Dec-03	9:57:40	36.1	4.3	1.002	
9-Dec-03	9:58:00	35.5	4.3	1.002	
9-Dec-03	9:58:20	35.7	4.3	1.002	
9-Dec-03	9:58:40	35	4.3	1.002	
9-Dec-03	9:59:00	34.6	4.3	1.002	
9-Dec-03	9:59:20	34.1	4.3	1.002	
9-Dec-03	9:59:40	33.4	4.4	1.002	
9-Dec-03	10:00:00	33.3	4.4	1.002	
9-Dec-03	10:00:20	32.2	4.4	1.002	
9-Dec-03	10:00:40	30.9	4.4	1.002	
9-Dec-03	10:01:00	29.8	4.4	1.002	
9-Dec-03	10:01:20	29.3	4.4	1.002	
9-Dec-03	10:01:40	27.6	4.5	1.002	
9-Dec-03	10:02:00	28.6	4.5	1.002	
9-Dec-03	10:02:20	28.1	4.5	1.002	
9-Dec-03	10:02:40	27.5	4.5	1.002	
9-Dec-03	10:03:00	27.4	4.5	1.002	Stop Run # 3
		65.3			Average

APPENDIX A2

RMCC CENTRAL MIX

PM_{10} TEOM DATA

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
10-Dec-03	8:22:00	26.8	7.1	0.994	Start Run # 1
10-Dec-03	8:22:20	27.2	7.1	0.994	
10-Dec-03	8:22:40	26.1	7.1	0.994	
10-Dec-03	8:23:00	24.7	7.1	0.994	
10-Dec-03	8:23:20	24.5	7.1	0.994	
10-Dec-03	8:23:40	24	7.1	0.994	
10-Dec-03	8:24:00	24	7.1	0.994	
10-Dec-03	8:24:20	23.2	7.1	0.994	
10-Dec-03	8:24:40	24.1	7.1	0.994	
10-Dec-03	8:25:00	23	7.1	0.994	
10-Dec-03	8:25:20	24.1	7.1	0.994	
10-Dec-03	8:25:40	25.2	7.1	0.994	
10-Dec-03	8:26:00	24.2	7.1	0.994	
10-Dec-03	8:26:20	22.3	7.1	0.994	
10-Dec-03	8:26:40	21.1	7.1	0.994	
10-Dec-03	8:27:00	21.8	7.1	0.994	
10-Dec-03	8:27:20	21.9	7.1	0.994	
10-Dec-03	8:27:40	21.6	7.1	0.994	
10-Dec-03	8:28:00	23.6	7.1	0.994	
10-Dec-03	8:28:20	24.5	7.1	0.994	
10-Dec-03	8:28:40	25.1	7.1	0.994	
10-Dec-03	8:29:00	25	7.1	0.994	
10-Dec-03	8:29:20	25.7	7.1	0.994	
10-Dec-03	8:29:40	27	7.2	0.994	
10-Dec-03	8:30:00	27.3	7.2	0.994	
10-Dec-03	8:30:20	25.6	7.2	0.994	
10-Dec-03	8:30:40	23	7.2	0.994	
10-Dec-03	8:31:00	20.8	7.2	0.994	
10-Dec-03	8:31:20	21.5	7.2	0.994	
10-Dec-03	8:31:40	21.1	7.2	0.994	
10-Dec-03	8:32:00	21.6	7.2	0.994	
10-Dec-03	8:32:20	22.3	7.3	0.994	
10-Dec-03	8:32:40	20.4	7.2	0.994	
10-Dec-03	8:33:00	20	7.3	0.994	
10-Dec-03	8:33:20	22.4	7.2	0.994	
10-Dec-03	8:33:40	23.7	7.3	0.994	
10-Dec-03	8:34:00	24	7.3	0.994	
10-Dec-03	8:34:20	23.8	7.3	0.994	
10-Dec-03	8:34:40	24.8	7.3	0.994	
10-Dec-03	8:35:00	25	7.3	0.994	
10-Dec-03	8:35:20	25	7.3	0.994	
10-Dec-03	8:35:40	25	7.3	0.994	
10-Dec-03	8:36:00	25.3	7.3	0.994	
10-Dec-03	8:36:20	25.2	7.4	0.994	
10-Dec-03	8:36:40	25	7.4	0.994	
10-Dec-03	8:37:00	26	7.4	0.994	
10-Dec-03	8:37:20	27.5	7.4	0.994	
10-Dec-03	8:37:40	28.2	7.4	0.994	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
10-Dec-03	8:38:00	30.1	7.4	0.994
10-Dec-03	8:38:20	30.8	7.4	0.994
10-Dec-03	8:38:40	30.5	7.4	0.994
10-Dec-03	8:39:00	29.8	7.4	0.994
10-Dec-03	8:39:20	27.2	7.4	0.994
10-Dec-03	8:39:40	25.7	7.4	0.994
10-Dec-03	8:40:00	25.4	7.4	0.994
10-Dec-03	8:40:20	26	7.4	0.994
10-Dec-03	8:40:40	25.7	7.5	0.994
10-Dec-03	8:41:00	25	7.5	0.994
10-Dec-03	8:41:20	24.7	7.5	0.994
10-Dec-03	8:41:40	24.1	7.5	0.994
10-Dec-03	8:42:00	23.4	7.5	0.994
10-Dec-03	8:42:20	22	7.5	0.994
10-Dec-03	8:42:40	22.1	7.5	0.994
10-Dec-03	8:43:00	24.1	7.5	0.994
10-Dec-03	8:43:20	24.4	7.5	0.994
10-Dec-03	8:43:40	23.4	7.5	0.994
10-Dec-03	8:44:00	22.8	7.5	0.994
10-Dec-03	8:44:20	22.6	7.5	0.994
10-Dec-03	8:44:40	22.5	7.5	0.994
10-Dec-03	8:45:00	21.8	7.5	0.994
10-Dec-03	8:45:20	21.2	7.5	0.994
10-Dec-03	8:45:40	21.1	7.5	0.994
10-Dec-03	8:46:00	19.8	7.5	0.994
10-Dec-03	8:46:20	19.5	7.5	0.994
10-Dec-03	8:46:40	20.4	7.5	0.994
10-Dec-03	8:47:00	21.5	7.5	0.994
10-Dec-03	8:47:20	20.5	7.5	0.994
10-Dec-03	8:47:40	20.9	7.5	0.994
10-Dec-03	8:48:00	21.1	7.5	0.994
10-Dec-03	8:48:20	22.8	7.5	0.994
10-Dec-03	8:48:40	23.6	7.5	0.994
10-Dec-03	8:49:00	25.4	7.5	0.994
10-Dec-03	8:49:20	26.8	7.5	0.994
10-Dec-03	8:49:40	25.6	7.5	0.994
10-Dec-03	8:50:00	26.2	7.5	0.994
10-Dec-03	8:50:20	26.4	7.5	0.994
10-Dec-03	8:50:40	26.2	7.5	0.994
10-Dec-03	8:51:00	27.7	7.5	0.994
10-Dec-03	8:51:20	29	7.5	0.994
10-Dec-03	8:51:40	29.4	7.5	0.994
10-Dec-03	8:52:00	28.5	7.5	0.994
10-Dec-03	8:52:20	28.6	7.5	0.994
10-Dec-03	8:52:40	31	7.5	0.994
10-Dec-03	8:53:00	32.6	7.5	0.994
10-Dec-03	8:53:20	33.5	7.5	0.994
10-Dec-03	8:53:40	33.4	7.5	0.994

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
10-Dec-03	8:54:00	34.4	7.4	0.994
10-Dec-03	9:08:00	15	6.8	0.994
10-Dec-03	9:08:20	15.2	6.8	0.994
10-Dec-03	9:08:40	15.7	6.8	0.993
10-Dec-03	9:09:00	16	6.8	0.993
10-Dec-03	9:09:20	16	6.8	0.993
10-Dec-03	9:09:40	15.4	6.8	0.993
10-Dec-03	9:10:00	13.4	6.8	0.993
10-Dec-03	9:10:20	13.7	6.8	0.993
10-Dec-03	9:10:40	13.7	6.8	0.993
10-Dec-03	9:11:00	14.8	6.8	0.993
10-Dec-03	9:11:20	16.1	6.8	0.993
10-Dec-03	9:11:40	15.8	6.8	0.993
10-Dec-03	9:12:00	16.6	6.8	0.993
10-Dec-03	9:12:20	16.8	6.8	0.993
10-Dec-03	9:12:40	18	6.8	0.993
10-Dec-03	9:13:00	19.5	6.8	0.993
10-Dec-03	9:13:20	20.5	6.8	0.993
10-Dec-03	9:13:40	22.4	6.8	0.993
10-Dec-03	9:14:00	23	6.8	0.993
10-Dec-03	9:14:20	22.9	6.8	0.993
10-Dec-03	9:14:40	20.2	6.8	0.993
10-Dec-03	9:15:00	19.3	6.8	0.993
10-Dec-03	9:15:20	19.3	6.7	0.993
10-Dec-03	9:15:40	19.8	6.8	0.993
10-Dec-03	9:16:00	19.9	6.7	0.993
10-Dec-03	9:16:20	19.1	6.7	0.993
10-Dec-03	9:16:40	18	6.7	0.993
10-Dec-03	9:17:00	18.1	6.7	0.993
10-Dec-03	9:17:20	19.6	6.7	0.993
10-Dec-03	9:17:40	19.9	6.7	0.993
10-Dec-03	9:18:00	18.3	6.7	0.993
10-Dec-03	9:18:20	18.6	6.7	0.993
10-Dec-03	9:18:40	19.7	6.7	0.993
10-Dec-03	9:19:00	20.5	6.7	0.993
10-Dec-03	9:19:20	19.9	6.7	0.993
10-Dec-03	9:19:40	19.6	6.7	0.993
10-Dec-03	9:20:00	20.1	6.6	0.993
10-Dec-03	9:20:20	20.3	6.7	0.993
10-Dec-03	9:20:40	20.8	6.7	0.993
10-Dec-03	9:21:00	20.5	6.7	0.993
10-Dec-03	9:21:20	19.9	6.7	0.993
10-Dec-03	9:21:40	18.7	6.6	0.993
10-Dec-03	9:22:00	19	6.6	0.993
10-Dec-03	9:22:20	19.1	6.7	0.993
10-Dec-03	9:22:40	20.3	6.7	0.993
10-Dec-03	9:23:00	20.1	6.7	0.993
10-Dec-03	9:23:20	19.8	6.7	0.993

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
10-Dec-03	9:23:40	19.3	6.7	0.993
10-Dec-03	9:24:00	18.1	6.7	0.993
10-Dec-03	9:24:20	17.7	6.7	0.993
10-Dec-03	9:24:40	18.5	6.7	0.993
10-Dec-03	9:25:00	17	6.7	0.993
10-Dec-03	9:25:20	15.9	6.7	0.993
10-Dec-03	9:25:40	15	6.7	0.993
10-Dec-03	9:26:00	15.7	6.7	0.993
10-Dec-03	9:26:20	17.5	6.7	0.993
10-Dec-03	9:26:40	20.3	6.7	0.993
10-Dec-03	9:27:00	23	6.7	0.993
10-Dec-03	9:27:20	26.6	6.8	0.993
10-Dec-03	9:27:40	30.8	6.8	0.993
10-Dec-03	9:28:00	33.8	6.8	0.993
10-Dec-03	9:28:20	36	6.8	0.993
10-Dec-03	9:28:40	37.3	6.7	0.993
10-Dec-03	9:29:00	38.2	6.8	0.993
10-Dec-03	9:29:20	38.7	6.8	0.993
10-Dec-03	9:29:40	38.6	6.7	0.993
10-Dec-03	9:30:00	38.5	6.7	0.993
10-Dec-03	9:30:20	37.7	6.8	0.993
10-Dec-03	9:30:40	37.9	6.8	0.993
10-Dec-03	9:31:00	36.1	6.8	0.993
10-Dec-03	9:31:20	34.7	6.8	0.993
10-Dec-03	9:31:40	33.5	6.8	0.993
10-Dec-03	9:32:00	33.7	6.8	0.993
10-Dec-03	9:32:20	34.5	6.8	0.993
10-Dec-03	9:32:40	35.5	6.8	0.993
10-Dec-03	9:33:00	35.8	6.8	0.993
10-Dec-03	9:33:20	35.7	6.8	0.993
10-Dec-03	9:33:40	34	6.8	0.993
10-Dec-03	9:34:00	32.3	6.8	0.993
10-Dec-03	9:34:20	32.5	6.8	0.993
10-Dec-03	9:34:40	31.7	6.8	0.993
10-Dec-03	9:35:00	29.7	6.8	0.993
10-Dec-03	9:35:20	30.2	6.8	0.993
10-Dec-03	9:35:40	31.4	6.8	0.993
10-Dec-03	9:36:00	30.8	6.8	0.993
10-Dec-03	9:36:20	30.7	6.8	0.993
10-Dec-03	9:36:40	30	6.8	0.993
10-Dec-03	9:37:00	28.3	6.8	0.993
10-Dec-03	9:37:20	25.9	6.8	0.993
10-Dec-03	9:37:40	24.9	6.8	0.993
10-Dec-03	9:38:00	24.8	6.8	0.993
10-Dec-03	9:38:20	25.1	6.8	0.993
10-Dec-03	9:38:40	26.2	6.8	0.993
10-Dec-03	9:39:00	25.9	6.7	0.993
10-Dec-03	9:39:20	24.7	6.7	0.993

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
10-Dec-03	9:39:40	23.8	6.8	0.993
10-Dec-03	9:40:00	23.1	6.7	0.993
10-Dec-03	9:40:20	23.3	6.7	0.993
10-Dec-03	9:40:40	21.2	6.7	0.993
10-Dec-03	9:41:00	21.5	6.7	0.993
10-Dec-03	9:41:20	21.3	6.7	0.993
10-Dec-03	9:41:40	20.6	6.7	0.993
10-Dec-03	9:42:00	18.5	6.7	0.993
10-Dec-03	9:42:20	17	6.7	0.993
10-Dec-03	9:42:40	15.4	6.7	0.993
10-Dec-03	9:43:00	14.8	6.7	0.993
10-Dec-03	9:43:20	14.8	6.7	0.993
10-Dec-03	9:43:40	13.7	6.7	0.993
10-Dec-03	9:44:00	13.3	6.7	0.993
10-Dec-03	9:44:20	13.2	6.7	0.993
10-Dec-03	9:44:40	12.5	6.7	0.993
10-Dec-03	9:45:00	13.6	6.7	0.993
10-Dec-03	9:45:20	13.4	6.7	0.993
10-Dec-03	9:45:40	12.6	6.7	0.993
10-Dec-03	9:46:00	12.3	6.7	0.993
10-Dec-03	9:46:20	12.4	6.7	0.993
10-Dec-03	9:46:40	14.1	6.7	0.993
10-Dec-03	9:47:00	15	6.7	0.993
10-Dec-03	9:47:20	15.1	6.7	0.993
10-Dec-03	9:47:40	14	6.7	0.993
10-Dec-03	9:48:00	13.2	6.7	0.993
10-Dec-03	9:48:20	13.4	6.7	0.993
10-Dec-03	9:48:40	13.6	6.7	0.993
10-Dec-03	9:49:00	13.9	6.7	0.993
10-Dec-03	9:49:20	13.5	6.7	0.993
10-Dec-03	9:49:40	13.7	6.7	0.993
10-Dec-03	9:50:00	14.5	6.7	0.993
10-Dec-03	12:38:00	38.1	10.4	0.988
10-Dec-03	12:38:20	38.1	10.4	0.988
10-Dec-03	12:38:40	38.1	10.4	0.988
10-Dec-03	12:39:00	37.4	10.4	0.988
10-Dec-03	12:39:20	36.8	10.4	0.988
10-Dec-03	12:39:40	36.6	10.5	0.988
10-Dec-03	12:40:00	36.2	10.5	0.988
10-Dec-03	12:40:20	35	10.5	0.988
10-Dec-03	12:40:40	34.7	10.5	0.988
10-Dec-03	12:41:00	33.1	10.5	0.988
10-Dec-03	12:41:20	31.8	10.5	0.988
10-Dec-03	12:41:40	30.7	10.5	0.988
10-Dec-03	12:42:00	28.4	10.5	0.988
10-Dec-03	12:42:20	26.4	10.5	0.987
10-Dec-03	12:42:40	24.6	10.6	0.987
10-Dec-03	12:43:00	23.6	10.6	0.987

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
10-Dec-03	12:43:20	22	10.6	0.987
10-Dec-03	12:43:40	19.9	10.6	0.987
10-Dec-03	12:44:00	19.5	10.6	0.987
10-Dec-03	12:44:20	19.3	10.6	0.987
10-Dec-03	12:44:40	18.6	10.6	0.987
10-Dec-03	12:45:00	18.5	10.6	0.987
10-Dec-03	12:45:20	17.6	10.6	0.987
10-Dec-03	12:45:40	17.7	10.6	0.987
10-Dec-03	12:46:00	17.4	10.6	0.987
10-Dec-03	12:46:20	17.9	10.6	0.987
10-Dec-03	12:46:40	18.5	10.7	0.987
10-Dec-03	12:47:00	17.5	10.7	0.987
10-Dec-03	12:47:20	17.3	10.7	0.987
10-Dec-03	12:47:40	16.7	10.7	0.987
10-Dec-03	12:48:00	16	10.7	0.987
10-Dec-03	12:48:20	15.6	10.7	0.987
10-Dec-03	12:48:40	15.1	10.7	0.987
10-Dec-03	12:49:00	13.8	10.7	0.987
10-Dec-03	12:49:20	14	10.7	0.987
10-Dec-03	12:49:40	13	10.7	0.987
10-Dec-03	12:50:00	12.7	10.7	0.987
10-Dec-03	12:50:20	12.2	10.7	0.987
10-Dec-03	12:50:40	12.1	10.8	0.987
10-Dec-03	12:51:00	11.6	10.8	0.987
10-Dec-03	12:51:20	11.4	10.8	0.987
10-Dec-03	12:51:40	10.9	10.8	0.987
10-Dec-03	12:52:00	11.6	10.8	0.987
10-Dec-03	12:52:20	11	10.8	0.987
10-Dec-03	12:52:40	10.5	10.8	0.987
10-Dec-03	12:53:00	9.9	10.8	0.987
10-Dec-03	12:53:20	8.2	10.8	0.987
10-Dec-03	12:53:40	8	10.8	0.987
10-Dec-03	12:54:00	8.5	10.8	0.987
10-Dec-03	12:54:20	8.1	10.8	0.987
10-Dec-03	12:54:40	9	10.8	0.987
10-Dec-03	12:55:00	8.4	10.9	0.987
10-Dec-03	12:55:20	7.9	10.9	0.987
10-Dec-03	12:55:40	7.3	10.9	0.987
10-Dec-03	12:56:00	6.4	10.9	0.987
10-Dec-03	12:56:20	5.7	10.9	0.987
10-Dec-03	12:56:40	5.8	10.9	0.987
10-Dec-03	12:57:00	6.2	10.9	0.987
10-Dec-03	12:57:20	4.5	10.9	0.987
10-Dec-03	12:57:40	3.7	10.9	0.987
10-Dec-03	12:58:00	4.3	10.9	0.987
10-Dec-03	12:58:20	5.7	10.9	0.987
10-Dec-03	12:58:40	6.2	10.9	0.987
10-Dec-03	12:59:00	6.3	10.9	0.987

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
10-Dec-03	12:59:20	5.2	10.9	0.987
10-Dec-03	12:59:40	5.8	10.9	0.987
10-Dec-03	13:00:00	6.4	10.9	0.987
10-Dec-03	13:00:20	6.9	11	0.987
10-Dec-03	13:00:40	7.3	10.9	0.987
10-Dec-03	13:01:00	6.1	11	0.987
10-Dec-03	13:01:20	5.9	11	0.987
10-Dec-03	13:01:40	4.7	11	0.987
10-Dec-03	13:02:00	5.3	11	0.987
10-Dec-03	13:02:20	6.9	11	0.987
10-Dec-03	13:02:40	7.1	11	0.987
10-Dec-03	13:03:00	7.3	11	0.987
10-Dec-03	13:03:20	6.1	11	0.987
10-Dec-03	13:03:40	5.9	11	0.987
10-Dec-03	13:04:00	6.3	11	0.987
10-Dec-03	13:04:20	5.8	11	0.987
10-Dec-03	13:04:40	5.5	11	0.987
10-Dec-03	13:05:00	4.8	11	0.987
10-Dec-03	13:05:20	5.3	11	0.987
10-Dec-03	13:05:40	7.1	11	0.987
10-Dec-03	13:06:00	8.6	11.1	0.987
10-Dec-03	13:06:20	8.1	11.1	0.987
10-Dec-03	13:06:40	7.6	11.1	0.987
10-Dec-03	13:07:00	6.4	11.1	0.987
10-Dec-03	13:07:20	6.6	11.1	0.987
10-Dec-03	13:07:40	7.2	11.1	0.987
10-Dec-03	13:08:00	6.4	11.1	0.987
10-Dec-03	13:08:20	6.9	11.1	0.987
10-Dec-03	13:08:40	6.8	11.2	0.987
10-Dec-03	13:09:00	6.7	11.1	0.987
10-Dec-03	13:09:20	6.3	11.2	0.987
10-Dec-03	13:09:40	6.5	11.2	0.987
10-Dec-03	13:10:00	5.9	11.2	0.987
10-Dec-03	13:10:20	6.3	11.2	0.987
10-Dec-03	13:10:40	7.1	11.2	0.987
10-Dec-03	13:11:00	7.8	11.2	0.987
10-Dec-03	13:11:20	8.8	11.2	0.987
10-Dec-03	13:11:40	8.8	11.2	0.987
10-Dec-03	13:12:00	9	11.2	0.987
10-Dec-03	13:12:20	8.4	11.2	0.987
10-Dec-03	13:12:40	7.9	11.2	0.987
10-Dec-03	13:13:00	9	11.2	0.987
10-Dec-03	13:13:20	9.9	11.2	0.987
10-Dec-03	13:13:40	10.5	11.3	0.987
10-Dec-03	13:14:00	9.9	11.3	0.987
10-Dec-03	13:14:20	9.6	11.3	0.987
10-Dec-03	13:14:40	8.4	11.3	0.987
10-Dec-03	13:15:00	8.7	11.3	0.987

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
10-Dec-03	13:15:20	9.4	11.3	0.987	
10-Dec-03	13:15:40	9.1	11.3	0.987	
10-Dec-03	13:16:00	7.8	11.3	0.987	
10-Dec-03	13:16:20	7.6	11.4	0.987	
10-Dec-03	13:16:40	7.7	11.4	0.987	
10-Dec-03	13:17:00	6.4	11.4	0.987	
10-Dec-03	13:17:20	6.6	11.4	0.987	
10-Dec-03	13:17:40	6.6	11.4	0.987	
10-Dec-03	13:18:00	7.2	11.4	0.987	
10-Dec-03	13:18:20	6.8	11.4	0.986	
10-Dec-03	13:18:40	6.3	11.4	0.986	
10-Dec-03	13:19:00	6.4	11.4	0.986	
10-Dec-03	13:19:20	6	11.4	0.986	
10-Dec-03	13:19:40	7.2	11.4	0.986	
10-Dec-03	13:20:00	8.4	11.5	0.986	
10-Dec-03	13:20:20	9.5	11.5	0.986	
10-Dec-03	13:20:40	9.1	11.5	0.986	
10-Dec-03	13:21:00	9.1	11.5	0.986	
10-Dec-03	13:21:20	9.2	11.5	0.986	
10-Dec-03	13:21:40	10	11.5	0.986	
10-Dec-03	13:22:00	9.8	11.5	0.986	
10-Dec-03	13:22:20	9.4	11.5	0.986	
10-Dec-03	13:22:40	8.5	11.5	0.986	
10-Dec-03	13:23:00	7.6	11.5	0.986	
10-Dec-03	13:23:20	8.4	11.5	0.986	
10-Dec-03	13:23:40	8.7	11.5	0.986	
10-Dec-03	13:24:00	9.2	11.5	0.986	Stop Run # 1
		18.8	Average		
11-Dec-03	7:31:00	44.0	7.4	0.98	Start Run # 2
11-Dec-03	7:31:20	41.8	7.4	0.98	
11-Dec-03	7:31:40	40.1	7.4	0.98	
11-Dec-03	7:32:00	38.3	7.4	0.98	
11-Dec-03	7:32:20	36.8	7.4	0.98	
11-Dec-03	7:32:40	35.6	7.4	0.98	
11-Dec-03	7:33:00	34.6	7.4	0.98	
11-Dec-03	7:33:20	33.1	7.4	0.98	
11-Dec-03	7:33:40	31.5	7.4	0.98	
11-Dec-03	7:34:00	29.1	7.4	0.98	
11-Dec-03	7:34:20	27.5	7.4	0.98	
11-Dec-03	7:34:40	27.5	7.5	0.98	
11-Dec-03	7:35:00	26.9	7.5	0.98	
11-Dec-03	7:35:20	26.7	7.5	0.98	
11-Dec-03	7:35:40	24.9	7.5	0.98	
11-Dec-03	7:36:00	24.9	7.5	0.98	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	7:36:20	25.7	7.5	0.98
11-Dec-03	7:36:40	26.1	7.5	0.98
11-Dec-03	7:37:00	25.9	7.5	0.98
11-Dec-03	7:37:20	25.3	7.5	0.98
11-Dec-03	7:37:40	25.6	7.5	0.98
11-Dec-03	7:38:00	23.9	7.5	0.98
11-Dec-03	7:38:20	22.4	7.5	0.98
11-Dec-03	7:38:40	20.7	7.5	0.98
11-Dec-03	7:39:00	18.7	7.5	0.98
11-Dec-03	7:39:20	17.7	7.5	0.98
11-Dec-03	7:39:40	17.8	7.5	0.98
11-Dec-03	7:40:00	18.6	7.5	0.98
11-Dec-03	7:40:20	19.3	7.5	0.98
11-Dec-03	7:40:40	18.2	7.5	0.98
11-Dec-03	7:41:00	17.8	7.5	0.98
11-Dec-03	7:41:20	18.3	7.5	0.98
11-Dec-03	7:41:40	17	7.5	0.98
11-Dec-03	7:42:00	15.3	7.5	0.98
11-Dec-03	7:42:20	12.7	7.5	0.98
11-Dec-03	7:42:40	12.3	7.5	0.98
11-Dec-03	7:43:00	12	7.5	0.98
11-Dec-03	7:43:20	13.9	7.5	0.98
11-Dec-03	7:43:40	13.8	7.5	0.98
11-Dec-03	7:44:00	16.1	7.5	0.98
11-Dec-03	7:44:20	18.4	7.5	0.98
11-Dec-03	7:44:40	18.4	7.5	0.98
11-Dec-03	7:45:00	18.4	7.5	0.98
11-Dec-03	7:45:20	19	7.5	0.98
11-Dec-03	7:45:40	19.9	7.5	0.98
11-Dec-03	7:46:00	21.8	7.5	0.98
11-Dec-03	7:46:20	24.7	7.5	0.98
11-Dec-03	7:46:40	24.9	7.5	0.98
11-Dec-03	7:47:00	25.6	7.5	0.98
11-Dec-03	7:47:20	24.6	7.5	0.98
11-Dec-03	7:47:40	24.8	7.6	0.98
11-Dec-03	7:48:00	23.6	7.6	0.98
11-Dec-03	7:48:20	22.1	7.6	0.98
11-Dec-03	7:48:40	20.8	7.6	0.98
11-Dec-03	7:49:00	19.4	7.6	0.98
11-Dec-03	7:49:20	18.7	7.6	0.98
11-Dec-03	7:49:40	17.6	7.5	0.98
11-Dec-03	7:50:00	18.1	7.5	0.98
11-Dec-03	7:50:20	19	7.5	0.98
11-Dec-03	7:50:40	18.2	7.5	0.98
11-Dec-03	7:51:00	18.2	7.5	0.98
11-Dec-03	7:51:20	17.2	7.5	0.98
11-Dec-03	7:51:40	19	7.5	0.98
11-Dec-03	7:52:00	19	7.5	0.98

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	7:52:20	18.1	7.5	0.98
11-Dec-03	7:52:40	17.3	7.5	0.98
11-Dec-03	7:53:00	14.4	7.5	0.98
11-Dec-03	7:53:20	13.2	7.5	0.98
11-Dec-03	7:53:40	13.2	7.5	0.98
11-Dec-03	7:54:00	11.6	7.6	0.98
11-Dec-03	7:54:20	10.5	7.5	0.98
11-Dec-03	7:54:40	10	7.5	0.98
11-Dec-03	7:55:00	11.7	7.5	0.98
11-Dec-03	7:55:20	13.6	7.5	0.98
11-Dec-03	7:55:40	14.6	7.5	0.98
11-Dec-03	7:56:00	15.7	7.5	0.981
11-Dec-03	7:56:20	16.3	7.5	0.981
11-Dec-03	7:56:40	17	7.5	0.981
11-Dec-03	7:57:00	15.9	7.6	0.981
11-Dec-03	7:57:20	16	7.6	0.981
11-Dec-03	7:57:40	17.1	7.6	0.981
11-Dec-03	7:58:00	17.4	7.6	0.981
11-Dec-03	7:58:20	19.4	7.6	0.981
11-Dec-03	7:58:40	20.8	7.6	0.981
11-Dec-03	7:59:00	22.3	7.6	0.981
11-Dec-03	7:59:20	22.4	7.6	0.981
11-Dec-03	7:59:40	23.1	7.6	0.981
11-Dec-03	8:00:00	23.8	7.6	0.981
11-Dec-03	8:00:20	23.9	7.6	0.981
11-Dec-03	8:00:40	23.3	7.5	0.981
11-Dec-03	8:01:00	21.9	7.6	0.981
11-Dec-03	8:01:20	22.6	7.6	0.981
11-Dec-03	8:01:40	22.7	7.5	0.981
11-Dec-03	8:02:00	23.1	7.5	0.981
11-Dec-03	8:02:20	23.7	7.5	0.981
11-Dec-03	8:02:40	22.5	7.5	0.981
11-Dec-03	8:03:00	22.4	7.5	0.981
11-Dec-03	8:03:20	20.3	7.5	0.981
11-Dec-03	8:03:40	21.3	7.5	0.981
11-Dec-03	8:04:00	20	7.5	0.981
11-Dec-03	8:04:20	19.9	7.5	0.981
11-Dec-03	8:04:40	19.4	7.5	0.981
11-Dec-03	8:05:00	18.9	7.5	0.981
11-Dec-03	8:05:20	18.3	7.5	0.981
11-Dec-03	8:05:40	17	7.5	0.981
11-Dec-03	8:06:00	16.4	7.5	0.981
11-Dec-03	8:06:20	15.8	7.6	0.981
11-Dec-03	8:06:40	14.2	7.5	0.981
11-Dec-03	8:07:00	13.1	7.5	0.981
11-Dec-03	8:07:20	11.4	7.5	0.981
11-Dec-03	8:07:40	11.8	7.5	0.981
11-Dec-03	8:08:00	11.9	7.5	0.981

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	8:08:20	12.9	7.5	0.981
11-Dec-03	8:08:40	11.7	7.5	0.981
11-Dec-03	8:09:00	11.6	7.5	0.98
11-Dec-03	8:09:20	13.5	7.5	0.981
11-Dec-03	8:09:40	14	7.5	0.981
11-Dec-03	8:10:00	15.5	7.5	0.981
11-Dec-03	8:10:20	15.2	7.5	0.981
11-Dec-03	8:10:40	15	7.5	0.981
11-Dec-03	8:11:00	14.3	7.5	0.981
11-Dec-03	8:11:20	13.7	7.5	0.981
11-Dec-03	8:11:40	14	7.5	0.981
11-Dec-03	8:12:00	16.2	7.5	0.981
11-Dec-03	8:12:20	17.2	7.5	0.981
11-Dec-03	8:12:40	16.9	7.5	0.981
11-Dec-03	8:13:00	17.4	7.6	0.981
11-Dec-03	8:13:20	18.2	7.6	0.981
11-Dec-03	8:13:40	19.2	7.6	0.981
11-Dec-03	8:14:00	20	7.6	0.981
11-Dec-03	8:14:20	21.5	7.6	0.981
11-Dec-03	8:14:40	22.1	7.6	0.981
11-Dec-03	8:15:00	25.4	7.6	0.981
11-Dec-03	8:15:20	26.5	7.6	0.981
11-Dec-03	8:15:40	27.2	7.7	0.981
11-Dec-03	8:16:00	26.7	7.7	0.981
11-Dec-03	8:16:20	27.4	7.7	0.981
11-Dec-03	8:16:40	27.6	7.7	0.981
11-Dec-03	8:17:00	27.7	7.7	0.981
11-Dec-03	8:17:20	26.8	7.7	0.981
11-Dec-03	8:17:40	24.9	7.7	0.981
11-Dec-03	8:18:00	23.5	7.7	0.981
11-Dec-03	8:18:20	22.8	7.7	0.981
11-Dec-03	8:18:40	20.1	7.7	0.981
11-Dec-03	8:19:00	16.9	7.7	0.981
11-Dec-03	8:19:20	15.1	7.7	0.981
11-Dec-03	8:19:40	14.3	7.7	0.981
11-Dec-03	8:20:00	14	7.7	0.981
11-Dec-03	8:20:20	12.7	7.7	0.981
11-Dec-03	8:20:40	11.7	7.7	0.981
11-Dec-03	8:21:00	12.5	7.7	0.981
11-Dec-03	8:21:20	11.2	7.7	0.981
11-Dec-03	8:21:40	10.6	7.7	0.981
11-Dec-03	8:22:00	11	7.7	0.981
11-Dec-03	8:22:20	10.9	7.7	0.981
11-Dec-03	8:22:40	11.4	7.7	0.981
11-Dec-03	8:23:00	10.8	7.7	0.981
11-Dec-03	8:23:20	9.8	7.7	0.981
11-Dec-03	8:23:40	10.6	7.7	0.981
11-Dec-03	8:24:00	9.1	7.7	0.981

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	8:24:20	12.6	7.7	0.981
11-Dec-03	8:24:40	13.5	7.7	0.981
11-Dec-03	8:25:00	9	7.7	0.981
11-Dec-03	8:25:20	8.2	7.7	0.981
11-Dec-03	8:25:40	12.3	7.7	0.981
11-Dec-03	8:26:00	11.4	7.7	0.981
11-Dec-03	8:26:20	8.9	7.7	0.981
11-Dec-03	8:26:40	10.1	7.7	0.981
11-Dec-03	8:27:00	7.1	7.7	0.981
11-Dec-03	8:27:20	4.8	7.7	0.981
11-Dec-03	8:27:40	6.2	7.7	0.981
11-Dec-03	8:28:00	7.5	7.7	0.981
11-Dec-03	8:28:20	5.2	7.7	0.981
11-Dec-03	8:28:40	5.4	7.7	0.981
11-Dec-03	8:29:00	6	7.6	0.981
11-Dec-03	8:29:20	6.8	7.7	0.981
11-Dec-03	8:29:40	7.7	7.7	0.981
11-Dec-03	8:30:00	8.5	7.7	0.981
11-Dec-03	8:30:20	9.6	7.7	0.981
11-Dec-03	8:30:40	11	7.7	0.981
11-Dec-03	8:31:00	12	7.7	0.981
11-Dec-03	8:31:20	11.2	7.7	0.981
11-Dec-03	8:31:40	12.4	7.7	0.981
11-Dec-03	8:32:00	12.7	7.7	0.981
11-Dec-03	8:32:20	12.4	7.7	0.981
11-Dec-03	8:32:40	11.3	7.7	0.981
11-Dec-03	8:33:00	11.7	7.7	0.981
11-Dec-03	8:33:20	9.7	7.7	0.981
11-Dec-03	8:33:40	10.6	7.7	0.981
11-Dec-03	8:34:00	11.9	7.7	0.981
11-Dec-03	8:34:20	12	7.8	0.981
11-Dec-03	8:34:40	10.6	7.8	0.981
11-Dec-03	8:35:00	8.5	7.8	0.981
11-Dec-03	8:35:20	6.9	7.8	0.981
11-Dec-03	8:35:40	6.3	7.8	0.981
11-Dec-03	8:36:00	6.1	7.8	0.981
11-Dec-03	8:36:20	6.5	7.8	0.981
11-Dec-03	8:36:40	7.4	7.8	0.981
11-Dec-03	8:37:00	7.1	7.8	0.981
11-Dec-03	8:37:20	7.4	7.8	0.981
11-Dec-03	8:37:40	6.7	7.8	0.981
11-Dec-03	8:38:00	5.4	7.9	0.981
11-Dec-03	8:38:20	5	7.9	0.981
11-Dec-03	8:38:40	5	7.8	0.981
11-Dec-03	8:39:00	4.1	7.9	0.981
11-Dec-03	8:39:20	3.4	7.9	0.981
11-Dec-03	8:39:40	4.2	7.9	0.981
11-Dec-03	8:40:00	5.2	7.9	0.981

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	8:40:20	4.5	7.9	0.981
11-Dec-03	8:40:40	5.9	7.8	0.981
11-Dec-03	8:41:00	5.9	7.9	0.981
11-Dec-03	8:41:20	9.6	7.9	0.981
11-Dec-03	8:41:40	13.2	7.9	0.981
11-Dec-03	8:42:00	14.5	7.9	0.981
11-Dec-03	8:42:20	14.6	7.9	0.981
11-Dec-03	8:42:40	13.9	7.9	0.982
11-Dec-03	8:43:00	13.8	7.9	0.981
11-Dec-03	8:43:20	10.9	7.9	0.981
11-Dec-03	8:43:40	9.5	7.9	0.981
11-Dec-03	8:44:00	9.5	7.9	0.981
11-Dec-03	8:44:20	10.3	7.9	0.981
11-Dec-03	8:44:40	12.3	8	0.981
11-Dec-03	8:45:00	13.8	8	0.981
11-Dec-03	8:45:20	15.1	8	0.981
11-Dec-03	8:45:40	15	8	0.981
11-Dec-03	8:46:00	12.4	8	0.981
11-Dec-03	8:46:20	11.7	8	0.981
11-Dec-03	8:46:40	10.5	8	0.981
11-Dec-03	8:47:00	9.6	8	0.981
11-Dec-03	8:47:20	8.7	8	0.981
11-Dec-03	8:47:40	6.5	8	0.981
11-Dec-03	8:48:00	3.5	8	0.981
11-Dec-03	8:48:20	3.9	8	0.981
11-Dec-03	8:48:40	4.6	8	0.981
11-Dec-03	8:49:00	4.5	8	0.981
11-Dec-03	8:49:20	4.4	8	0.981
11-Dec-03	8:49:40	3.8	8	0.981
11-Dec-03	8:50:00	3.9	8	0.981
11-Dec-03	8:50:20	2.4	8	0.981
11-Dec-03	8:50:40	3.3	8	0.981
11-Dec-03	8:51:00	6.2	8	0.981
11-Dec-03	8:51:20	7.8	8	0.981
11-Dec-03	8:51:40	9.2	8	0.981
11-Dec-03	8:52:00	11.3	8	0.981
11-Dec-03	8:52:20	13.1	8	0.981
11-Dec-03	8:52:40	14.2	8	0.981
11-Dec-03	8:53:00	14.9	8	0.981
11-Dec-03	8:53:20	14.4	8	0.981
11-Dec-03	8:53:40	14.9	8	0.981
11-Dec-03	8:54:00	13.7	8	0.981
11-Dec-03	8:54:20	11.6	8	0.981
11-Dec-03	8:54:40	10.1	8	0.981
11-Dec-03	8:55:00	9.2	8	0.981
11-Dec-03	8:55:20	9.2	8	0.981
11-Dec-03	8:55:40	10.1	8	0.981
11-Dec-03	8:56:00	11.4	8	0.981

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	8:56:20	12.5	8	0.981
11-Dec-03	8:56:40	13.7	8	0.981
11-Dec-03	8:57:00	13.4	8	0.982
11-Dec-03	8:57:20	12	8	0.981
11-Dec-03	8:57:40	12.1	8	0.982
11-Dec-03	8:58:00	11.4	8	0.982
11-Dec-03	8:58:20	10.2	8	0.982
11-Dec-03	8:58:40	9.6	8	0.982
11-Dec-03	8:59:00	8.6	8	0.982
11-Dec-03	8:59:20	9	8	0.982
11-Dec-03	8:59:40	8.7	8	0.982
11-Dec-03	9:00:00	7.5	8	0.982
11-Dec-03	9:00:20	7.5	8	0.982
11-Dec-03	9:00:40	9.2	8	0.982
11-Dec-03	9:01:00	10.7	8	0.982
11-Dec-03	9:01:20	13.9	8	0.982
11-Dec-03	9:01:40	16.1	8	0.982
11-Dec-03	9:02:00	18.2	8	0.982
11-Dec-03	9:02:20	19.4	8.1	0.982
11-Dec-03	9:02:40	20.7	8.1	0.982
11-Dec-03	9:03:00	23	8.1	0.982
11-Dec-03	9:03:20	25	8.1	0.982
11-Dec-03	9:03:40	26.2	8.1	0.982
11-Dec-03	9:04:00	27.5	8.1	0.982
11-Dec-03	9:04:20	28.4	8.1	0.982
11-Dec-03	9:04:40	26.1	8.1	0.982
11-Dec-03	9:05:00	24	8.1	0.982
11-Dec-03	9:05:20	22.5	8.1	0.982
11-Dec-03	9:05:40	19.9	8.1	0.982
11-Dec-03	9:06:00	18.1	8.2	0.982
11-Dec-03	9:06:20	17.4	8.1	0.982
11-Dec-03	9:06:40	16.3	8.1	0.982
11-Dec-03	9:07:00	15.1	8.1	0.982
11-Dec-03	9:07:20	16	8.1	0.982
11-Dec-03	9:07:40	16.6	8.1	0.982
11-Dec-03	9:08:00	17.7	8.1	0.982
11-Dec-03	9:08:20	16.9	8.1	0.982
11-Dec-03	9:08:40	16.2	8.1	0.982
11-Dec-03	9:09:00	15.6	8.1	0.982
11-Dec-03	9:09:20	14.4	8.1	0.982
11-Dec-03	9:09:40	13.3	8.1	0.982
11-Dec-03	9:10:00	12.8	8.1	0.982
11-Dec-03	9:10:20	12.9	8.1	0.982
11-Dec-03	9:10:40	12	8.1	0.982
11-Dec-03	9:11:00	12.4	8.1	0.982
11-Dec-03	9:11:20	11.2	8.1	0.982
11-Dec-03	9:11:40	10.5	8.1	0.982
11-Dec-03	9:12:00	11.3	8.1	0.982

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	9:12:20	12.3	8.1	0.982
11-Dec-03	9:12:40	13.5	8.1	0.982
11-Dec-03	9:13:00	12.9	8.1	0.982
11-Dec-03	9:13:20	11.3	8.1	0.982
11-Dec-03	9:13:40	10.4	8.2	0.982
11-Dec-03	9:14:00	10.6	8.2	0.982
11-Dec-03	9:14:20	9.3	8.2	0.982
11-Dec-03	9:14:40	9.5	8.2	0.982
11-Dec-03	9:15:00	10.3	8.2	0.982
11-Dec-03	9:15:20	9.8	8.2	0.982
11-Dec-03	9:15:40	9.3	8.2	0.982
11-Dec-03	9:16:00	8.8	8.2	0.982
11-Dec-03	9:16:20	8	8.2	0.982
11-Dec-03	9:16:40	9.3	8.2	0.982
11-Dec-03	9:17:00	9.9	8.2	0.982
11-Dec-03	9:17:20	8.8	8.2	0.982
11-Dec-03	9:17:40	9.1	8.2	0.982
11-Dec-03	9:18:00	11.5	8.2	0.982
11-Dec-03	9:18:20	13.1	8.2	0.982
11-Dec-03	9:18:40	13.7	8.2	0.982
11-Dec-03	9:19:00	14.4	8.2	0.982
11-Dec-03	9:19:20	16.1	8.2	0.982
11-Dec-03	9:19:40	17.7	8.2	0.982
11-Dec-03	9:20:00	19.3	8.1	0.982
11-Dec-03	9:20:20	18.9	8.2	0.982
11-Dec-03	9:20:40	18.4	8.2	0.982
11-Dec-03	9:21:00	19.5	8.2	0.982
11-Dec-03	9:21:20	20.8	8.2	0.982
11-Dec-03	9:21:40	20.7	8.2	0.982
11-Dec-03	9:22:00	20.7	8.2	0.982
11-Dec-03	9:22:20	21.4	8.2	0.982
11-Dec-03	9:22:40	19.8	8.2	0.982
11-Dec-03	9:23:00	20.9	8.2	0.982
11-Dec-03	9:23:20	20	8.2	0.982
11-Dec-03	9:23:40	19.3	8.2	0.982
11-Dec-03	9:24:00	18.1	8.2	0.982
11-Dec-03	9:24:20	17.6	8.2	0.982
11-Dec-03	9:24:40	17.1	8.2	0.982
11-Dec-03	9:25:00	16.6	8.3	0.982
11-Dec-03	9:25:20	15.6	8.3	0.982
11-Dec-03	9:25:40	14.7	8.3	0.982
11-Dec-03	9:26:00	15.6	8.3	0.982
11-Dec-03	9:26:20	14.6	8.3	0.982
11-Dec-03	9:26:40	14.8	8.3	0.982
11-Dec-03	9:27:00	15.4	8.3	0.982
11-Dec-03	9:27:20	14.6	8.3	0.982
11-Dec-03	9:27:40	17.1	8.3	0.982
11-Dec-03	9:28:00	18.7	8.3	0.982

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
11-Dec-03	9:28:20	18.8	8.3	0.982	
11-Dec-03	9:28:40	20.6	8.3	0.982	
11-Dec-03	9:29:00	20	8.3	0.982	
11-Dec-03	9:29:20	21.1	8.3	0.982	
11-Dec-03	9:29:40	22.7	8.3	0.982	
11-Dec-03	9:30:00	24	8.3	0.982	
11-Dec-03	9:30:20	25.6	8.3	0.982	
11-Dec-03	9:30:40	27.6	8.3	0.982	
11-Dec-03	9:31:00	27.1	8.3	0.982	
11-Dec-03	9:31:20	25.3	8.3	0.982	
11-Dec-03	9:31:40	25.9	8.3	0.982	
11-Dec-03	9:32:00	26.4	8.3	0.982	
11-Dec-03	9:32:20	25.8	8.3	0.982	
11-Dec-03	9:32:40	24.1	8.3	0.982	
11-Dec-03	9:33:00	25.5	8.3	0.982	
11-Dec-03	9:33:20	26.8	8.3	0.982	
11-Dec-03	9:33:40	27.6	8.3	0.982	
11-Dec-03	9:34:00	29.3	8.4	0.982	
11-Dec-03	9:34:20	30.7	8.4	0.982	
11-Dec-03	9:34:40	32.4	8.4	0.982	
11-Dec-03	9:35:00	32.2	8.4	0.982	
11-Dec-03	9:35:20	32.6	8.4	0.982	
11-Dec-03	9:35:40	34.8	8.4	0.982	
11-Dec-03	9:36:00	35.3	8.4	0.982	
11-Dec-03	9:36:20	35.9	8.4	0.982	
11-Dec-03	9:36:40	36.4	8.4	0.982	
11-Dec-03	9:37:00	37.8	8.4	0.982	Stop Run # 2
		16.4			Average
11-Dec-03	12:21:00	128.1	12.3	0.983	Start Run # 3
11-Dec-03	12:21:20	127.4	12.3	0.983	
11-Dec-03	12:21:40	128.6	12.3	0.983	
11-Dec-03	12:22:00	125.8	12.3	0.983	
11-Dec-03	12:22:20	126.9	12.3	0.983	
11-Dec-03	12:22:40	122.6	12.3	0.983	
11-Dec-03	12:23:00	122.2	12.2	0.983	
11-Dec-03	12:23:20	118.7	12.2	0.983	
11-Dec-03	12:23:40	117.7	12.2	0.983	
11-Dec-03	12:24:00	114.8	12.2	0.983	
11-Dec-03	12:24:20	112.7	12.1	0.983	
11-Dec-03	12:24:40	117.5	12.2	0.983	
11-Dec-03	12:25:00	141.8	12.1	0.983	
11-Dec-03	12:25:20	179.9	12.1	0.983	
11-Dec-03	12:25:40	214.8	12.1	0.983	
11-Dec-03	12:26:00	245.9	12.1	0.983	
11-Dec-03	12:26:20	271	12	0.983	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	12:26:40	291.8	12	0.983
11-Dec-03	12:27:00	308.3	12	0.983
11-Dec-03	12:27:20	315.4	12	0.983
11-Dec-03	12:27:40	319.2	11.9	0.983
11-Dec-03	12:28:00	322.4	11.9	0.983
11-Dec-03	12:28:20	322.2	11.9	0.983
11-Dec-03	12:28:40	319.6	11.9	0.983
11-Dec-03	12:29:00	316.6	11.9	0.983
11-Dec-03	12:29:20	311.9	11.9	0.983
11-Dec-03	12:29:40	306.5	11.9	0.983
11-Dec-03	12:30:00	299.2	12	0.983
11-Dec-03	12:30:20	287.7	12	0.983
11-Dec-03	12:30:40	279.9	12	0.983
11-Dec-03	12:31:00	269.7	12	0.983
11-Dec-03	12:31:20	261.2	12	0.983
11-Dec-03	12:31:40	251.2	12.1	0.983
11-Dec-03	12:32:00	239.7	12.1	0.983
11-Dec-03	12:32:20	228	12.2	0.983
11-Dec-03	12:32:40	217.8	12.2	0.983
11-Dec-03	12:33:00	209.2	12.3	0.983
11-Dec-03	12:33:20	200.7	12.3	0.983
11-Dec-03	12:33:40	192.9	12.3	0.983
11-Dec-03	12:34:00	182.7	12.4	0.983
11-Dec-03	12:34:20	177.7	12.4	0.983
11-Dec-03	12:34:40	166.6	12.3	0.983
11-Dec-03	12:35:00	157.7	12.3	0.983
11-Dec-03	12:35:20	151.4	12.4	0.983
11-Dec-03	12:35:40	144.7	12.4	0.983
11-Dec-03	12:36:00	139.1	12.4	0.983
11-Dec-03	12:36:20	132.6	12.4	0.983
11-Dec-03	12:36:40	126.4	12.4	0.983
11-Dec-03	12:37:00	121.2	12.4	0.983
11-Dec-03	12:37:20	117.7	12.4	0.983
11-Dec-03	12:37:40	113	12.4	0.983
11-Dec-03	12:38:00	108.9	12.4	0.983
11-Dec-03	12:38:20	104.8	12.4	0.983
11-Dec-03	12:38:40	102.5	12.3	0.983
11-Dec-03	12:39:00	97.3	12.3	0.983
11-Dec-03	12:39:20	93.8	12.3	0.983
11-Dec-03	12:39:40	91.6	12.3	0.983
11-Dec-03	12:40:00	88	12.3	0.983
11-Dec-03	12:40:20	83.7	12.3	0.983
11-Dec-03	12:40:40	79.6	12.2	0.983
11-Dec-03	12:41:00	75	12.2	0.983
11-Dec-03	12:41:20	71	12.2	0.983
11-Dec-03	12:41:40	70.5	12.2	0.983
11-Dec-03	12:42:00	69.9	12.2	0.983
11-Dec-03	12:42:20	67.5	12.2	0.983

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	12:42:40	64.5	12.3	0.983
11-Dec-03	12:43:00	60.6	12.4	0.983
11-Dec-03	12:43:20	59.3	12.4	0.983
11-Dec-03	12:43:40	56.3	12.4	0.983
11-Dec-03	12:44:00	54.2	12.4	0.983
11-Dec-03	12:44:20	53.5	12.4	0.983
11-Dec-03	12:44:40	49.6	12.4	0.983
11-Dec-03	12:45:00	48.3	12.4	0.983
11-Dec-03	12:45:20	48.5	12.4	0.983
11-Dec-03	12:45:40	48.1	12.4	0.983
11-Dec-03	12:46:00	48.3	12.4	0.983
11-Dec-03	12:46:20	49.9	12.4	0.983
11-Dec-03	12:46:40	50.1	12.4	0.983
11-Dec-03	12:47:00	48.5	12.5	0.983
11-Dec-03	12:47:20	46.7	12.5	0.983
11-Dec-03	12:47:40	45.7	12.5	0.983
11-Dec-03	12:48:00	43.9	12.5	0.983
11-Dec-03	12:48:20	42.1	12.5	0.983
11-Dec-03	12:48:40	40.5	12.5	0.983
11-Dec-03	12:49:00	41	12.4	0.983
11-Dec-03	12:49:20	43.3	12.5	0.983
11-Dec-03	12:49:40	42.1	12.4	0.983
11-Dec-03	12:50:00	43.7	12.5	0.983
11-Dec-03	12:50:20	41.4	12.5	0.983
11-Dec-03	12:50:40	38.5	12.5	0.983
11-Dec-03	12:51:00	38.6	12.5	0.983
11-Dec-03	12:51:20	38.4	12.4	0.983
11-Dec-03	12:51:40	38.9	12.4	0.983
11-Dec-03	12:52:00	38	12.4	0.983
11-Dec-03	12:52:20	37.8	12.4	0.983
11-Dec-03	12:52:40	36.9	12.4	0.984
11-Dec-03	12:53:00	33.7	12.5	0.983
11-Dec-03	12:53:20	31.3	12.5	0.983
11-Dec-03	12:53:40	28.4	12.5	0.983
11-Dec-03	12:54:00	26.8	12.5	0.984
11-Dec-03	12:54:20	26.1	12.4	0.984
11-Dec-03	12:54:40	26.3	12.4	0.983
11-Dec-03	12:55:00	25.8	12.4	0.983
11-Dec-03	12:55:20	25.9	12.3	0.984
11-Dec-03	12:55:40	26.9	12.3	0.984
11-Dec-03	12:56:00	27	12.4	0.984
11-Dec-03	12:56:20	27.1	12.3	0.983
11-Dec-03	12:56:40	25.7	12.3	0.983
11-Dec-03	12:57:00	26.8	12.3	0.983
11-Dec-03	12:57:20	26	12.3	0.984
11-Dec-03	12:57:40	25.3	12.3	0.984
11-Dec-03	12:58:00	26.7	12.3	0.984
11-Dec-03	12:58:20	27	12.4	0.984

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	12:58:40	27.1	12.4	0.984
11-Dec-03	12:59:00	27.3	12.4	0.983
11-Dec-03	12:59:20	24.4	12.4	0.984
11-Dec-03	12:59:40	22.3	12.4	0.984
11-Dec-03	13:00:00	23.9	12.5	0.984
11-Dec-03	13:00:20	24	12.5	0.983
11-Dec-03	13:00:40	22.9	12.6	0.983
11-Dec-03	13:01:00	22	12.6	0.983
11-Dec-03	13:01:20	21.8	12.7	0.983
11-Dec-03	13:01:40	25.1	12.7	0.983
11-Dec-03	13:02:00	26.3	12.8	0.983
11-Dec-03	13:02:20	26.6	13	0.983
11-Dec-03	13:02:40	27.2	13	0.983
11-Dec-03	13:03:00	26.1	13.1	0.983
11-Dec-03	13:03:20	24.5	13.2	0.983
11-Dec-03	13:03:40	22.8	13.2	0.983
11-Dec-03	13:04:00	24.3	13.3	0.983
11-Dec-03	13:04:20	23.9	13.3	0.984
11-Dec-03	13:04:40	23.3	13.3	0.984
11-Dec-03	13:05:00	21.5	13.3	0.983
11-Dec-03	13:05:20	20.7	13.2	0.983
11-Dec-03	13:05:40	21.8	13.1	0.983
11-Dec-03	13:06:00	20.5	13.1	0.983
11-Dec-03	13:06:20	20.4	13.1	0.984
11-Dec-03	13:06:40	20.5	13.1	0.984
11-Dec-03	13:07:00	19.3	13.1	0.983
11-Dec-03	13:07:20	17.4	13	0.984
11-Dec-03	13:07:40	17.6	13	0.984
11-Dec-03	13:08:00	16.4	13	0.984
11-Dec-03	13:08:20	17.2	13	0.983
11-Dec-03	13:08:40	16	12.9	0.984
11-Dec-03	13:09:00	15.1	12.9	0.983
11-Dec-03	13:09:20	14.8	12.9	0.983
11-Dec-03	13:09:40	14.4	12.9	0.984
11-Dec-03	13:10:00	16.6	12.9	0.984
11-Dec-03	13:10:20	17.4	12.9	0.984
11-Dec-03	13:10:40	19.5	12.9	0.984
11-Dec-03	13:11:00	16.7	12.9	0.983
11-Dec-03	13:11:20	15.4	12.9	0.984
11-Dec-03	13:11:40	17.3	12.9	0.984
11-Dec-03	13:12:00	19.5	12.9	0.983
11-Dec-03	13:12:20	20.4	12.9	0.983
11-Dec-03	13:12:40	20.2	12.9	0.983
11-Dec-03	13:13:00	19.2	12.9	0.984
11-Dec-03	13:13:20	19.2	12.9	0.984
11-Dec-03	13:13:40	20.2	12.9	0.984
11-Dec-03	13:14:00	21.2	12.9	0.984
11-Dec-03	13:14:20	20.1	12.9	0.984

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	13:14:40	21.7	12.9	0.984
11-Dec-03	13:15:00	21.7	12.9	0.984
11-Dec-03	13:15:20	21	12.9	0.984
11-Dec-03	13:15:40	21.2	12.9	0.984
11-Dec-03	13:16:00	20.7	12.8	0.984
11-Dec-03	13:16:20	20	12.8	0.984
11-Dec-03	13:16:40	19.4	12.7	0.984
11-Dec-03	13:17:00	21	12.7	0.984
11-Dec-03	13:17:20	23.4	12.6	0.984
11-Dec-03	13:17:40	23.9	12.6	0.984
11-Dec-03	13:18:00	26.2	12.5	0.984
11-Dec-03	13:18:20	28.4	12.5	0.984
11-Dec-03	13:18:40	28.7	12.5	0.984
11-Dec-03	13:19:00	30.5	12.5	0.984
11-Dec-03	13:19:20	31.9	12.4	0.984
11-Dec-03	13:19:40	35.6	12.3	0.984
11-Dec-03	13:20:00	37.4	12.3	0.984
11-Dec-03	13:20:20	36.7	12.3	0.984
11-Dec-03	13:20:40	35.4	12.2	0.983
11-Dec-03	13:21:00	33.7	12.2	0.984
11-Dec-03	13:21:20	34.1	12.2	0.983
11-Dec-03	13:21:40	35	12.2	0.984
11-Dec-03	13:22:00	35.6	12.2	0.984
11-Dec-03	13:22:20	37.5	12.2	0.984
11-Dec-03	13:22:40	39.9	12.2	0.983
11-Dec-03	13:23:00	40.9	12.2	0.984
11-Dec-03	13:23:20	42.3	12.3	0.984
11-Dec-03	13:23:40	42.6	12.3	0.984
11-Dec-03	13:24:00	45.1	12.3	0.984
11-Dec-03	13:24:20	49.7	12.3	0.984
11-Dec-03	13:24:40	54.5	12.3	0.983
11-Dec-03	13:25:00	55	12.3	0.983
11-Dec-03	13:25:20	55.5	12.3	0.984
11-Dec-03	13:25:40	56	12.3	0.984
11-Dec-03	13:26:00	57.1	12.3	0.983
11-Dec-03	13:26:20	56.8	12.3	0.984
11-Dec-03	13:26:40	56.8	12.3	0.984
11-Dec-03	13:27:00	56.8	12.4	0.984
11-Dec-03	13:27:20	57.2	12.3	0.984
11-Dec-03	13:27:40	57.3	12.3	0.983
11-Dec-03	13:28:00	57.2	12.3	0.983
11-Dec-03	13:28:20	56.5	12.3	0.984
11-Dec-03	13:28:40	56.1	12.3	0.983
11-Dec-03	13:29:00	55.1	12.3	0.983
11-Dec-03	13:29:20	54.9	12.3	0.984
11-Dec-03	13:29:40	54	12.3	0.984
11-Dec-03	13:30:00	51.7	12.3	0.984
11-Dec-03	13:30:20	48.4	12.3	0.984

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	13:30:40	47.1	12.3	0.984
11-Dec-03	13:31:00	47.8	12.3	0.984
11-Dec-03	13:31:20	47.6	12.3	0.984
11-Dec-03	13:31:40	48.6	12.3	0.984
11-Dec-03	13:32:00	48.4	12.3	0.984
11-Dec-03	13:32:20	46.8	12.4	0.984
11-Dec-03	13:32:40	44.4	12.4	0.984
11-Dec-03	13:33:00	46.9	12.4	0.984
11-Dec-03	13:33:20	44.5	12.4	0.984
11-Dec-03	13:33:40	41.3	12.4	0.984
11-Dec-03	13:34:00	40.8	12.5	0.984
11-Dec-03	13:34:20	40.5	12.5	0.984
11-Dec-03	13:34:40	38.2	12.5	0.984
11-Dec-03	13:35:00	35.1	12.6	0.984
11-Dec-03	13:35:20	35.1	12.6	0.984
11-Dec-03	13:35:40	36.4	12.5	0.984
11-Dec-03	13:36:00	34.9	12.6	0.984
11-Dec-03	13:36:20	38	12.6	0.984
11-Dec-03	13:36:40	37.2	12.6	0.984
11-Dec-03	13:37:00	35	12.6	0.984
11-Dec-03	13:37:20	34.6	12.7	0.984
11-Dec-03	13:37:40	33.6	12.7	0.984
11-Dec-03	13:38:00	32.3	12.7	0.984
11-Dec-03	13:38:20	32.6	12.7	0.984
11-Dec-03	13:38:40	32.4	12.7	0.984
11-Dec-03	13:39:00	33.8	12.7	0.984
11-Dec-03	13:39:20	33.3	12.8	0.984
11-Dec-03	13:39:40	32.1	12.8	0.984
11-Dec-03	13:40:00	26.6	12.8	0.984
11-Dec-03	13:40:20	22.8	12.8	0.984
11-Dec-03	13:40:40	23.6	12.9	0.984
11-Dec-03	13:41:00	23.5	12.9	0.984
11-Dec-03	13:41:20	22.9	12.9	0.984
11-Dec-03	13:41:40	22	12.9	0.984
11-Dec-03	13:42:00	22.3	12.9	0.984
11-Dec-03	13:42:20	25.1	12.8	0.984
11-Dec-03	13:42:40	23.6	12.8	0.984
11-Dec-03	13:43:00	21	12.8	0.984
11-Dec-03	13:43:20	20.1	12.8	0.984
11-Dec-03	13:43:40	20.1	12.8	0.984
11-Dec-03	13:44:00	21.5	12.8	0.984
11-Dec-03	13:44:20	22.3	12.8	0.984
11-Dec-03	13:44:40	22.1	12.9	0.984
11-Dec-03	13:45:00	22.8	12.9	0.984
11-Dec-03	13:45:20	22.6	12.9	0.984
11-Dec-03	13:45:40	21.3	12.9	0.984
11-Dec-03	13:46:00	21	13	0.984
11-Dec-03	14:31:00	19.2	13	0.984

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	14:31:20	21.4	13	0.984
11-Dec-03	14:31:40	21.3	12.9	0.984
11-Dec-03	14:32:00	18	12.9	0.984
11-Dec-03	14:32:20	16.1	12.9	0.984
11-Dec-03	14:32:40	17.4	12.9	0.984
11-Dec-03	14:33:00	18.5	12.9	0.984
11-Dec-03	14:33:20	19.1	12.9	0.984
11-Dec-03	14:33:40	23.4	12.9	0.984
11-Dec-03	14:34:00	23.6	12.9	0.984
11-Dec-03	14:34:20	25.5	12.9	0.984
11-Dec-03	14:34:40	30	12.9	0.984
11-Dec-03	14:35:00	31	12.9	0.984
11-Dec-03	14:35:20	33.5	12.9	0.984
11-Dec-03	14:35:40	35.6	12.9	0.985
11-Dec-03	14:36:00	38.3	12.9	0.985
11-Dec-03	14:36:20	39.5	12.9	0.984
11-Dec-03	14:36:40	41.5	13	0.985
11-Dec-03	14:37:00	45.6	12.9	0.985
11-Dec-03	14:37:20	45.2	12.9	0.985
11-Dec-03	14:37:40	45.1	12.9	0.985
11-Dec-03	14:38:00	47.4	12.9	0.985
11-Dec-03	14:38:20	48.8	12.9	0.985
11-Dec-03	14:38:40	50.8	12.9	0.985
11-Dec-03	14:39:00	51.2	12.9	0.985
11-Dec-03	14:39:20	53.3	12.9	0.985
11-Dec-03	14:39:40	53.9	12.9	0.985
11-Dec-03	14:40:00	54.2	12.9	0.985
11-Dec-03	14:40:20	55.3	12.9	0.985
11-Dec-03	14:40:40	54.8	12.9	0.985
11-Dec-03	14:41:00	53.2	12.9	0.985
11-Dec-03	14:41:20	53.4	12.9	0.985
11-Dec-03	14:41:40	55.9	12.9	0.985
11-Dec-03	14:42:00	56.8	12.9	0.985
11-Dec-03	14:42:20	56.3	12.9	0.985
11-Dec-03	14:42:40	55.1	12.9	0.985
11-Dec-03	14:43:00	54.8	12.9	0.985
11-Dec-03	14:43:20	53.7	12.9	0.985
11-Dec-03	14:43:40	52.6	12.9	0.985
11-Dec-03	14:44:00	52.6	12.8	0.985
11-Dec-03	14:44:20	51.6	12.8	0.985
11-Dec-03	14:44:40	51.4	12.8	0.985
11-Dec-03	14:45:00	52	12.8	0.985
11-Dec-03	14:45:20	50.6	12.8	0.985
11-Dec-03	14:45:40	51.6	12.8	0.985
11-Dec-03	14:46:00	49.5	12.8	0.985
11-Dec-03	14:46:20	45.8	12.8	0.985
11-Dec-03	14:46:40	47.2	12.7	0.985
11-Dec-03	14:47:00	46.5	12.8	0.985

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	14:47:20	44.2	12.8	0.985
11-Dec-03	14:47:40	44	12.8	0.985
11-Dec-03	14:48:00	44.4	12.8	0.985
11-Dec-03	14:48:20	42.3	12.8	0.985
11-Dec-03	14:48:40	41.7	12.8	0.985
11-Dec-03	14:49:00	39.2	12.8	0.985
11-Dec-03	14:49:20	38	12.8	0.985
11-Dec-03	14:49:40	38.1	12.8	0.985
11-Dec-03	14:50:00	37.2	12.8	0.985
11-Dec-03	14:50:20	36.6	12.8	0.985
11-Dec-03	14:50:40	36.4	12.8	0.985
11-Dec-03	14:51:00	34.7	12.8	0.985
11-Dec-03	14:51:20	33.6	12.8	0.985
11-Dec-03	14:51:40	33.1	12.8	0.985
11-Dec-03	14:52:00	32.4	12.8	0.985
11-Dec-03	14:52:20	34.2	12.8	0.985
11-Dec-03	14:52:40	33.7	12.7	0.985
11-Dec-03	14:53:00	37.2	12.7	0.985
11-Dec-03	14:53:20	39.5	12.7	0.985
11-Dec-03	14:53:40	40.2	12.7	0.985
11-Dec-03	14:54:00	41.6	12.7	0.985
11-Dec-03	14:54:20	40.8	12.7	0.985
11-Dec-03	14:54:40	38.6	12.7	0.985
11-Dec-03	14:55:00	36.3	12.6	0.985
11-Dec-03	14:55:20	34.1	12.6	0.985
11-Dec-03	14:55:40	32.6	12.7	0.985
11-Dec-03	14:56:00	31.2	12.7	0.985
11-Dec-03	14:56:20	29.4	12.6	0.985
11-Dec-03	14:56:40	26.8	12.7	0.985
11-Dec-03	14:57:00	26.6	12.7	0.985
11-Dec-03	14:57:20	26.6	12.7	0.985
11-Dec-03	14:57:40	26	12.7	0.985
11-Dec-03	14:58:00	24.2	12.7	0.985
11-Dec-03	14:58:20	23.1	12.7	0.985
11-Dec-03	14:58:40	23.5	12.6	0.985
11-Dec-03	14:59:00	24	12.7	0.985
11-Dec-03	14:59:20	25.1	12.7	0.985
11-Dec-03	14:59:40	24.2	12.7	0.985
11-Dec-03	15:00:00	25.4	12.7	0.985
11-Dec-03	15:00:20	26.8	12.7	0.985
11-Dec-03	15:00:40	26.9	12.7	0.985
11-Dec-03	15:01:00	25.5	12.7	0.985
11-Dec-03	15:01:20	25.9	12.7	0.985
11-Dec-03	15:01:40	25.3	12.7	0.985
11-Dec-03	15:02:00	27.7	12.7	0.985
11-Dec-03	15:02:20	29.8	12.7	0.985
11-Dec-03	15:02:40	30.9	12.7	0.985
11-Dec-03	15:03:00	32.4	12.6	0.985

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	15:03:20	35.1	12.6	0.985
11-Dec-03	15:03:40	36.9	12.6	0.985
11-Dec-03	15:04:00	38.8	12.6	0.985
11-Dec-03	15:04:20	40	12.6	0.985
11-Dec-03	15:04:40	39.4	12.7	0.985
11-Dec-03	15:05:00	40.2	12.7	0.985
11-Dec-03	15:05:20	43	12.7	0.985
11-Dec-03	15:05:40	44.8	12.7	0.985
11-Dec-03	15:06:00	44.8	12.7	0.985
11-Dec-03	15:06:20	42.8	12.7	0.985
11-Dec-03	15:06:40	41.3	12.7	0.985
11-Dec-03	15:07:00	40.6	12.8	0.985
11-Dec-03	15:07:20	41.3	12.8	0.985
11-Dec-03	15:07:40	41.2	12.8	0.985
11-Dec-03	15:08:00	42.1	12.8	0.985
11-Dec-03	15:08:20	42.1	12.8	0.985
11-Dec-03	15:08:40	43.2	12.8	0.985
11-Dec-03	15:09:00	44.8	12.8	0.985
11-Dec-03	15:09:20	43	12.8	0.985
11-Dec-03	15:09:40	43.9	12.7	0.985
11-Dec-03	15:10:00	43	12.8	0.985
11-Dec-03	15:10:20	43.4	12.7	0.985
11-Dec-03	15:10:40	43.6	12.8	0.985
11-Dec-03	15:11:00	44	12.8	0.985
11-Dec-03	15:11:20	45.2	12.8	0.985
11-Dec-03	15:11:40	43.9	12.8	0.985
11-Dec-03	15:12:00	41.6	12.8	0.985
11-Dec-03	15:12:20	41.1	12.8	0.985
11-Dec-03	15:12:40	37.7	12.7	0.985
11-Dec-03	15:13:00	36	12.7	0.985
11-Dec-03	15:13:20	34.4	12.7	0.985
11-Dec-03	15:13:40	33	12.7	0.985
11-Dec-03	15:14:00	34.3	12.7	0.985
11-Dec-03	15:14:20	36.1	12.7	0.985
11-Dec-03	15:14:40	38.2	12.7	0.985
11-Dec-03	15:15:00	37.6	12.7	0.985
11-Dec-03	15:15:20	41.5	12.7	0.985
11-Dec-03	15:15:40	43.7	12.6	0.985
11-Dec-03	15:16:00	44.7	12.6	0.985
11-Dec-03	15:16:20	46.2	12.6	0.985
11-Dec-03	15:16:40	48	12.6	0.985
11-Dec-03	15:17:00	49.6	12.6	0.986
11-Dec-03	15:17:20	51.3	12.6	0.986
11-Dec-03	15:17:40	53.4	12.6	0.986
11-Dec-03	15:18:00	56.5	12.6	0.986
11-Dec-03	15:18:20	54.2	12.6	0.986
11-Dec-03	15:18:40	52	12.6	0.986
11-Dec-03	15:19:00	50.8	12.6	0.986

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
11-Dec-03	15:19:20	50.3	12.6	0.986
11-Dec-03	15:19:40	50	12.6	0.986
11-Dec-03	15:20:00	50.4	12.6	0.986
11-Dec-03	15:20:20	49.1	12.6	0.986
11-Dec-03	15:20:40	49.1	12.6	0.986
11-Dec-03	15:21:00	49.5	12.6	0.986
11-Dec-03	15:21:20	50.7	12.6	0.986
11-Dec-03	15:21:40	52.5	12.6	0.986
11-Dec-03	15:22:00	54.7	12.6	0.986
11-Dec-03	15:22:20	55.3	12.6	0.986
11-Dec-03	15:22:40	56.1	12.6	0.986
11-Dec-03	15:23:00	56.5	12.6	0.986
11-Dec-03	15:23:20	56.2	12.6	0.986
11-Dec-03	15:23:40	57	12.6	0.986
11-Dec-03	15:24:00	57.6	12.6	0.986
11-Dec-03	15:24:20	57.9	12.6	0.986
11-Dec-03	15:24:40	54.3	12.6	0.986
11-Dec-03	15:25:00	53.3	12.6	0.986
11-Dec-03	15:25:20	53.6	12.6	0.986
11-Dec-03	15:25:40	53.6	12.6	0.986
11-Dec-03	15:26:00	53.4	12.6	0.986
11-Dec-03	15:26:20	52.9	12.6	0.986
11-Dec-03	15:26:40	53.8	12.6	0.986
11-Dec-03	15:27:00	50.8	12.6	0.986
11-Dec-03	15:27:20	49.2	12.6	0.986
11-Dec-03	15:27:40	49.1	12.6	0.986
11-Dec-03	15:28:00	49.3	12.6	0.986
11-Dec-03	15:28:20	49.5	12.6	0.986
11-Dec-03	15:28:40	48.6	12.6	0.986
11-Dec-03	15:29:00	50.1	12.6	0.986
11-Dec-03	15:29:20	51.7	12.6	0.986
11-Dec-03	15:29:40	52.4	12.6	0.986
11-Dec-03	15:30:00	54.4	12.6	0.986
11-Dec-03	15:30:20	55.9	12.6	0.986
11-Dec-03	15:30:40	54.6	12.6	0.986
11-Dec-03	15:31:00	55.4	12.6	0.986
11-Dec-03	15:31:20	53.7	12.5	0.986
11-Dec-03	15:31:40	52.7	12.5	0.986
11-Dec-03	15:32:00	52.6	12.5	0.986
11-Dec-03	15:32:20	53.4	12.5	0.986
11-Dec-03	15:32:40	53.1	12.5	0.986
11-Dec-03	15:33:00	53	12.5	0.986
11-Dec-03	15:33:20	52.7	12.4	0.986
11-Dec-03	15:33:40	52.5	12.4	0.986
11-Dec-03	15:34:00	52.2	12.4	0.986
11-Dec-03	15:34:20	50.9	12.4	0.986
11-Dec-03	15:34:40	48.9	12.4	0.986
11-Dec-03	15:35:00	47.3	12.4	0.986

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
11-Dec-03	15:35:20	46.2	12.3	0.986	
11-Dec-03	15:35:40	45.3	12.3	0.986	
11-Dec-03	15:36:00	43.1	12.3	0.986	
11-Dec-03	15:36:20	43	12.3	0.986	
11-Dec-03	15:36:40	44.6	12.3	0.986	
11-Dec-03	15:37:00	45.5	12.3	0.986	
11-Dec-03	15:37:20	45.5	12.3	0.986	
11-Dec-03	15:37:40	45.3	12.3	0.986	
11-Dec-03	15:38:00	45.4	12.3	0.986	Stop Run # 3
		57.9			Averages
		38.1	Avg after 1243		

APPENDIX A3

S.T. WOOTEN CENTRAL MIX

PM_{10} TEOM DATA

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	9:10:00	28.5	17.4	0.997	Start Run # 1
2-Mar-04	9:10:20	27.3	17.4	0.997	
2-Mar-04	9:10:40	26.4	17.4	0.997	
2-Mar-04	9:11:00	26	17.4	0.997	
2-Mar-04	9:11:20	26	17.4	0.997	
2-Mar-04	9:11:40	26.9	17.4	0.997	
2-Mar-04	9:12:00	31.9	17.4	0.997	
2-Mar-04	9:12:20	37.3	17.4	0.997	
2-Mar-04	9:12:40	42.4	17.4	0.997	
2-Mar-04	9:13:00	46.3	17.4	0.997	
2-Mar-04	9:13:20	50.1	17.4	0.997	
2-Mar-04	9:13:40	52.1	17.4	0.997	
2-Mar-04	9:14:00	54.8	17.4	0.997	
2-Mar-04	9:14:20	57	17.4	0.997	
2-Mar-04	9:14:40	57.8	17.4	0.997	
2-Mar-04	9:15:00	59.5	17.4	0.997	
2-Mar-04	9:15:20	60.2	17.4	0.997	
2-Mar-04	9:15:40	61.6	17.4	0.997	
2-Mar-04	9:16:00	63.5	17.4	0.997	
2-Mar-04	9:16:20	65.5	17.4	0.997	
2-Mar-04	9:16:40	68	17.4	0.997	
2-Mar-04	9:17:00	70.6	17.4	0.997	
2-Mar-04	9:17:20	72.9	17.5	0.997	
2-Mar-04	9:17:40	75.4	17.5	0.997	
2-Mar-04	9:18:00	76.8	17.5	0.997	
2-Mar-04	9:18:20	77.6	17.5	0.997	
2-Mar-04	9:18:40	77.9	17.6	0.997	
2-Mar-04	9:19:00	78.1	17.6	0.997	
2-Mar-04	9:19:20	79.4	17.6	0.997	
2-Mar-04	9:19:40	82.5	17.6	0.997	
2-Mar-04	9:20:00	89.5	17.6	0.997	
2-Mar-04	9:20:20	102.8	17.6	0.997	
2-Mar-04	9:20:40	117.2	17.7	0.997	
2-Mar-04	9:21:00	128.9	17.7	0.997	
2-Mar-04	9:21:20	138.8	17.7	0.997	
2-Mar-04	9:21:40	147.7	17.7	0.997	
2-Mar-04	9:22:00	155.5	17.7	0.997	
2-Mar-04	9:22:20	162	17.7	0.997	
2-Mar-04	9:22:40	166.3	17.8	0.997	
2-Mar-04	9:23:00	169.2	17.8	0.997	
2-Mar-04	9:23:20	170.8	17.8	0.997	
2-Mar-04	9:23:40	170.7	17.8	0.997	
2-Mar-04	9:24:00	171	17.8	0.997	
2-Mar-04	9:24:20	169.4	17.8	0.997	
2-Mar-04	9:24:40	167.7	17.8	0.997	
2-Mar-04	9:25:00	166	17.8	0.997	
2-Mar-04	9:25:20	162.2	17.8	0.997	
2-Mar-04	9:25:40	158.6	17.8	0.997	
2-Mar-04	9:26:00	155.4	17.8	0.997	
2-Mar-04	9:26:20	150.8	17.8	0.997	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	9:26:40	146.5	17.8	0.997
2-Mar-04	9:27:00	142	17.8	0.997
2-Mar-04	9:27:20	138.3	17.8	0.997
2-Mar-04	9:27:40	133.9	17.8	0.997
2-Mar-04	9:28:00	129.3	17.8	0.997
2-Mar-04	9:28:20	124.7	17.8	0.997
2-Mar-04	9:28:40	120.5	17.8	0.997
2-Mar-04	9:29:00	116.6	17.8	0.997
2-Mar-04	9:29:20	115.9	17.8	0.997
2-Mar-04	9:29:40	121.3	17.8	0.997
2-Mar-04	9:30:00	132.2	17.8	0.997
2-Mar-04	9:30:20	143.5	17.8	0.997
2-Mar-04	9:30:40	152.9	17.9	0.997
2-Mar-04	9:31:00	161	17.9	0.997
2-Mar-04	9:31:20	168	17.9	0.997
2-Mar-04	9:31:40	174.5	17.9	0.997
2-Mar-04	9:32:00	179.9	17.9	0.997
2-Mar-04	9:32:20	183.5	17.9	0.997
2-Mar-04	9:32:40	185.8	18	0.997
2-Mar-04	9:33:00	186.6	18	0.997
2-Mar-04	9:33:20	185.9	18	0.997
2-Mar-04	9:33:40	184.7	18.1	0.998
2-Mar-04	9:34:00	182.3	18.1	0.998
2-Mar-04	9:34:20	179.2	18.1	0.998
2-Mar-04	9:34:40	175.9	18.2	0.998
2-Mar-04	9:35:00	171.6	18.2	0.998
2-Mar-04	9:35:20	166.8	18.2	0.998
2-Mar-04	9:35:40	162	18.3	0.998
2-Mar-04	9:36:00	156.8	18.3	0.998
2-Mar-04	9:36:20	152	18.3	0.998
2-Mar-04	9:36:40	147.3	18.4	0.998
2-Mar-04	9:37:00	142.1	18.4	0.997
2-Mar-04	9:37:20	137.1	18.4	0.997
2-Mar-04	9:37:40	131.9	18.5	0.998
2-Mar-04	9:38:00	126.6	18.5	0.997
2-Mar-04	9:38:20	121.7	18.5	0.997
2-Mar-04	9:38:40	116.6	18.5	0.997
2-Mar-04	9:39:00	112.2	18.6	0.997
2-Mar-04	9:39:20	107.6	18.6	0.997
2-Mar-04	9:39:40	102.8	18.5	0.997
2-Mar-04	9:40:00	98.6	18.5	0.997
2-Mar-04	9:40:20	93.7	18.6	0.997
2-Mar-04	9:40:40	90	18.6	0.997
2-Mar-04	9:41:00	86	18.6	0.997
2-Mar-04	9:41:20	82.3	18.6	0.997
2-Mar-04	9:41:40	78.8	18.6	0.997
2-Mar-04	9:42:00	75.6	18.6	0.997
2-Mar-04	9:42:20	72.2	18.6	0.997
2-Mar-04	9:42:40	70.3	18.6	0.997
2-Mar-04	9:43:00	69.3	18.6	0.997

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	9:43:20	67.9	18.6	0.997
2-Mar-04	9:43:40	66.2	18.6	0.997
2-Mar-04	9:44:00	65	18.6	0.997
2-Mar-04	9:44:20	63.6	18.6	0.997
2-Mar-04	9:44:40	62.2	18.6	0.997
2-Mar-04	9:45:00	60.9	18.5	0.997
2-Mar-04	9:45:20	59.4	18.5	0.997
2-Mar-04	9:45:40	58.3	18.5	0.997
2-Mar-04	9:46:00	56.9	18.5	0.997
2-Mar-04	9:46:20	55.4	18.5	0.997
2-Mar-04	9:46:40	54.2	18.5	0.997
2-Mar-04	9:47:00	52.9	18.5	0.997
2-Mar-04	9:47:20	51.9	18.5	0.997
2-Mar-04	9:47:40	50.8	18.5	0.997
2-Mar-04	9:48:00	51	18.5	0.997
2-Mar-04	9:48:20	51.7	18.5	0.997
2-Mar-04	9:48:40	52.3	18.5	0.997
2-Mar-04	9:49:00	53	18.5	0.997
2-Mar-04	9:49:20	53.7	18.6	0.997
2-Mar-04	9:49:40	53.4	18.6	0.997
2-Mar-04	9:50:00	53.2	18.7	0.997
2-Mar-04	9:50:20	53.2	18.7	0.997
2-Mar-04	9:50:40	52.8	18.7	0.997
2-Mar-04	9:51:00	52.2	18.7	0.997
2-Mar-04	9:51:20	50.9	18.8	0.997
2-Mar-04	9:51:40	49.9	18.8	0.997
2-Mar-04	9:52:00	49.9	18.8	0.997
2-Mar-04	9:52:20	50.3	18.8	0.997
2-Mar-04	9:52:40	50	18.8	0.997
2-Mar-04	9:53:00	49.2	18.8	0.997
2-Mar-04	9:53:20	48.3	18.8	0.997
2-Mar-04	9:53:40	48	18.8	0.997
2-Mar-04	9:54:00	47.1	18.9	0.997
2-Mar-04	9:54:20	45.2	18.9	0.997
2-Mar-04	9:54:40	43.8	18.9	0.997
2-Mar-04	9:55:00	42	18.9	0.997
2-Mar-04	9:55:20	41.7	18.9	0.997
2-Mar-04	9:55:40	40.6	18.9	0.997
2-Mar-04	9:56:00	39.4	18.9	0.997
2-Mar-04	9:56:20	38.1	18.9	0.997
2-Mar-04	9:56:40	36.9	18.9	0.997
2-Mar-04	9:57:00	36.1	18.9	0.997
2-Mar-04	9:57:20	36	18.9	0.997
2-Mar-04	9:57:40	35.3	18.9	0.997
2-Mar-04	9:58:00	34.8	18.9	0.997
2-Mar-04	9:58:20	34.2	18.9	0.997
2-Mar-04	9:58:40	33.4	18.9	0.997
2-Mar-04	9:59:00	32.8	18.9	0.997
2-Mar-04	9:59:20	32.1	18.9	0.997
2-Mar-04	9:59:40	31.8	18.9	0.997

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	10:00:00	31.5	18.9	0.997	
2-Mar-04	10:00:20	30.8	19	0.997	
2-Mar-04	10:00:40	30	19	0.997	
2-Mar-04	10:01:00	29	19	0.997	
2-Mar-04	10:01:20	27.9	19	0.997	
2-Mar-04	10:01:40	27.4	19	0.997	
2-Mar-04	10:02:00	26.9	19	0.997	
2-Mar-04	10:02:20	25.9	19	0.997	
2-Mar-04	10:02:40	25.5	19.1	0.997	
2-Mar-04	10:03:00	25.3	19.1	0.997	
2-Mar-04	10:03:20	25.8	19.1	0.997	
2-Mar-04	10:03:40	25.8	19.1	0.997	
2-Mar-04	10:04:00	25.4	19.1	0.997	
2-Mar-04	10:04:20	24.9	19.1	0.997	
2-Mar-04	10:04:40	24.6	19.2	0.997	
2-Mar-04	10:05:00	24.1	19.1	0.997	
2-Mar-04	10:05:20	23.4	19.2	0.997	
2-Mar-04	10:05:40	23.3	19.2	0.997	
2-Mar-04	10:06:00	23.9	19.2	0.997	
2-Mar-04	10:06:20	24.7	19.1	0.997	
2-Mar-04	10:06:40	25.6	19.1	0.997	
2-Mar-04	10:07:00	25.5	19.1	0.997	
2-Mar-04	10:07:20	24.7	19.1	0.997	
2-Mar-04	10:07:40	23.9	19.1	0.997	
2-Mar-04	10:08:00	23.9	19.1	0.997	
2-Mar-04	10:08:20	23.4	19.1	0.997	
2-Mar-04	10:08:40	22.9	19.1	0.997	
2-Mar-04	10:09:00	23.7	19.1	0.997	
2-Mar-04	10:09:20	23.9	19.1	0.997	
2-Mar-04	10:09:40	22.8	19.1	0.997	
2-Mar-04	10:10:00	22.4	19.1	0.997	Stop Run # 1
		80.9		Average	
2-Mar-04	11:12:00	132.9	19.7	0.997	Start Run # 2
2-Mar-04	11:12:20	127.1	19.7	0.997	
2-Mar-04	11:12:40	123.5	19.7	0.997	
2-Mar-04	11:13:00	128.6	19.6	0.997	
2-Mar-04	11:13:20	143.8	19.6	0.997	
2-Mar-04	11:13:40	170.8	19.6	0.997	
2-Mar-04	11:14:00	212.1	19.6	0.997	
2-Mar-04	11:14:20	265.2	19.6	0.997	
2-Mar-04	11:14:40	311.2	19.6	0.997	
2-Mar-04	11:15:00	350	19.6	0.997	
2-Mar-04	11:15:20	386.5	19.6	0.997	
2-Mar-04	11:15:40	418.5	19.6	0.997	
2-Mar-04	11:16:00	444.7	19.6	0.997	
2-Mar-04	11:16:20	467.5	19.6	0.997	
2-Mar-04	11:16:40	486.7	19.5	0.997	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	11:17:00	498.6	19.5	0.997
2-Mar-04	11:17:20	505.7	19.5	0.997
2-Mar-04	11:17:40	510.6	19.5	0.997
2-Mar-04	11:18:00	513.1	19.5	0.997
2-Mar-04	11:18:20	512	19.5	0.997
2-Mar-04	11:18:40	508 7	19.5	0.997
2-Mar-04	11:19:00	502.6	19.4	0.997
2-Mar-04	11:19:20	494.5	19.4	0.997
2-Mar-04	11:19:40	485.5	19.4	0.997
2-Mar-04	11:20:00	480.8	19.4	0.997
2-Mar-04	11:20:20	484.1	19.4	0.997
2-Mar-04	11:20:40	496.1	19.4	0.997
2-Mar-04	11:21:00	511	19.4	0.997
2-Mar-04	11:21:20	524	19.4	0.997
2-Mar-04	11:21:40	534.4	19.4	0.997
2-Mar-04	11:22:00	541.4	19.4	0.997
2-Mar-04	11:22:20	545.3	19.4	0.997
2-Mar-04	11:22:40	545.1	19.4	0.997
2-Mar-04	11:23:00	542.9	19.4	0.997
2-Mar-04	11:23:20	539.2	19.4	0.997
2-Mar-04	11:23:40	534.5	19.3	0.997
2-Mar-04	11:24:00	527.6	19.3	0.997
2-Mar-04	11:24:20	519.6	19.4	0.997
2-Mar-04	11:24:40	509.9	19.4	0.997
2-Mar-04	11:25:00	499.5	19.4	0.997
2-Mar-04	11:25:20	488	19.3	0.997
2-Mar-04	11:25:40	475.3	19.4	0.997
2-Mar-04	11:26:00	463.8	19.3	0.997
2-Mar-04	11:26:20	452.3	19.3	0.997
2-Mar-04	11:26:40	440	19.3	0.997
2-Mar-04	11:27:00	426.9	19.4	0.997
2-Mar-04	11:27:20	413.7	19.3	0.997
2-Mar-04	11:27:40	400.1	19.4	0.997
2-Mar-04	11:28:00	387.3	19.3	0.997
2-Mar-04	11:28:20	374.2	19.3	0.997
2-Mar-04	11:28:40	360.9	19.3	0.997
2-Mar-04	11:29:00	348.1	19.3	0.997
2-Mar-04	11:29:20	335.4	19.3	0.997
2-Mar-04	11:29:40	322.6	19.3	0.997
2-Mar-04	11:30:00	310.1	19.3	0.997
2-Mar-04	11:30:20	297 5	19.3	0.997
2-Mar-04	11:30:40	287.9	19.3	0.997
2-Mar-04	11:31:00	279.7	19.3	0.997
2-Mar-04	11:31:20	272.1	19.3	0.997
2-Mar-04	11:31:40	266.6	19.3	0.997
2-Mar-04	11:32:00	268.7	19.3	0.997
2-Mar-04	11:32:20	279.6	19.3	0.997
2-Mar-04	11:32:40	301.2	19.3	0.997
2-Mar-04	11:33:00	335.8	19.3	0.997
2-Mar-04	11:33:20	386.5	19.3	0.997

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	11:33:40	457.6	19.3	0.997
2-Mar-04	11:34:00	554.7	19.3	0.997
2-Mar-04	11:34:20	677.7	19.3	0.997
2-Mar-04	11:34:40	784.7	19.4	0.997
2-Mar-04	11:35:00	870.2	19.4	0.997
2-Mar-04	11:35:20	935.6	19.4	0.997
2-Mar-04	11:35:40	984.6	19.4	0.997
2-Mar-04	11:36:00	1018.4	19.5	0.997
2-Mar-04	11:36:20	1040	19.5	0.997
2-Mar-04	11:36:40	1050.5	19.5	0.997
2-Mar-04	11:37:00	1053.2	19.5	0.997
2-Mar-04	11:37:20	1049.1	19.5	0.997
2-Mar-04	11:37:40	1039.1	19.6	0.997
2-Mar-04	11:38:00	1024.9	19.6	0.997
2-Mar-04	11:38:20	1006.8	19.5	0.997
2-Mar-04	11:38:40	985.3	19.5	0.997
2-Mar-04	11:39:00	960.4	19.5	0.997
2-Mar-04	11:39:20	933.4	19.5	0.997
2-Mar-04	11:39:40	904.9	19.5	0.997
2-Mar-04	11:40:00	875.5	19.5	0.997
2-Mar-04	11:40:20	845.7	19.5	0.997
2-Mar-04	11:40:40	814.9	19.5	0.997
2-Mar-04	11:41:00	783.3	19.5	0.997
2-Mar-04	11:41:20	752.2	19.5	0.997
2-Mar-04	11:41:40	721.5	19.5	0.997
2-Mar-04	11:42:00	691.1	19.4	0.997
2-Mar-04	11:42:20	661.5	19.4	0.997
2-Mar-04	11:42:40	633	19.4	0.997
2-Mar-04	11:43:00	605.1	19.4	0.997
2-Mar-04	11:43:20	578.7	19.4	0.997
2-Mar-04	11:43:40	552.2	19.4	0.997
2-Mar-04	11:44:00	527.7	19.3	0.997
2-Mar-04	11:44:20	505.7	19.3	0.997
2-Mar-04	11:44:40	485.1	19.3	0.997
2-Mar-04	11:45:00	465	19.3	0.997
2-Mar-04	11:45:20	445	19.3	0.997
2-Mar-04	11:45:40	425.7	19.3	0.997
2-Mar-04	11:46:00	407.4	19.3	0.997
2-Mar-04	11:46:20	390	19.3	0.997
2-Mar-04	11:46:40	375.9	19.3	0.997
2-Mar-04	11:47:00	366.9	19.3	0.997
2-Mar-04	11:47:20	363.9	19.3	0.997
2-Mar-04	11:47:40	367.9	19.3	0.997
2-Mar-04	11:48:00	380.6	19.3	0.997
2-Mar-04	11:48:20	403.7	19.3	0.997
2-Mar-04	11:48:40	428.1	19.4	0.997
2-Mar-04	11:49:00	447.2	19.4	0.997
2-Mar-04	11:49:20	460.4	19.4	0.997
2-Mar-04	11:49:40	469.8	19.3	0.997
2-Mar-04	11:50:00	474.9	19.3	0.997

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	11:50:20	478	19.4	0.997
2-Mar-04	11:50:40	481.4	19.4	0.997
2-Mar-04	11:51:00	484.7	19.4	0.997
2-Mar-04	11:51:20	489.9	19.4	0.997
2-Mar-04	11:51:40	495.2	19.4	0.997
2-Mar-04	11:52:00	498.4	19.4	0.997
2-Mar-04	11:52:20	499.1	19.4	0.997
2-Mar-04	11:52:40	497.9	19.4	0.997
2-Mar-04	11:53:00	494.2	19.4	0.997
2-Mar-04	11:53:20	488.3	19.5	0.997
2-Mar-04	11:53:40	480.4	19.5	0.997
2-Mar-04	11:54:00	470.6	19.5	0.997
2-Mar-04	11:54:20	459.3	19.5	0.997
2-Mar-04	11:54:40	447.2	19.5	0.997
2-Mar-04	11:55:00	434.1	19.4	0.997
2-Mar-04	11:55:20	420.6	19.5	0.997
2-Mar-04	11:55:40	407.1	19.5	0.997
2-Mar-04	11:56:00	393.8	19.5	0.997
2-Mar-04	11:56:20	380.3	19.5	0.997
2-Mar-04	11:56:40	366.1	19.5	0.997
2-Mar-04	11:57:00	352.5	19.5	0.997
2-Mar-04	11:57:20	339.1	19.5	0.997
2-Mar-04	11:57:40	325.7	19.5	0.997
2-Mar-04	11:58:00	313.3	19.5	0.997
2-Mar-04	11:58:20	300.9	19.5	0.997
2-Mar-04	11:58:40	288.5	19.5	0.997
2-Mar-04	11:59:00	276	19.6	0.997
2-Mar-04	11:59:20	264.4	19.6	0.997
2-Mar-04	11:59:40	253.5	19.6	0.997
2-Mar-04	12:00:00	242.5	19.6	0.997
2-Mar-04	12:00:20	232.6	19.5	0.997
2-Mar-04	12:00:40	222.7	19.5	0.997
2-Mar-04	12:01:00	213.3	19.5	0.997
2-Mar-04	12:01:20	204.7	19.5	0.997
2-Mar-04	12:01:40	196.5	19.5	0.997
2-Mar-04	12:02:00	188.1	19.5	0.997
2-Mar-04	12:02:20	179.9	19.5	0.997
2-Mar-04	12:02:40	171.8	19.5	0.997
2-Mar-04	12:03:00	164.8	19.5	0.997
2-Mar-04	12:03:20	157.9	19.5	0.997
2-Mar-04	12:03:40	151.9	19.5	0.997
2-Mar-04	12:04:00	145.8	19.5	0.997
2-Mar-04	12:04:20	140.2	19.5	0.997
2-Mar-04	12:04:40	134.4	19.4	0.997
2-Mar-04	12:05:00	129.1	19.5	0.997
2-Mar-04	12:05:20	123.8	19.4	0.997
2-Mar-04	12:05:40	118.4	19.4	0.997
2-Mar-04	12:06:00	113.5	19.4	0.997
2-Mar-04	12:06:20	109.2	19.4	0.997
2-Mar-04	12:06:40	106.3	19.4	0.997

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	12:07:00	103.8	19.4	0.997	
2-Mar-04	12:07:20	101.1	19.4	0.997	
2-Mar-04	12:07:40	98.8	19.4	0.997	
2-Mar-04	12:08:00	95.9	19.4	0.997	
2-Mar-04	12:08:20	95.6	19.4	0.997	
2-Mar-04	12:08:40	99.7	19.4	0.997	
2-Mar-04	12:09:00	106.4	19.3	0.997	
2-Mar-04	12:09:20	113.3	19.3	0.997	
2-Mar-04	12:09:40	118.4	19.3	0.997	
2-Mar-04	12:10:00	122.2	19.3	0.997	
2-Mar-04	12:10:20	125.3	19.3	0.997	
2-Mar-04	12:10:40	127.6	19.3	0.997	
2-Mar-04	12:11:00	131.5	19.3	0.997	
2-Mar-04	12:11:20	135.7	19.3	0.997	
2-Mar-04	12:11:40	139.1	19.3	0.997	
2-Mar-04	12:12:00	144.1	19.3	0.997	Stop Run # 2
		426.7		Average	
2-Mar-04	13:04:00	396.7	18.8	0.996	Start Run # 3
2-Mar-04	13:04:20	385.6	18.8	0.996	
2-Mar-04	13:04:40	374.2	18.8	0.996	
2-Mar-04	13:05:00	361.5	18.8	0.996	
2-Mar-04	13:05:20	348.8	18.8	0.996	
2-Mar-04	13:05:40	336	18.8	0.996	
2-Mar-04	13:06:00	326.8	18.8	0.996	
2-Mar-04	13:06:20	323.5	18.8	0.996	
2-Mar-04	13:06:40	327.2	18.8	0.996	
2-Mar-04	13:07:00	339.2	18.9	0.996	
2-Mar-04	13:07:20	359.2	18.9	0.996	
2-Mar-04	13:07:40	379.8	18.9	0.996	
2-Mar-04	13:08:00	398.4	18.9	0.996	
2-Mar-04	13:08:20	416.6	18.9	0.996	
2-Mar-04	13:08:40	436.1	18.9	0.996	
2-Mar-04	13:09:00	454.9	18.9	0.996	
2-Mar-04	13:09:20	470.1	18.9	0.996	
2-Mar-04	13:09:40	482.2	18.9	0.996	
2-Mar-04	13:10:00	491.8	18.9	0.996	
2-Mar-04	13:10:20	500.2	18.9	0.996	
2-Mar-04	13:10:40	505.9	18.9	0.996	
2-Mar-04	13:11:00	509.3	18.9	0.996	
2-Mar-04	13:11:20	511.4	18.9	0.996	
2-Mar-04	13:11:40	512.8	18.9	0.996	
2-Mar-04	13:12:00	515.2	19	0.996	
2-Mar-04	13:12:20	521.9	19	0.996	
2-Mar-04	13:12:40	534.3	19	0.996	
2-Mar-04	13:13:00	551.8	19	0.996	
2-Mar-04	13:13:20	567.7	19	0.996	
2-Mar-04	13:13:40	579.8	19	0.996	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	13:14:00	588.6	19	0.996
2-Mar-04	13:14:20	595	19	0.996
2-Mar-04	13:14:40	598.5	19	0.996
2-Mar-04	13:15:00	599.1	19	0.996
2-Mar-04	13:15:20	596.2	19	0.996
2-Mar-04	13:15:40	592.1	19	0.996
2-Mar-04	13:16:00	586	19	0.996
2-Mar-04	13:16:20	577.8	19	0.996
2-Mar-04	13:16:40	567.3	19	0.996
2-Mar-04	13:17:00	555.1	19	0.996
2-Mar-04	13:17:20	542	19	0.996
2-Mar-04	13:17:40	527.7	19	0.996
2-Mar-04	13:18:00	513	19	0.996
2-Mar-04	13:18:20	497.4	18.9	0.996
2-Mar-04	13:18:40	482	18.9	0.996
2-Mar-04	13:19:00	465.6	18.9	0.996
2-Mar-04	13:19:20	449.5	18.9	0.996
2-Mar-04	13:19:40	432.7	18.9	0.996
2-Mar-04	13:20:00	415.8	18.9	0.996
2-Mar-04	13:20:20	398.8	18.9	0.996
2-Mar-04	13:20:40	382.6	18.9	0.996
2-Mar-04	13:21:00	366.4	18.9	0.996
2-Mar-04	13:21:20	350.6	18.9	0.996
2-Mar-04	13:21:40	335.6	18.9	0.996
2-Mar-04	13:22:00	321	18.9	0.996
2-Mar-04	13:22:20	307.1	18.9	0.996
2-Mar-04	13:22:40	295	18.9	0.996
2-Mar-04	13:23:00	287.4	18.9	0.996
2-Mar-04	13:23:20	285	18.9	0.996
2-Mar-04	13:23:40	288.8	18.9	0.996
2-Mar-04	13:24:00	299.9	18.9	0.996
2-Mar-04	13:24:20	320.2	18.9	0.996
2-Mar-04	13:24:40	351.7	18.9	0.996
2-Mar-04	13:25:00	397.6	18.9	0.996
2-Mar-04	13:25:20	460.8	18.9	0.996
2-Mar-04	13:25:40	518.9	18.9	0.996
2-Mar-04	13:26:00	564.2	18.9	0.996
2-Mar-04	13:26:20	597.9	19	0.996
2-Mar-04	13:26:40	621.8	19	0.996
2-Mar-04	13:27:00	637.4	19	0.996
2-Mar-04	13:27:20	646.8	19	0.996
2-Mar-04	13:27:40	650.9	19	0.996
2-Mar-04	13:28:00	650.9	19.1	0.996
2-Mar-04	13:28:20	646.8	19.1	0.996
2-Mar-04	13:28:40	638.7	19.1	0.996
2-Mar-04	13:29:00	627.5	19.1	0.996
2-Mar-04	13:29:20	614.8	19.1	0.996
2-Mar-04	13:29:40	600.2	19.1	0.996
2-Mar-04	13:30:00	583.3	19.1	0.996
2-Mar-04	13:30:20	565.7	19.1	0.996

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	13:30:40	547.6	19.2	0.996
2-Mar-04	13:31:00	528.8	19.2	0.996
2-Mar-04	13:31:20	509.9	19.2	0.996
2-Mar-04	13:31:40	490.9	19.2	0.996
2-Mar-04	13:32:00	471.9	19.2	0.996
2-Mar-04	13:32:20	453.6	19.2	0.996
2-Mar-04	13:32:40	435.3	19.2	0.996
2-Mar-04	13:33:00	417.3	19.2	0.996
2-Mar-04	13:33:20	399.9	19.3	0.996
2-Mar-04	13:33:40	382.3	19.3	0.996
2-Mar-04	13:34:00	365.3	19.3	0.996
2-Mar-04	13:34:20	349	19.3	0.996
2-Mar-04	13:34:40	332.9	19.3	0.996
2-Mar-04	13:35:00	317.8	19.4	0.996
2-Mar-04	13:35:20	303.5	19.4	0.996
2-Mar-04	13:35:40	289.8	19.4	0.996
2-Mar-04	13:36:00	276.5	19.4	0.996
2-Mar-04	13:36:20	263.5	19.4	0.996
2-Mar-04	13:36:40	251.5	19.5	0.996
2-Mar-04	13:37:00	240.8	19.5	0.996
2-Mar-04	13:37:20	230.1	19.5	0.996
2-Mar-04	13:37:40	220.2	19.5	0.996
2-Mar-04	13:38:00	210.3	19.6	0.996
2-Mar-04	13:38:20	200.9	19.6	0.996
2-Mar-04	13:38:40	192.2	19.6	0.996
2-Mar-04	13:39:00	184.2	19.6	0.996
2-Mar-04	13:39:20	176.6	19.7	0.996
2-Mar-04	13:39:40	168.9	19.7	0.996
2-Mar-04	13:40:00	161.8	19.7	0.996
2-Mar-04	13:40:20	155.3	19.7	0.996
2-Mar-04	13:40:40	148.8	19.7	0.996
2-Mar-04	13:41:00	143.1	19.7	0.996
2-Mar-04	13:41:20	137.8	19.7	0.996
2-Mar-04	13:41:40	132.6	19.7	0.996
2-Mar-04	13:42:00	127.6	19.7	0.996
2-Mar-04	13:42:20	122.7	19.7	0.996
2-Mar-04	13:42:40	119.1	19.8	0.996
2-Mar-04	13:43:00	115.5	19.8	0.996
2-Mar-04	13:43:20	111.7	19.8	0.996
2-Mar-04	13:43:40	107.3	19.8	0.996
2-Mar-04	13:44:00	104	19.8	0.996
2-Mar-04	13:44:20	100.8	19.8	0.996
2-Mar-04	13:44:40	98	19.9	0.996
2-Mar-04	13:45:00	95.4	19.9	0.996
2-Mar-04	13:45:20	92.6	19.9	0.996
2-Mar-04	13:45:40	94.8	19.9	0.996
2-Mar-04	13:46:00	105.5	19.9	0.996
2-Mar-04	13:46:20	126.1	19.9	0.996
2-Mar-04	13:46:40	158.4	19.9	0.996
2-Mar-04	13:47:00	202.2	19.9	0.996

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	13:47:20	260.8	19.9	0.996
2-Mar-04	13:47:40	320.2	19.9	0.996
2-Mar-04	13:48:00	371.9	20	0.996
2-Mar-04	13:48:20	413.7	20	0.996
2-Mar-04	13:48:40	446.4	20	0.996
2-Mar-04	13:49:00	471	20	0.996
2-Mar-04	13:49:20	489.1	20	0.996
2-Mar-04	13:49:40	501.3	20	0.996
2-Mar-04	13:50:00	509.1	20.1	0.996
2-Mar-04	13:50:20	512.4	20.1	0.996
2-Mar-04	13:50:40	512.4	20.1	0.996
2-Mar-04	13:51:00	512.4	20.1	0.996
2-Mar-04	13:51:20	513.6	20.1	0.996
2-Mar-04	13:51:40	517.8	20.1	0.996
2-Mar-04	13:52:00	527.5	20.2	0.996
2-Mar-04	13:52:20	543.3	20.2	0.996
2-Mar-04	13:52:40	558.2	20.2	0.996
2-Mar-04	13:53:00	568.8	20.2	0.996
2-Mar-04	13:53:20	575.4	20.2	0.996
2-Mar-04	13:53:40	577.8	20.3	0.996
2-Mar-04	13:54:00	576.4	20.3	0.996
2-Mar-04	13:54:20	572.1	20.3	0.996
2-Mar-04	13:54:40	565.3	20.3	0.996
2-Mar-04	13:55:00	556.7	20.4	0.996
2-Mar-04	13:55:20	546.3	20.4	0.996
2-Mar-04	13:55:40	534.4	20.4	0.996
2-Mar-04	13:56:00	520.9	20.4	0.996
2-Mar-04	13:56:20	506.2	20.5	0.996
2-Mar-04	13:56:40	491.5	20.5	0.996
2-Mar-04	13:57:00	475.5	20.5	0.996
2-Mar-04	13:57:20	460.4	20.5	0.996
2-Mar-04	13:57:40	444.9	20.5	0.995
2-Mar-04	13:58:00	429.2	20.6	0.995
2-Mar-04	13:58:20	413.7	20.6	0.995
2-Mar-04	13:58:40	398.4	20.6	0.995
2-Mar-04	13:59:00	382.6	20.6	0.995
2-Mar-04	13:59:20	367.7	20.6	0.995
2-Mar-04	13:59:40	353	20.6	0.995
2-Mar-04	14:00:00	338.1	20.6	0.995
2-Mar-04	14:00:20	324.1	20.6	0.995
2-Mar-04	14:00:40	310.2	20.6	0.995
2-Mar-04	14:01:00	296.8	20.6	0.995
2-Mar-04	14:01:20	283.8	20.6	0.995
2-Mar-04	14:01:40	270.8	20.6	0.995
2-Mar-04	14:02:00	261.8	20.6	0.995
2-Mar-04	14:02:20	260	20.6	0.995
2-Mar-04	14:02:40	266.1	20.6	0.995
2-Mar-04	14:03:00	281.7	20.6	0.995
2-Mar-04	14:03:20	308.8	20.6	0.995
2-Mar-04	14:03:40	350.1	20.6	0.995

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	14:04:00	409.1	20.6	0.995	
2-Mar-04	14:04:20	490.5	20.6	0.995	
2-Mar-04	14:04:40	600.6	20.6	0.995	
2-Mar-04	14:05:00	745.2	20.6	0.995	Stop Run # 3
		402.626087		Average	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	9:10:00	916.2	16.8	0.999	START RUN # 1
2-Mar-04	9:10:20	921.6	16.8	0.999	
2-Mar-04	9:10:40	923.7	16.8	0.999	
2-Mar-04	9:11:00	928.3	16.9	0.999	
2-Mar-04	9:11:20	935.7	16.8	0.999	
2-Mar-04	9:11:40	942.2	16.8	0.999	
2-Mar-04	9:12:00	951.8	16.8	0.999	
2-Mar-04	9:12:20	964.6	16.8	0.999	
2-Mar-04	9:12:40	974.5	16.8	0.999	
2-Mar-04	9:13:00	983.8	16.8	0.999	
2-Mar-04	9:13:20	988.7	16.8	0.999	
2-Mar-04	9:13:40	991	16.8	0.999	
2-Mar-04	9:14:00	993.5	16.8	0.999	
2-Mar-04	9:14:20	991.5	16.8	0.999	
2-Mar-04	9:14:40	988.9	16.8	0.999	
2-Mar-04	9:15:00	987.1	16.8	0.999	
2-Mar-04	9:15:20	982.7	16.8	0.999	
2-Mar-04	9:15:40	979.4	16.8	0.999	
2-Mar-04	9:16:00	981.2	16.9	0.999	
2-Mar-04	9:16:20	981.7	16.9	0.999	
2-Mar-04	9:16:40	983	16.9	0.999	
2-Mar-04	9:17:00	981.4	16.9	0.999	
2-Mar-04	9:17:20	976.3	17	0.999	
2-Mar-04	9:17:40	972.9	17	0.999	
2-Mar-04	9:18:00	972.7	17	0.999	
2-Mar-04	9:18:20	976.5	17	0.999	
2-Mar-04	9:18:40	985.2	17	0.999	
2-Mar-04	9:19:00	992.3	17	0.999	
2-Mar-04	9:19:20	998.2	17.1	0.999	
2-Mar-04	9:19:40	1002.4	17.1	0.999	
2-Mar-04	9:20:00	1002.9	17.1	0.999	
2-Mar-04	9:20:20	1005.7	17.1	0.999	
2-Mar-04	9:20:40	1007.6	17.1	0.999	
2-Mar-04	9:21:00	1006.5	17.1	0.999	
2-Mar-04	9:21:20	1005.6	17.1	0.999	
2-Mar-04	9:21:40	1001.2	17.2	0.999	
2-Mar-04	9:22:00	994.9	17.2	0.999	
2-Mar-04	9:22:20	992.6	17.2	0.999	
2-Mar-04	9:22:40	990.8	17.2	0.999	
2-Mar-04	9:23:00	987.3	17.2	0.999	
2-Mar-04	9:23:20	986.9	17.2	0.999	
2-Mar-04	9:23:40	983.8	17.2	0.999	
2-Mar-04	9:24:00	980.3	17.2	0.999	
2-Mar-04	9:24:20	974.6	17.2	0.999	
2-Mar-04	9:24:40	965.9	17.2	0.999	
2-Mar-04	9:25:00	957.4	17.2	0.999	
2-Mar-04	9:25:20	945.6	17.2	0.999	
2-Mar-04	9:25:40	931.5	17.2	0.999	
2-Mar-04	9:26:00	918.9	17.2	0.999	
2-Mar-04	9:26:20	905.4	17.2	0.999	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	9:26:40	892.6	17.3	0.999
2-Mar-04	9:27:00	884.4	17.2	0.999
2-Mar-04	9:27:20	883.5	17.2	0.999
2-Mar-04	9:27:40	890.8	17.2	0.999
2-Mar-04	9:28:00	900.6	17.2	0.999
2-Mar-04	9:28:20	911.1	17.3	0.999
2-Mar-04	9:28:40	920.9	17.2	0.999
2-Mar-04	9:29:00	928	17.3	0.999
2-Mar-04	9:29:20	931.2	17.2	0.999
2-Mar-04	9:29:40	934	17.3	0.999
2-Mar-04	9:30:00	938.2	17.3	0.999
2-Mar-04	9:30:20	939.2	17.3	0.999
2-Mar-04	9:30:40	940.4	17.3	0.999
2-Mar-04	9:31:00	938.1	17.3	0.999
2-Mar-04	9:31:20	933.6	17.3	0.999
2-Mar-04	9:31:40	932	17.3	0.999
2-Mar-04	9:32:00	929.7	17.4	0.999
2-Mar-04	9:32:20	928	17.4	0.999
2-Mar-04	9:32:40	930.8	17.4	0.999
2-Mar-04	9:33:00	930.3	17.4	0.999
2-Mar-04	9:33:20	929.6	17.4	0.999
2-Mar-04	9:33:40	928.6	17.5	0.999
2-Mar-04	9:34:00	924.3	17.5	0.999
2-Mar-04	9:34:20	921.9	17.5	0.999
2-Mar-04	9:34:40	918.8	17.5	0.999
2-Mar-04	9:35:00	912.5	17.6	0.999
2-Mar-04	9:35:20	906.6	17.6	0.999
2-Mar-04	9:35:40	897.1	17.6	0.999
2-Mar-04	9:36:00	885.3	17.6	0.999
2-Mar-04	9:36:20	875.3	17.7	0.999
2-Mar-04	9:36:40	863.4	17.7	0.999
2-Mar-04	9:37:00	851.4	17.7	0.999
2-Mar-04	9:37:20	839.2	17.8	0.999
2-Mar-04	9:37:40	826.1	17.8	0.999
2-Mar-04	9:38:00	816.3	17.8	0.999
2-Mar-04	9:38:20	813.1	17.8	0.999
2-Mar-04	9:38:40	810.7	17.8	0.999
2-Mar-04	9:39:00	812.3	17.8	0.999
2-Mar-04	9:39:20	813.7	17.8	0.999
2-Mar-04	9:39:40	812.9	17.8	0.999
2-Mar-04	9:40:00	814.3	17.8	0.999
2-Mar-04	9:40:20	813.9	17.9	0.999
2-Mar-04	9:40:40	811.3	17.9	0.999
2-Mar-04	9:41:00	808.9	17.8	0.999
2-Mar-04	9:41:20	803.8	17.8	0.999
2-Mar-04	9:41:40	798.8	17.9	0.999
2-Mar-04	9:42:00	792.6	17.8	0.999
2-Mar-04	9:42:20	784.2	17.8	0.999
2-Mar-04	9:42:40	775.8	17.8	0.999
2-Mar-04	9:43:00	772	17.8	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	9:43:20	768.6	17.8	0.999
2-Mar-04	9:43:40	766.7	17.8	0.999
2-Mar-04	9:44:00	762.5	17.8	0.999
2-Mar-04	9:44:20	756.1	17.8	0.999
2-Mar-04	9:44:40	751.2	17.8	0.999
2-Mar-04	9:45:00	746.1	17.8	0.999
2-Mar-04	9:45:20	739.6	17.7	0.999
2-Mar-04	9:45:40	733.9	17.7	0.999
2-Mar-04	9:46:00	725.6	17.7	0.999
2-Mar-04	9:46:20	717.1	17.7	0.999
2-Mar-04	9:46:40	708	17.8	0.999
2-Mar-04	9:47:00	696.8	17.8	0.999
2-Mar-04	9:47:20	686.4	17.8	0.999
2-Mar-04	9:47:40	679.8	17.8	0.999
2-Mar-04	9:48:00	673.4	17.8	0.999
2-Mar-04	9:48:20	669.9	17.8	0.999
2-Mar-04	9:48:40	672.7	17.8	0.999
2-Mar-04	9:49:00	676.6	17.9	0.999
2-Mar-04	9:49:20	682.9	17.9	0.999
2-Mar-04	9:49:40	687.3	17.9	0.999
2-Mar-04	9:50:00	689.7	17.9	0.999
2-Mar-04	9:50:20	694.4	17.9	0.999
2-Mar-04	9:50:40	697.7	18	0.999
2-Mar-04	9:51:00	698.6	18	0.999
2-Mar-04	9:51:20	699	18	0.999
2-Mar-04	9:51:40	696.4	18	0.999
2-Mar-04	9:52:00	693.1	18	0.999
2-Mar-04	9:52:20	689.3	18	0.999
2-Mar-04	9:52:40	684.2	18	0.999
2-Mar-04	9:53:00	680.1	18	0.999
2-Mar-04	9:53:20	680.3	18.1	0.999
2-Mar-04	9:53:40	680.2	18.1	0.999
2-Mar-04	9:54:00	684.6	18.1	0.999
2-Mar-04	9:54:20	691	18.1	0.999
2-Mar-04	9:54:40	695.8	18.1	0.999
2-Mar-04	9:55:00	699.9	18.2	0.999
2-Mar-04	9:55:20	699.5	18.2	0.999
2-Mar-04	9:55:40	698.6	18.1	0.999
2-Mar-04	9:56:00	697.2	18.2	0.999
2-Mar-04	9:56:20	693.4	18.2	0.999
2-Mar-04	9:56:40	688.6	18.2	0.999
2-Mar-04	9:57:00	681.1	18.2	0.999
2-Mar-04	9:57:20	670.7	18.2	0.999
2-Mar-04	9:57:40	659.8	18.2	0.999
2-Mar-04	9:58:00	647.9	18.2	0.999
2-Mar-04	9:58:20	635.6	18.2	0.999
2-Mar-04	9:58:40	628.7	18.3	0.999
2-Mar-04	9:59:00	624.8	18.2	0.999
2-Mar-04	9:59:20	622.2	18.3	0.999
2-Mar-04	9:59:40	623.8	18.3	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	10:00:00	624.8	18.3	0.999	
2-Mar-04	10:00:20	624.5	18.3	0.999	
2-Mar-04	10:00:40	624.1	18.3	0.999	
2-Mar-04	10:01:00	621.6	18.4	0.999	
2-Mar-04	10:01:20	620.6	18.4	0.999	
2-Mar-04	10:01:40	617.9	18.4	0.999	
2-Mar-04	10:02:00	613.8	18.5	0.999	
2-Mar-04	10:02:20	609.5	18.5	0.999	
2-Mar-04	10:02:40	603.8	18.5	0.999	
2-Mar-04	10:03:00	596.2	18.6	0.999	
2-Mar-04	10:03:20	593.7	18.5	0.999	
2-Mar-04	10:03:40	591.9	18.5	0.999	
2-Mar-04	10:04:00	590.8	18.6	0.999	
2-Mar-04	10:04:20	590.9	18.6	0.999	
2-Mar-04	10:04:40	589.6	18.5	0.999	
2-Mar-04	10:05:00	588.7	18.5	0.999	
2-Mar-04	10:05:20	590.5	18.5	0.999	
2-Mar-04	10:05:40	591.1	18.5	0.999	
2-Mar-04	10:06:00	590.2	18.5	0.999	
2-Mar-04	10:06:20	587.3	18.5	0.999	
2-Mar-04	10:06:40	583.1	18.5	0.999	
2-Mar-04	10:07:00	578.7	18.5	0.999	
2-Mar-04	10:07:20	574	18.5	0.999	
2-Mar-04	10:07:40	567.3	18.5	0.999	
2-Mar-04	10:08:00	559.7	18.4	0.999	
2-Mar-04	10:08:20	550.5	18.4	0.999	
2-Mar-04	10:08:40	540.8	18.4	0.999	
2-Mar-04	10:09:00	535.2	18.4	0.999	
2-Mar-04	10:09:20	535	18.4	0.999	
2-Mar-04	10:09:40	539.1	18.4	0.999	
2-Mar-04	10:10:00	544	18.4	0.999	STOP RUN # 1
		802.4		Average	
2-Mar-04	11:12:00	696.5	19.1	0.999	Start Run # 2
2-Mar-04	11:12:20	687.8	19	0.999	
2-Mar-04	11:12:40	681.5	19	0.999	
2-Mar-04	11:13:00	674.4	19	0.999	
2-Mar-04	11:13:20	668.1	19.1	0.999	
2-Mar-04	11:13:40	661.9	19.1	0.999	
2-Mar-04	11:14:00	654.5	19.1	0.999	
2-Mar-04	11:14:20	648.6	19.1	0.999	
2-Mar-04	11:14:40	641.6	19.1	0.999	
2-Mar-04	11:15:00	632.8	19	0.999	
2-Mar-04	11:15:20	625.4	19	0.999	
2-Mar-04	11:15:40	616.3	19	0.999	
2-Mar-04	11:16:00	605.6	19	0.999	
2-Mar-04	11:16:20	598.1	18.9	0.999	
2-Mar-04	11:16:40	592.1	18.9	0.999	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	11:17:00	586.7	18.9	0.999
2-Mar-04	11:17:20	584	18.9	0.999
2-Mar-04	11:17:40	579.6	18.9	0.999
2-Mar-04	11:18:00	577.1	18.9	0.999
2-Mar-04	11:18:20	575.6	18.9	0.999
2-Mar-04	11:18:40	573	18.8	0.999
2-Mar-04	11:19:00	573.4	18.9	0.999
2-Mar-04	11:19:20	573.3	18.9	0.999
2-Mar-04	11:19:40	572.6	18.9	0.999
2-Mar-04	11:20:00	574.4	18.9	0.999
2-Mar-04	11:20:20	575.5	18.9	0.999
2-Mar-04	11:20:40	576.4	18.9	0.999
2-Mar-04	11:21:00	580.8	18.9	0.999
2-Mar-04	11:21:20	583.4	18.9	0.999
2-Mar-04	11:21:40	584.9	18.9	0.999
2-Mar-04	11:22:00	586.9	18.9	0.999
2-Mar-04	11:22:20	586.2	18.9	0.999
2-Mar-04	11:22:40	587.3	18.9	0.999
2-Mar-04	11:23:00	591 7	18.9	0.999
2-Mar-04	11:23:20	594.7	19	0.999
2-Mar-04	11:23:40	599.9	18.9	0.999
2-Mar-04	11:24:00	603.3	18.9	0.999
2-Mar-04	11:24:20	605.8	19	0.999
2-Mar-04	11:24:40	614.2	19	0.999
2-Mar-04	11:25:00	619.7	19	0.999
2-Mar-04	11:25:20	622.3	19	0.999
2-Mar-04	11:25:40	623	19	0.999
2-Mar-04	11:26:00	621.9	19	0.999
2-Mar-04	11:26:20	619.3	19	0.999
2-Mar-04	11:26:40	614.9	19	0.999
2-Mar-04	11:27:00	607.4	19	0.999
2-Mar-04	11:27:20	600.9	19	0.999
2-Mar-04	11:27:40	594.4	19	0.999
2-Mar-04	11:28:00	586.9	18.9	0.999
2-Mar-04	11:28:20	584.2	18.9	0.999
2-Mar-04	11:28:40	588.5	18.9	0.999
2-Mar-04	11:29:00	594.7	18.9	0.999
2-Mar-04	11:29:20	605.1	18.9	0.999
2-Mar-04	11:29:40	613.6	18.9	0.999
2-Mar-04	11:30:00	620.7	18.9	0.999
2-Mar-04	11:30:20	630	18.9	0.999
2-Mar-04	11:30:40	635.1	18.8	0.999
2-Mar-04	11:31:00	637.7	18.8	0.999
2-Mar-04	11:31:20	643.4	18.8	0.999
2-Mar-04	11:31:40	653.1	18.8	0.999
2-Mar-04	11:32:00	664.2	18.8	0.999
2-Mar-04	11:32:20	671.6	18.8	0.999
2-Mar-04	11:32:40	674.5	18.7	0.999
2-Mar-04	11:33:00	679.3	18.8	0.999
2-Mar-04	11:33:20	682.8	18.8	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	11:33:40	685.4	18.8	0.999
2-Mar-04	11:34:00	689.4	18.9	0.999
2-Mar-04	11:34:20	691.3	18.9	0.999
2-Mar-04	11:34:40	691.3	18.9	0.999
2-Mar-04	11:35:00	690.4	19	0.999
2-Mar-04	11:35:20	687.2	19	0.999
2-Mar-04	11:35:40	684.8	19	0.999
2-Mar-04	11:36:00	685.5	19	0.999
2-Mar-04	11:36:20	683	19.1	0.999
2-Mar-04	11:36:40	681.7	19.1	0.999
2-Mar-04	11:37:00	679.6	19.2	0.999
2-Mar-04	11:37:20	676.7	19.2	0.999
2-Mar-04	11:37:40	677.8	19.2	0.999
2-Mar-04	11:38:00	678.4	19.2	0.999
2-Mar-04	11:38:20	676.3	19.2	0.999
2-Mar-04	11:38:40	674.6	19.2	0.999
2-Mar-04	11:39:00	670.9	19.1	0.999
2-Mar-04	11:39:20	667.2	19.1	0.999
2-Mar-04	11:39:40	664.9	19.1	0.999
2-Mar-04	11:40:00	661.1	19.1	0.999
2-Mar-04	11:40:20	656.7	19.1	0.999
2-Mar-04	11:40:40	655.5	19.1	0.999
2-Mar-04	11:41:00	654.6	19	0.999
2-Mar-04	11:41:20	654.3	19	0.999
2-Mar-04	11:41:40	657.5	19	0.999
2-Mar-04	11:42:00	656.9	19	0.999
2-Mar-04	11:42:20	657.3	18.9	0.999
2-Mar-04	11:42:40	656.4	18.9	0.999
2-Mar-04	11:43:00	652.6	18.9	0.999
2-Mar-04	11:43:20	651.8	18.9	0.999
2-Mar-04	11:43:40	648.8	18.9	0.999
2-Mar-04	11:44:00	644.2	18.9	0.999
2-Mar-04	11:44:20	640.4	18.9	0.999
2-Mar-04	11:44:40	634.6	18.9	0.999
2-Mar-04	11:45:00	629.3	18.9	0.999
2-Mar-04	11:45:20	625.1	18.9	0.999
2-Mar-04	11:45:40	619.3	18.9	0.999
2-Mar-04	11:46:00	615.3	18.9	0.999
2-Mar-04	11:46:20	613.5	18.9	0.999
2-Mar-04	11:46:40	611.7	18.9	0.999
2-Mar-04	11:47:00	612.6	18.9	0.999
2-Mar-04	11:47:20	613.8	18.9	0.999
2-Mar-04	11:47:40	612.4	18.9	0.999
2-Mar-04	11:48:00	611.7	18.9	0.999
2-Mar-04	11:48:20	608.4	18.9	0.999
2-Mar-04	11:48:40	603.6	18.9	0.999
2-Mar-04	11:49:00	603.2	18.9	0.999
2-Mar-04	11:49:20	606.5	18.9	0.999
2-Mar-04	11:49:40	611.8	18.9	0.999
2-Mar-04	11:50:00	619	18.9	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	11:50:20	623.8	18.9	0.999
2-Mar-04	11:50:40	628.9	19	0.999
2-Mar-04	11:51:00	633.5	19	0.999
2-Mar-04	11:51:20	635	19	0.999
2-Mar-04	11:51:40	636.4	19.1	0.999
2-Mar-04	11:52:00	634.7	19.1	0.999
2-Mar-04	11:52:20	630.9	19.1	0.999
2-Mar-04	11:52:40	627.1	19	0.999
2-Mar-04	11:53:00	621.5	19.1	0.999
2-Mar-04	11:53:20	615	19.1	0.999
2-Mar-04	11:53:40	607.7	19.1	0.999
2-Mar-04	11:54:00	598	19.1	0.999
2-Mar-04	11:54:20	588.3	19.1	0.999
2-Mar-04	11:54:40	581.9	19.1	0.999
2-Mar-04	11:55:00	575.1	19.1	0.999
2-Mar-04	11:55:20	569.8	19.1	0.999
2-Mar-04	11:55:40	566.9	19.1	0.999
2-Mar-04	11:56:00	563.4	19.1	0.999
2-Mar-04	11:56:20	560	19	0.999
2-Mar-04	11:56:40	555.1	19	0.999
2-Mar-04	11:57:00	548.3	19.1	0.999
2-Mar-04	11:57:20	543.3	19	0.999
2-Mar-04	11:57:40	537.9	19.1	0.999
2-Mar-04	11:58:00	530	19.1	0.999
2-Mar-04	11:58:20	522.2	19.1	0.999
2-Mar-04	11:58:40	513	19.1	0.999
2-Mar-04	11:59:00	504	19.1	0.999
2-Mar-04	11:59:20	494.7	19.1	0.999
2-Mar-04	11:59:40	486.5	19.1	0.999
2-Mar-04	12:00:00	479.7	19	0.999
2-Mar-04	12:00:20	473.9	19	0.999
2-Mar-04	12:00:40	467.3	18.9	0.999
2-Mar-04	12:01:00	463.7	18.9	0.999
2-Mar-04	12:01:20	462.3	18.9	0.999
2-Mar-04	12:01:40	459.8	18.9	0.999
2-Mar-04	12:02:00	458.2	18.9	0.999
2-Mar-04	12:02:20	458.1	18.9	0.999
2-Mar-04	12:02:40	458.1	18.9	0.999
2-Mar-04	12:03:00	461.3	18.9	0.999
2-Mar-04	12:03:20	465.2	18.9	0.999
2-Mar-04	12:03:40	468	18.9	0.999
2-Mar-04	12:04:00	469	18.9	0.999
2-Mar-04	12:04:20	467.3	18.9	0.999
2-Mar-04	12:04:40	467	18.9	0.999
2-Mar-04	12:05:00	465.3	18.9	0.999
2-Mar-04	12:05:20	463.8	18.9	0.999
2-Mar-04	12:05:40	463	18.9	0.999
2-Mar-04	12:06:00	462	18.9	0.999
2-Mar-04	12:06:20	460.3	18.9	0.999
2-Mar-04	12:06:40	462.2	18.9	0.999

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	12:07:00	463.1	18.9	0.999	
2-Mar-04	12:07:20	463	18.9	0.999	
2-Mar-04	12:07:40	464	18.9	0.999	
2-Mar-04	12:08:00	462.8	18.9	0.999	
2-Mar-04	12:08:20	463.5	18.9	0.999	
2-Mar-04	12:08:40	466.2	18.9	0.999	
2-Mar-04	12:09:00	468.1	18.9	0.999	
2-Mar-04	12:09:20	469.4	18.9	0.999	
2-Mar-04	12:09:40	471.4	18.9	0.999	
2-Mar-04	12:10:00	473.5	18.9	0.999	
2-Mar-04	12:10:20	478.4	18.9	0.999	
2-Mar-04	12:10:40	487.8	18.9	0.999	
2-Mar-04	12:11:00	494.9	18.9	0.999	
2-Mar-04	12:11:20	504	18.9	0.999	
2-Mar-04	12:11:40	510.7	18.9	0.999	
2-Mar-04	12:12:00	516	18.9	0.999	Stop Run # 2
		589.5		Average	
2-Mar-04	13:04:00	7726.8	18.3	0.999	Start Run # 3
2-Mar-04	13:04:20	7742.8	18.3	0.999	
2-Mar-04	13:04:40	7784.9	18.3	0.999	
2-Mar-04	13:05:00	7831	18.3	0.999	
2-Mar-04	13:05:20	7882.1	18.3	0.999	
2-Mar-04	13:05:40	7931.4	18.3	0.999	
2-Mar-04	13:06:00	7976.7	18.3	0.999	
2-Mar-04	13:06:20	8027	18.3	0.999	
2-Mar-04	13:06:40	8096	18.3	0.999	
2-Mar-04	13:07:00	8158	18.3	0.999	
2-Mar-04	13:07:20	8226.7	18.3	0.999	
2-Mar-04	13:07:40	8295.2	18.4	0.999	
2-Mar-04	13:08:00	8372.1	18.4	0.999	
2-Mar-04	13:08:20	8477.9	18.4	0.999	
2-Mar-04	13:08:40	8571.8	18.4	0.999	
2-Mar-04	13:09:00	8629.7	18.4	0.998	
2-Mar-04	13:09:20	8662.9	18.5	0.998	
2-Mar-04	13:09:40	8692.3	18.5	0.998	
2-Mar-04	13:10:00	8737.6	18.5	0.998	
2-Mar-04	13:10:20	8751.3	18.5	0.998	
2-Mar-04	13:10:40	8724	18.5	0.998	
2-Mar-04	13:11:00	8673.3	18.6	0.998	
2-Mar-04	13:11:20	8620.2	18.5	0.998	
2-Mar-04	13:11:40	8583.3	18.6	0.998	
2-Mar-04	13:12:00	8583.2	18.5	0.998	
2-Mar-04	13:12:20	8643	18.5	0.998	
2-Mar-04	13:12:40	8734.4	18.5	0.998	
2-Mar-04	13:13:00	8817.9	18.5	0.998	
2-Mar-04	13:13:20	8871.6	18.6	0.998	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	13:13:40	8920.9	18.5	0.998
2-Mar-04	13:14:00	8984.4	18.6	0.998
2-Mar-04	13:14:20	9083.2	18.6	0.998
2-Mar-04	13:14:40	9194	18.6	0.998
2-Mar-04	13:15:00	9326.1	18.5	0.998
2-Mar-04	13:15:20	9464	18.5	0.998
2-Mar-04	13:15:40	9613.3	18.5	0.998
2-Mar-04	13:16:00	9781.7	18.5	0.998
2-Mar-04	13:16:20	9912.2	18.5	0.998
2-Mar-04	13:16:40	10008.4	18.5	0.998
2-Mar-04	13:17:00	10100	18.5	0.998
2-Mar-04	13:17:20	10215.6	18.5	0.998
2-Mar-04	13:17:40	10367.7	18.5	0.998
2-Mar-04	13:18:00	10499.1	18.5	0.998
2-Mar-04	13:18:20	10601.5	18.5	0.998
2-Mar-04	13:18:40	10691.5	18.4	0.998
2-Mar-04	13:19:00	10798.6	18.4	0.998
2-Mar-04	13:19:20	10955.2	18.4	0.998
2-Mar-04	13:19:40	11102.2	18.4	0.998
2-Mar-04	13:20:00	11196	18.4	0.998
2-Mar-04	13:20:20	11226.9	18.4	0.998
2-Mar-04	13:20:40	11222.7	18.4	0.998
2-Mar-04	13:21:00	11173.4	18.4	0.998
2-Mar-04	13:21:20	11105.1	18.4	0.998
2-Mar-04	13:21:40	11041.9	18.4	0.998
2-Mar-04	13:22:00	11008.5	18.4	0.998
2-Mar-04	13:22:20	11032	18.4	0.998
2-Mar-04	13:22:40	11104.6	18.4	0.998
2-Mar-04	13:23:00	11150.2	18.4	0.998
2-Mar-04	13:23:20	11177.8	18.4	0.998
2-Mar-04	13:23:40	11164.1	18.4	0.998
2-Mar-04	13:24:00	11102.9	18.4	0.998
2-Mar-04	13:24:20	11019.7	18.4	0.998
2-Mar-04	13:24:40	10936.6	18.4	0.998
2-Mar-04	13:25:00	10876.5	18.4	0.998
2-Mar-04	13:25:20	10864	18.4	0.998
2-Mar-04	13:25:40	10853.4	18.4	0.998
2-Mar-04	13:26:00	10826.3	18.4	0.998
2-Mar-04	13:26:20	10808.6	18.4	0.998
2-Mar-04	13:26:40	10781.4	18.4	0.998
2-Mar-04	13:27:00	10755.7	18.4	0.998
2-Mar-04	13:27:20	10742.5	18.5	0.998
2-Mar-04	13:27:40	10715.9	18.5	0.998
2-Mar-04	13:28:00	10689.9	18.5	0.998
2-Mar-04	13:28:20	10658.7	18.5	0.998
2-Mar-04	13:28:40	10633.1	18.5	0.998
2-Mar-04	13:29:00	10628.6	18.5	0.998
2-Mar-04	13:29:20	10617.9	18.6	0.998
2-Mar-04	13:29:40	10581.6	18.6	0.998
2-Mar-04	13:30:00	10541.4	18.6	0.998

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	13:30:20	10478.5	18.6	0.998
2-Mar-04	13:30:40	10384.2	18.6	0.998
2-Mar-04	13:31:00	10283.2	18.6	0.998
2-Mar-04	13:31:20	10181.4	18.6	0.998
2-Mar-04	13:31:40	10097.2	18.6	0.998
2-Mar-04	13:32:00	10050.9	18.6	0.998
2-Mar-04	13:32:20	10022.4	18.7	0.998
2-Mar-04	13:32:40	10011	18.7	0.998
2-Mar-04	13:33:00	9987.1	18.7	0.998
2-Mar-04	13:33:20	9950.4	18.7	0.998
2-Mar-04	13:33:40	9917.9	18.8	0.998
2-Mar-04	13:34:00	9912.7	18.8	0.998
2-Mar-04	13:34:20	9945.2	18.8	0.998
2-Mar-04	13:34:40	9964	18.8	0.998
2-Mar-04	13:35:00	9982.1	18.8	0.998
2-Mar-04	13:35:20	10005.3	18.8	0.998
2-Mar-04	13:35:40	10048.5	18.9	0.998
2-Mar-04	13:36:00	10089.6	18.8	0.998
2-Mar-04	13:36:20	10128.6	18.9	0.998
2-Mar-04	13:36:40	10190.3	18.9	0.998
2-Mar-04	13:37:00	10245.2	18.9	0.998
2-Mar-04	13:37:20	10301.9	19	0.998
2-Mar-04	13:37:40	10352.7	19	0.998
2-Mar-04	13:38:00	10389.1	19	0.998
2-Mar-04	13:38:20	10435.6	19	0.998
2-Mar-04	13:38:40	10489.8	19	0.998
2-Mar-04	13:39:00	10524.1	19.1	0.998
2-Mar-04	13:39:20	10548.5	19	0.998
2-Mar-04	13:39:40	10555.8	19	0.998
2-Mar-04	13:40:00	10552.4	19	0.998
2-Mar-04	13:40:20	10553.8	19	0.998
2-Mar-04	13:40:40	10504.9	19	0.998
2-Mar-04	13:41:00	10426.7	19.1	0.998
2-Mar-04	13:41:20	10324.9	19.1	0.998
2-Mar-04	13:41:40	10217.1	19.1	0.998
2-Mar-04	13:42:00	10124.7	19.1	0.998
2-Mar-04	13:42:20	10067.4	19.2	0.998
2-Mar-04	13:42:40	10009.8	19.2	0.998
2-Mar-04	13:43:00	9946.7	19.2	0.998
2-Mar-04	13:43:20	9859.9	19.2	0.998
2-Mar-04	13:43:40	9750.4	19.2	0.998
2-Mar-04	13:44:00	9638.5	19.2	0.998
2-Mar-04	13:44:20	9534.1	19.2	0.998
2-Mar-04	13:44:40	9415.6	19.2	0.998
2-Mar-04	13:45:00	9275.2	19.2	0.998
2-Mar-04	13:45:20	9117.7	19.2	0.998
2-Mar-04	13:45:40	8947.9	19.3	0.998
2-Mar-04	13:46:00	8781.2	19.2	0.998
2-Mar-04	13:46:20	8632.2	19.2	0.998
2-Mar-04	13:46:40	8516.1	19.2	0.998

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
2-Mar-04	13:47:00	8413.4	19.2	0.998
2-Mar-04	13:47:20	8293.2	19.2	0.998
2-Mar-04	13:47:40	8175.6	19.3	0.998
2-Mar-04	13:48:00	8076.4	19.3	0.998
2-Mar-04	13:48:20	8011.4	19.3	0.998
2-Mar-04	13:48:40	7948.1	19.3	0.998
2-Mar-04	13:49:00	7870.7	19.3	0.998
2-Mar-04	13:49:20	7782.9	19.3	0.998
2-Mar-04	13:49:40	7704.4	19.3	0.998
2-Mar-04	13:50:00	7639.2	19.4	0.998
2-Mar-04	13:50:20	7573.3	19.4	0.998
2-Mar-04	13:50:40	7491.2	19.4	0.998
2-Mar-04	13:51:00	7385.5	19.4	0.998
2-Mar-04	13:51:20	7266.9	19.4	0.998
2-Mar-04	13:51:40	7144.5	19.5	0.998
2-Mar-04	13:52:00	7030.1	19.5	0.998
2-Mar-04	13:52:20	6936.5	19.5	0.998
2-Mar-04	13:52:40	6858.8	19.5	0.998
2-Mar-04	13:53:00	6768.4	19.5	0.998
2-Mar-04	13:53:20	6688.8	19.6	0.998
2-Mar-04	13:53:40	6614.2	19.6	0.998
2-Mar-04	13:54:00	6532.4	19.6	0.998
2-Mar-04	13:54:20	6451.7	19.6	0.998
2-Mar-04	13:54:40	6355	19.6	0.998
2-Mar-04	13:55:00	6244.1	19.6	0.998
2-Mar-04	13:55:20	6131.4	19.7	0.998
2-Mar-04	13:55:40	6024.2	19.7	0.998
2-Mar-04	13:56:00	5921.8	19.7	0.998
2-Mar-04	13:56:20	5808.7	19.7	0.998
2-Mar-04	13:56:40	5686.4	19.7	0.998
2-Mar-04	13:57:00	5565.9	19.7	0.998
2-Mar-04	13:57:20	5443.1	19.7	0.998
2-Mar-04	13:57:40	5312.5	19.7	0.998
2-Mar-04	13:58:00	5189.1	19.7	0.998
2-Mar-04	13:58:20	5077.4	19.7	0.998
2-Mar-04	13:58:40	4972.4	19.8	0.998
2-Mar-04	13:59:00	4877.6	19.8	0.998
2-Mar-04	13:59:20	4781.9	19.8	0.998
2-Mar-04	13:59:40	4682.2	19.8	0.998
2-Mar-04	14:00:00	4579.4	19.8	0.998
2-Mar-04	14:00:20	4472.4	19.7	0.998
2-Mar-04	14:00:40	4364.2	19.8	0.998
2-Mar-04	14:01:00	4258.9	19.8	0.998
2-Mar-04	14:01:20	4151.2	19.8	0.998
2-Mar-04	14:01:40	4043.1	19.8	0.998
2-Mar-04	14:02:00	3934.2	19.8	0.998
2-Mar-04	14:02:20	3832.8	19.7	0.998
2-Mar-04	14:02:40	3744.4	19.7	0.998
2-Mar-04	14:03:00	3675	19.8	0.998
2-Mar-04	14:03:20	3631.9	19.8	0.998

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
2-Mar-04	14:03:40	3619.3	19.8	0.998	
2-Mar-04	14:04:00	3603.8	19.8	0.998	
2-Mar-04	14:04:20	3588.7	19.8	0.998	
2-Mar-04	14:04:40	3584.4	19.8	0.998	
2-Mar-04	14:05:00	3572.5	19.8	0.998	Stop Run # 3
		8650.8		Average	

APPENDIX A4

CHANDLER CONCRETE TRUCK MIX

PM_{10} TEOM DATA

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	7:17:00	147.6	4.6	0.951	Start Run # 1
17-Mar-04	7:17:20	148.3	4.6	0.951	
17-Mar-04	7:17:40	148.4	4.6	0.951	
17-Mar-04	7:18:00	151.8	4.6	0.951	
17-Mar-04	7:18:20	158.7	4.6	0.951	
17-Mar-04	7:18:40	168	4.6	0.951	
17-Mar-04	7:19:00	183.2	4.6	0.951	
17-Mar-04	7:19:20	205.9	4.6	0.951	
17-Mar-04	7:19:40	238.2	4.6	0.951	
17-Mar-04	7:20:00	282.7	4.6	0.951	
17-Mar-04	7:20:20	342.9	4.6	0.951	
17-Mar-04	7:20:40	423.1	4.7	0.951	
17-Mar-04	7:21:00	529.3	4.7	0.951	
17-Mar-04	7:21:20	669.1	4.7	0.951	
17-Mar-04	7:21:40	852.5	4.7	0.951	
17-Mar-04	7:22:00	1092.6	4.7	0.951	
17-Mar-04	7:22:20	1406.1	4.7	0.951	
17-Mar-04	7:22:40	1815.2	4.7	0.951	
17-Mar-04	7:23:00	2324.1	4.7	0.951	
17-Mar-04	7:23:20	2761.8	4.7	0.951	
17-Mar-04	7:23:40	3100.5	4.8	0.951	
17-Mar-04	7:24:00	3355.8	4.8	0.951	
17-Mar-04	7:24:20	3539.6	4.8	0.951	
17-Mar-04	7:24:40	3663.8	4.8	0.951	
17-Mar-04	7:25:00	3738.7	4.8	0.951	
17-Mar-04	7:25:20	3771.7	4.8	0.951	
17-Mar-04	7:25:40	3770.2	4.8	0.951	
17-Mar-04	7:26:00	3740.4	4.8	0.951	
17-Mar-04	7:26:20	3687.7	4.8	0.951	
17-Mar-04	7:26:40	3616.8	4.8	0.951	
17-Mar-04	7:27:00	3532	4.8	0.951	
17-Mar-04	7:27:20	3435.2	4.8	0.951	
17-Mar-04	7:27:40	3330.1	4.8	0.951	
17-Mar-04	7:28:00	3218.7	4.8	0.951	
17-Mar-04	7:28:20	3103.3	4.8	0.951	
17-Mar-04	7:28:40	2985.2	4.9	0.951	
17-Mar-04	7:29:00	2865.9	4.9	0.951	
17-Mar-04	7:29:20	2746	4.9	0.951	
17-Mar-04	7:29:40	2628.4	4.9	0.951	
17-Mar-04	7:30:00	2512.1	4.9	0.951	
17-Mar-04	7:30:20	2399.3	4.9	0.951	
17-Mar-04	7:30:40	2289.1	4.9	0.951	
17-Mar-04	7:31:00	2182.5	4.9	0.951	
17-Mar-04	7:31:20	2078.4	4.9	0.951	
17-Mar-04	7:31:40	1977.9	4.9	0.951	
17-Mar-04	7:32:00	1880.5	4.9	0.951	
17-Mar-04	7:32:20	1786.4	4.9	0.951	
17-Mar-04	7:32:40	1696.9	4.9	0.951	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
17-Mar-04	7:33:00	1610.5	4.9	0.951
17-Mar-04	7:33:20	1528.8	4.9	0.951
17-Mar-04	7:33:40	1451.8	4.9	0.951
17-Mar-04	7:34:00	1378	4.9	0.951
17-Mar-04	7:34:20	1308	4.9	0.951
17-Mar-04	7:34:40	1240.7	4.9	0.951
17-Mar-04	7:35:00	1177.9	4.9	0.951
17-Mar-04	7:35:20	1119.3	4.9	0.951
17-Mar-04	7:35:40	1063.8	4.9	0.951
17-Mar-04	7:36:00	1012.4	4.9	0.951
17-Mar-04	7:36:20	964.6	4.9	0.951
17-Mar-04	7:36:40	918.2	4.9	0.951
17-Mar-04	7:37:00	874.3	4.9	0.951
17-Mar-04	7:37:20	831.8	4.9	0.951
17-Mar-04	7:37:40	791.2	4.9	0.951
17-Mar-04	7:38:00	752.6	4.9	0.951
17-Mar-04	7:38:20	716.8	4.9	0.951
17-Mar-04	7:38:40	682.2	4.9	0.951
17-Mar-04	7:39:00	650.9	4.9	0.951
17-Mar-04	7:39:20	623.1	4.9	0.951
17-Mar-04	7:39:40	597.5	4.9	0.951
17-Mar-04	7:40:00	573.6	4.9	0.951
17-Mar-04	7:40:20	550.8	4.9	0.951
17-Mar-04	7:40:40	528.8	4.9	0.951
17-Mar-04	7:41:00	508.1	4.9	0.951
17-Mar-04	7:41:20	491.8	4.9	0.951
17-Mar-04	7:41:40	481.9	4.9	0.951
17-Mar-04	7:42:00	479.5	4.9	0.951
17-Mar-04	7:42:20	486	4.9	0.951
17-Mar-04	7:42:40	503.6	4.9	0.951
17-Mar-04	7:43:00	535	5	0.951
17-Mar-04	7:43:20	583.6	5	0.951
17-Mar-04	7:43:40	654.3	5	0.951
17-Mar-04	7:44:00	753.1	5	0.951
17-Mar-04	7:44:20	872.8	5	0.951
17-Mar-04	7:44:40	968.7	5	0.951
17-Mar-04	7:45:00	1041.5	5	0.951
17-Mar-04	7:45:20	1093.9	5	0.951
17-Mar-04	7:45:40	1129.6	5	0.951
17-Mar-04	7:46:00	1151.5	5	0.951
17-Mar-04	7:46:20	1161.7	5	0.951
17-Mar-04	7:46:40	1162.2	5	0.951
17-Mar-04	7:47:00	1154.2	5	0.951
17-Mar-04	7:47:20	1139.9	5	0.951
17-Mar-04	7:47:40	1120.4	5.1	0.951
17-Mar-04	7:48:00	1096.3	5.1	0.951
17-Mar-04	7:48:20	1068.9	5.1	0.951
17-Mar-04	7:48:40	1039.3	5	0.951

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	7:49:00	1008.9	5.1	0.951	
17-Mar-04	7:49:20	976.6	5.1	0.951	
17-Mar-04	7:49:40	943.2	5.1	0.951	
17-Mar-04	7:50:00	909.2	5.1	0.951	
17-Mar-04	7:50:20	874.6	5.1	0.951	
17-Mar-04	7:50:40	840.3	5.1	0.951	
17-Mar-04	7:51:00	806.2	5.1	0.951	
17-Mar-04	7:51:20	772.8	5.1	0.951	
17-Mar-04	7:51:40	740.3	5.1	0.951	Stop @ 752
17-Mar-04	7:58:00	312.5	5.1	0.951	Start @ 758
17-Mar-04	7:58:20	302	5	0.951	
17-Mar-04	7:58:40	292.5	5	0.951	
17-Mar-04	7:59:00	283	5	0.951	
17-Mar-04	7:59:20	273.5	5	0.951	
17-Mar-04	7:59:40	265.1	5	0.951	
17-Mar-04	8:00:00	257.7	5	0.951	
17-Mar-04	8:00:20	251.2	5	0.951	
17-Mar-04	8:00:40	244.7	5	0.951	
17-Mar-04	8:01:00	237.8	5	0.951	
17-Mar-04	8:01:20	231.1	5	0.951	
17-Mar-04	8:01:40	225.1	5	0.951	
17-Mar-04	8:02:00	224.5	5	0.951	
17-Mar-04	8:02:20	225.5	5	0.951	
17-Mar-04	8:02:40	225.4	4.9	0.951	
17-Mar-04	8:03:00	226.1	5	0.951	
17-Mar-04	8:03:20	225.6	5	0.951	
17-Mar-04	8:03:40	225.5	5	0.951	
17-Mar-04	8:04:00	224.9	5	0.951	
17-Mar-04	8:04:20	225.5	5	0.951	
17-Mar-04	8:04:40	232.6	5	0.951	
17-Mar-04	8:05:00	247.5	5	0.951	
17-Mar-04	8:05:20	272.2	5	0.951	
17-Mar-04	8:05:40	308.8	5	0.951	
17-Mar-04	8:06:00	360.6	5	0.951	
17-Mar-04	8:06:20	431.6	5	0.951	
17-Mar-04	8:06:40	527.4	5	0.951	
17-Mar-04	8:07:00	653.9	5	0.951	
17-Mar-04	8:07:20	772.4	5.1	0.951	
17-Mar-04	8:07:40	865.6	5.1	0.951	
17-Mar-04	8:08:00	937.1	5.1	0.951	
17-Mar-04	8:08:20	989.8	5.1	0.951	
17-Mar-04	8:08:40	1026.2	5.1	0.951	
17-Mar-04	8:09:00	1049.2	5.1	0.951	
17-Mar-04	8:09:20	1061.4	5.1	0.951	
17-Mar-04	8:09:40	1063.8	5.1	0.951	
17-Mar-04	8:10:00	1059.1	5.1	0.951	
17-Mar-04	8:10:20	1047.6	5.1	0.951	
17-Mar-04	8:10:40	1030.7	5.1	0.951	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	8:11:00	1011.7	5	0.951	
17-Mar-04	8:11:20	992	5	0.951	
17-Mar-04	8:11:40	970.7	5	0.951	
17-Mar-04	8:12:00	946.5	5	0.951	
17-Mar-04	8:12:20	920.1	5	0.951	
17-Mar-04	8:12:40	892.5	5	0.951	
17-Mar-04	8:13:00	864.5	5	0.951	
17-Mar-04	8:13:20	834.8	5	0.951	
17-Mar-04	8:13:40	804.8	5	0.951	
17-Mar-04	8:14:00	773.9	5	0.951	
17-Mar-04	8:14:20	743.8	5	0.951	
17-Mar-04	8:14:40	714.1	5	0.951	
17-Mar-04	8:15:00	685	5	0.951	
17-Mar-04	8:15:20	656.6	5	0.951	
17-Mar-04	8:15:40	628.6	5	0.951	Stop @ 816
17-Mar-04	8:21:00	314.7	4.9	0.951	Start @ 821
17-Mar-04	8:21:20	302.6	4.9	0.951	
17-Mar-04	8:21:40	290.6	4.9	0.951	
17-Mar-04	8:22:00	279.9	4.9	0.951	
17-Mar-04	8:22:20	270	4.9	0.951	
17-Mar-04	8:22:40	260.5	4.9	0.951	
17-Mar-04	8:23:00	251.5	4.9	0.951	
17-Mar-04	8:23:20	244	4.9	0.951	
17-Mar-04	8:23:40	237.9	4.9	0.951	
17-Mar-04	8:24:00	234.3	5	0.951	
17-Mar-04	8:24:20	234.6	5	0.951	
17-Mar-04	8:24:40	236.4	5	0.951	
17-Mar-04	8:25:00	238.7	5.1	0.951	
17-Mar-04	8:25:20	240.5	5.1	0.951	
17-Mar-04	8:25:40	245.3	5.1	0.951	
17-Mar-04	8:26:00	254.8	5.1	0.951	
17-Mar-04	8:26:20	270.3	5.1	0.951	
17-Mar-04	8:26:40	293.5	5.2	0.951	
17-Mar-04	8:27:00	326.6	5.2	0.951	
17-Mar-04	8:27:20	372.6	5.2	0.951	
17-Mar-04	8:27:40	423.8	5.2	0.951	
17-Mar-04	8:28:00	470.4	5.2	0.951	
17-Mar-04	8:28:20	511.2	5.2	0.951	
17-Mar-04	8:28:40	543.7	5.2	0.951	
17-Mar-04	8:29:00	567.4	5.2	0.951	
17-Mar-04	8:29:20	584.3	5.2	0.951	
17-Mar-04	8:29:40	594.2	5.1	0.951	
17-Mar-04	8:30:00	598.5	5.1	0.951	
17-Mar-04	8:30:20	598.1	5.1	0.951	
17-Mar-04	8:30:40	593.6	5.1	0.951	
17-Mar-04	8:31:00	586	5.1	0.951	
17-Mar-04	8:31:20	576.1	5.1	0.951	
17-Mar-04	8:31:40	564.9	5.1	0.951	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	8:32:00	551.7	5.1	0.951	
17-Mar-04	8:32:20	537.5	5.1	0.951	
17-Mar-04	8:32:40	522.8	5	0.951	
17-Mar-04	8:33:00	506.7	5	0.951	
17-Mar-04	8:33:20	491	5	0.952	
17-Mar-04	8:33:40	474.8	5	0.952	
17-Mar-04	8:34:00	458.4	5	0.951	Stop Run # 1
Averages		983.3708543	5.0	1.0	
17-Mar-04	9:17:00	86.2	4.4	0.952	Start Run # 2
17-Mar-04	9:17:20	87.1	4.4	0.952	
17-Mar-04	9:17:40	89.9	4.4	0.952	
17-Mar-04	9:18:00	92.8	4.4	0.952	
17-Mar-04	9:18:20	94.9	4.4	0.952	
17-Mar-04	9:18:40	97.2	4.4	0.952	
17-Mar-04	9:19:00	98.3	4.4	0.952	
17-Mar-04	9:19:20	99.8	4.5	0.952	
17-Mar-04	9:19:40	104.1	4.5	0.952	
17-Mar-04	9:20:00	113.2	4.5	0.952	
17-Mar-04	9:20:20	128	4.5	0.952	
17-Mar-04	9:20:40	149.9	4.5	0.952	
17-Mar-04	9:21:00	180.6	4.5	0.952	
17-Mar-04	9:21:20	222.6	4.5	0.952	
17-Mar-04	9:21:40	279	4.5	0.952	
17-Mar-04	9:22:00	353.8	4.5	0.952	
17-Mar-04	9:22:20	444.1	4.5	0.952	
17-Mar-04	9:22:40	518.9	4.5	0.952	
17-Mar-04	9:23:00	579	4.6	0.952	
17-Mar-04	9:23:20	624.2	4.5	0.952	
17-Mar-04	9:23:40	658.2	4.6	0.952	
17-Mar-04	9:24:00	682.7	4.5	0.952	
17-Mar-04	9:24:20	698.3	4.6	0.952	
17-Mar-04	9:24:40	706.2	4.6	0.952	
17-Mar-04	9:25:00	708.6	4.6	0.952	
17-Mar-04	9:25:20	705.6	4.6	0.952	
17-Mar-04	9:25:40	699	4.6	0.952	Stop @ 926
17-Mar-04	9:42:00	116.6	4.8	0.952	Start @ 942
17-Mar-04	9:42:20	113.1	4.8	0.952	
17-Mar-04	9:42:40	109.2	4.8	0.952	
17-Mar-04	9:43:00	106	4.8	0.952	
17-Mar-04	9:43:20	103	4.8	0.952	
17-Mar-04	9:43:40	100.5	4.8	0.952	
17-Mar-04	9:44:00	98.4	4.8	0.952	
17-Mar-04	9:44:20	96.1	4.9	0.952	
17-Mar-04	9:44:40	93.7	4.9	0.952	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	9:45:00	91.2	4.9	0.952	
17-Mar-04	9:45:20	88.5	4.9	0.952	
17-Mar-04	9:45:40	86.5	4.9	0.952	
17-Mar-04	9:46:00	88.2	4.9	0.952	
17-Mar-04	9:46:20	93.2	4.9	0.952	
17-Mar-04	9:46:40	98	4.9	0.952	
17-Mar-04	9:47:00	102.9	5	0.952	
17-Mar-04	9:47:20	107.3	5	0.952	
17-Mar-04	9:47:40	110.7	5	0.952	
17-Mar-04	9:48:00	114.8	5	0.952	
17-Mar-04	9:48:20	121.9	5	0.952	
17-Mar-04	9:48:40	132.8	5.1	0.952	
17-Mar-04	9:49:00	148.6	5.1	0.952	
17-Mar-04	9:49:20	170.6	5.1	0.952	
17-Mar-04	9:49:40	200.6	5.2	0.952	
17-Mar-04	9:50:00	241	5.2	0.952	
17-Mar-04	9:50:20	294.7	5.2	0.952	
17-Mar-04	9:50:40	365.8	5.2	0.952	
17-Mar-04	9:51:00	459.3	5.2	0.952	
17-Mar-04	9:51:20	582.1	5.3	0.952	
17-Mar-04	9:51:40	742.7	5.3	0.952	Stop @ 952
17-Mar-04	11:53:00	49.8	5.4	0.952	Start @ 1153
17-Mar-04	11:53:20	50.4	5.4	0.952	
17-Mar-04	11:53:40	50.5	5.4	0.952	
17-Mar-04	11:54:00	50.5	5.4	0.952	
17-Mar-04	11:54:20	52	5.4	0.952	
17-Mar-04	11:54:40	53.8	5.4	0.952	
17-Mar-04	11:55:00	55.6	5.4	0.952	
17-Mar-04	11:55:20	57.3	5.3	0.952	
17-Mar-04	11:55:40	58.1	5.3	0.952	
17-Mar-04	11:56:00	59.1	5.3	0.952	
17-Mar-04	11:56:20	61.5	5.3	0.952	
17-Mar-04	11:56:40	63.3	5.3	0.952	
17-Mar-04	11:57:00	64.7	5.3	0.952	
17-Mar-04	11:57:20	66.4	5.3	0.952	
17-Mar-04	11:57:40	71.9	5.3	0.952	
17-Mar-04	11:58:00	83.4	5.3	0.952	
17-Mar-04	11:58:20	94.2	5.3	0.952	
17-Mar-04	11:58:40	103.6	5.3	0.952	
17-Mar-04	11:59:00	113.9	5.3	0.952	
17-Mar-04	11:59:20	124.4	5.3	0.952	
17-Mar-04	11:59:40	136.9	5.3	0.952	
17-Mar-04	12:00:00	153.4	5.3	0.952	
17-Mar-04	12:00:20	175.1	5.3	0.952	
17-Mar-04	12:00:40	203.8	5.4	0.952	
17-Mar-04	12:01:00	241.8	5.4	0.952	
17-Mar-04	12:01:20	291.8	5.4	0.952	
17-Mar-04	12:01:40	357.6	5.4	0.952	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
17-Mar-04	12:02:00	443.9	5.4	0.952
17-Mar-04	12:02:20	557.1	5.4	0.952
17-Mar-04	12:02:40	705	5.4	0.952
17-Mar-04	12:03:00	898.4	5.4	0.952
17-Mar-04	12:03:20	1094.3	5.4	0.952
17-Mar-04	12:03:40	1248.3	5.4	0.952
17-Mar-04	12:04:00	1370.1	5.4	0.952
17-Mar-04	12:04:20	1464.8	5.4	0.952
17-Mar-04	12:04:40	1535.1	5.4	0.952
17-Mar-04	12:05:00	1585.1	5.3	0.952
17-Mar-04	12:05:20	1615.6	5.3	0.952
17-Mar-04	12:05:40	1629.5	5.3	0.952
17-Mar-04	12:06:00	1630	5.3	0.952
17-Mar-04	12:06:20	1619.1	5.3	0.952
17-Mar-04	12:06:40	1598.6	5.3	0.952
17-Mar-04	12:07:00	1570.1	5.3	0.952
17-Mar-04	12:07:20	1535.7	5.3	0.952
17-Mar-04	12:07:40	1496.8	5.3	0.952
17-Mar-04	12:08:00	1454.1	5.3	0.952
17-Mar-04	12:08:20	1409.3	5.3	0.952
17-Mar-04	12:08:40	1363.3	5.3	0.952
17-Mar-04	12:09:00	1315.6	5.3	0.952
17-Mar-04	12:09:20	1266.8	5.3	0.952
17-Mar-04	12:09:40	1218.3	5.3	0.952
17-Mar-04	12:10:00	1169.7	5.3	0.952
17-Mar-04	12:10:20	1121.1	5.3	0.952
17-Mar-04	12:10:40	1073.5	5.3	0.952
17-Mar-04	12:11:00	1026.9	5.3	0.952
17-Mar-04	12:11:20	981.4	5.3	0.952
17-Mar-04	12:11:40	936.7	5.3	0.952
17-Mar-04	12:12:00	893.1	5.3	0.952
17-Mar-04	12:12:20	850.9	5.3	0.952
17-Mar-04	12:12:40	810.7	5.3	0.952
17-Mar-04	12:13:00	771.6	5.3	0.952
17-Mar-04	12:13:20	733.9	5.3	0.952
17-Mar-04	12:13:40	697.8	5.3	0.952
17-Mar-04	12:14:00	663.6	5.3	0.952
17-Mar-04	12:14:20	631.7	5.3	0.952
17-Mar-04	12:14:40	601.4	5.3	0.952
17-Mar-04	12:15:00	572.1	5.4	0.952
17-Mar-04	12:15:20	543.4	5.4	0.952
17-Mar-04	12:15:40	516.4	5.4	0.952
17-Mar-04	12:16:00	491.1	5.4	0.952
17-Mar-04	12:16:20	467.8	5.5	0.952
17-Mar-04	12:16:40	444.3	5.5	0.952
17-Mar-04	12:17:00	421.9	5.5	0.952
17-Mar-04	12:17:20	401.2	5.5	0.952
17-Mar-04	12:17:40	381.8	5.6	0.952

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	12:18:00	364.2	5.6	0.952	
17-Mar-04	12:18:20	348	5.6	0.952	
17-Mar-04	12:18:40	332.1	5.6	0.952	
17-Mar-04	12:19:00	317.1	5.6	0.952	
17-Mar-04	12:19:20	304	5.6	0.952	
17-Mar-04	12:19:40	291.7	5.7	0.952	
17-Mar-04	12:20:00	280.4	5.7	0.952	
17-Mar-04	12:20:20	269.3	5.7	0.952	
17-Mar-04	12:20:40	258.9	5.7	0.952	
17-Mar-04	12:21:00	248.3	5.7	0.952	
17-Mar-04	12:21:20	238.2	5.7	0.952	
17-Mar-04	12:21:40	228.5	5.7	0.952	
17-Mar-04	12:22:00	220.1	5.7	0.952	
17-Mar-04	12:22:20	211.9	5.7	0.952	
17-Mar-04	12:22:40	204.3	5.7	0.952	Stop @ 1223
17-Mar-04	13:11:00	59.1	6.2	0.952	Start @ 1311
17-Mar-04	13:11:20	58.9	6.2	0.952	
17-Mar-04	13:11:40	58.5	6.2	0.952	
17-Mar-04	13:12:00	57.6	6.2	0.952	
17-Mar-04	13:12:20	61.8	6.2	0.952	
17-Mar-04	13:12:40	70.2	6.2	0.952	
17-Mar-04	13:13:00	77.1	6.2	0.952	
17-Mar-04	13:13:20	84	6.3	0.952	
17-Mar-04	13:13:40	89.7	6.3	0.952	
17-Mar-04	13:14:00	95.4	6.3	0.952	
17-Mar-04	13:14:20	100.9	6.4	0.952	
17-Mar-04	13:14:40	108.7	6.4	0.952	
17-Mar-04	13:15:00	121.6	6.5	0.952	
17-Mar-04	13:15:20	141.1	6.6	0.952	
17-Mar-04	13:15:40	168.6	6.6	0.952	
17-Mar-04	13:16:00	206.4	6.7	0.952	
17-Mar-04	13:16:20	257.3	6.7	0.952	
17-Mar-04	13:16:40	324.9	6.8	0.952	
17-Mar-04	13:17:00	414.2	6.8	0.952	
17-Mar-04	13:17:20	531.4	6.8	0.952	
17-Mar-04	13:17:40	684.9	6.8	0.952	
17-Mar-04	13:18:00	885.5	6.8	0.952	
17-Mar-04	13:18:20	1124.1	6.8	0.952	
17-Mar-04	13:18:40	1320.3	6.8	0.952	
17-Mar-04	13:19:00	1472.5	6.8	0.952	
17-Mar-04	13:19:20	1587.1	6.8	0.952	
17-Mar-04	13:19:40	1670.5	6.7	0.952	
17-Mar-04	13:20:00	1726.9	6.7	0.952	
17-Mar-04	13:20:20	1760	6.7	0.952	
17-Mar-04	13:20:40	1774.8	6.7	0.952	Stop Run # 2
Averages		495.3	5.4	1.0	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
18-Mar-04	12:40:00	222.5	15.7	0.956	Start Run # 3
18-Mar-04	12:40:20	215.7	15.7	0.956	
18-Mar-04	12:40:40	212.8	15.7	0.955	
18-Mar-04	12:41:00	213.8	15.7	0.955	
18-Mar-04	12:41:20	219.3	15.6	0.955	
18-Mar-04	12:41:40	225.5	15.6	0.955	
18-Mar-04	12:42:00	231.1	15.6	0.955	
18-Mar-04	12:42:20	235.6	15.7	0.955	
18-Mar-04	12:42:40	239.6	15.7	0.955	
18-Mar-04	12:43:00	241.6	15.7	0.955	
18-Mar-04	12:43:20	242.6	15.7	0.955	
18-Mar-04	12:43:40	246	15.7	0.955	
18-Mar-04	12:44:00	248.7	15.7	0.955	
18-Mar-04	12:44:20	253.1	15.8	0.955	
18-Mar-04	12:44:40	262.6	15.8	0.955	
18-Mar-04	12:45:00	278.5	15.8	0.955	
18-Mar-04	12:45:20	302.7	15.8	0.955	
18-Mar-04	12:45:40	337.5	15.9	0.955	
18-Mar-04	12:46:00	385.9	15.9	0.955	
18-Mar-04	12:46:20	451.9	15.9	0.955	
18-Mar-04	12:46:40	540.7	15.9	0.955	
18-Mar-04	12:47:00	659	15.9	0.955	
18-Mar-04	12:47:20	815.4	15.9	0.955	
18-Mar-04	12:47:40	1021.4	15.9	0.955	
18-Mar-04	12:48:00	1291.6	15.9	0.955	
18-Mar-04	12:48:20	1645.5	15.9	0.955	
18-Mar-04	12:48:40	2108	15.9	0.955	
18-Mar-04	12:49:00	2711.8	16	0.955	
18-Mar-04	12:49:20	3416.3	16	0.955	
18-Mar-04	12:49:40	3987.5	16	0.955	
18-Mar-04	12:50:00	4428.7	16	0.955	
18-Mar-04	12:50:20	4757.6	16	0.955	
18-Mar-04	12:50:40	4993.4	16	0.955	
18-Mar-04	12:51:00	5149.3	16.1	0.955	
18-Mar-04	12:51:20	5238.6	16	0.955	
18-Mar-04	12:51:40	5272.9	16	0.955	
18-Mar-04	12:52:00	5260.7	15.9	0.955	
18-Mar-04	12:52:20	5211.9	15.9	0.955	
18-Mar-04	12:52:40	5133.1	15.9	0.955	
18-Mar-04	12:53:00	5032.3	15.8	0.955	
18-Mar-04	12:53:20	4916.3	15.8	0.955	
18-Mar-04	12:53:40	4786.5	15.8	0.955	
18-Mar-04	12:54:00	4644	15.7	0.955	
18-Mar-04	12:54:20	4493.2	15.7	0.955	
18-Mar-04	12:54:40	4335.4	15.7	0.955	
18-Mar-04	12:55:00	4173.8	15.7	0.955	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
18-Mar-04	12:55:20	4009.7	15.6	0.955	
18-Mar-04	12:55:40	3846.1	15.6	0.955	
18-Mar-04	12:56:00	3682.5	15.6	0.955	
18-Mar-04	12:56:20	3522.6	15.6	0.955	
18-Mar-04	12:56:40	3365.5	15.6	0.955	
18-Mar-04	12:57:00	3211	15.6	0.955	
18-Mar-04	12:57:20	3061.2	15.6	0.955	
18-Mar-04	12:57:40	2917.9	15.6	0.955	
18-Mar-04	12:58:00	2780.7	15.6	0.955	
18-Mar-04	12:58:20	2650.8	15.7	0.955	
18-Mar-04	12:58:40	2527.6	15.7	0.955	
18-Mar-04	12:59:00	2412.6	15.7	0.955	
18-Mar-04	12:59:20	2304.2	15.7	0.955	
18-Mar-04	12:59:40	2201.3	15.7	0.955	Stop @ 1300
18-Mar-04	13:12:00	425.2	15.8	0.955	Start @ 1312
18-Mar-04	13:12:20	410.1	15.8	0.955	
18-Mar-04	13:12:40	396.1	15.8	0.955	
18-Mar-04	13:13:00	382.2	15.8	0.955	
18-Mar-04	13:13:20	370	15.9	0.955	
18-Mar-04	13:13:40	358.8	15.8	0.955	
18-Mar-04	13:14:00	347.5	15.9	0.955	
18-Mar-04	13:14:20	337.4	15.9	0.955	
18-Mar-04	13:14:40	326.7	15.9	0.955	
18-Mar-04	13:15:00	316.5	15.9	0.955	
18-Mar-04	13:15:20	307.3	15.9	0.955	
18-Mar-04	13:15:40	298	15.9	0.955	
18-Mar-04	13:16:00	289.8	15.9	0.955	
18-Mar-04	13:16:20	282.1	15.9	0.955	
18-Mar-04	13:16:40	275	15.9	0.955	
18-Mar-04	13:17:00	271.8	15.9	0.955	
18-Mar-04	13:17:20	275.2	15.9	0.955	
18-Mar-04	13:17:40	281.9	15.9	0.955	
18-Mar-04	13:18:00	289.2	15.9	0.955	
18-Mar-04	13:18:20	297	15.9	0.955	
18-Mar-04	13:18:40	307.3	15.9	0.955	
18-Mar-04	13:19:00	326.5	15.9	0.955	
18-Mar-04	13:19:20	356.9	16	0.955	
18-Mar-04	13:19:40	401.3	16	0.955	
18-Mar-04	13:20:00	463.6	16	0.955	
18-Mar-04	13:20:20	548.8	16	0.955	
18-Mar-04	13:20:40	650.4	16	0.955	
18-Mar-04	13:21:00	734.2	15.9	0.955	
18-Mar-04	13:21:20	801.1	15.9	0.955	
18-Mar-04	13:21:40	853.8	15.9	0.955	
18-Mar-04	13:22:00	893.8	15.9	0.955	
18-Mar-04	13:22:20	923.7	15.9	0.955	
18-Mar-04	13:22:40	944.5	15.8	0.955	Stop @ 1323
18-Mar-04	13:55:00	96.5	15.5	0.955	Start @ 1355

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
18-Mar-04	13:55:20	97.7	15.6	0.955	
18-Mar-04	13:55:40	105.9	15.6	0.955	
18-Mar-04	13:56:00	122.2	15.6	0.955	
18-Mar-04	13:56:20	148.2	15.6	0.955	
18-Mar-04	13:56:40	181.7	15.6	0.955	
18-Mar-04	13:57:00	210.1	15.6	0.955	
18-Mar-04	13:57:20	233.9	15.7	0.955	
18-Mar-04	13:57:40	253.3	15.7	0.955	
18-Mar-04	13:58:00	268.5	15.7	0.955	
18-Mar-04	13:58:20	283.3	15.7	0.955	
18-Mar-04	13:58:40	302.5	15.7	0.955	
18-Mar-04	13:59:00	328.3	15.7	0.955	
18-Mar-04	13:59:20	362.9	15.7	0.955	
18-Mar-04	13:59:40	409.4	15.8	0.954	
18-Mar-04	14:00:00	471.6	15.8	0.954	
18-Mar-04	14:00:20	554.4	15.8	0.954	
18-Mar-04	14:00:40	664.2	15.8	0.954	
18-Mar-04	14:01:00	809	15.8	0.954	
18-Mar-04	14:01:20	999.7	15.8	0.954	
18-Mar-04	14:01:40	1249.9	15.9	0.954	
18-Mar-04	14:02:00	1577.8	15.9	0.954	
18-Mar-04	14:02:20	2006.6	15.9	0.954	
18-Mar-04	14:02:40	2566.6	15.9	0.954	
18-Mar-04	14:03:00	3237.4	16	0.954	
18-Mar-04	14:03:20	3790.8	16	0.954	
18-Mar-04	14:03:40	4218	16	0.954	
18-Mar-04	14:04:00	4539.3	16	0.954	
18-Mar-04	14:04:20	4769.6	16.1	0.954	
18-Mar-04	14:04:40	4923.3	16.1	0.954	
18-Mar-04	14:05:00	5013.4	16.1	0.954	
18-Mar-04	14:05:20	5050.4	16.1	0.954	
18-Mar-04	14:05:40	5043	16.2	0.954	
18-Mar-04	14:06:00	4999.7	16.2	0.954	
18-Mar-04	14:06:20	4927.1	16.2	0.954	
18-Mar-04	14:06:40	4831.3	16.2	0.954	
18-Mar-04	14:07:00	4719	16.2	0.954	
18-Mar-04	14:07:20	4592.3	16.3	0.954	
18-Mar-04	14:07:40	4454.8	16.2	0.954	
18-Mar-04	14:08:00	4310.5	16.3	0.954	
18-Mar-04	14:08:20	4161.5	16.3	0.954	
18-Mar-04	14:08:40	4009.2	16.3	0.954	
18-Mar-04	14:09:00	3854.6	16.3	0.954	
18-Mar-04	14:09:20	3698.5	16.3	0.954	
18-Mar-04	14:09:40	3543.1	16.3	0.954	Stop @ 1410
18-Mar-04	14:34:00	236.9	14.9	0.954	Start @ 1434
18-Mar-04	14:34:20	231.9	14.9	0.954	
18-Mar-04	14:34:40	227.4	14.9	0.954	
18-Mar-04	14:35:00	223.5	14.9	0.954	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
18-Mar-04	14:35:20	220.7	14.9	0.954
18-Mar-04	14:35:40	218.7	14.9	0.954
18-Mar-04	14:36:00	217.3	14.9	0.954
18-Mar-04	14:36:20	215.8	14.9	0.954
18-Mar-04	14:36:40	214.7	14.9	0.954
18-Mar-04	14:37:00	214.8	14.8	0.954
18-Mar-04	14:37:20	218	14.8	0.954
18-Mar-04	14:37:40	225.5	14.7	0.954
18-Mar-04	14:38:00	238.3	14.7	0.954
18-Mar-04	14:38:20	257.5	14.7	0.954
18-Mar-04	14:38:40	276.7	14.7	0.954
18-Mar-04	14:39:00	292.9	14.7	0.954
18-Mar-04	14:39:20	307.8	14.7	0.954
18-Mar-04	14:39:40	329.9	14.6	0.954
18-Mar-04	14:40:00	355	14.6	0.954
18-Mar-04	14:40:20	379.5	14.6	0.954
18-Mar-04	14:40:40	400.4	14.5	0.954
18-Mar-04	14:41:00	417.9	14.5	0.954
18-Mar-04	14:41:20	431.3	14.5	0.954
18-Mar-04	14:41:40	440.8	14.5	0.954
18-Mar-04	14:42:00	451	14.4	0.954
18-Mar-04	14:42:20	458.9	14.4	0.954
18-Mar-04	14:42:40	463.6	14.4	0.954
18-Mar-04	14:43:00	467.2	14.3	0.954
18-Mar-04	14:43:20	468.5	14.2	0.954
18-Mar-04	14:43:40	468.1	14.1	0.954
18-Mar-04	14:44:00	466.1	14.1	0.954
18-Mar-04	14:44:20	461.3	14.1	0.954
18-Mar-04	14:44:40	456.5	14.1	0.954
18-Mar-04	14:45:00	450.1	14.1	0.954
18-Mar-04	14:45:20	443.1	14.1	0.954
18-Mar-04	14:45:40	434.7	14.1	0.954
18-Mar-04	14:46:00	424.7	14.1	0.954
18-Mar-04	14:46:20	414.7	14.1	0.954
18-Mar-04	14:46:40	404.3	14.1	0.954
18-Mar-04	14:47:00	394.5	14	0.954
18-Mar-04	14:47:20	384.8	14	0.954
18-Mar-04	14:47:40	374.6	14	0.954
18-Mar-04	14:48:00	364.7	14	0.954
18-Mar-04	14:48:20	356.5	14	0.954
18-Mar-04	14:48:40	349.1	14	0.954
18-Mar-04	14:49:00	342	14	0.954
18-Mar-04	14:49:20	335.2	14	0.954
18-Mar-04	14:49:40	327.9	14	0.954
18-Mar-04	14:50:00	320.1	14	0.954
Averages		1511.2	15.5	1.0

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	7:17:00	962.4	3.7	0.953	Start Run # 1
17-Mar-04	7:17:20	944.3	3.7	0.953	
17-Mar-04	7:17:40	934.6	3.7	0.953	
17-Mar-04	7:18:00	935.6	3.7	0.953	
17-Mar-04	7:18:20	950.4	3.9	0.953	
17-Mar-04	7:18:40	982.9	3.7	0.953	
17-Mar-04	7:19:00	1037.9	3.7	0.953	
17-Mar-04	7:19:20	1120.7	3.7	0.953	
17-Mar-04	7:19:40	1197.2	3.7	0.953	
17-Mar-04	7:20:00	1251.3	3.7	0.953	
17-Mar-04	7:20:20	1285.6	3.8	0.953	
17-Mar-04	7:20:40	1303.6	3.8	0.953	
17-Mar-04	7:21:00	1315	3.8	0.953	
17-Mar-04	7:21:20	1325.7	3.8	0.953	
17-Mar-04	7:21:40	1337.3	3.8	0.953	
17-Mar-04	7:22:00	1339.4	3.8	0.953	
17-Mar-04	7:22:20	1330.3	3.8	0.953	
17-Mar-04	7:22:40	1313.2	3.8	0.953	
17-Mar-04	7:23:00	1288.8	3.8	0.953	
17-Mar-04	7:23:20	1258.7	3.8	0.953	
17-Mar-04	7:23:40	1224.4	3.8	0.953	
17-Mar-04	7:24:00	1186.4	3.9	0.953	
17-Mar-04	7:24:20	1145.6	3.8	0.953	
17-Mar-04	7:24:40	1103.9	3.9	0.953	
17-Mar-04	7:25:00	1061.9	3.9	0.953	
17-Mar-04	7:25:20	1022.8	3.9	0.953	
17-Mar-04	7:25:40	990.6	3.9	0.953	
17-Mar-04	7:26:00	966.8	3.9	0.953	
17-Mar-04	7:26:20	953.2	3.9	0.953	
17-Mar-04	7:26:40	952.2	3.9	0.953	
17-Mar-04	7:27:00	967	3.9	0.953	
17-Mar-04	7:27:20	1001.4	3.9	0.953	
17-Mar-04	7:27:40	1060.8	3.9	0.953	
17-Mar-04	7:28:00	1146.7	3.9	0.953	
17-Mar-04	7:28:20	1218.5	3.9	0.953	
17-Mar-04	7:28:40	1268.2	3.9	0.953	
17-Mar-04	7:29:00	1299.6	3.9	0.953	
17-Mar-04	7:29:20	1316.3	3.9	0.953	
17-Mar-04	7:29:40	1328.2	3.9	0.953	
17-Mar-04	7:30:00	1342.8	3.9	0.953	
17-Mar-04	7:30:20	1354.2	3.9	0.953	
17-Mar-04	7:30:40	1353.7	3.9	0.953	
17-Mar-04	7:31:00	1343.9	4	0.953	
17-Mar-04	7:31:20	1325.9	4	0.953	
17-Mar-04	7:31:40	1300.8	4	0.953	
17-Mar-04	7:32:00	1271.3	4	0.953	
17-Mar-04	7:32:20	1236.9	4	0.953	
17-Mar-04	7:32:40	1199.3	4	0.953	
17-Mar-04	7:33:00	1159.7	4	0.953	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
17-Mar-04	7:33:20	1118.4	4	0.953
17-Mar-04	7:33:40	1076.4	4	0.953
17-Mar-04	7:34:00	1038.2	4	0.953
17-Mar-04	7:34:20	1007.4	4	0.953
17-Mar-04	7:34:40	985.4	4.1	0.953
17-Mar-04	7:35:00	974.2	4	0.953
17-Mar-04	7:35:20	976.4	4.1	0.953
17-Mar-04	7:35:40	995.4	4	0.953
17-Mar-04	7:36:00	1035.5	4	0.953
17-Mar-04	7:36:20	1102.3	4	0.953
17-Mar-04	7:36:40	1203.2	4	0.953
17-Mar-04	7:37:00	1324.4	4	0.953
17-Mar-04	7:37:20	1416.4	4	0.953
17-Mar-04	7:37:40	1480.9	4	0.953
17-Mar-04	7:38:00	1524	4	0.953
17-Mar-04	7:38:20	1563	4	0.953
17-Mar-04	7:38:40	1602	4	0.953
17-Mar-04	7:39:00	1624.9	4	0.953
17-Mar-04	7:39:20	1633.8	4	0.953
17-Mar-04	7:39:40	1630	4	0.953
17-Mar-04	7:40:00	1615.2	4.1	0.953
17-Mar-04	7:40:20	1591.3	4.1	0.953
17-Mar-04	7:40:40	1561.5	4.1	0.953
17-Mar-04	7:41:00	1527	4.1	0.953
17-Mar-04	7:41:20	1487.5	4.1	0.953
17-Mar-04	7:41:40	1445.5	4.1	0.953
17-Mar-04	7:42:00	1401.3	4.1	0.953
17-Mar-04	7:42:20	1354.7	4.1	0.953
17-Mar-04	7:42:40	1312.3	4.1	0.953
17-Mar-04	7:43:00	1277.2	4.1	0.953
17-Mar-04	7:43:20	1251.8	4.1	0.953
17-Mar-04	7:43:40	1238.4	4.1	0.953
17-Mar-04	7:44:00	1240.3	4.2	0.953
17-Mar-04	7:44:20	1261.8	4.3	0.953
17-Mar-04	7:44:40	1307.7	4.2	0.953
17-Mar-04	7:45:00	1372.6	4.2	0.953
17-Mar-04	7:45:20	1418.9	4.1	0.953
17-Mar-04	7:45:40	1446	4.1	0.953
17-Mar-04	7:46:00	1457.5	4.2	0.953
17-Mar-04	7:46:20	1455.9	4.1	0.953
17-Mar-04	7:46:40	1444.4	4.2	0.953
17-Mar-04	7:47:00	1430.9	4.2	0.953
17-Mar-04	7:47:20	1419.6	4.2	0.953
17-Mar-04	7:47:40	1413.6	4.2	0.953
17-Mar-04	7:48:00	1412.6	4.2	0.953
17-Mar-04	7:48:20	1403.3	4.2	0.953
17-Mar-04	7:48:40	1385.7	4.3	0.953
17-Mar-04	7:49:00	1361.2	4.2	0.953
17-Mar-04	7:49:20	1331.1	4.2	0.953

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	7:49:40	1296.4	4.2	0.953	
17-Mar-04	7:50:00	1258.5	4.2	0.953	
17-Mar-04	7:50:20	1218.3	4.2	0.953	
17-Mar-04	7:50:40	1175.9	4.2	0.953	
17-Mar-04	7:51:00	1133	4.2	0.953	
17-Mar-04	7:51:20	1094.8	4.2	0.953	
17-Mar-04	7:51:40	1063.1	4.2	0.953	Stop @ 752
17-Mar-04	7:58:00	1725.8	4.2	0.953	Start @ 758
17-Mar-04	7:58:20	1690.7	4.2	0.953	
17-Mar-04	7:58:40	1655.2	4.2	0.953	
17-Mar-04	7:59:00	1621.7	4.2	0.953	
17-Mar-04	7:59:20	1593	4.2	0.953	
17-Mar-04	7:59:40	1571.9	4.2	0.953	
17-Mar-04	8:00:00	1561.7	4.1	0.953	
17-Mar-04	8:00:20	1566.6	4.1	0.953	
17-Mar-04	8:00:40	1591.6	4.1	0.953	
17-Mar-04	8:01:00	1643	4.1	0.953	
17-Mar-04	8:01:20	1728.7	4.1	0.953	
17-Mar-04	8:01:40	1859	4.1	0.952	
17-Mar-04	8:02:00	2046.9	4.1	0.952	
17-Mar-04	8:02:20	2309.6	4.1	0.952	
17-Mar-04	8:02:40	2669.1	4.1	0.952	
17-Mar-04	8:03:00	3153.3	4.1	0.952	
17-Mar-04	8:03:20	3673	4.1	0.952	
17-Mar-04	8:03:40	4282.8	4.1	0.952	
17-Mar-04	8:04:00	4962.4	4.1	0.952	
17-Mar-04	8:04:20	5498.9	4.1	0.952	
17-Mar-04	8:04:40	5898	4.1	0.952	
17-Mar-04	8:05:00	6179.2	4.1	0.952	
17-Mar-04	8:05:20	6360.1	4.1	0.952	
17-Mar-04	8:05:40	6458.1	4.1	0.952	
17-Mar-04	8:06:00	6487.1	4.1	0.952	
17-Mar-04	8:06:20	6458.9	4.1	0.952	
17-Mar-04	8:06:40	6384.4	4.1	0.952	
17-Mar-04	8:07:00	6272.3	4.1	0.952	
17-Mar-04	8:07:20	6131.3	4.2	0.952	
17-Mar-04	8:07:40	5969.7	4.1	0.952	
17-Mar-04	8:08:00	5797.7	4.1	0.952	
17-Mar-04	8:08:20	5621.1	4.2	0.952	
17-Mar-04	8:08:40	5445.7	4.1	0.952	
17-Mar-04	8:09:00	5275.4	4.1	0.952	
17-Mar-04	8:09:20	5098.5	4.1	0.952	
17-Mar-04	8:09:40	4913.8	4.1	0.952	
17-Mar-04	8:10:00	4723.6	4.1	0.952	
17-Mar-04	8:10:20	4530.7	4.1	0.952	
17-Mar-04	8:10:40	4337.8	4.1	0.952	
17-Mar-04	8:11:00	4145.7	4.1	0.952	
17-Mar-04	8:11:20	3955.9	4.1	0.952	
17-Mar-04	8:11:40	3768.9	4.1	0.952	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	8:12:00	3587.9	4.1	0.952	
17-Mar-04	8:12:20	3417.2	4.1	0.952	
17-Mar-04	8:12:40	3258.2	4.1	0.952	
17-Mar-04	8:13:00	3112.7	4.1	0.952	
17-Mar-04	8:13:20	2982.5	4.1	0.952	
17-Mar-04	8:13:40	2870.4	4.1	0.952	
17-Mar-04	8:14:00	2779.3	4.1	0.952	
17-Mar-04	8:14:20	2713.5	4.1	0.952	
17-Mar-04	8:14:40	2678.4	4.1	0.952	
17-Mar-04	8:15:00	2680.8	4.1	0.952	
17-Mar-04	8:15:20	2729.8	4.1	0.952	
17-Mar-04	8:15:40	2820.8	4.1	0.952	Stop @ 816
17-Mar-04	8:21:00	2247.9	4	0.952	Start @ 821
17-Mar-04	8:21:20	2164.9	4	0.952	
17-Mar-04	8:21:40	2090.2	4.3	0.952	
17-Mar-04	8:22:00	2026.1	4	0.952	
17-Mar-04	8:22:20	1975.2	4	0.952	
17-Mar-04	8:22:40	1941.1	4	0.952	
17-Mar-04	8:23:00	1928.1	4	0.952	
17-Mar-04	8:23:20	1941.7	4	0.952	
17-Mar-04	8:23:40	1988.9	4.1	0.952	
17-Mar-04	8:24:00	2078.9	4.1	0.952	
17-Mar-04	8:24:20	2221.3	4.1	0.952	
17-Mar-04	8:24:40	2354	4.2	0.952	
17-Mar-04	8:25:00	2451	4.2	0.952	
17-Mar-04	8:25:20	2532.6	4.2	0.952	
17-Mar-04	8:25:40	2585.1	4.2	0.952	
17-Mar-04	8:26:00	2608.9	4.2	0.952	
17-Mar-04	8:26:20	2608	4.2	0.952	
17-Mar-04	8:26:40	2587	4.2	0.952	
17-Mar-04	8:27:00	2549.5	4.2	0.952	
17-Mar-04	8:27:20	2499.4	4.2	0.952	
17-Mar-04	8:27:40	2438.6	4.2	0.952	
17-Mar-04	8:28:00	2370.4	4.2	0.952	
17-Mar-04	8:28:20	2296.3	4.2	0.952	
17-Mar-04	8:28:40	2217.5	4.2	0.952	
17-Mar-04	8:29:00	2135.3	4.2	0.952	
17-Mar-04	8:29:20	2051.5	4.2	0.952	
17-Mar-04	8:29:40	1971.7	4.2	0.952	
17-Mar-04	8:30:00	1897.8	4.2	0.952	
17-Mar-04	8:30:20	1831.4	4.2	0.952	
17-Mar-04	8:30:40	1774.7	4.2	0.952	
17-Mar-04	8:31:00	1730	4.2	0.952	
17-Mar-04	8:31:20	1700.4	4.2	0.952	
17-Mar-04	8:31:40	1689.8	4.2	0.952	
17-Mar-04	8:32:00	1702.8	4.2	0.952	
17-Mar-04	8:32:20	1745.9	4.2	0.952	
17-Mar-04	8:32:40	1818	4.2	0.952	
17-Mar-04	8:33:00	1871	4.2	0.952	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	8:33:20	1899.8	4.1	0.952	
17-Mar-04	8:33:40	1911.4	4.1	0.952	
17-Mar-04	8:34:00	1920.4	4.1	0.952	Stop Run # 1
Average		2112.1	4.1	1.0	
17-Mar-04	9:17:00	737.8	3.5	0.953	Start Run # 2
17-Mar-04	9:17:20	829.5	3.6	0.953	
17-Mar-04	9:17:40	956.5	3.5	0.953	
17-Mar-04	9:18:00	1102.1	3.6	0.953	
17-Mar-04	9:18:20	1214.4	3.6	0.953	
17-Mar-04	9:18:40	1305.1	3.6	0.953	
17-Mar-04	9:19:00	1393.6	3.6	0.953	
17-Mar-04	9:19:20	1476.3	3.6	0.953	
17-Mar-04	9:19:40	1535.5	3.6	0.953	
17-Mar-04	9:20:00	1574	3.6	0.953	
17-Mar-04	9:20:20	1594.6	3.7	0.953	
17-Mar-04	9:20:40	1599.4	3.6	0.953	
17-Mar-04	9:21:00	1591.1	3.7	0.953	
17-Mar-04	9:21:20	1572	3.7	0.953	
17-Mar-04	9:21:40	1544.4	3.7	0.953	
17-Mar-04	9:22:00	1509.8	3.7	0.953	
17-Mar-04	9:22:20	1469.6	3.7	0.953	
17-Mar-04	9:22:40	1425.5	3.7	0.953	
17-Mar-04	9:23:00	1379.8	3.7	0.953	
17-Mar-04	9:23:20	1337	3.7	0.953	
17-Mar-04	9:23:40	1298.9	3.7	0.953	
17-Mar-04	9:24:00	1267.2	3.7	0.953	
17-Mar-04	9:24:20	1242.6	3.7	0.953	
17-Mar-04	9:24:40	1215.6	3.7	0.953	
17-Mar-04	9:25:00	1184	3.7	0.953	
17-Mar-04	9:25:20	1149	3.7	0.953	
17-Mar-04	9:25:40	1112.2	3.8	0.953	Stop @ 926
17-Mar-04	9:42:00	2124.1	3.8	0.953	Start @ 942
17-Mar-04	9:42:20	2100.6	3.8	0.953	
17-Mar-04	9:42:40	2065.3	3.8	0.953	
17-Mar-04	9:43:00	2021.2	3.8	0.953	
17-Mar-04	9:43:20	1969.3	3.9	0.953	
17-Mar-04	9:43:40	1912	3.9	0.953	
17-Mar-04	9:44:00	1850	3.9	0.953	
17-Mar-04	9:44:20	1785.7	3.9	0.953	
17-Mar-04	9:44:40	1719.9	3.9	0.953	
17-Mar-04	9:45:00	1656.5	3.9	0.953	
17-Mar-04	9:45:20	1597.2	3.9	0.953	
17-Mar-04	9:45:40	1543.7	3.9	0.953	
17-Mar-04	9:46:00	1497.7	4	0.953	
17-Mar-04	9:46:20	1461.3	4	0.953	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	9:46:40	1437.1	4	0.953	
17-Mar-04	9:47:00	1428.2	4	0.953	
17-Mar-04	9:47:20	1438.8	4	0.953	
17-Mar-04	9:47:40	1474.1	4.1	0.953	
17-Mar-04	9:48:00	1540.9	4.1	0.953	
17-Mar-04	9:48:20	1647.4	4.1	0.953	
17-Mar-04	9:48:40	1751.7	4.1	0.953	
17-Mar-04	9:49:00	1826.1	4.2	0.953	
17-Mar-04	9:49:20	1891.3	4.2	0.953	
17-Mar-04	9:49:40	1935.8	4.2	0.953	
17-Mar-04	9:50:00	1957.5	4.2	0.953	
17-Mar-04	9:50:20	1960.3	4.3	0.953	
17-Mar-04	9:50:40	1947.2	4.3	0.953	
17-Mar-04	9:51:00	1920.4	4.2	0.953	
17-Mar-04	9:51:20	1883.7	4.2	0.953	
17-Mar-04	9:51:40	1838.4	4.2	0.953	Stop @ 952
17-Mar-04	11:53:00	2556.4	4.3	0.954	Start @ 1153
17-Mar-04	11:53:20	2490.8	4.3	0.954	
17-Mar-04	11:53:40	2418.2	4.3	0.954	
17-Mar-04	11:54:00	2341.1	4.2	0.954	
17-Mar-04	11:54:20	2260.3	4.2	0.954	
17-Mar-04	11:54:40	2177.2	4.2	0.954	
17-Mar-04	11:55:00	2093	4.2	0.954	
17-Mar-04	11:55:20	2009.6	4.2	0.954	
17-Mar-04	11:55:40	1932.3	4.2	0.954	
17-Mar-04	11:56:00	1862.9	4.2	0.954	
17-Mar-04	11:56:20	1803.3	4.2	0.954	
17-Mar-04	11:56:40	1756	4.2	0.954	
17-Mar-04	11:57:00	1723.9	4.2	0.954	
17-Mar-04	11:57:20	1710.8	4.2	0.954	
17-Mar-04	11:57:40	1721.6	4.2	0.954	
17-Mar-04	11:58:00	1762.4	4.2	0.954	
17-Mar-04	11:58:20	1841.2	4.2	0.954	
17-Mar-04	11:58:40	1960.7	4.2	0.954	
17-Mar-04	11:59:00	2060.2	4.2	0.954	
17-Mar-04	11:59:20	2127.8	4.2	0.954	
17-Mar-04	11:59:40	2172.6	4.3	0.954	
17-Mar-04	12:00:00	2210.9	4.3	0.954	
17-Mar-04	12:00:20	2251.1	4.3	0.954	
17-Mar-04	12:00:40	2300.5	4.3	0.954	
17-Mar-04	12:01:00	2344	4.4	0.954	
17-Mar-04	12:01:20	2362.7	4.4	0.954	
17-Mar-04	12:01:40	2361.7	4.4	0.954	
17-Mar-04	12:02:00	2343.6	4.4	0.954	
17-Mar-04	12:02:20	2311.1	4.4	0.954	
17-Mar-04	12:02:40	2268.4	4.4	0.954	
17-Mar-04	12:03:00	2217.9	4.4	0.954	
17-Mar-04	12:03:20	2160.7	4.4	0.954	
17-Mar-04	12:03:40	2098.9	4.4	0.954	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
17-Mar-04	12:04:00	2034	4.3	0.954
17-Mar-04	12:04:20	1970.4	4.3	0.954
17-Mar-04	12:04:40	1910.8	4.3	0.954
17-Mar-04	12:05:00	1857.6	4.3	0.954
17-Mar-04	12:05:20	1813.2	4.2	0.954
17-Mar-04	12:05:40	1780.8	4.2	0.954
17-Mar-04	12:06:00	1764	4.2	0.954
17-Mar-04	12:06:20	1767.5	4.2	0.954
17-Mar-04	12:06:40	1796.9	4.2	0.954
17-Mar-04	12:07:00	1859.7	4.2	0.954
17-Mar-04	12:07:20	1961.8	4.2	0.954
17-Mar-04	12:07:40	2050.9	4.2	0.954
17-Mar-04	12:08:00	2108.4	4.2	0.954
17-Mar-04	12:08:20	2142.3	4.3	0.954
17-Mar-04	12:08:40	2164.5	4.3	0.954
17-Mar-04	12:09:00	2181.3	4.2	0.954
17-Mar-04	12:09:20	2189	4.2	0.954
17-Mar-04	12:09:40	2180.3	4.2	0.954
17-Mar-04	12:10:00	2157.5	4.2	0.954
17-Mar-04	12:10:20	2123.3	4.2	0.954
17-Mar-04	12:10:40	2079.6	4.3	0.954
17-Mar-04	12:11:00	2028.6	4.3	0.954
17-Mar-04	12:11:20	1972.2	4.3	0.954
17-Mar-04	12:11:40	1911.3	4.2	0.954
17-Mar-04	12:12:00	1847.2	4.2	0.954
17-Mar-04	12:12:20	1780.5	4.2	0.954
17-Mar-04	12:12:40	1713.3	4.2	0.954
17-Mar-04	12:13:00	1651.4	4.5	0.954
17-Mar-04	12:13:20	1597.5	4.3	0.954
17-Mar-04	12:13:40	1553.3	4.2	0.954
17-Mar-04	12:14:00	1521.6	4.2	0.954
17-Mar-04	12:14:20	1505.3	4.3	0.954
17-Mar-04	12:14:40	1508.5	4.3	0.954
17-Mar-04	12:15:00	1536.3	4.3	0.954
17-Mar-04	12:15:20	1595.1	4.3	0.954
17-Mar-04	12:15:40	1693.5	4.3	0.954
17-Mar-04	12:16:00	1835.5	4.3	0.954
17-Mar-04	12:16:20	1954.9	4.3	0.954
17-Mar-04	12:16:40	2038.4	4.4	0.954
17-Mar-04	12:17:00	2093.8	4.4	0.954
17-Mar-04	12:17:20	2141.4	4.4	0.954
17-Mar-04	12:17:40	2191.1	4.4	0.954
17-Mar-04	12:18:00	2236.2	4.4	0.954
17-Mar-04	12:18:20	2257	4.4	0.954
17-Mar-04	12:18:40	2258.5	4.4	0.954
17-Mar-04	12:19:00	2243.1	4.4	0.954
17-Mar-04	12:19:20	2214	4.4	0.954
17-Mar-04	12:19:40	2174.1	4.4	0.954
17-Mar-04	12:20:00	2124.8	4.4	0.954

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
17-Mar-04	12:20:20	2069.3	4.5	0.954	
17-Mar-04	12:20:40	2008.4	4.5	0.954	
17-Mar-04	12:21:00	1942.9	4.5	0.954	
17-Mar-04	12:21:20	1876.1	4.5	0.954	
17-Mar-04	12:21:40	1811.5	4.5	0.954	
17-Mar-04	12:22:00	1752	4.5	0.954	
17-Mar-04	12:22:20	1699.8	4.5	0.954	
17-Mar-04	12:22:40	1656.9	4.4	0.954	Stop @ 1223
17-Mar-04	13:11:00	3295.5	4.9	0.953	Start @ 1311
17-Mar-04	13:11:20	3258.7	4.9	0.953	
17-Mar-04	13:11:40	3204.4	5	0.953	
17-Mar-04	13:12:00	3136.7	5	0.953	
17-Mar-04	13:12:20	3059.4	5	0.953	
17-Mar-04	13:12:40	2973.8	5	0.953	
17-Mar-04	13:13:00	2883.4	5	0.953	
17-Mar-04	13:13:20	2787.7	5.1	0.953	
17-Mar-04	13:13:40	2691.8	5.1	0.953	
17-Mar-04	13:14:00	2600.2	5.1	0.953	
17-Mar-04	13:14:20	2515.7	5.2	0.953	
17-Mar-04	13:14:40	2441	5.2	0.953	
17-Mar-04	13:15:00	2379.5	5.3	0.953	
17-Mar-04	13:15:20	2334.9	5.3	0.953	
17-Mar-04	13:15:40	2312.2	5.4	0.953	
17-Mar-04	13:16:00	2317.5	5.4	0.953	
17-Mar-04	13:16:20	2358.2	5.5	0.953	
17-Mar-04	13:16:40	2444.3	5.5	0.953	
17-Mar-04	13:17:00	2588.5	5.5	0.953	
17-Mar-04	13:17:20	2788.7	5.5	0.953	
17-Mar-04	13:17:40	2946.9	5.5	0.953	
17-Mar-04	13:18:00	3075.6	5.5	0.953	
17-Mar-04	13:18:20	3188.3	5.6	0.953	
17-Mar-04	13:18:40	3259.8	5.5	0.953	
17-Mar-04	13:19:00	3294.5	5.5	0.953	
17-Mar-04	13:19:20	3298.9	5.5	0.953	
17-Mar-04	13:19:40	3278.1	5.5	0.953	
17-Mar-04	13:20:00	3236.4	5.5	0.953	
17-Mar-04	13:20:20	3176.6	5.5	0.953	
17-Mar-04	13:20:40	3103.9	5.5	0.953	
17-Mar-04	13:21:00	3021.3	5.5	0.953	Stop Run # 2
Averages		2011.0	4.3	1.0	
18-Mar-04	12:40:00	3950.4	14.5	0.957	Start Run # 3
18-Mar-04	12:40:20	3972.8	14.5	0.957	
18-Mar-04	12:40:40	3963.1	14.5	0.957	
18-Mar-04	12:41:00	3927	14.5	0.957	
18-Mar-04	12:41:20	3870.6	14.5	0.957	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
18-Mar-04	12:41:40	3796.8	14.5	0.957
18-Mar-04	12:42:00	3708.8	14.4	0.957
18-Mar-04	12:42:20	3609.6	14.4	0.957
18-Mar-04	12:42:40	3501.3	14.4	0.957
18-Mar-04	12:43:00	3387.5	14.4	0.957
18-Mar-04	12:43:20	3275.2	14.4	0.957
18-Mar-04	12:43:40	3167.7	14.4	0.957
18-Mar-04	12:44:00	3068.6	14.4	0.957
18-Mar-04	12:44:20	2981.4	14.5	0.957
18-Mar-04	12:44:40	2910.5	14.5	0.957
18-Mar-04	12:45:00	2860.7	14.5	0.957
18-Mar-04	12:45:20	2838.3	14.5	0.957
18-Mar-04	12:45:40	2850.9	14.6	0.957
18-Mar-04	12:46:00	2908.3	14.5	0.957
18-Mar-04	12:46:20	3023.1	14.5	0.957
18-Mar-04	12:46:40	3211.2	14.5	0.957
18-Mar-04	12:47:00	3493.7	14.5	0.957
18-Mar-04	12:47:20	3880.3	14.5	0.957
18-Mar-04	12:47:40	4238.4	14.5	0.957
18-Mar-04	12:48:00	4524.6	14.5	0.957
18-Mar-04	12:48:20	4727.4	14.5	0.957
18-Mar-04	12:48:40	4857.3	14.6	0.957
18-Mar-04	12:49:00	4926.2	14.6	0.957
18-Mar-04	12:49:20	4945	14.6	0.957
18-Mar-04	12:49:40	4921.7	14.6	0.957
18-Mar-04	12:50:00	4863.6	14.6	0.957
18-Mar-04	12:50:20	4778.5	14.7	0.957
18-Mar-04	12:50:40	4671.3	14.7	0.957
18-Mar-04	12:51:00	4548.1	14.7	0.957
18-Mar-04	12:51:20	4411.4	14.7	0.957
18-Mar-04	12:51:40	4265.8	14.7	0.957
18-Mar-04	12:52:00	4116.9	14.7	0.957
18-Mar-04	12:52:20	3969.9	14.7	0.957
18-Mar-04	12:52:40	3828	14.7	0.957
18-Mar-04	12:53:00	3694.7	14.7	0.957
18-Mar-04	12:53:20	3573.7	14.7	0.957
18-Mar-04	12:53:40	3469.2	14.7	0.957
18-Mar-04	12:54:00	3386	14.6	0.957
18-Mar-04	12:54:20	3330.2	14.6	0.957
18-Mar-04	12:54:40	3309.4	14.6	0.957
18-Mar-04	12:55:00	3332.8	14.6	0.957
18-Mar-04	12:55:20	3412.4	14.6	0.957
18-Mar-04	12:55:40	3563.8	14.6	0.957
18-Mar-04	12:56:00	3776.9	14.6	0.957
18-Mar-04	12:56:20	3980.8	14.5	0.957
18-Mar-04	12:56:40	4156.4	14.5	0.957
18-Mar-04	12:57:00	4272.4	14.5	0.957
18-Mar-04	12:57:20	4336.1	14.5	0.957
18-Mar-04	12:57:40	4355.7	14.5	0.957

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
18-Mar-04	12:58:00	4339.8	14.5	0.957	
18-Mar-04	12:58:20	4295.1	14.5	0.957	
18-Mar-04	12:58:40	4226.2	14.5	0.957	
18-Mar-04	12:59:00	4137.8	14.5	0.957	
18-Mar-04	12:59:20	4033.8	14.6	0.957	
18-Mar-04	12:59:40	3919.4	14.6	0.957	Stop @ 1300
18-Mar-04	13:12:00	2710	14.7	0.957	Start @ 1312
18-Mar-04	13:12:20	2776.4	14.7	0.957	
18-Mar-04	13:12:40	2900.8	14.7	0.957	
18-Mar-04	13:13:00	3099.7	14.7	0.957	
18-Mar-04	13:13:20	3335.9	14.7	0.957	
18-Mar-04	13:13:40	3566.3	14.7	0.957	
18-Mar-04	13:14:00	3769.9	14.8	0.957	
18-Mar-04	13:14:20	3911.9	14.8	0.957	
18-Mar-04	13:14:40	4000.5	14.8	0.957	
18-Mar-04	13:15:00	4044.3	14.8	0.957	
18-Mar-04	13:15:20	4051.9	14.8	0.957	
18-Mar-04	13:15:40	4028.6	14.8	0.957	
18-Mar-04	13:16:00	3979.3	14.8	0.957	
18-Mar-04	13:16:20	3909.2	14.8	0.957	
18-Mar-04	13:16:40	3823.6	14.8	0.957	
18-Mar-04	13:17:00	3728.8	14.8	0.957	
18-Mar-04	13:17:20	3625.7	14.8	0.957	
18-Mar-04	13:17:40	3516.6	14.8	0.957	
18-Mar-04	13:18:00	3407.3	14.8	0.957	
18-Mar-04	13:18:20	3301.6	14.8	0.957	
18-Mar-04	13:18:40	3203.1	14.8	0.957	
18-Mar-04	13:19:00	3115.7	14.8	0.957	
18-Mar-04	13:19:20	3043.8	14.8	0.957	
18-Mar-04	13:19:40	2992.8	14.8	0.957	
18-Mar-04	13:20:00	2968.9	14.8	0.957	
18-Mar-04	13:20:20	2980.2	14.8	0.957	
18-Mar-04	13:20:40	3036.7	14.8	0.957	
18-Mar-04	13:21:00	3151.2	14.8	0.957	
18-Mar-04	13:21:20	3340.3	14.8	0.957	
18-Mar-04	13:21:40	3593.5	14.7	0.957	
18-Mar-04	13:22:00	3795.5	14.7	0.957	
18-Mar-04	13:22:20	3975.4	14.7	0.957	
18-Mar-04	13:22:40	4106.9	14.7	0.957	Stop @ 1323
18-Mar-04	13:55:00	3137.1	14.5	0.956	Start @ 1355
18-Mar-04	13:55:20	3149.7	14.5	0.956	
18-Mar-04	13:55:40	3212.6	14.5	0.956	
18-Mar-04	13:56:00	3339.5	14.5	0.956	
18-Mar-04	13:56:20	3548.1	14.5	0.956	
18-Mar-04	13:56:40	3779.6	14.6	0.956	
18-Mar-04	13:57:00	4015.4	14.6	0.956	
18-Mar-04	13:57:20	4202.9	14.6	0.956	
18-Mar-04	13:57:40	4330.4	14.7	0.956	
18-Mar-04	13:58:00	4405.2	14.7	0.956	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
18-Mar-04	13:58:20	4438.5	14.7	0.956	
18-Mar-04	13:58:40	4444.1	14.7	0.956	
18-Mar-04	13:59:00	4425.1	14.7	0.956	
18-Mar-04	13:59:20	4381.4	14.7	0.956	
18-Mar-04	13:59:40	4317.8	14.7	0.956	
18-Mar-04	14:00:00	4235.5	14.7	0.956	
18-Mar-04	14:00:20	4136.6	14.7	0.956	
18-Mar-04	14:00:40	4025.8	14.7	0.956	
18-Mar-04	14:01:00	3907.3	14.7	0.956	
18-Mar-04	14:01:20	3789	14.7	0.956	
18-Mar-04	14:01:40	3675.1	14.7	0.956	
18-Mar-04	14:02:00	3569.8	14.7	0.956	
18-Mar-04	14:02:20	3477.7	14.7	0.956	
18-Mar-04	14:02:40	3404.3	14.7	0.956	
18-Mar-04	14:03:00	3355.8	14.7	0.956	
18-Mar-04	14:03:20	3339.8	14.6	0.956	
18-Mar-04	14:03:40	3365.8	14.7	0.956	
18-Mar-04	14:04:00	3445.9	14.7	0.956	
18-Mar-04	14:04:20	3595.7	14.7	0.956	
18-Mar-04	14:04:40	3813.3	14.7	0.956	
18-Mar-04	14:05:00	3982.8	14.8	0.956	
18-Mar-04	14:05:20	4114.3	14.8	0.956	
18-Mar-04	14:05:40	4245.8	14.8	0.956	
18-Mar-04	14:06:00	4348.1	14.9	0.956	
18-Mar-04	14:06:20	4401.3	14.9	0.956	
18-Mar-04	14:06:40	4414.5	14.9	0.956	
18-Mar-04	14:07:00	4393	14.9	0.956	
18-Mar-04	14:07:20	4343.2	14.9	0.956	
18-Mar-04	14:07:40	4271.3	14.9	0.956	
18-Mar-04	14:08:00	4180.4	14.8	0.956	
18-Mar-04	14:08:20	4075	14.9	0.956	
18-Mar-04	14:08:40	3957.7	14.8	0.956	
18-Mar-04	14:09:00	3830.9	14.8	0.956	
18-Mar-04	14:09:20	3697.8	14.9	0.956	
18-Mar-04	14:09:40	3562.5	14.8	0.956	Stop @ 1410
18-Mar-04	14:34:00	4454.3	14.7	0.955	Start @ 1434
18-Mar-04	14:34:20	4350.4	14.7	0.955	
18-Mar-04	14:34:40	4231.9	14.7	0.955	
18-Mar-04	14:35:00	4103.2	14.8	0.955	
18-Mar-04	14:35:20	3968	14.7	0.955	
18-Mar-04	14:35:40	3830.9	14.7	0.955	
18-Mar-04	14:36:00	3695.5	14.7	0.955	
18-Mar-04	14:36:20	3565	14.6	0.955	
18-Mar-04	14:36:40	3442.9	14.5	0.955	
18-Mar-04	14:37:00	3332.4	14.4	0.955	
18-Mar-04	14:37:20	3237.7	14.3	0.955	
18-Mar-04	14:37:40	3163.9	14.3	0.955	
18-Mar-04	14:38:00	3116.6	14.3	0.955	
18-Mar-04	14:38:20	3103.2	14.3	0.955	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
18-Mar-04	14:38:40	3132.7	14.2	0.955	
18-Mar-04	14:39:00	3217	14.2	0.955	
18-Mar-04	14:39:20	3371	14.1	0.955	
18-Mar-04	14:39:40	3614.3	14	0.955	
18-Mar-04	14:40:00	3900.1	14	0.955	
18-Mar-04	14:40:20	4129.2	14	0.955	
18-Mar-04	14:40:40	4289.2	14	0.955	
18-Mar-04	14:41:00	4389.6	14.1	0.955	
18-Mar-04	14:41:20	4439.9	14	0.955	
18-Mar-04	14:41:40	4448.1	14	0.955	
18-Mar-04	14:42:00	4423	14	0.955	
18-Mar-04	14:42:20	4369.7	14	0.955	
18-Mar-04	14:42:40	4292.4	13.9	0.955	
18-Mar-04	14:43:00	4196.2	13.8	0.955	
18-Mar-04	14:43:20	4085.6	13.7	0.955	
18-Mar-04	14:43:40	3964.2	13.7	0.955	
18-Mar-04	14:44:00	3835.1	13.6	0.955	
18-Mar-04	14:44:20	3706.4	13.6	0.955	
18-Mar-04	14:44:40	3582.3	13.6	0.955	
18-Mar-04	14:45:00	3466.8	13.6	0.955	
18-Mar-04	14:45:20	3363.5	13.6	0.955	
18-Mar-04	14:45:40	3277.1	13.6	0.955	
18-Mar-04	14:46:00	3212.7	13.7	0.955	
18-Mar-04	14:46:20	3176.8	13.6	0.955	
18-Mar-04	14:46:40	3177	13.6	0.955	
18-Mar-04	14:47:00	3223.8	13.6	0.955	
18-Mar-04	14:47:20	3330.2	13.6	0.955	
18-Mar-04	14:47:40	3490.9	13.6	0.955	
18-Mar-04	14:48:00	3609	13.6	0.955	
18-Mar-04	14:48:20	3681.2	13.6	0.955	
18-Mar-04	14:48:40	3735.9	13.5	0.955	
18-Mar-04	14:49:00	3789.6	13.5	0.955	
18-Mar-04	14:49:20	3830.6	13.5	0.955	
18-Mar-04	14:49:40	3836.3	13.5	0.955	
18-Mar-04	14:50:00	3812	13.5	0.955	
Averages		3772.9	14.5	1.0	Stop Run # 3

APPENDIX A5

CONCRETE SUPPLY TRUCK MIX

PM_{10} TEOM DATA

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
12-May-04	7:50:00	25.2	19.8	0.992	Start Run # 1
12-May-04	7:50:20	24.9	19.8	0.992	
12-May-04	7:50:40	19.4	19.8	0.992	
12-May-04	7:51:00	7	19.8	0.992	
12-May-04	7:51:20	-3.8	19.8	0.992	
12-May-04	7:51:40	6.2	19.8	0.992	
12-May-04	7:52:00	14.2	19.9	0.992	
12-May-04	7:52:20	20.6	19.9	0.992	
12-May-04	7:52:40	33.9	19.9	0.992	
12-May-04	7:53:00	39.5	19.9	0.992	
12-May-04	7:53:20	36.2	19.9	0.992	
12-May-04	7:53:40	41.4	19.9	0.992	
12-May-04	7:54:00	44.6	20	0.992	
12-May-04	7:54:20	44.9	20	0.992	
12-May-04	7:54:40	65.9	20	0.992	
12-May-04	7:55:00	84.1	20	0.992	
12-May-04	7:55:20	106.7	20	0.992	
12-May-04	7:55:40	130.6	20.1	0.992	
12-May-04	7:56:00	155	20.1	0.992	
12-May-04	7:56:20	176.1	20.1	0.992	
12-May-04	7:56:40	198.3	20.1	0.992	
12-May-04	7:57:00	214.5	20.1	0.992	
12-May-04	7:57:20	232	20.2	0.992	
12-May-04	7:57:40	245.2	20.2	0.992	
12-May-04	7:58:00	250.7	20.2	0.992	
12-May-04	7:58:20	251.5	20.2	0.992	
12-May-04	7:58:40	260.6	20.2	0.992	
12-May-04	7:59:00	266.6	20.3	0.992	
12-May-04	7:59:20	266.5	20.3	0.992	
12-May-04	7:59:40	253.8	20.3	0.992	
12-May-04	8:00:00	254.1	20.3	0.992	
12-May-04	8:00:20	256.5	20.3	0.992	
12-May-04	8:00:40	256.7	20.3	0.992	
12-May-04	8:01:00	227.9	20.4	0.992	
12-May-04	8:01:20	217.3	20.4	0.992	
12-May-04	8:01:40	213.5	20.4	0.992	
12-May-04	8:02:00	203.1	20.4	0.992	
12-May-04	8:02:20	200.8	20.4	0.992	
12-May-04	8:02:40	191.4	20.4	0.992	
12-May-04	8:03:00	180	20.4	0.992	
12-May-04	8:03:20	176.2	20.5	0.992	
12-May-04	8:03:40	167.2	20.5	0.992	
12-May-04	8:04:00	157.3	20.5	0.992	
12-May-04	8:04:20	150.5	20.5	0.992	
12-May-04	8:04:40	160.5	20.5	0.992	
12-May-04	8:05:00	161.4	20.6	0.992	
12-May-04	8:05:20	165.2	20.6	0.992	
12-May-04	8:05:40	167.2	20.6	0.992	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	8:06:00	180.5	20.6	0.992
12-May-04	8:06:20	182.3	20.6	0.992
12-May-04	8:06:40	190.2	20.6	0.992
12-May-04	8:07:00	189.4	20.7	0.992
12-May-04	8:07:20	205.3	20.7	0.992
12-May-04	8:07:40	210.1	20.7	0.992
12-May-04	8:08:00	202.9	20.7	0.992
12-May-04	8:08:20	202.9	20.7	0.992
12-May-04	8:08:40	209.2	20.8	0.992
12-May-04	8:09:00	202.2	20.8	0.992
12-May-04	8:09:20	197.6	20.8	0.992
12-May-04	8:09:40	199.2	20.8	0.992
12-May-04	8:10:00	199.8	20.8	0.992
12-May-04	8:10:20	195.2	20.8	0.992
12-May-04	8:10:40	188.8	20.8	0.992
12-May-04	8:11:00	189.9	20.8	0.992
12-May-04	8:11:20	187.6	20.8	0.992
12-May-04	8:11:40	208.8	20.8	0.992
12-May-04	8:12:00	226.7	20.8	0.992
12-May-04	8:12:20	244.9	20.8	0.992
12-May-04	8:12:40	267.8	20.8	0.992
12-May-04	8:13:00	297.4	20.9	0.992
12-May-04	8:13:20	331.6	20.9	0.992
12-May-04	8:13:40	384	20.9	0.992
12-May-04	8:14:00	436.9	20.9	0.992
12-May-04	8:14:20	484.5	20.9	0.992
12-May-04	8:14:40	513.1	20.9	0.992
12-May-04	8:15:00	533.4	20.9	0.992
12-May-04	8:15:20	559.5	20.9	0.992
12-May-04	8:15:40	578.4	20.9	0.993
12-May-04	8:16:00	595.3	20.9	0.993
12-May-04	8:16:20	625.3	21	0.992
12-May-04	8:16:40	643.4	21	0.992
12-May-04	8:17:00	664.8	21	0.992
12-May-04	8:17:20	679.5	21	0.993
12-May-04	8:17:40	681.2	21	0.992
12-May-04	8:18:00	679.3	21	0.992
12-May-04	8:18:20	673.9	20.9	0.992
12-May-04	8:18:40	670.1	21	0.993
12-May-04	8:19:00	664.8	21	0.992
12-May-04	8:19:20	655.2	21	0.992
12-May-04	8:19:40	646.6	21	0.992
12-May-04	8:20:00	627.9	21	0.992
12-May-04	8:20:20	606.4	21.1	0.992
12-May-04	8:20:40	590.6	21.1	0.992
12-May-04	8:21:00	573.1	21.1	0.992
12-May-04	8:21:20	551.1	21.1	0.992
12-May-04	8:21:40	526.1	21.1	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	8:22:00	500.7	21.1	0.993
12-May-04	8:22:20	483.7	21.1	0.992
12-May-04	8:22:40	483.1	21.1	0.992
12-May-04	8:23:00	479.4	21.1	0.993
12-May-04	8:23:20	487.4	21.2	0.993
12-May-04	8:23:40	487.1	21.2	0.993
12-May-04	8:24:00	492.4	21.2	0.993
12-May-04	8:24:20	495.6	21.2	0.993
12-May-04	8:24:40	494.3	21.2	0.993
12-May-04	8:25:00	491	21.2	0.993
12-May-04	8:25:20	485.9	21.2	0.993
12-May-04	8:25:40	480.8	21.2	0.993
12-May-04	8:26:00	472	21.2	0.993
12-May-04	8:26:20	458.6	21.3	0.993
12-May-04	8:26:40	452.1	21.3	0.993
12-May-04	8:27:00	443.8	21.3	0.993
12-May-04	8:27:20	426.7	21.3	0.993
12-May-04	8:27:40	409.4	21.3	0.993
12-May-04	8:28:00	395.7	21.3	0.993
12-May-04	8:28:20	385.3	21.3	0.993
12-May-04	8:28:40	377	21.3	0.992
12-May-04	8:29:00	361.2	21.3	0.993
12-May-04	8:29:20	350.9	21.3	0.993
12-May-04	8:29:40	330.8	21.3	0.993
12-May-04	8:30:00	319	21.3	0.993
12-May-04	8:30:20	314.3	21.3	0.993
12-May-04	8:30:40	300.7	21.3	0.993
12-May-04	8:31:00	291.3	21.3	0.993
12-May-04	8:31:20	293.7	21.3	0.992
12-May-04	8:31:40	299.1	21.3	0.992
12-May-04	8:32:00	286.4	21.3	0.993
12-May-04	8:32:20	282.6	21.4	0.993
12-May-04	8:32:40	282.3	21.4	0.993
12-May-04	8:33:00	279.6	21.4	0.993
12-May-04	8:33:20	276.4	21.4	0.993
12-May-04	8:33:40	269.2	21.4	0.993
12-May-04	8:34:00	255.4	21.4	0.993
12-May-04	8:34:20	243.5	21.4	0.993
12-May-04	8:34:40	240.4	21.4	0.993
12-May-04	8:35:00	239	21.5	0.993
12-May-04	8:35:20	231.7	21.5	0.993
12-May-04	8:35:40	227.8	21.5	0.993
12-May-04	8:36:00	227.8	21.5	0.993
12-May-04	8:36:20	222	21.5	0.992
12-May-04	8:36:40	218.5	21.5	0.993
12-May-04	8:37:00	212.4	21.5	0.992
12-May-04	8:37:20	210.8	21.5	0.992
12-May-04	8:37:40	208.9	21.5	0.993

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
12-May-04	8:38:00	255.4	21.5	0.993	
12-May-04	8:38:20	340.9	21.6	0.993	
12-May-04	8:38:40	430.3	21.6	0.993	
12-May-04	8:39:00	504	21.6	0.993	
12-May-04	8:39:20	567.1	21.6	0.993	
12-May-04	8:39:40	621.3	21.6	0.993	
12-May-04	8:40:00	653	21.6	0.993	
12-May-04	8:40:20	675.1	21.6	0.993	
12-May-04	8:40:40	692.2	21.6	0.993	
12-May-04	8:41:00	700.9	21.6	0.993	
12-May-04	8:41:20	705.6	21.6	0.993	
12-May-04	8:41:40	703.8	21.7	0.993	
12-May-04	8:42:00	697.8	21.7	0.993	
12-May-04	8:42:20	681.2	21.7	0.993	
12-May-04	8:42:40	670.2	21.7	0.993	
12-May-04	8:43:00	659.8	21.7	0.993	
12-May-04	8:43:20	647	21.7	0.993	
12-May-04	8:43:40	635.9	21.7	0.993	
12-May-04	8:44:00	623.1	21.7	0.993	
12-May-04	8:44:20	605.8	21.8	0.993	
12-May-04	8:44:40	587.5	21.8	0.993	
12-May-04	8:45:00	565.5	21.8	0.993	
12-May-04	8:45:20	544.5	21.8	0.993	
12-May-04	8:45:40	525.3	21.8	0.993	
12-May-04	8:46:00	504.2	21.8	0.993	
12-May-04	8:46:20	485.2	21.8	0.993	
12-May-04	8:46:40	467.5	21.8	0.993	
12-May-04	8:47:00	447.8	21.8	0.993	
12-May-04	8:47:20	430.1	21.9	0.993	
12-May-04	8:47:40	415.5	21.9	0.993	
12-May-04	8:48:00	400.4	21.9	0.993	
12-May-04	8:48:20	389.8	21.9	0.993	
12-May-04	8:48:40	382	21.9	0.993	
12-May-04	8:49:00	377.1	21.9	0.993	
12-May-04	8:49:20	378.7	21.9	0.993	
12-May-04	8:49:40	380.3	21.9	0.993	
12-May-04	8:50:00	392.6	21.9	0.993	
12-May-04	8:50:20	384.1	21.9	0.993	
12-May-04	8:50:40	379.9	21.9	0.993	Stop Run # 1
Averages		351.0	21.0	0.992	
12-May-04	10:07:00	49.6	24	0.993	Start Run # 2
12-May-04	10:07:20	51.1	24	0.993	
12-May-04	10:07:40	53.8	24	0.993	
12-May-04	10:08:00	56.3	24	0.992	
12-May-04	10:08:20	59.5	24.1	0.992	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	10:08:40	57.3	24.1	0.992
12-May-04	10:09:00	54.8	24.1	0.992
12-May-04	10:09:20	62	24.1	0.992
12-May-04	10:09:40	61	24.1	0.992
12-May-04	10:10:00	56.5	24	0.992
12-May-04	10:10:20	66.9	24	0.992
12-May-04	10:10:40	73.1	24	0.992
12-May-04	10:11:00	78.9	23.9	0.992
12-May-04	10:11:20	84.6	23.9	0.992
12-May-04	10:11:40	92.7	23.9	0.992
12-May-04	10:12:00	98.4	23.8	0.992
12-May-04	10:12:20	99.5	23.9	0.992
12-May-04	10:12:40	104.1	23.9	0.992
12-May-04	10:13:00	113.5	23.9	0.992
12-May-04	10:13:20	119.7	23.9	0.992
12-May-04	10:13:40	133.6	23.9	0.992
12-May-04	10:14:00	155.2	23.9	0.992
12-May-04	10:14:20	178.4	23.9	0.992
12-May-04	10:14:40	200.9	23.9	0.992
12-May-04	10:15:00	217.8	23.9	0.992
12-May-04	10:15:20	231.1	23.9	0.992
12-May-04	10:15:40	252	24	0.992
12-May-04	10:16:00	266.2	24	0.992
12-May-04	10:16:20	284.4	24.1	0.992
12-May-04	10:16:40	291.6	24.1	0.992
12-May-04	10:17:00	301.4	24.2	0.992
12-May-04	10:17:20	310	24.2	0.992
12-May-04	10:17:40	357.4	24.3	0.992
12-May-04	10:18:00	431.6	24.3	0.992
12-May-04	10:18:20	534.7	24.4	0.992
12-May-04	10:18:40	687.1	24.4	0.992
12-May-04	10:19:00	831.9	24.5	0.992
12-May-04	10:19:20	969.5	24.5	0.992
12-May-04	10:19:40	1124.6	24.5	0.992
12-May-04	10:20:00	1263.1	24.6	0.992
12-May-04	10:20:20	1381.6	24.6	0.992
12-May-04	10:20:40	1477.6	24.7	0.992
12-May-04	10:21:00	1543.4	24.7	0.992
12-May-04	10:21:20	1596.8	24.7	0.992
12-May-04	10:21:40	1674.2	24.8	0.992
12-May-04	10:22:00	1787.9	24.8	0.992
12-May-04	10:22:20	1898	24.8	0.992
12-May-04	10:22:40	1991.7	24.8	0.992
12-May-04	10:23:00	2061.7	24.8	0.992
12-May-04	10:23:20	2108.4	24.9	0.992
12-May-04	10:23:40	2143.1	24.9	0.992
12-May-04	10:24:00	2162.7	24.9	0.992
12-May-04	10:24:20	2162.1	24.9	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	10:24:40	2146.9	24.9	0.992
12-May-04	10:25:00	2125.4	25	0.992
12-May-04	10:25:20	2083.5	25	0.992
12-May-04	10:25:40	2037.3	25	0.992
12-May-04	10:26:00	1988.6	25	0.992
12-May-04	10:26:20	1945.6	25	0.992
12-May-04	10:26:40	1897.3	25	0.992
12-May-04	10:27:00	1850.7	25	0.992
12-May-04	10:27:20	1813.9	25.1	0.992
12-May-04	10:27:40	1771.6	25.1	0.992
12-May-04	10:28:00	1736.8	25.1	0.992
12-May-04	10:28:20	1700.5	25.1	0.992
12-May-04	10:28:40	1664.7	25.1	0.992
12-May-04	10:29:00	1634.3	25	0.992
12-May-04	10:29:20	1607.6	25	0.992
12-May-04	10:29:40	1571.3	25	0.992
12-May-04	10:30:00	1540.1	25	0.992
12-May-04	10:30:20	1503.2	25	0.992
12-May-04	10:30:40	1455.9	25	0.992
12-May-04	10:31:00	1405.6	25	0.992
12-May-04	10:31:20	1404.2	25	0.992
12-May-04	10:31:40	1455.7	25	0.992
12-May-04	10:32:00	1520.9	25	0.992
12-May-04	10:32:20	1580.6	25	0.992
12-May-04	10:32:40	1626.7	25	0.992
12-May-04	10:33:00	1667.8	25	0.992
12-May-04	10:33:20	1747.1	24.9	0.992
12-May-04	10:33:40	1843.8	24.9	0.992
12-May-04	10:34:00	1938.8	24.9	0.992
12-May-04	10:34:20	2016	24.9	0.992
12-May-04	10:34:40	2070.6	24.9	0.992
12-May-04	10:35:00	2121.1	24.9	0.992
12-May-04	10:35:20	2155.5	24.8	0.992
12-May-04	10:35:40	2175	24.8	0.992
12-May-04	10:36:00	2174.8	24.8	0.992
12-May-04	10:36:20	2167.8	24.8	0.992
12-May-04	10:36:40	2140.4	24.8	0.992
12-May-04	10:37:00	2097.8	24.7	0.992
12-May-04	10:37:20	2051.9	24.7	0.992
12-May-04	10:37:40	2008.5	24.6	0.992
12-May-04	10:38:00	1965.8	24.6	0.992
12-May-04	10:38:20	1918.5	24.6	0.992
12-May-04	10:38:40	1856.7	24.6	0.992
12-May-04	10:39:00	1799.4	24.5	0.992
12-May-04	10:39:20	1747.1	24.5	0.992
12-May-04	10:39:40	1679.9	24.5	0.992
12-May-04	10:40:00	1617.3	24.5	0.992
12-May-04	10:40:20	1558.6	24.4	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	10:40:40	1498.3	24.4	0.992
12-May-04	10:41:00	1440.5	24.3	0.992
12-May-04	10:41:20	1372.7	24.2	0.992
12-May-04	10:41:40	1312	24.1	0.992
12-May-04	10:42:00	1248.5	24	0.992
12-May-04	10:42:20	1185.3	24	0.992
12-May-04	10:42:40	1129.3	23.9	0.992
12-May-04	10:43:00	1073.8	23.9	0.992
12-May-04	10:43:20	1018.1	23.8	0.992
12-May-04	10:43:40	965.3	23.9	0.992
12-May-04	10:44:00	916.5	23.9	0.992
12-May-04	10:44:20	873.5	23.9	0.992
12-May-04	10:44:40	830.5	23.8	0.992
12-May-04	10:45:00	788.9	23.8	0.992
12-May-04	10:45:20	750.2	23.8	0.992
12-May-04	10:45:40	721.8	23.9	0.992
12-May-04	10:46:00	686.9	23.9	0.992
12-May-04	10:46:20	650.1	23.9	0.992
12-May-04	10:46:40	618.3	23.9	0.992
12-May-04	10:47:00	591.8	23.9	0.992
12-May-04	10:47:20	562.6	23.9	0.992
12-May-04	10:47:40	531.6	23.9	0.992
12-May-04	10:48:00	509.5	23.9	0.992
12-May-04	10:48:20	485.4	24	0.992
12-May-04	10:48:40	460	24	0.992
12-May-04	10:49:00	439	24	0.992
12-May-04	10:49:20	423.5	23.9	0.992
12-May-04	10:49:40	399	23.9	0.992
12-May-04	10:50:00	372.1	23.9	0.992
12-May-04	10:50:20	351	23.9	0.992
12-May-04	10:50:40	334	23.9	0.992
12-May-04	10:51:00	318.1	23.9	0.992
12-May-04	10:51:20	303.8	23.9	0.992
12-May-04	10:51:40	281.9	23.9	0.992
12-May-04	10:52:00	274.9	23.9	0.992
12-May-04	10:52:20	259.4	23.9	0.992
12-May-04	10:52:40	249.6	23.9	0.992
12-May-04	10:53:00	236.8	23.9	0.992
12-May-04	10:53:20	224.4	24	0.992
12-May-04	10:53:40	218.8	24	0.992
12-May-04	10:54:00	210.8	24	0.992
12-May-04	10:54:20	198.7	24	0.992
12-May-04	10:54:40	194.5	23.9	0.992
12-May-04	10:55:00	190.7	23.9	0.992
12-May-04	10:55:20	182.3	23.8	0.992
12-May-04	10:55:40	174.5	23.8	0.992
12-May-04	10:56:00	165.3	23.8	0.992
12-May-04	10:56:20	159.1	23.9	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
12-May-04	10:56:40	149.9	23.9	0.992	
12-May-04	10:57:00	144.2	23.9	0.992	
12-May-04	10:57:20	136.2	23.9	0.992	
12-May-04	10:57:40	130.4	23.9	0.992	
12-May-04	10:58:00	126.1	23.9	0.992	
12-May-04	10:58:20	123.2	23.9	0.992	
12-May-04	10:58:40	120	23.9	0.992	
12-May-04	10:59:00	113.3	23.8	0.992	
12-May-04	10:59:20	106.4	23.9	0.992	
12-May-04	10:59:40	104	23.9	0.992	
12-May-04	11:00:00	103.2	23.9	0.992	
12-May-04	11:00:20	104.5	23.8	0.992	
12-May-04	11:00:40	97.5	23.9	0.992	
12-May-04	11:01:00	97.9	23.9	0.992	
12-May-04	11:01:20	99	23.9	0.992	
12-May-04	11:01:40	93.9	23.9	0.992	
12-May-04	11:02:00	93.8	23.8	0.992	
12-May-04	11:02:20	94.9	23.8	0.992	
12-May-04	11:02:40	96.1	23.6	0.992	
12-May-04	11:03:00	94.1	23.5	0.992	
12-May-04	11:03:20	86.2	23.5	0.992	
12-May-04	11:03:40	84.9	23.5	0.992	
12-May-04	11:04:00	81.2	23.5	0.992	
12-May-04	11:04:20	83.9	23.4	0.992	
12-May-04	11:04:40	89.9	23.4	0.992	
12-May-04	11:05:00	96.9	23.4	0.992	
12-May-04	11:05:20	105.1	23.4	0.992	
12-May-04	11:05:40	110.8	23.4	0.992	
12-May-04	11:06:00	117.4	23.3	0.992	
12-May-04	11:06:20	123.6	23.3	0.992	
12-May-04	11:06:40	135.9	23.3	0.992	Stop Run # 2
Averages		854.6	24.2	0.992	
13-May-04	9:06:00	568.2	20.5	0.993	Start Run # 3
13-May-04	9:06:20	559.1	20.5	0.993	
13-May-04	9:06:40	538.7	20.5	0.993	
13-May-04	9:07:00	525.5	20.5	0.993	
13-May-04	9:07:20	511.4	20.5	0.993	
13-May-04	9:07:40	492.7	20.6	0.993	
13-May-04	9:08:00	474.8	20.6	0.993	
13-May-04	9:08:20	458.4	20.6	0.993	
13-May-04	9:08:40	441.9	20.5	0.993	
13-May-04	9:09:00	427.2	20.5	0.993	
13-May-04	9:09:20	408.2	20.6	0.993	
13-May-04	9:09:40	388.4	20.6	0.993	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
13-May-04	9:10:00	373.2	20.6	0.993
13-May-04	9:10:20	365.5	20.5	0.993
13-May-04	9:10:40	363	20.5	0.993
13-May-04	9:11:00	351.8	20.5	0.993
13-May-04	9:11:20	338.4	20.5	0.993
13-May-04	9:11:40	325.2	20.6	0.993
13-May-04	9:12:00	305.7	20.6	0.993
13-May-04	9:12:20	297.5	20.6	0.993
13-May-04	9:12:40	280.2	20.6	0.993
13-May-04	9:13:00	267.2	20.7	0.993
13-May-04	9:13:20	260.1	20.7	0.993
13-May-04	9:13:40	258.7	20.7	0.993
13-May-04	9:14:00	249.9	20.7	0.993
13-May-04	9:14:20	233.1	20.6	0.993
13-May-04	9:14:40	218.5	20.6	0.993
13-May-04	9:15:00	212.4	20.6	0.993
13-May-04	9:15:20	203.9	20.6	0.993
13-May-04	9:15:40	199.2	20.6	0.993
13-May-04	9:16:00	185.3	20.6	0.993
13-May-04	9:16:20	180.6	20.5	0.993
13-May-04	9:16:40	175.7	20.5	0.993
13-May-04	9:17:00	163.9	20.5	0.993
13-May-04	9:17:20	156.4	20.5	0.993
13-May-04	9:17:40	150.9	20.5	0.993
13-May-04	9:18:00	141.4	20.5	0.993
13-May-04	9:18:20	137.3	20.5	0.993
13-May-04	9:18:40	131.8	20.4	0.993
13-May-04	9:19:00	126.7	20.4	0.993
13-May-04	9:19:20	133.5	20.4	0.993
13-May-04	9:19:40	132.9	20.4	0.993
13-May-04	9:20:00	138.2	20.4	0.993
13-May-04	9:20:20	134.2	20.5	0.993
13-May-04	9:20:40	137.4	20.4	0.993
13-May-04	9:21:00	139.5	20.4	0.993
13-May-04	9:21:20	136.5	20.5	0.993
13-May-04	9:21:40	158.8	20.5	0.993
13-May-04	9:22:00	178.6	20.5	0.993
13-May-04	9:22:20	195.6	20.5	0.993
13-May-04	9:22:40	218.7	20.6	0.993
13-May-04	9:23:00	244.9	20.6	0.993
13-May-04	9:23:20	270.1	20.6	0.993
13-May-04	9:23:40	283.8	20.6	0.993
13-May-04	9:24:00	301.9	20.7	0.993
13-May-04	9:24:20	352.7	20.7	0.993
13-May-04	9:24:40	441.3	20.7	0.993
13-May-04	9:25:00	539.1	20.7	0.993
13-May-04	9:25:20	650.2	20.7	0.993
13-May-04	9:25:40	762.9	20.8	0.993

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
13-May-04	9:26:00	893	20.8	0.993
13-May-04	9:26:20	996.1	20.8	0.993
13-May-04	9:26:40	1083.3	20.8	0.993
13-May-04	9:27:00	1163	20.8	0.993
13-May-04	9:27:20	1210.6	20.9	0.993
13-May-04	9:27:40	1241.3	20.9	0.993
13-May-04	9:28:00	1259	20.9	0.993
13-May-04	9:28:20	1260.8	20.9	0.993
13-May-04	9:28:40	1255.9	21	0.993
13-May-04	9:29:00	1243.5	21	0.993
13-May-04	9:29:20	1227.2	21	0.993
13-May-04	9:29:40	1205.3	21	0.993
13-May-04	9:30:00	1180	20.9	0.993
13-May-04	9:30:20	1147.1	20.9	0.993
13-May-04	9:30:40	1115.2	20.9	0.993
13-May-04	9:31:00	1078.1	20.9	0.993
13-May-04	9:31:20	1052.4	20.9	0.993
13-May-04	9:31:40	1027.3	20.8	0.993
13-May-04	9:32:00	1008.9	20.8	0.993
13-May-04	9:32:20	983.5	20.9	0.993
13-May-04	9:32:40	955.1	20.9	0.993
13-May-04	9:33:00	922.5	20.8	0.993
13-May-04	9:33:20	895.1	20.8	0.993
13-May-04	9:33:40	867.7	20.8	0.993
13-May-04	9:34:00	841.2	20.8	0.993
13-May-04	9:34:20	808	20.8	0.993
13-May-04	9:34:40	792.4	20.8	0.993
13-May-04	9:35:00	767.5	20.9	0.993
13-May-04	9:35:20	747.6	20.9	0.993
13-May-04	9:35:40	721.9	20.9	0.993
13-May-04	9:36:00	697.6	20.9	0.993
13-May-04	9:36:20	682.6	20.9	0.993
13-May-04	9:36:40	664.3	20.9	0.993
13-May-04	9:37:00	644.9	20.9	0.993
13-May-04	9:37:20	624	20.9	0.993
13-May-04	9:37:40	603.5	21	0.993
13-May-04	9:38:00	608.7	21	0.993
13-May-04	9:38:20	625.3	21	0.993
13-May-04	9:38:40	655.8	21	0.993
13-May-04	9:39:00	708.9	21	0.993
13-May-04	9:39:20	756	21	0.993
13-May-04	9:39:40	810.1	21	0.993
13-May-04	9:40:00	845	21.1	0.993
13-May-04	9:40:20	869.7	21.1	0.993
13-May-04	9:40:40	888.4	21.1	0.993
13-May-04	9:41:00	896.5	21.1	0.993
13-May-04	9:41:20	898.9	21.1	0.993
13-May-04	9:41:40	906.4	21.1	0.993

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
13-May-04	9:42:00	897.1	21.1	0.993
13-May-04	9:42:20	889	21.1	0.993
13-May-04	9:42:40	878.2	21.1	0.993
13-May-04	9:43:00	853.8	21.1	0.993
13-May-04	9:43:20	829.1	21.1	0.993
13-May-04	9:43:40	803.3	21.2	0.993
13-May-04	9:44:00	776	21.2	0.993
13-May-04	9:44:20	745.7	21.2	0.993
13-May-04	9:44:40	718.2	21.2	0.993
13-May-04	9:45:00	686.1	21.2	0.993
13-May-04	9:45:20	656.4	21.2	0.993
13-May-04	9:45:40	630.9	21.2	0.993
13-May-04	9:46:00	597	21.3	0.993
13-May-04	9:46:20	576.8	21.3	0.993
13-May-04	9:46:40	563.9	21.2	0.993
13-May-04	9:47:00	548	21.2	0.993
13-May-04	9:47:20	525.2	21.3	0.993
13-May-04	9:47:40	502.2	21.3	0.993
13-May-04	9:48:00	482.3	21.3	0.993
13-May-04	9:48:20	460	21.3	0.993
13-May-04	9:48:40	450.2	21.3	0.993
13-May-04	9:49:00	429.6	21.4	0.993
13-May-04	9:49:20	412.6	21.4	0.993
13-May-04	9:49:40	388	21.4	0.993
13-May-04	9:50:00	369.6	21.4	0.993
13-May-04	9:50:20	351.3	21.4	0.993
13-May-04	9:50:40	341.1	21.4	0.993
13-May-04	9:51:00	327.1	21.4	0.993
13-May-04	9:51:20	315.7	21.5	0.993
13-May-04	9:51:40	300.7	21.5	0.993
13-May-04	9:52:00	287.4	21.6	0.993
13-May-04	9:52:20	283.4	21.6	0.993
13-May-04	9:52:40	272.7	21.7	0.993
13-May-04	9:53:00	261.6	21.7	0.993
13-May-04	9:53:20	250.6	21.7	0.993
13-May-04	9:53:40	232.8	21.7	0.993
13-May-04	9:54:00	220.8	21.7	0.993
13-May-04	9:54:20	212.9	21.8	0.993
13-May-04	9:54:40	204.8	21.8	0.993
13-May-04	9:55:00	197.5	21.9	0.993
13-May-04	9:55:20	195.1	21.9	0.993
13-May-04	9:55:40	194	21.9	0.993
13-May-04	9:56:00	189.2	22	0.993
13-May-04	9:56:20	189.4	22	0.993
13-May-04	9:56:40	187	22	0.993
13-May-04	9:57:00	184.9	22	0.993
13-May-04	9:57:20	187	22	0.993
13-May-04	9:57:40	179.6	22	0.993

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
13-May-04	10:02:00	132	22.1	0.993	
13-May-04	10:02:20	131.9	22.1	0.993	
13-May-04	10:02:40	131.7	22.1	0.993	
13-May-04	10:03:00	140.5	22.2	0.993	
13-May-04	10:03:20	157.6	22.2	0.993	
13-May-04	10:03:40	168.7	22.3	0.993	
13-May-04	10:04:00	194.5	22.3	0.993	
13-May-04	10:04:20	211.7	22.3	0.993	
13-May-04	10:04:40	227.8	22.4	0.993	
13-May-04	10:05:00	255.9	22.4	0.993	
13-May-04	10:05:20	318.4	22.4	0.993	
13-May-04	10:05:40	378.1	22.4	0.993	
13-May-04	10:06:00	441.1	22.5	0.993	
13-May-04	10:06:20	492.8	22.5	0.993	
13-May-04	10:06:40	546.3	22.5	0.993	
13-May-04	10:07:00	587.9	22.6	0.993	
13-May-04	10:07:20	627.9	22.6	0.993	
13-May-04	10:07:40	647.4	22.6	0.993	
13-May-04	10:08:00	665.1	22.6	0.993	
13-May-04	10:08:20	676.1	22.7	0.993	
13-May-04	10:08:40	700.4	22.7	0.993	
13-May-04	10:09:00	753.5	22.7	0.993	
13-May-04	10:09:20	789.8	22.8	0.993	
13-May-04	10:09:40	822.8	22.8	0.993	
13-May-04	10:10:00	847.3	22.8	0.993	
13-May-04	10:10:20	875.3	22.8	0.993	
13-May-04	10:10:40	949.3	22.8	0.993	Stop Run # 3
Averages		527.0	21.2	0.993	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
12-May-04	7:50:00	276.7	19.6	0.992	Start Run # 1
12-May-04	7:50:20	284.9	19.7	0.992	
12-May-04	7:50:40	295.3	19.7	0.992	
12-May-04	7:51:00	301.9	19.7	0.992	
12-May-04	7:51:20	309.2	19.7	0.992	
12-May-04	7:51:40	319.3	19.7	0.992	
12-May-04	7:52:00	330.8	19.7	0.992	
12-May-04	7:52:20	341.3	19.8	0.992	
12-May-04	7:52:40	349.3	19.8	0.992	
12-May-04	7:53:00	353.7	19.8	0.992	
12-May-04	7:53:20	359.8	19.9	0.992	
12-May-04	7:53:40	367.2	19.9	0.992	
12-May-04	7:54:00	372.9	19.9	0.992	
12-May-04	7:54:20	375.4	19.9	0.992	
12-May-04	7:54:40	378.5	19.9	0.992	
12-May-04	7:55:00	385	19.9	0.992	
12-May-04	7:55:20	410	19.9	0.992	
12-May-04	7:55:40	448.9	19.9	0.992	
12-May-04	7:56:00	490.3	19.9	0.992	
12-May-04	7:56:20	531	20	0.992	
12-May-04	7:56:40	562.8	20	0.992	
12-May-04	7:57:00	584.1	20	0.992	
12-May-04	7:57:20	603.5	20	0.992	
12-May-04	7:57:40	626	20	0.992	
12-May-04	7:58:00	641.7	20	0.992	
12-May-04	7:58:20	655	20.1	0.992	
12-May-04	7:58:40	665	20.1	0.992	
12-May-04	7:59:00	672.9	20.1	0.992	
12-May-04	7:59:20	677	20.1	0.992	
12-May-04	7:59:40	676.4	20.1	0.992	
12-May-04	8:00:00	677.9	20.1	0.992	
12-May-04	8:00:20	675.1	20.1	0.992	
12-May-04	8:00:40	669.9	20.2	0.992	
12-May-04	8:01:00	661.3	20.2	0.992	
12-May-04	8:01:20	655.3	20.2	0.992	
12-May-04	8:01:40	649.1	20.2	0.992	
12-May-04	8:02:00	641.4	20.3	0.992	
12-May-04	8:02:20	633.8	20.3	0.992	
12-May-04	8:02:40	628.1	20.3	0.992	
12-May-04	8:03:00	621.2	20.3	0.992	
12-May-04	8:03:20	612.3	20.4	0.992	
12-May-04	8:03:40	602	20.4	0.992	
12-May-04	8:04:00	600.3	20.5	0.992	
12-May-04	8:04:20	605.3	20.5	0.992	
12-May-04	8:04:40	620	20.6	0.992	
12-May-04	8:05:00	655.3	20.6	0.992	
12-May-04	8:05:20	693.1	20.6	0.992	
12-May-04	8:05:40	733.2	20.6	0.992	
12-May-04	8:06:00	766.2	20.6	0.992	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	8:06:20	793.9	20.7	0.992
12-May-04	8:06:40	815.1	20.7	0.992
12-May-04	8:07:00	829	20.7	0.992
12-May-04	8:07:20	839	20.7	0.992
12-May-04	8:07:40	846.4	20.7	0.992
12-May-04	8:08:00	855 4	20.7	0.992
12-May-04	8:08:20	859.5	20.7	0.992
12-May-04	8:08:40	861.9	20.7	0.992
12-May-04	8:09:00	859.9	20.8	0.992
12-May-04	8:09:20	856.8	20.8	0.992
12-May-04	8:09:40	850.2	20.8	0.992
12-May-04	8:10:00	843.4	20.8	0.992
12-May-04	8:10:20	837.5	20.9	0.992
12-May-04	8:10:40	830.6	20.9	0.992
12-May-04	8:11:00	816.8	21	0.992
12-May-04	8:11:20	804.3	21	0.992
12-May-04	8:11:40	795.9	21	0.992
12-May-04	8:12:00	799.8	21	0.992
12-May-04	8:12:20	818.5	21.1	0.992
12-May-04	8:12:40	843.8	21.1	0.992
12-May-04	8:13:00	873.5	21.1	0.992
12-May-04	8:13:20	899.6	21.1	0.992
12-May-04	8:13:40	920.3	21.1	0.992
12-May-04	8:14:00	936.3	21.2	0.992
12-May-04	8:14:20	952.5	21.2	0.992
12-May-04	8:14:40	963.8	21.2	0.992
12-May-04	8:15:00	969.7	21.2	0.992
12-May-04	8:15:20	973.9	21.2	0.992
12-May-04	8:15:40	976.6	21.3	0.992
12-May-04	8:16:00	996.8	21.3	0.992
12-May-04	8:16:20	1041	21.3	0.992
12-May-04	8:16:40	1105	21.3	0.992
12-May-04	8:17:00	1160.3	21.3	0.992
12-May-04	8:17:20	1202.5	21.3	0.992
12-May-04	8:17:40	1239	21.4	0.992
12-May-04	8:18:00	1267.8	21.4	0.992
12-May-04	8:18:20	1291.6	21.4	0.992
12-May-04	8:18:40	1306.3	21.4	0.992
12-May-04	8:19:00	1313.2	21.4	0.992
12-May-04	8:19:20	1314.1	21.4	0.992
12-May-04	8:19:40	1314.1	21.5	0.992
12-May-04	8:20:00	1312.4	21.5	0.992
12-May-04	8:20:20	1301.9	21.5	0.992
12-May-04	8:20:40	1287	21.5	0.992
12-May-04	8:21:00	1266.9	21.5	0.992
12-May-04	8:21:20	1245.6	21.5	0.992
12-May-04	8:21:40	1225.2	21.5	0.992
12-May-04	8:22:00	1205.2	21.5	0.992
12-May-04	8:22:20	1199.2	21.5	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	8:22:40	1206.9	21.5	0.992
12-May-04	8:23:00	1221.7	21.5	0.992
12-May-04	8:23:20	1240.9	21.5	0.992
12-May-04	8:23:40	1252.4	21.5	0.992
12-May-04	8:24:00	1259.5	21.5	0.992
12-May-04	8:24:20	1259.5	21.5	0.992
12-May-04	8:24:40	1254.4	21.5	0.992
12-May-04	8:25:00	1244.4	21.5	0.992
12-May-04	8:25:20	1230.8	21.5	0.992
12-May-04	8:25:40	1219.9	21.5	0.992
12-May-04	8:26:00	1205	21.4	0.992
12-May-04	8:26:20	1189.5	21.4	0.992
12-May-04	8:26:40	1172.8	21.4	0.992
12-May-04	8:27:00	1150.4	21.3	0.992
12-May-04	8:27:20	1128.2	21.3	0.992
12-May-04	8:27:40	1106.6	21.3	0.992
12-May-04	8:28:00	1084	21.2	0.992
12-May-04	8:28:20	1064.3	21.2	0.992
12-May-04	8:28:40	1043.4	21.2	0.992
12-May-04	8:29:00	1024.3	21.2	0.992
12-May-04	8:29:20	1002.4	21.2	0.992
12-May-04	8:29:40	987.5	21.2	0.992
12-May-04	8:30:00	969.4	21.1	0.992
12-May-04	8:30:20	949.2	21.1	0.992
12-May-04	8:30:40	928.8	21.1	0.992
12-May-04	8:31:00	915.9	21.2	0.992
12-May-04	8:31:20	914.2	21.2	0.992
12-May-04	8:31:40	917.9	21.2	0.992
12-May-04	8:32:00	932.3	21.2	0.992
12-May-04	8:32:20	953.6	21.2	0.992
12-May-04	8:32:40	975.2	21.2	0.992
12-May-04	8:33:00	996.4	21.2	0.992
12-May-04	8:33:20	1013.5	21.2	0.992
12-May-04	8:33:40	1022.9	21.2	0.992
12-May-04	8:34:00	1028.2	21.2	0.992
12-May-04	8:34:20	1030	21.1	0.992
12-May-04	8:34:40	1025.3	21.1	0.992
12-May-04	8:35:00	1017.9	21.1	0.992
12-May-04	8:35:20	1010.7	21.1	0.992
12-May-04	8:35:40	1000.7	21.1	0.992
12-May-04	8:36:00	993.8	21.1	0.992
12-May-04	8:36:20	986.7	21.1	0.992
12-May-04	8:36:40	983.4	21.1	0.992
12-May-04	8:37:00	972.8	21.1	0.992
12-May-04	8:37:20	962	21.1	0.992
12-May-04	8:37:40	948.1	21.2	0.992
12-May-04	8:38:00	935.4	21.1	0.992
12-May-04	8:38:20	935.1	21.1	0.992
12-May-04	8:38:40	968.9	21.1	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
12-May-04	8:39:00	1014.4	21.1	0.992	
12-May-04	8:39:20	1056.6	21.1	0.992	
12-May-04	8:39:40	1090.9	21.1	0.992	
12-May-04	8:40:00	1120.8	21.1	0.992	
12-May-04	8:40:20	1147.5	21.1	0.992	
12-May-04	8:40:40	1164	21.1	0.992	
12-May-04	8:41:00	1173.1	21.1	0.992	
12-May-04	8:41:20	1177.7	21.1	0.992	
12-May-04	8:41:40	1183.6	21.2	0.992	
12-May-04	8:42:00	1182.7	21.2	0.992	
12-May-04	8:42:20	1176.1	21.2	0.992	
12-May-04	8:42:40	1168.1	21.2	0.992	
12-May-04	8:43:00	1153.5	21.2	0.992	
12-May-04	8:43:20	1138	21.2	0.992	
12-May-04	8:43:40	1119.7	21.2	0.992	
12-May-04	8:44:00	1100.4	21.2	0.992	
12-May-04	8:44:20	1081.6	21.3	0.992	
12-May-04	8:44:40	1065.5	21.3	0.992	
12-May-04	8:45:00	1048.4	21.3	0.992	
12-May-04	8:45:20	1032.2	21.3	0.992	
12-May-04	8:45:40	1013.1	21.3	0.992	
12-May-04	8:46:00	994.2	21.3	0.992	
12-May-04	8:46:20	975.9	21.3	0.992	
12-May-04	8:46:40	956.8	21.4	0.992	
12-May-04	8:47:00	937.5	21.4	0.992	
12-May-04	8:47:20	920.5	21.4	0.992	
12-May-04	8:47:40	903.8	21.4	0.992	
12-May-04	8:48:00	890.9	21.4	0.992	
12-May-04	8:48:20	876.4	21.5	0.992	
12-May-04	8:48:40	856.7	21.5	0.992	
12-May-04	8:49:00	834	21.6	0.992	
12-May-04	8:49:20	821.4	21.6	0.992	
12-May-04	8:49:40	836.7	21.6	0.992	
12-May-04	8:50:00	872.4	21.6	0.992	
12-May-04	8:50:20	930.4	21.7	0.992	
12-May-04	8:50:40	995.3	21.7	0.992	Stop Run # 1
Averages		899.5	20.9	0.992	
12-May-04	10:07:00	1057.5	24.4	0.992	Start Run # 2
12-May-04	10:07:20	1058.5	24.5	0.992	
12-May-04	10:07:40	1056.2	24.6	0.992	
12-May-04	10:08:00	1055.8	24.7	0.992	
12-May-04	10:08:20	1055.5	24.7	0.992	
12-May-04	10:08:40	1052.8	24.7	0.992	
12-May-04	10:09:00	1053.3	24.7	0.992	
12-May-04	10:09:20	1048.6	24.7	0.992	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	10:09:40	1045.6	24.7	0.992
12-May-04	10:10:00	1043.9	24.6	0.992
12-May-04	10:10:20	1033.9	24.6	0.992
12-May-04	10:10:40	1025.1	24.6	0.992
12-May-04	10:11:00	1020.7	24.6	0.992
12-May-04	10:11:20	1036.4	24.5	0.992
12-May-04	10:11:40	1080.5	24.5	0.992
12-May-04	10:12:00	1155.9	24.5	0.992
12-May-04	10:12:20	1263.2	24.5	0.992
12-May-04	10:12:40	1359.2	24.5	0.992
12-May-04	10:13:00	1442.8	24.4	0.992
12-May-04	10:13:20	1515.1	24.5	0.992
12-May-04	10:13:40	1573.3	24.5	0.992
12-May-04	10:14:00	1631.1	24.6	0.992
12-May-04	10:14:20	1706.2	24.6	0.992
12-May-04	10:14:40	1806.5	24.7	0.992
12-May-04	10:15:00	1912.2	24.7	0.992
12-May-04	10:15:20	1987.2	24.8	0.992
12-May-04	10:15:40	2048.9	24.9	0.992
12-May-04	10:16:00	2105.9	25	0.992
12-May-04	10:16:20	2154.1	25.1	0.992
12-May-04	10:16:40	2186.2	25.1	0.992
12-May-04	10:17:00	2203.1	25.2	0.992
12-May-04	10:17:20	2211.1	25.2	0.992
12-May-04	10:17:40	2211.5	25.2	0.992
12-May-04	10:18:00	2214.5	25.1	0.992
12-May-04	10:18:20	2240.6	25.1	0.992
12-May-04	10:18:40	2295	25	0.992
12-May-04	10:19:00	2372.8	25	0.992
12-May-04	10:19:20	2456.1	24.9	0.992
12-May-04	10:19:40	2519.9	24.9	0.992
12-May-04	10:20:00	2579.7	24.9	0.992
12-May-04	10:20:20	2619.4	24.9	0.992
12-May-04	10:20:40	2647.4	24.8	0.992
12-May-04	10:21:00	2660.3	24.8	0.992
12-May-04	10:21:20	2663.7	24.8	0.992
12-May-04	10:21:40	2654.4	24.7	0.992
12-May-04	10:22:00	2644.6	24.6	0.992
12-May-04	10:22:20	2653.5	24.5	0.992
12-May-04	10:22:40	2689	24.5	0.992
12-May-04	10:23:00	2761.1	24.5	0.992
12-May-04	10:23:20	2847.6	24.5	0.992
12-May-04	10:23:40	2911.7	24.5	0.992
12-May-04	10:24:00	2971.9	24.5	0.992
12-May-04	10:24:20	3015.9	24.6	0.992
12-May-04	10:24:40	3046	24.6	0.992
12-May-04	10:25:00	3066.3	24.6	0.992
12-May-04	10:25:20	3071.2	24.7	0.992
12-May-04	10:25:40	3063.2	24.7	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	10:26:00	3057.8	24.7	0.992
12-May-04	10:26:20	3038.5	24.7	0.992
12-May-04	10:26:40	3034.5	24.7	0.992
12-May-04	10:27:00	3061	24.7	0.992
12-May-04	10:27:20	3127.1	24.8	0.992
12-May-04	10:27:40	3201.7	24.7	0.992
12-May-04	10:28:00	3282.5	24.7	0.992
12-May-04	10:28:20	3341.8	24.6	0.992
12-May-04	10:28:40	3376.2	24.6	0.992
12-May-04	10:29:00	3397.1	24.6	0.992
12-May-04	10:29:20	3397.2	24.6	0.992
12-May-04	10:29:40	3387.6	24.6	0.992
12-May-04	10:30:00	3375.1	24.6	0.992
12-May-04	10:30:20	3352.7	24.6	0.992
12-May-04	10:30:40	3320.1	24.6	0.992
12-May-04	10:31:00	3279.6	24.5	0.992
12-May-04	10:31:20	3229.1	24.5	0.992
12-May-04	10:31:40	3185.7	24.4	0.992
12-May-04	10:32:00	3156.2	24.4	0.992
12-May-04	10:32:20	3148	24.4	0.992
12-May-04	10:32:40	3169.7	24.4	0.992
12-May-04	10:33:00	3231.9	24.3	0.992
12-May-04	10:33:20	3348	24.3	0.992
12-May-04	10:33:40	3501.8	24.2	0.992
12-May-04	10:34:00	3636.9	24.2	0.992
12-May-04	10:34:20	3747.4	24.2	0.992
12-May-04	10:34:40	3827.6	24.1	0.992
12-May-04	10:35:00	3896.8	24.1	0.992
12-May-04	10:35:20	3942	24	0.992
12-May-04	10:35:40	3962.1	24.1	0.992
12-May-04	10:36:00	3974.9	24.1	0.992
12-May-04	10:36:20	3967.9	24.1	0.992
12-May-04	10:36:40	3951.5	24.1	0.992
12-May-04	10:37:00	3924.6	24.2	0.992
12-May-04	10:37:20	3879.8	24.2	0.992
12-May-04	10:37:40	3841.2	24.2	0.992
12-May-04	10:38:00	3823.8	24.2	0.992
12-May-04	10:38:20	3837.6	24.2	0.992
12-May-04	10:38:40	3888.9	24.2	0.992
12-May-04	10:39:00	3941.7	24.3	0.992
12-May-04	10:39:20	3972.6	24.3	0.992
12-May-04	10:39:40	3984.3	24.3	0.992
12-May-04	10:40:00	3988.6	24.3	0.992
12-May-04	10:40:20	3978.9	24.2	0.992
12-May-04	10:40:40	3950.2	24.3	0.992
12-May-04	10:41:00	3910.1	24.3	0.992
12-May-04	10:41:20	3853.5	24.3	0.992
12-May-04	10:41:40	3790.1	24.4	0.992
12-May-04	10:42:00	3724.3	24.4	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
12-May-04	10:42:20	3654.9	24.4	0.992
12-May-04	10:42:40	3580.4	24.4	0.992
12-May-04	10:43:00	3500.9	24.5	0.992
12-May-04	10:43:20	3416.2	24.5	0.992
12-May-04	10:43:40	3332.5	24.5	0.992
12-May-04	10:44:00	3245.6	24.5	0.992
12-May-04	10:44:20	3159.7	24.4	0.992
12-May-04	10:44:40	3071.3	24.4	0.992
12-May-04	10:45:00	2987.5	24.4	0.992
12-May-04	10:45:20	2903.6	24.4	0.992
12-May-04	10:45:40	2824.3	24.4	0.992
12-May-04	10:46:00	2746.8	24.4	0.992
12-May-04	10:46:20	2668.1	24.4	0.992
12-May-04	10:46:40	2596.1	24.4	0.992
12-May-04	10:47:00	2517.4	24.4	0.992
12-May-04	10:47:20	2445.1	24.3	0.992
12-May-04	10:47:40	2373.2	24.3	0.992
12-May-04	10:48:00	2303.5	24.2	0.992
12-May-04	10:48:20	2235.9	24.2	0.992
12-May-04	10:48:40	2175.1	24.2	0.992
12-May-04	10:49:00	2120.4	24.2	0.992
12-May-04	10:49:20	2095.5	24.2	0.992
12-May-04	10:49:40	2096.8	24.2	0.992
12-May-04	10:50:00	2108.5	24.2	0.992
12-May-04	10:50:20	2117.3	24.2	0.992
12-May-04	10:50:40	2124.5	24.2	0.992
12-May-04	10:51:00	2125.9	24.2	0.992
12-May-04	10:51:20	2117.4	24.1	0.992
12-May-04	10:51:40	2109	24.1	0.992
12-May-04	10:52:00	2103.3	24.2	0.992
12-May-04	10:52:20	2092.2	24.2	0.992
12-May-04	10:52:40	2078.2	24.2	0.992
12-May-04	10:53:00	2055.5	24.1	0.992
12-May-04	10:53:20	2031.8	24.1	0.992
12-May-04	10:53:40	2007	24.1	0.992
12-May-04	10:54:00	1986.6	24.1	0.992
12-May-04	10:54:20	1958.9	24.1	0.992
12-May-04	10:54:40	1929.1	24.1	0.992
12-May-04	10:55:00	1894	24.1	0.992
12-May-04	10:55:20	1863.5	24.1	0.992
12-May-04	10:55:40	1834.2	24.1	0.992
12-May-04	10:56:00	1798	24.1	0.992
12-May-04	10:56:20	1762.3	24.1	0.992
12-May-04	10:56:40	1729.1	24.1	0.992
12-May-04	10:57:00	1692.7	24.1	0.992
12-May-04	10:57:20	1658.5	24.1	0.992
12-May-04	10:57:40	1625.7	24.1	0.992
12-May-04	10:58:00	1590.7	24.1	0.992
12-May-04	10:58:20	1553.7	24	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
12-May-04	10:58:40	1519.3	24	0.992	
12-May-04	10:59:00	1483.6	24	0.992	
12-May-04	10:59:20	1445.2	24	0.992	
12-May-04	10:59:40	1410.5	23.9	0.992	
12-May-04	11:00:00	1377.7	23.9	0.992	
12-May-04	11:00:20	1345.1	23.9	0.992	
12-May-04	11:00:40	1316.2	23.8	0.992	
12-May-04	11:01:00	1284	23.8	0.992	
12-May-04	11:01:20	1253	23.8	0.992	
12-May-04	11:01:40	1227	23.7	0.992	
12-May-04	11:02:00	1204.6	23.7	0.992	
12-May-04	11:02:20	1178.5	23.7	0.992	
12-May-04	11:02:40	1155.8	23.6	0.992	
12-May-04	11:03:00	1133.4	23.5	0.992	
12-May-04	11:03:20	1113	23.5	0.992	
12-May-04	11:03:40	1104.6	23.5	0.992	
12-May-04	11:04:00	1114.4	23.4	0.992	
12-May-04	11:04:20	1134.7	23.4	0.992	
12-May-04	11:04:40	1153.3	23.4	0.992	
12-May-04	11:05:00	1172	23.4	0.992	
12-May-04	11:05:20	1181.6	23.4	0.992	
12-May-04	11:05:40	1189.3	23.4	0.992	
12-May-04	11:06:00	1195.1	23.4	0.992	
12-May-04	11:06:20	1199.8	23.4	0.992	
12-May-04	11:06:40	1203.3	23.3	0.992	Stop Run # 2
Averages		2406.4	24.3	0.992	
13-May-04	9:06:00	1598.7	20.4	0.992	Start Run # 3
13-May-04	9:06:20	1588.1	20.4	0.992	
13-May-04	9:06:40	1571.5	20.4	0.992	
13-May-04	9:07:00	1554	20.4	0.992	
13-May-04	9:07:20	1536.6	20.4	0.992	
13-May-04	9:07:40	1518.2	20.4	0.992	
13-May-04	9:08:00	1494.3	20.4	0.992	
13-May-04	9:08:20	1470.2	20.4	0.992	
13-May-04	9:08:40	1455.6	20.4	0.992	
13-May-04	9:09:00	1470.1	20.5	0.992	
13-May-04	9:09:20	1488.8	20.5	0.992	
13-May-04	9:09:40	1503.1	20.6	0.992	
13-May-04	9:10:00	1514.9	20.6	0.992	
13-May-04	9:10:20	1517.2	20.6	0.992	
13-May-04	9:10:40	1513.6	20.7	0.992	
13-May-04	9:11:00	1507.3	20.7	0.992	
13-May-04	9:11:20	1500	20.7	0.992	
13-May-04	9:11:40	1492.8	20.7	0.992	
13-May-04	9:12:00	1483.6	20.7	0.992	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
13-May-04	9:12:20	1466.1	20.8	0.992
13-May-04	9:12:40	1449.3	20.8	0.992
13-May-04	9:13:00	1430	20.8	0.992
13-May-04	9:13:20	1407	20.8	0.992
13-May-04	9:13:40	1385.8	20.8	0.992
13-May-04	9:14:00	1362.5	20.8	0.992
13-May-04	9:14:20	1338.8	20.9	0.992
13-May-04	9:14:40	1316	20.9	0.992
13-May-04	9:15:00	1293.9	20.9	0.992
13-May-04	9:15:20	1271.2	20.9	0.992
13-May-04	9:15:40	1249.6	20.9	0.992
13-May-04	9:16:00	1226.7	20.9	0.992
13-May-04	9:16:20	1201.7	21	0.992
13-May-04	9:16:40	1179	21	0.992
13-May-04	9:17:00	1152.9	21.1	0.992
13-May-04	9:17:20	1128.4	21.1	0.992
13-May-04	9:17:40	1105.2	21.1	0.992
13-May-04	9:18:00	1081	21.1	0.992
13-May-04	9:18:20	1057.6	21.1	0.992
13-May-04	9:18:40	1034.4	21.1	0.992
13-May-04	9:19:00	1015.8	21.1	0.992
13-May-04	9:19:20	994.5	21.1	0.992
13-May-04	9:19:40	991.3	21.1	0.992
13-May-04	9:20:00	996.7	21.1	0.992
13-May-04	9:20:20	1011	21.2	0.992
13-May-04	9:20:40	1025	21.2	0.992
13-May-04	9:21:00	1037.7	21.2	0.992
13-May-04	9:21:20	1052.1	21.2	0.992
13-May-04	9:21:40	1064.9	21.2	0.992
13-May-04	9:22:00	1082.5	21.2	0.992
13-May-04	9:22:20	1099.6	21.2	0.992
13-May-04	9:22:40	1110.8	21.2	0.992
13-May-04	9:23:00	1120.1	21.1	0.992
13-May-04	9:23:20	1127.8	21.1	0.992
13-May-04	9:23:40	1136.8	21.1	0.992
13-May-04	9:24:00	1148.3	21.1	0.992
13-May-04	9:24:20	1161.5	21.1	0.992
13-May-04	9:24:40	1195.5	21.1	0.992
13-May-04	9:25:00	1258	21.1	0.992
13-May-04	9:25:20	1356.9	21.2	0.992
13-May-04	9:25:40	1479.5	21.2	0.992
13-May-04	9:26:00	1584.7	21.2	0.992
13-May-04	9:26:20	1673.6	21.2	0.992
13-May-04	9:26:40	1755.5	21.2	0.992
13-May-04	9:27:00	1819.5	21.2	0.992
13-May-04	9:27:20	1872.4	21.2	0.992
13-May-04	9:27:40	1920.3	21.2	0.992
13-May-04	9:28:00	1954.9	21.2	0.992
13-May-04	9:28:20	1974	21.2	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
13-May-04	9:28:40	1988.7	21.2	0.992
13-May-04	9:29:00	1991.2	21.2	0.992
13-May-04	9:29:20	1985.3	21.2	0.992
13-May-04	9:29:40	1978.1	21.2	0.992
13-May-04	9:30:00	1966.9	21.2	0.992
13-May-04	9:30:20	1948.9	21.2	0.992
13-May-04	9:30:40	1925.5	21.2	0.992
13-May-04	9:31:00	1900.8	21.2	0.992
13-May-04	9:31:20	1872.9	21.2	0.992
13-May-04	9:31:40	1846.7	21.2	0.992
13-May-04	9:32:00	1821.7	21.2	0.992
13-May-04	9:32:20	1792.1	21.2	0.992
13-May-04	9:32:40	1760.6	21.2	0.992
13-May-04	9:33:00	1728.3	21.2	0.992
13-May-04	9:33:20	1693.8	21.2	0.992
13-May-04	9:33:40	1663.8	21.2	0.992
13-May-04	9:34:00	1636.6	21.3	0.992
13-May-04	9:34:20	1602.5	21.2	0.992
13-May-04	9:34:40	1573.5	21.2	0.992
13-May-04	9:35:00	1546.6	21.3	0.992
13-May-04	9:35:20	1519.1	21.3	0.992
13-May-04	9:35:40	1503.9	21.3	0.992
13-May-04	9:36:00	1497.1	21.4	0.992
13-May-04	9:36:20	1508.4	21.4	0.992
13-May-04	9:36:40	1537.5	21.4	0.992
13-May-04	9:37:00	1571.6	21.4	0.992
13-May-04	9:37:20	1603.2	21.4	0.992
13-May-04	9:37:40	1634.4	21.4	0.992
13-May-04	9:38:00	1665.7	21.4	0.992
13-May-04	9:38:20	1690.6	21.4	0.992
13-May-04	9:38:40	1736	21.5	0.992
13-May-04	9:39:00	1812.6	21.5	0.992
13-May-04	9:39:20	1930.4	21.5	0.992
13-May-04	9:39:40	2065.6	21.5	0.992
13-May-04	9:40:00	2184.4	21.6	0.992
13-May-04	9:40:20	2276.6	21.6	0.992
13-May-04	9:40:40	2357.4	21.5	0.992
13-May-04	9:41:00	2410.5	21.5	0.992
13-May-04	9:41:20	2454.4	21.5	0.992
13-May-04	9:41:40	2495.7	21.5	0.992
13-May-04	9:42:00	2522.2	21.6	0.992
13-May-04	9:42:20	2533.3	21.6	0.992
13-May-04	9:42:40	2534.4	21.6	0.992
13-May-04	9:43:00	2527.1	21.6	0.992
13-May-04	9:43:20	2508.3	21.6	0.992
13-May-04	9:43:40	2483.4	21.6	0.992
13-May-04	9:44:00	2458.7	21.6	0.992
13-May-04	9:44:20	2425.2	21.6	0.992
13-May-04	9:44:40	2387.9	21.5	0.992

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
13-May-04	9:45:00	2351.2	21.5	0.992	
13-May-04	9:45:20	2307.8	21.5	0.992	
13-May-04	9:45:40	2271.4	21.4	0.992	
13-May-04	9:46:00	2225.9	21.4	0.992	
13-May-04	9:46:20	2176.3	21.4	0.992	
13-May-04	9:46:40	2129.3	21.4	0.992	
13-May-04	9:47:00	2080.2	21.4	0.992	
13-May-04	9:47:20	2031.9	21.4	0.992	
13-May-04	9:47:40	1983.3	21.4	0.992	
13-May-04	9:48:00	1935.2	21.4	0.992	
13-May-04	9:48:20	1887.4	21.4	0.992	
13-May-04	9:48:40	1845.2	21.3	0.992	
13-May-04	9:49:00	1795.7	21.3	0.992	
13-May-04	9:49:20	1744.3	21.3	0.992	
13-May-04	9:49:40	1701.7	21.2	0.992	
13-May-04	9:50:00	1671.7	21.2	0.992	
13-May-04	9:50:20	1663.3	21.2	0.992	
13-May-04	9:50:40	1668.9	21.2	0.992	
13-May-04	9:51:00	1684	21.3	0.992	
13-May-04	9:51:20	1696.5	21.2	0.992	
13-May-04	9:51:40	1713.6	21.3	0.992	
13-May-04	9:52:00	1730.2	21.3	0.992	
13-May-04	9:52:20	1741.5	21.3	0.992	
13-May-04	9:52:40	1745.9	21.3	0.992	
13-May-04	9:53:00	1745.8	21.3	0.992	
13-May-04	9:53:20	1745.7	21.3	0.992	
13-May-04	9:53:40	1744.8	21.4	0.992	
13-May-04	9:54:00	1742.4	21.4	0.992	
13-May-04	9:54:20	1735	21.4	0.992	
13-May-04	9:54:40	1726.8	21.5	0.992	
13-May-04	9:55:00	1712.2	21.5	0.992	
13-May-04	9:55:20	1695.5	21.5	0.992	
13-May-04	9:55:40	1682.2	21.5	0.992	
13-May-04	9:56:00	1666.7	21.5	0.992	
13-May-04	9:56:20	1643.5	21.5	0.992	
13-May-04	9:56:40	1622.5	21.5	0.992	
13-May-04	9:57:00	1599.7	21.4	0.992	
13-May-04	9:57:20	1576.9	21.4	0.992	
13-May-04	9:57:40	1554.6	21.4	0.992	Stop @ 958
13-May-04	10:02:00	1243.5	21.9	0.992	Start @ 1002
13-May-04	10:02:20	1226.9	21.9	0.992	
13-May-04	10:02:40	1210	21.9	0.992	
13-May-04	10:03:00	1194.3	22	0.992	
13-May-04	10:03:20	1190.9	22	0.992	
13-May-04	10:03:40	1198.2	22	0.992	
13-May-04	10:04:00	1206.2	22	0.992	
13-May-04	10:04:20	1223.6	22	0.992	
13-May-04	10:04:40	1255.5	22	0.992	
13-May-04	10:05:00	1297.8	22	0.992	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
13-May-04	10:05:20	1367.4	22.1	0.992	
13-May-04	10:05:40	1477.5	22.1	0.992	
13-May-04	10:06:00	1639.2	22.1	0.992	
13-May-04	10:06:20	1867.1	22.2	0.992	
13-May-04	10:06:40	2149.6	22.3	0.992	
13-May-04	10:07:00	2406	22.4	0.992	
13-May-04	10:07:20	2639.9	22.5	0.992	
13-May-04	10:07:40	2854.4	22.6	0.992	
13-May-04	10:08:00	3030.2	22.6	0.992	
13-May-04	10:08:20	3167.3	22.7	0.992	
13-May-04	10:08:40	3283.5	22.8	0.992	
13-May-04	10:09:00	3408.1	22.9	0.992	
13-May-04	10:09:20	3555.6	23	0.992	
13-May-04	10:09:40	3742.7	23	0.992	Stop Run # 3
Averages		1710.1	21.3	0.992	

APPENDIX A6

RMC CENTRAL MIX

PM_{10} TEOM DATA

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
19-May-04	8:10:00	228.9	23.2	1	Start Run # 1
19-May-04	8:10:20	253.2	23.2	1	
19-May-04	8:10:40	246.1	23.2	1	
19-May-04	8:11:00	282.3	23.2	1	
19-May-04	8:11:20	276.9	23.2	1	
19-May-04	8:11:40	269.1	23.2	1	
19-May-04	8:12:00	238.8	23.2	1	
19-May-04	8:12:20	217.7	23.2	1	
19-May-04	8:12:40	204.5	23.2	1	
19-May-04	8:13:00	224	23.2	1	
19-May-04	8:13:20	225.5	23.2	1	
19-May-04	8:13:40	221.3	23.2	1	
19-May-04	8:14:00	146.9	23.2	1	
19-May-04	8:14:20	94.5	23.2	1	
19-May-04	8:14:40	87.7	23.3	1	
19-May-04	8:15:00	77.1	23.3	1	
19-May-04	8:15:20	55.5	23.3	1	
19-May-04	8:15:40	77.2	23.3	1	
19-May-04	8:16:00	91.6	23.3	1	
19-May-04	8:16:20	73.8	23.3	1	
19-May-04	8:16:40	70.7	23.3	1	
19-May-04	8:17:00	100.7	23.3	1	
19-May-04	8:17:20	100.4	23.3	1	
19-May-04	8:17:40	101.5	23.4	1	
19-May-04	8:18:00	153.5	23.4	1	
19-May-04	8:18:20	186.4	23.4	1	
19-May-04	8:18:40	156.7	23.4	1	
19-May-04	8:19:00	155.9	23.4	1	
19-May-04	8:19:20	65.6	23.4	1	
19-May-04	8:19:40	72.1	23.5	1	
19-May-04	8:20:00	122.4	23.5	1	
19-May-04	8:20:20	175.7	23.5	1	
19-May-04	8:20:40	238.2	23.5	1	
19-May-04	8:21:00	226.6	23.5	1	
19-May-04	8:21:20	193.2	23.5	1	
19-May-04	8:21:40	127.1	23.5	1	
19-May-04	8:22:00	111.2	23.5	1	
19-May-04	8:22:20	85.5	23.5	1	
19-May-04	8:22:40	119.4	23.5	1	
19-May-04	8:23:00	119.1	23.6	1	
19-May-04	8:23:20	155.1	23.6	1	
19-May-04	8:23:40	200.9	23.6	1	
19-May-04	8:24:00	253.6	23.6	1	
19-May-04	8:24:20	240.9	23.6	1	
19-May-04	8:24:40	266.7	23.6	1	
19-May-04	8:25:00	282.1	23.6	1	
19-May-04	8:25:20	209.6	23.6	1	
19-May-04	8:25:40	161.4	23.7	1	
19-May-04	8:26:00	131.6	23.7	1	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	8:26:20	178.1	23.7	1
19-May-04	8:26:40	186.6	23.7	1
19-May-04	8:27:00	146.9	23.7	1
19-May-04	8:27:20	131.7	23.7	1
19-May-04	8:27:40	115.9	23.8	1
19-May-04	8:28:00	91.3	23.7	1
19-May-04	8:28:20	159.9	23.8	1
19-May-04	8:28:40	128	23.8	1
19-May-04	8:29:00	177.8	23.8	1
19-May-04	8:29:20	163.3	23.8	1
19-May-04	8:29:40	146.4	23.8	1
19-May-04	8:30:00	158.6	23.8	1
19-May-04	8:30:20	126.1	23.8	1
19-May-04	8:30:40	143.3	23.8	1
19-May-04	8:31:00	127.6	23.8	1
19-May-04	8:31:20	89.6	23.8	1
19-May-04	8:31:40	74.7	23.8	1
19-May-04	8:32:00	64.2	23.8	1
19-May-04	8:32:20	87	23.8	1
19-May-04	8:32:40	79.3	23.8	1
19-May-04	8:33:00	117.1	23.8	1
19-May-04	8:33:20	125.6	23.8	1
19-May-04	8:33:40	85.4	23.8	1
19-May-04	8:34:00	65.7	23.8	1
19-May-04	8:34:20	95.5	23.8	1
19-May-04	8:34:40	89.2	23.8	1
19-May-04	8:35:00	114.6	23.9	1
19-May-04	8:35:20	121.9	23.9	1
19-May-04	8:35:40	89.2	23.9	1
19-May-04	8:36:00	154.6	23.9	1
19-May-04	8:36:20	126.1	23.9	1
19-May-04	8:36:40	95.9	23.9	1
19-May-04	8:37:00	139.6	23.9	1
19-May-04	8:37:20	217.1	23.9	1
19-May-04	8:37:40	256.4	23.9	1
19-May-04	8:38:00	259.7	23.9	1
19-May-04	8:38:20	277.3	23.9	1
19-May-04	8:38:40	277.2	23.9	1
19-May-04	8:39:00	255.4	23.9	1
19-May-04	8:39:20	238.2	23.9	1
19-May-04	8:39:40	262.3	23.8	1
19-May-04	8:40:00	238.3	23.8	1
19-May-04	8:40:20	234.9	23.8	1
19-May-04	8:40:40	264.8	23.8	1.001
19-May-04	8:41:00	231.2	23.8	1
19-May-04	8:41:20	324.5	23.8	1
19-May-04	8:41:40	296.5	23.8	1
19-May-04	8:42:00	302.8	23.8	1
19-May-04	8:42:20	408.1	23.8	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	8:42:40	464.7	23.8	1
19-May-04	8:43:00	449.9	23.7	1
19-May-04	8:43:20	416.9	23.7	1
19-May-04	8:43:40	412.2	23.7	1
19-May-04	8:44:00	386.9	23.7	1
19-May-04	8:44:20	440.5	23.8	1
19-May-04	8:44:40	520.5	23.8	1
19-May-04	8:45:00	570.9	23.8	1
19-May-04	8:45:20	647.1	23.8	1
19-May-04	8:45:40	664.8	23.8	1
19-May-04	8:46:00	643.9	23.8	1
19-May-04	8:46:20	599.9	23.8	1
19-May-04	8:46:40	618.7	23.8	1
19-May-04	8:47:00	640.4	23.8	1
19-May-04	8:47:20	609	23.8	1
19-May-04	8:47:40	590.5	23.9	1
19-May-04	8:48:00	547	23.9	1
19-May-04	8:48:20	504.5	23.9	1
19-May-04	8:48:40	518.7	23.9	1
19-May-04	8:49:00	453.4	23.9	1
19-May-04	8:49:20	420.3	23.9	1
19-May-04	8:49:40	446.9	23.9	1
19-May-04	8:50:00	441.2	23.9	1
19-May-04	8:50:20	448.4	24	1
19-May-04	8:50:40	467.9	23.9	1
19-May-04	8:51:00	464.4	23.9	1
19-May-04	8:51:20	481	23.9	1
19-May-04	8:51:40	523.2	23.9	1
19-May-04	8:52:00	511.8	23.9	1
19-May-04	8:52:20	537	23.9	1
19-May-04	8:52:40	619.4	23.9	1
19-May-04	8:53:00	646.7	23.9	1
19-May-04	8:53:20	611.3	23.9	1
19-May-04	8:53:40	583.8	23.9	1
19-May-04	8:54:00	546.1	23.9	1
19-May-04	8:54:20	579.9	23.9	1
19-May-04	8:54:40	593.8	23.9	1
19-May-04	8:55:00	569.1	23.9	1
19-May-04	8:55:20	536	23.9	1
19-May-04	8:55:40	491.5	23.9	1
19-May-04	8:56:00	471.3	23.9	1
19-May-04	8:56:20	472	23.9	1
19-May-04	8:56:40	508.3	23.9	1
19-May-04	8:57:00	525.5	23.9	1
19-May-04	8:57:20	536.3	23.9	1
19-May-04	8:57:40	597.2	23.9	1
19-May-04	8:58:00	615.8	23.9	1
19-May-04	8:58:20	573	23.9	1
19-May-04	8:58:40	516.1	23.9	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
19-May-04	8:59:00	494.8	23.9	1	
19-May-04	8:59:20	474.3	23.9	1	
19-May-04	8:59:40	479.1	23.9	1	
19-May-04	9:00:00	513	23.9	1	
19-May-04	9:00:20	526	23.9	1	
19-May-04	9:00:40	535.1	23.9	1	
19-May-04	9:01:00	466	23.9	1	
19-May-04	9:01:20	429.1	23.9	1	
19-May-04	9:01:40	399.8	23.9	1	
19-May-04	9:02:00	421.2	23.9	1	
19-May-04	9:02:20	409.7	23.9	1	
19-May-04	9:02:40	398.3	23.9	1	
19-May-04	9:03:00	381.9	23.9	1	
19-May-04	9:03:20	362.6	23.9	1	
19-May-04	9:03:40	396.6	23.9	1	
19-May-04	9:04:00	406.5	23.9	1	
19-May-04	9:04:20	408.3	23.9	1	
19-May-04	9:04:40	407.7	23.9	1	
19-May-04	9:05:00	421.5	23.9	1	
19-May-04	9:05:20	425.7	23.9	1	
19-May-04	9:05:40	450.7	23.9	1	
19-May-04	9:06:00	465.2	23.9	1	
19-May-04	9:06:20	442.5	23.9	1	
19-May-04	9:06:40	408.6	23.9	1	
19-May-04	9:07:00	384.7	24	1	
19-May-04	9:07:20	371.3	24	1	
19-May-04	9:07:40	315.4	24	1	
19-May-04	9:08:00	290.4	24	1	
19-May-04	9:08:20	236	24	1	
19-May-04	9:08:40	218.6	24	1	
19-May-04	9:09:00	241.8	24	1	
19-May-04	9:09:20	269	24	1	
19-May-04	9:09:40	259.4	24	1	Stop Run # 1
Averages		309.2455556			
19-May-04	10:08:00	134.1	25.3	1.001	Start Run # 2
19-May-04	10:08:20	140.3	25.3	1.001	
19-May-04	10:08:40	116.2	25.3	1.001	
19-May-04	10:09:00	105.8	25.4	1.001	
19-May-04	10:09:20	185.8	25.4	1.001	
19-May-04	10:09:40	224.5	25.4	1.001	
19-May-04	10:10:00	134.2	25.4	1.001	
19-May-04	10:10:20	167.3	25.5	1.001	
19-May-04	10:10:40	157.4	25.5	1.001	
19-May-04	10:11:00	115.9	25.5	1.001	
19-May-04	10:11:20	143.6	25.6	1.001	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	10:11:40	120.6	25.6	1.001
19-May-04	10:12:00	133.5	25.6	1.001
19-May-04	10:12:20	122.6	25.6	1.001
19-May-04	10:12:40	150.8	25.6	1.001
19-May-04	10:13:00	177.2	25.6	1.001
19-May-04	10:13:20	218.5	25.6	1.001
19-May-04	10:13:40	200.8	25.7	1.001
19-May-04	10:14:00	173.3	25.7	1.001
19-May-04	10:14:20	125.9	25.7	1.001
19-May-04	10:14:40	143	25.7	1.001
19-May-04	10:15:00	143.2	25.7	1.001
19-May-04	10:15:20	157.8	25.7	1.001
19-May-04	10:15:40	176.4	25.7	1.001
19-May-04	10:16:00	164.8	25.7	1.001
19-May-04	10:16:20	166.6	25.7	1.001
19-May-04	10:16:40	155.6	25.7	1.001
19-May-04	10:17:00	157.2	25.7	1.001
19-May-04	10:17:20	164.9	25.8	1.001
19-May-04	10:17:40	156.5	25.8	1.001
19-May-04	10:18:00	211.3	25.8	1.001
19-May-04	10:18:20	147.1	25.8	1.001
19-May-04	10:18:40	193.4	25.8	1.001
19-May-04	10:19:00	203.4	25.8	1.001
19-May-04	10:19:20	180.2	25.8	1.001
19-May-04	10:19:40	216.5	25.8	1.001
19-May-04	10:20:00	184.9	25.8	1.001
19-May-04	10:20:20	186.9	25.8	1.001
19-May-04	10:20:40	203.1	25.8	1.001
19-May-04	10:21:00	184	25.8	1.001
19-May-04	10:21:20	179	25.8	1.001
19-May-04	10:21:40	169.7	25.8	1.001
19-May-04	10:22:00	216	25.8	1.001
19-May-04	10:22:20	202.5	25.8	1.001
19-May-04	10:22:40	194.6	25.8	1.001
19-May-04	10:23:00	183.5	25.8	1.001
19-May-04	10:23:20	192.6	25.8	1.001
19-May-04	10:23:40	144.5	25.8	1.001
19-May-04	10:24:00	90.7	25.8	1.001
19-May-04	10:24:20	144.4	25.8	1.001
19-May-04	10:24:40	156.7	25.8	1.001
19-May-04	10:25:00	153.2	25.8	1.001
19-May-04	10:25:20	159.9	25.8	1.001
19-May-04	10:25:40	119.6	25.8	1.001
19-May-04	10:26:00	98.6	25.9	1.001
19-May-04	10:26:20	109.5	25.9	1.001
19-May-04	10:26:40	145.8	25.9	1.001
19-May-04	10:27:00	147.6	25.9	1.001
19-May-04	10:27:20	126.3	25.9	1.001
19-May-04	10:27:40	163	25.9	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	10:28:00	110.1	25.9	1.001
19-May-04	10:28:20	124.6	25.9	1.001
19-May-04	10:28:40	152.7	25.9	1.001
19-May-04	10:29:00	164.2	25.9	1.001
19-May-04	10:29:20	102.4	25.9	1.001
19-May-04	10:29:40	71.7	25.9	1.001
19-May-04	10:30:00	71.7	25.9	1.001
19-May-04	10:30:20	50.1	25.8	1.001
19-May-04	10:30:40	66.3	25.8	1.001
19-May-04	10:31:00	88.9	25.9	1.001
19-May-04	10:31:20	88.9	25.9	1.001
19-May-04	10:31:40	139.6	25.9	1.001
19-May-04	10:32:00	167.8	25.9	1.001
19-May-04	10:32:20	195.5	25.9	1.001
19-May-04	10:32:40	200.6	25.9	1.001
19-May-04	10:33:00	197.3	25.9	1.001
19-May-04	10:33:20	235.4	25.9	1.001
19-May-04	10:33:40	231.1	25.9	1.001
19-May-04	10:34:00	221.6	25.9	1.001
19-May-04	10:34:20	211.2	25.9	1.001
19-May-04	10:34:40	142.5	25.9	1.001
19-May-04	10:35:00	124.1	25.9	1.001
19-May-04	10:35:20	164.5	25.9	1.001
19-May-04	10:35:40	201.3	25.9	1.001
19-May-04	10:36:00	228.2	25.9	1.001
19-May-04	10:36:20	204.7	25.9	1.001
19-May-04	10:36:40	234.1	25.9	1
19-May-04	10:37:00	250.9	25.9	1
19-May-04	10:37:20	242.5	25.9	1
19-May-04	10:37:40	244.4	25.9	1
19-May-04	10:38:00	288.2	25.9	1
19-May-04	10:38:20	306.4	25.9	1.001
19-May-04	10:38:40	322.1	25.9	1
19-May-04	10:39:00	315.5	25.9	1
19-May-04	10:39:20	310.4	25.9	1
19-May-04	10:39:40	361.2	25.9	1
19-May-04	10:40:00	375.6	25.9	1
19-May-04	10:40:20	354.2	26	1.001
19-May-04	10:40:40	384.8	25.9	1.001
19-May-04	10:41:00	376.1	26	1.001
19-May-04	10:41:20	392.7	25.9	1
19-May-04	10:41:40	378.6	25.9	1.001
19-May-04	10:42:00	420.5	26	1.001
19-May-04	10:42:20	418.6	26	1.001
19-May-04	10:42:40	387.8	26	1.001
19-May-04	10:43:00	369.6	26	1.001
19-May-04	10:43:20	334.6	26	1.001
19-May-04	10:43:40	334.1	26	1.001
19-May-04	10:44:00	329.5	26	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	10:44:20	290.8	26	1.001
19-May-04	10:44:40	328.2	26	1.001
19-May-04	10:45:00	300.2	26.1	1.001
19-May-04	10:45:20	316.3	26.1	1.001
19-May-04	10:45:40	332.5	26.1	1.001
19-May-04	10:46:00	333.5	26.1	1.001
19-May-04	10:46:20	308	26.1	1.001
19-May-04	10:46:40	293	26.1	1.001
19-May-04	10:47:00	255.8	26.2	1.001
19-May-04	10:47:20	282.8	26.2	1.001
19-May-04	10:47:40	315.9	26.2	1.001
19-May-04	10:48:00	300.6	26.2	1.001
19-May-04	10:48:20	263.6	26.2	1.001
19-May-04	10:48:40	263	26.2	1.001
19-May-04	10:49:00	256.3	26.3	1.001
19-May-04	10:49:20	271.9	26.3	1.001
19-May-04	10:49:40	219.7	26.3	1.001
19-May-04	10:50:00	201.1	26.3	1.001
19-May-04	10:50:20	173.7	26.3	1.001
19-May-04	10:50:40	187.4	26.3	1.001
19-May-04	10:51:00	140.6	26.4	1.001
19-May-04	10:51:20	118.3	26.4	1.001
19-May-04	10:51:40	90.6	26.4	1
19-May-04	10:52:00	135.3	26.4	1
19-May-04	10:52:20	128.1	26.4	1.001
19-May-04	10:52:40	172.9	26.5	1.001
19-May-04	10:53:00	171.4	26.5	1
19-May-04	10:53:20	195.8	26.5	1
19-May-04	10:53:40	201.1	26.5	1
19-May-04	10:54:00	189	26.5	1.001
19-May-04	10:54:20	151.8	26.6	1.001
19-May-04	10:54:40	177.8	26.6	1
19-May-04	10:55:00	188.4	26.6	1
19-May-04	10:55:20	175.9	26.6	1
19-May-04	10:55:40	187.6	26.6	1
19-May-04	10:56:00	177.4	26.6	1
19-May-04	10:56:20	200.1	26.6	1
19-May-04	10:56:40	248.1	26.7	1
19-May-04	10:57:00	281.1	26.7	1
19-May-04	10:57:20	276.7	26.7	1
19-May-04	10:57:40	286.2	26.7	1
19-May-04	10:58:00	294.6	26.7	1
19-May-04	10:58:20	324.6	26.8	1
19-May-04	10:58:40	403.9	26.8	1
19-May-04	10:59:00	482.8	26.8	1
19-May-04	10:59:20	500.8	26.9	1
19-May-04	10:59:40	494.5	26.9	1
19-May-04	11:00:00	494.9	26.9	1
19-May-04	11:00:20	463.6	26.9	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
19-May-04	11:00:40	377.8	27	1	
19-May-04	11:01:00	324.1	27	1	
19-May-04	11:01:20	351.4	27	1	
19-May-04	11:01:40	327.6	27	1	
19-May-04	11:02:00	250.1	27	1	
19-May-04	11:02:20	264.8	27	1	
19-May-04	11:02:40	304.2	27	1	Stop @ 1103
19-May-04	11:06:00	377.7	27	1	Start @ 1106
19-May-04	11:06:20	361.4	27	1	
19-May-04	11:06:40	351.2	27	1	
19-May-04	11:07:00	313.7	27	1	
19-May-04	11:07:20	262.8	27	1	
19-May-04	11:07:40	229	27	1	
19-May-04	11:08:00	217.8	27	1	
19-May-04	11:08:20	202.1	27	1	
19-May-04	11:08:40	252.7	27	1	
19-May-04	11:09:00	266.4	27	1	
19-May-04	11:09:20	247.6	27	1	
19-May-04	11:09:40	181.2	27	1	
19-May-04	11:10:00	195.5	27.1	1	
19-May-04	11:10:20	176.2	27.1	1	
19-May-04	11:10:40	161.4	27.1	1	
19-May-04	11:11:00	159.6	27.1	1	
19-May-04	11:11:20	199.6	27.1	1	
19-May-04	11:11:40	200.6	27.1	1	Stop Run # 2
Averages		222.6	26.1	1.001	
20-May-04	8:52:00	214.9	24.4	1.001	Start Run # 3
20-May-04	8:52:20	217.7	24.4	1.001	
20-May-04	8:52:40	219	24.4	1.001	
20-May-04	8:53:00	202.8	24.4	1.001	
20-May-04	8:53:20	216.9	24.4	1.001	
20-May-04	8:53:40	228.2	24.4	1.001	
20-May-04	8:54:00	208.1	24.5	1.001	
20-May-04	8:54:20	225	24.4	1.001	
20-May-04	8:54:40	208.3	24.5	1.001	
20-May-04	8:55:00	194.4	24.5	1.001	
20-May-04	8:55:20	209.7	24.5	1.001	
20-May-04	8:55:40	199.3	24.5	1.001	
20-May-04	8:56:00	181.2	24.5	1.001	
20-May-04	8:56:20	192.3	24.5	1.001	
20-May-04	8:56:40	141.8	24.5	1.001	
20-May-04	8:57:00	109.2	24.5	1.001	
20-May-04	8:57:20	86.3	24.5	1.001	
20-May-04	8:57:40	60.4	24.5	1.001	
20-May-04	8:58:00	82.8	24.5	1.001	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
20-May-04	8:58:20	109.4	24.5	1.001
20-May-04	8:58:40	117.5	24.5	1.001
20-May-04	8:59:00	155	24.6	1.001
20-May-04	8:59:20	173	24.5	1.001
20-May-04	8:59:40	207	24.6	1.001
20-May-04	9:00:00	182	24.5	1.001
20-May-04	9:00:20	188	24.6	1.001
20-May-04	9:00:40	184.7	24.5	1.001
20-May-04	9:01:00	130.9	24.5	1.001
20-May-04	9:01:20	140.7	24.5	1.001
20-May-04	9:01:40	154.4	24.5	1.001
20-May-04	9:02:00	184.2	24.6	1.001
20-May-04	9:02:20	237.7	24.6	1.001
20-May-04	9:02:40	251.7	24.6	1.001
20-May-04	9:03:00	259.3	24.6	1.001
20-May-04	9:03:20	252.9	24.6	1.001
20-May-04	9:03:40	282.3	24.6	1.001
20-May-04	9:04:00	262.2	24.6	1.001
20-May-04	9:04:20	236.3	24.6	1.001
20-May-04	9:04:40	196.4	24.6	1.001
20-May-04	9:05:00	221.6	24.6	1.001
20-May-04	9:05:20	211.1	24.6	1.001
20-May-04	9:05:40	178 2	24.6	1.001
20-May-04	9:06:00	178.5	24.6	1.001
20-May-04	9:06:20	160.8	24.6	1.001
20-May-04	9:06:40	114.2	24.6	1.001
20-May-04	9:07:00	106.8	24.7	1.001
20-May-04	9:07:20	93	24.7	1.001
20-May-04	9:07:40	97.3	24.7	1.001
20-May-04	9:08:00	79.5	24.7	1.001
20-May-04	9:08:20	113.3	24.7	1.001
20-May-04	9:08:40	118.1	24.7	1.001
20-May-04	9:09:00	112.7	24.7	1.001
20-May-04	9:09:20	128.9	24.7	1.001
20-May-04	9:09:40	157.1	24.8	1.001
20-May-04	9:10:00	153.4	24.7	1.001
20-May-04	9:10:20	176.1	24.8	1.001
20-May-04	9:10:40	210.9	24.8	1.001
20-May-04	9:11:00	222.4	24.8	1.001
20-May-04	9:11:20	249.6	24.8	1.001
20-May-04	9:11:40	273.5	24.8	1.001
20-May-04	9:12:00	282.4	24.8	1.001
20-May-04	9:12:20	258.1	24.9	1.001
20-May-04	9:12:40	257.3	24.9	1.001
20-May-04	9:13:00	271.1	24.9	1.001
20-May-04	9:13:20	292.5	24.9	1.001
20-May-04	9:13:40	279.3	24.9	1.001
20-May-04	9:14:00	229.4	24.9	1.001
20-May-04	9:14:20	236.7	24.9	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
20-May-04	9:14:40	253.5	24.9	1.001
20-May-04	9:15:00	236.5	24.9	1.001
20-May-04	9:15:20	273.4	24.9	1.001
20-May-04	9:15:40	339.6	24.9	1.001
20-May-04	9:16:00	324.1	24.9	1.001
20-May-04	9:16:20	322	25	1.001
20-May-04	9:16:40	326.6	25	1.001
20-May-04	9:17:00	295.3	25	1.001
20-May-04	9:17:20	261.3	25	1.001
20-May-04	9:17:40	233.6	25	1.001
20-May-04	9:18:00	221.7	25	1.001
20-May-04	9:18:20	233.4	25	1.001
20-May-04	9:18:40	212.6	25	1.001
20-May-04	9:19:00	202.7	25	1.001
20-May-04	9:19:20	223.5	25	1.001
20-May-04	9:19:40	251.2	25	1.001
20-May-04	9:20:00	254.6	25	1.001
20-May-04	9:20:20	241.3	25	1.001
20-May-04	9:20:40	220.3	25	1.001
20-May-04	9:21:00	194.7	25	1.001
20-May-04	9:21:20	199.8	25	1.001
20-May-04	9:21:40	214	25	1.001
20-May-04	9:22:00	214.2	25	1.001
20-May-04	9:22:20	209.1	25	1.001
20-May-04	9:22:40	208.3	25	1.001
20-May-04	9:23:00	193.8	25	1.001
20-May-04	9:23:20	222.3	25	1.001
20-May-04	9:23:40	198	25	1.001
20-May-04	9:24:00	191.1	25.1	1.001
20-May-04	9:24:20	193.6	25.1	1.001
20-May-04	9:24:40	205.2	25.1	1.001
20-May-04	9:25:00	207.5	25.1	1.001
20-May-04	9:25:20	192.5	25.1	1.001
20-May-04	9:25:40	161.4	25.1	1.001
20-May-04	9:26:00	174.2	25.1	1.001
20-May-04	9:26:20	182.8	25.1	1.001
20-May-04	9:26:40	180.8	25.1	1.001
20-May-04	9:27:00	184.5	25.1	1.001
20-May-04	9:27:20	180.5	25.1	1.001
20-May-04	9:27:40	172.7	25.1	1.001
20-May-04	9:28:00	189.8	25.1	1.001
20-May-04	9:28:20	150.6	25.1	1.001
20-May-04	9:28:40	196.7	25.1	1.001
20-May-04	9:29:00	220.9	25.1	1.001
20-May-04	9:29:20	207.9	25.2	1.001
20-May-04	9:29:40	216.8	25.2	1.001
20-May-04	9:30:00	203.3	25.2	1.001
20-May-04	9:30:20	190.9	25.2	1.001
20-May-04	9:30:40	146.4	25.2	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
20-May-04	9:31:00	141.8	25.2	1.001
20-May-04	9:31:20	149.7	25.2	1.001
20-May-04	9:31:40	161.8	25.2	1.001
20-May-04	9:32:00	138.1	25.2	1.001
20-May-04	9:32:20	153	25.2	1.001
20-May-04	9:32:40	175.4	25.2	1.001
20-May-04	9:33:00	190.1	25.2	1.001
20-May-04	9:33:20	215.3	25.2	1.001
20-May-04	9:33:40	218.7	25.2	1.001
20-May-04	9:34:00	204.4	25.2	1.001
20-May-04	9:34:20	196	25.2	1.001
20-May-04	9:34:40	236.5	25.2	1.001
20-May-04	9:35:00	218.8	25.2	1.001
20-May-04	9:35:20	174.8	25.2	1.001
20-May-04	9:35:40	143.4	25.2	1.001
20-May-04	9:36:00	115.3	25.2	1.001
20-May-04	9:36:20	100	25.2	1.001
20-May-04	9:36:40	97	25.2	1.001
20-May-04	9:37:00	116	25.2	1.001
20-May-04	9:37:20	110.4	25.2	1.001
20-May-04	9:37:40	131.9	25.2	1.001
20-May-04	9:38:00	167.2	25.2	1.001
20-May-04	9:38:20	173.2	25.2	1.001
20-May-04	9:38:40	198.3	25.2	1.001
20-May-04	9:39:00	191.8	25.2	1.001
20-May-04	9:39:20	185.1	25.2	1.001
20-May-04	9:39:40	199.2	25.2	1.001
20-May-04	9:40:00	226.9	25.2	1.001
20-May-04	9:40:20	254.5	25.2	1.001
20-May-04	9:40:40	230.5	25.2	1.001
20-May-04	9:41:00	238.8	25.2	1.001
20-May-04	9:41:20	243.4	25.2	1.001
20-May-04	9:41:40	245.9	25.2	1.001
20-May-04	9:42:00	243	25.2	1.001
20-May-04	9:42:20	216.7	25.2	1.001
20-May-04	9:42:40	218.6	25.3	1.001
20-May-04	9:43:00	216.1	25.3	1.001
20-May-04	9:43:20	221.4	25.3	1.001
20-May-04	9:43:40	218	25.3	1.001
20-May-04	9:44:00	201.2	25.4	1.001
20-May-04	9:44:20	163.9	25.4	1.001
20-May-04	9:44:40	159.5	25.4	1.001
20-May-04	9:45:00	151.4	25.4	1.001
20-May-04	9:45:20	147.5	25.4	1.001
20-May-04	9:45:40	196.9	25.4	1.001
20-May-04	9:46:00	176.3	25.4	1.001
20-May-04	9:46:20	189.8	25.5	1.001
20-May-04	9:46:40	185.2	25.5	1.001
20-May-04	9:47:00	179.2	25.5	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
20-May-04	9:47:20	183.5	25.5	1.001	
20-May-04	9:47:40	185.6	25.5	1.001	
20-May-04	9:48:00	157.5	25.5	1.001	
20-May-04	9:48:20	160.4	25.5	1.001	
20-May-04	9:48:40	179.8	25.6	1.001	
20-May-04	9:49:00	185.6	25.6	1.001	
20-May-04	9:49:20	156.9	25.6	1.001	
20-May-04	9:49:40	157	25.6	1.001	
20-May-04	9:50:00	141.3	25.6	1.001	
20-May-04	9:50:20	151.7	25.7	1.001	
20-May-04	9:50:40	167.1	25.7	1.001	
20-May-04	9:51:00	164.2	25.7	1.001	
20-May-04	9:51:20	171.5	25.7	1.001	
20-May-04	9:51:40	181.8	25.7	1.001	
20-May-04	9:52:00	179.6	25.8	1.001	
20-May-04	9:52:20	159.3	25.8	1.001	
20-May-04	9:52:40	161.6	25.8	1.001	Stop Run # 3
Averages		193.3	25.0	1.001	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
19-May-04	8:10:00	111.7	23	1	Start Run # 1
19-May-04	8:10:20	111.2	23	1	
19-May-04	8:10:40	109.4	22.9	1	
19-May-04	8:11:00	110	22.9	1	
19-May-04	8:11:20	108.6	22.8	1	
19-May-04	8:11:40	100.9	22.8	1	
19-May-04	8:12:00	98.2	22.9	1	
19-May-04	8:12:20	94.3	22.9	1	
19-May-04	8:12:40	93.2	22.9	1	
19-May-04	8:13:00	91.2	23	1	
19-May-04	8:13:20	92.4	23	1	
19-May-04	8:13:40	96.1	23	1	
19-May-04	8:14:00	95.7	22.9	1	
19-May-04	8:14:20	95.2	22.9	1	
19-May-04	8:14:40	95.4	22.9	1	
19-May-04	8:15:00	98.2	23	1	
19-May-04	8:15:20	100.8	23	1	
19-May-04	8:15:40	103.6	23.1	1	
19-May-04	8:16:00	101.9	23.1	1	
19-May-04	8:16:20	101.3	23.1	1	
19-May-04	8:16:40	96.4	23.1	1	
19-May-04	8:17:00	93.3	23.2	1	
19-May-04	8:17:20	90.5	23.2	1	
19-May-04	8:17:40	88.7	23.3	1	
19-May-04	8:18:00	89.9	23.3	1	
19-May-04	8:18:20	89	23.3	1	
19-May-04	8:18:40	91.1	23.3	1	
19-May-04	8:19:00	93.9	23.4	1	
19-May-04	8:19:20	94.6	23.4	1	
19-May-04	8:19:40	98.5	23.4	1	
19-May-04	8:20:00	101	23.4	1	
19-May-04	8:20:20	101.9	23.4	1	
19-May-04	8:20:40	103.5	23.5	1	
19-May-04	8:21:00	105	23.5	1	
19-May-04	8:21:20	102.3	23.5	1	
19-May-04	8:21:40	104.6	23.4	1	
19-May-04	8:22:00	104.1	23.4	1	
19-May-04	8:22:20	100.6	23.4	1	
19-May-04	8:22:40	97.7	23.4	1	
19-May-04	8:23:00	94.4	23.5	1	
19-May-04	8:23:20	94.3	23.5	1	
19-May-04	8:23:40	91.9	23.5	1	
19-May-04	8:24:00	96.8	23.5	1	
19-May-04	8:24:20	96.4	23.5	1	
19-May-04	8:24:40	94.5	23.5	1	
19-May-04	8:25:00	93.6	23.6	1	
19-May-04	8:25:20	92.9	23.6	1	
19-May-04	8:25:40	91.1	23.6	1	
19-May-04	8:26:00	92.2	23.6	1	
19-May-04	8:26:20	94.3	23.6	1	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	8:26:40	91.9	23.7	1
19-May-04	8:27:00	91.4	23.7	1
19-May-04	8:27:20	90.2	23.7	1
19-May-04	8:27:40	90.6	23.7	1
19-May-04	8:28:00	92.3	23.7	1
19-May-04	8:28:20	96.2	23.7	1
19-May-04	8:28:40	95.4	23.7	1
19-May-04	8:29:00	96.9	23.8	1
19-May-04	8:29:20	96.9	23.8	1
19-May-04	8:29:40	95.7	23.8	1
19-May-04	8:30:00	96.4	23.8	1
19-May-04	8:30:20	99.2	23.7	1
19-May-04	8:30:40	100.6	23.7	1
19-May-04	8:31:00	97.4	23.7	1
19-May-04	8:31:20	100	23.7	1
19-May-04	8:31:40	105	23.7	1
19-May-04	8:32:00	106.9	23.7	1
19-May-04	8:32:20	107.9	23.7	1
19-May-04	8:32:40	106.9	23.7	1
19-May-04	8:33:00	107.4	23.7	1
19-May-04	8:33:20	110.8	23.7	1
19-May-04	8:33:40	112.4	23.7	1
19-May-04	8:34:00	113	23.6	1
19-May-04	8:34:20	109.5	23.6	1
19-May-04	8:34:40	104.5	23.6	1
19-May-04	8:35:00	106.2	23.6	1
19-May-04	8:35:20	102.8	23.6	1
19-May-04	8:35:40	99.8	23.6	1
19-May-04	8:36:00	100.7	23.6	1
19-May-04	8:36:20	98.7	23.6	1
19-May-04	8:36:40	104.1	23.6	1
19-May-04	8:37:00	103.3	23.6	1
19-May-04	8:37:20	99	23.6	1
19-May-04	8:37:40	99.7	23.6	1
19-May-04	8:38:00	101.3	23.5	1
19-May-04	8:38:20	96.2	23.5	1
19-May-04	8:38:40	90.2	23.5	1
19-May-04	8:39:00	82.3	23.5	1
19-May-04	8:39:20	81.3	23.5	1
19-May-04	8:39:40	84.6	23.5	1
19-May-04	8:40:00	84.2	23.5	1
19-May-04	8:40:20	88.3	23.5	1
19-May-04	8:40:40	89.1	23.5	1
19-May-04	8:41:00	89.9	23.5	1
19-May-04	8:41:20	91.9	23.5	1
19-May-04	8:41:40	92	23.5	1
19-May-04	8:42:00	87.9	23.5	1
19-May-04	8:42:20	90.4	23.5	1
19-May-04	8:42:40	96.9	23.5	1
19-May-04	8:43:00	97.6	23.4	1

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	8:43:20	96.1	23.5	1
19-May-04	8:43:40	99.8	23.4	1
19-May-04	8:44:00	100.1	23.4	1
19-May-04	8:44:20	100.6	23.4	1
19-May-04	8:44:40	102.5	23.5	1
19-May-04	8:45:00	104.5	23.5	1
19-May-04	8:45:20	108.5	23.5	1
19-May-04	8:45:40	107	23.5	1
19-May-04	8:46:00	107.4	23.5	1
19-May-04	8:46:20	106.9	23.5	1
19-May-04	8:46:40	105	23.5	1
19-May-04	8:47:00	107.7	23.6	1
19-May-04	8:47:20	112.1	23.6	1
19-May-04	8:47:40	109.2	23.6	1
19-May-04	8:48:00	110.8	23.6	1
19-May-04	8:48:20	109.9	23.6	1
19-May-04	8:48:40	110.7	23.7	1
19-May-04	8:49:00	106.6	23.7	1
19-May-04	8:49:20	102.5	23.8	1
19-May-04	8:49:40	103	23.8	1
19-May-04	8:50:00	104.2	23.8	1
19-May-04	8:50:20	104.1	23.8	1
19-May-04	8:50:40	105.5	23.7	1
19-May-04	8:51:00	103.8	23.7	1
19-May-04	8:51:20	102.7	23.7	1
19-May-04	8:51:40	100.4	23.7	1
19-May-04	8:52:00	103.9	23.7	1
19-May-04	8:52:20	104.1	23.8	1
19-May-04	8:52:40	105.2	23.8	1
19-May-04	8:53:00	102.7	23.8	1
19-May-04	8:53:20	103.2	23.8	1
19-May-04	8:53:40	107.7	23.8	1
19-May-04	8:54:00	105.7	23.8	1.001
19-May-04	8:54:20	105.8	23.8	1.001
19-May-04	8:54:40	104.6	23.8	1.001
19-May-04	8:55:00	102.5	23.8	1.001
19-May-04	8:55:20	103.5	23.8	1.001
19-May-04	8:55:40	106.4	23.8	1.001
19-May-04	8:56:00	106.5	23.8	1.001
19-May-04	8:56:20	109.3	23.8	1.001
19-May-04	8:56:40	110.8	23.8	1.001
19-May-04	8:57:00	113.3	23.8	1.001
19-May-04	8:57:20	114.5	23.8	1.001
19-May-04	8:57:40	115.8	23.7	1.001
19-May-04	8:58:00	115.2	23.7	1.001
19-May-04	8:58:20	116.3	23.7	1.001
19-May-04	8:58:40	116.5	23.7	1.001
19-May-04	8:59:00	117.1	23.7	1.001
19-May-04	8:59:20	114.2	23.7	1.001
19-May-04	8:59:40	109.6	23.7	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
19-May-04	9:00:00	104.2	23.7	1.001	
19-May-04	9:00:20	101	23.7	1.001	
19-May-04	9:00:40	99.6	23.6	1.001	
19-May-04	9:01:00	97.8	23.6	1.001	
19-May-04	9:01:20	98.9	23.6	1.001	
19-May-04	9:01:40	98	23.6	1.001	
19-May-04	9:02:00	101.3	23.6	1.001	
19-May-04	9:02:20	103.3	23.5	1.001	
19-May-04	9:02:40	105.5	23.5	1.001	
19-May-04	9:03:00	105.7	23.5	1.001	
19-May-04	9:03:20	105.7	23.5	1.001	
19-May-04	9:03:40	106.3	23.5	1.001	
19-May-04	9:04:00	107.1	23.5	1.001	
19-May-04	9:04:20	107.1	23.5	1.001	
19-May-04	9:04:40	105.9	23.6	1.001	
19-May-04	9:05:00	107.4	23.5	1.001	
19-May-04	9:05:20	110.8	23.6	1.001	
19-May-04	9:05:40	114.2	23.6	1.001	
19-May-04	9:06:00	116.4	23.6	1.001	
19-May-04	9:06:20	112.7	23.7	1.001	
19-May-04	9:06:40	112.2	23.7	1.001	
19-May-04	9:07:00	114.7	23.7	1.001	
19-May-04	9:07:20	114.1	23.7	1.001	
19-May-04	9:07:40	113.9	23.7	1.001	
19-May-04	9:08:00	110.8	23.7	1.001	
19-May-04	9:08:20	112.2	23.7	1.001	
19-May-04	9:08:40	110.9	23.7	1.001	
19-May-04	9:09:00	112.9	23.7	1.001	
19-May-04	9:09:20	115	23.7	1.001	
19-May-04	9:09:40	109.6	23.7	1.001	Stop Run # 1
Averages		101.9	23.5	1.000	
19-May-04	10:08:00	116.5	25.2	1.001	Start Run # 2
19-May-04	10:08:20	117	25.3	1.001	
19-May-04	10:08:40	118.4	25.3	1.001	
19-May-04	10:09:00	121.9	25.4	1.001	
19-May-04	10:09:20	120.2	25.4	1.001	
19-May-04	10:09:40	123.7	25.5	1.001	
19-May-04	10:10:00	124	25.5	1.001	
19-May-04	10:10:20	124.7	25.6	1.001	
19-May-04	10:10:40	127.1	25.5	1.001	
19-May-04	10:11:00	122.3	25.5	1.001	
19-May-04	10:11:20	123.9	25.5	1.001	
19-May-04	10:11:40	123.2	25.5	1.001	
19-May-04	10:12:00	123.2	25.5	1.001	
19-May-04	10:12:20	121.2	25.5	1.001	
19-May-04	10:12:40	121.8	25.5	1.001	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	10:13:00	118.7	25.5	1.001
19-May-04	10:13:20	122.5	25.5	1.001
19-May-04	10:13:40	126.7	25.6	1.001
19-May-04	10:14:00	129.9	25.6	1.001
19-May-04	10:14:20	127	25.6	1.001
19-May-04	10:14:40	125.3	25.6	1.001
19-May-04	10:15:00	121.8	25.6	1.001
19-May-04	10:15:20	117.9	25.6	1.001
19-May-04	10:15:40	113.9	25.6	1.001
19-May-04	10:16:00	113.2	25.6	1.001
19-May-04	10:16:20	114.9	25.6	1.001
19-May-04	10:16:40	116.4	25.6	1.001
19-May-04	10:17:00	118.6	25.6	1.001
19-May-04	10:17:20	115.2	25.6	1.001
19-May-04	10:17:40	115.4	25.6	1.001
19-May-04	10:18:00	115.3	25.6	1.001
19-May-04	10:18:20	113.2	25.6	1.001
19-May-04	10:18:40	111.7	25.6	1.001
19-May-04	10:19:00	110.4	25.6	1.001
19-May-04	10:19:20	105.9	25.6	1.001
19-May-04	10:19:40	106.3	25.6	1.001
19-May-04	10:20:00	103.3	25.6	1.001
19-May-04	10:20:20	105.9	25.6	1.001
19-May-04	10:20:40	108.8	25.6	1.001
19-May-04	10:21:00	107.7	25.6	1.001
19-May-04	10:21:20	105.6	25.5	1.001
19-May-04	10:21:40	104.5	25.6	1.001
19-May-04	10:22:00	107	25.5	1.001
19-May-04	10:22:20	108.7	25.5	1.001
19-May-04	10:22:40	107.9	25.6	1.001
19-May-04	10:23:00	106.1	25.6	1.001
19-May-04	10:23:20	111.7	25.6	1.001
19-May-04	10:23:40	111.1	25.6	1.001
19-May-04	10:24:00	110.8	25.5	1.001
19-May-04	10:24:20	109 9	25.5	1.001
19-May-04	10:24:40	110.2	25.6	1.001
19-May-04	10:25:00	113.5	25.6	1.001
19-May-04	10:25:20	116.5	25.6	1.001
19-May-04	10:25:40	117.6	25.6	1.001
19-May-04	10:26:00	116	25.6	1.001
19-May-04	10:26:20	114.3	25.7	1.001
19-May-04	10:26:40	118.4	25.7	1.001
19-May-04	10:27:00	119	25.7	1.001
19-May-04	10:27:20	119.1	25.7	1.001
19-May-04	10:27:40	120.3	25.7	1.001
19-May-04	10:28:00	118.4	25.6	1.001
19-May-04	10:28:20	118.2	25.6	1.001
19-May-04	10:28:40	116.6	25.6	1.001
19-May-04	10:29:00	115.4	25.6	1.001
19-May-04	10:29:20	114.5	25.6	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
19-May-04	10:29:40	118.4	25.5	1.001
19-May-04	10:30:00	118.8	25.6	1.001
19-May-04	10:30:20	120.3	25.6	1.001
19-May-04	10:30:40	122	25.6	1.001
19-May-04	10:31:00	123.9	25.6	1.001
19-May-04	10:31:20	123.3	25.6	1.001
19-May-04	10:31:40	121.3	25.6	1.001
19-May-04	10:32:00	121.6	25.6	1.001
19-May-04	10:32:20	122.3	25.6	1.001
19-May-04	10:32:40	120.2	25.6	1.001
19-May-04	10:33:00	120.1	25.6	1.001
19-May-04	10:33:20	117.7	25.6	1.001
19-May-04	10:33:40	121.8	25.6	1.001
19-May-04	10:34:00	124.5	25.6	1.001
19-May-04	10:34:20	121.2	25.6	1.001
19-May-04	10:34:40	118.4	25.6	1.001
19-May-04	10:35:00	119	25.6	1.001
19-May-04	10:35:20	117.1	25.6	1.001
19-May-04	10:35:40	114.8	25.6	1.001
19-May-04	10:36:00	115.6	25.6	1.001
19-May-04	10:36:20	116.3	25.7	1.001
19-May-04	10:36:40	119.3	25.7	1.001
19-May-04	10:37:00	118.9	25.7	1.001
19-May-04	10:37:20	120	25.7	1.001
19-May-04	10:37:40	121.5	25.7	1.001
19-May-04	10:38:00	119.2	25.6	1.001
19-May-04	10:38:20	117.6	25.7	1.001
19-May-04	10:38:40	116.8	25.6	1.001
19-May-04	10:39:00	118	25.7	1.001
19-May-04	10:39:20	121.5	25.7	1.001
19-May-04	10:39:40	120.2	25.7	1.001
19-May-04	10:40:00	115.9	25.7	1.001
19-May-04	10:40:20	117.5	25.8	1.001
19-May-04	10:40:40	119.9	25.8	1.001
19-May-04	10:41:00	121.1	25.8	1.001
19-May-04	10:41:20	118.5	25.8	1.001
19-May-04	10:41:40	116.4	25.8	1.001
19-May-04	10:42:00	113	25.9	1.001
19-May-04	10:42:20	110.1	25.9	1.001
19-May-04	10:42:40	107.5	25.9	1.001
19-May-04	10:43:00	113.7	25.9	1.001
19-May-04	10:43:20	114.1	25.9	1.001
19-May-04	10:43:40	110.9	26	1.001
19-May-04	10:44:00	109.4	26	1.001
19-May-04	10:44:20	113	26	1.001
19-May-04	10:44:40	113.9	26.1	1.001
19-May-04	10:45:00	112.3	26.1	1.001
19-May-04	10:45:20	111.2	26.1	1.001
19-May-04	10:45:40	111.2	26.1	1.001
19-May-04	10:46:00	110.1	26.2	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
19-May-04	10:46:20	110.1	26.2	1.001	
19-May-04	10:46:40	112	26.2	1.001	
19-May-04	10:47:00	112.8	26.2	1.001	
19-May-04	10:47:20	115.8	26.3	1.001	
19-May-04	10:47:40	117.8	26.3	1.001	
19-May-04	10:48:00	117.2	26.3	1.001	
19-May-04	10:48:20	118	26.4	1.001	
19-May-04	10:48:40	120.8	26.4	1.001	
19-May-04	10:49:00	121.3	26.4	1.001	
19-May-04	10:49:20	118.7	26.4	1.001	
19-May-04	10:49:40	118.1	26.4	1.001	
19-May-04	10:50:00	117.9	26.4	1.001	
19-May-04	10:50:20	117.7	26.4	1.001	
19-May-04	10:50:40	119.1	26.4	1.001	
19-May-04	10:51:00	121.6	26.4	1.001	
19-May-04	10:51:20	125.3	26.5	1.001	
19-May-04	10:51:40	127.2	26.5	1.001	
19-May-04	10:52:00	127.9	26.5	1.001	
19-May-04	10:52:20	127.1	26.5	1.001	
19-May-04	10:52:40	126.3	26.6	1.001	
19-May-04	10:53:00	124.9	26.6	1.001	
19-May-04	10:53:20	128.3	26.6	1.001	
19-May-04	10:53:40	131.7	26.7	1.001	
19-May-04	10:54:00	131.6	26.7	1.001	
19-May-04	10:54:20	130.2	26.7	1.001	
19-May-04	10:54:40	126.4	26.7	1.001	
19-May-04	10:55:00	126.3	26.7	1.001	
19-May-04	10:55:20	122.7	26.8	1.001	
19-May-04	10:55:40	118.6	26.8	1.001	
19-May-04	10:56:00	120.8	26.8	1.001	
19-May-04	10:56:20	115.4	26.8	1.001	
19-May-04	10:56:40	113.9	26.8	1.001	
19-May-04	10:57:00	114.5	26.8	1.001	
19-May-04	10:57:20	111.9	26.8	1.001	
19-May-04	10:57:40	110.7	26.8	1.001	
19-May-04	10:58:00	108.3	26.9	1.001	
19-May-04	10:58:20	106.6	26.9	1.001	
19-May-04	10:58:40	105.2	27	1	
19-May-04	10:59:00	106.5	27	1	
19-May-04	10:59:20	109.1	27	1	
19-May-04	10:59:40	108.9	27	1.001	
19-May-04	11:00:00	109.3	27	1.001	
19-May-04	11:00:20	109	27	1.001	
19-May-04	11:00:40	107.2	27	1	
19-May-04	11:01:00	107.1	27.1	1	
19-May-04	11:01:20	108	27.1	1	
19-May-04	11:01:40	110.9	27.1	1	
19-May-04	11:02:00	111.3	27.1	1.001	
19-May-04	11:02:20	113.9	27.1	1.001	
19-May-04	11:02:40	114.5	27.1	1.001	Stop @ 1103

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
19-May-04	11:06:00	111.6	26.9	1	Start @ 1106
19-May-04	11:06:20	109.9	26.9	1	
19-May-04	11:06:40	111.4	27	1	
19-May-04	11:07:00	113	27	1	
19-May-04	11:07:20	114.3	27	1	
19-May-04	11:07:40	115.9	27	1	
19-May-04	11:08:00	115.8	27	1	
19-May-04	11:08:20	118	27	1	
19-May-04	11:08:40	119.2	27	1	
19-May-04	11:09:00	123	27	1	
19-May-04	11:09:20	122.8	27	1	
19-May-04	11:09:40	119.7	27.1	1	
19-May-04	11:10:00	122.5	27.1	1	
19-May-04	11:10:20	124.3	27.1	1	
19-May-04	11:10:40	125.4	27.1	1	
19-May-04	11:11:00	125.2	27.2	1	
19-May-04	11:11:20	130.7	27.1	1	
19-May-04	11:11:40	132.7	27.1	1	Stop Run # 2
Averages		117.1005464			
20-May-04	8:52:00	103.7	23.7	1.001	Start Run # 3
20-May-04	8:52:20	102.6	23.7	1.001	
20-May-04	8:52:40	105.8	23.7	1.001	
20-May-04	8:53:00	106.4	23.7	1.001	
20-May-04	8:53:20	104.5	23.7	1.001	
20-May-04	8:53:40	107.1	23.7	1.001	
20-May-04	8:54:00	109.5	23.7	1.001	
20-May-04	8:54:20	106.1	23.7	1.001	
20-May-04	8:54:40	103.8	23.7	1.001	
20-May-04	8:55:00	102.9	23.8	1.001	
20-May-04	8:55:20	102	23.8	1.001	
20-May-04	8:55:40	101.8	23.8	1.001	
20-May-04	8:56:00	100	23.8	1.001	
20-May-04	8:56:20	97.5	23.9	1.001	
20-May-04	8:56:40	94	23.9	1.001	
20-May-04	8:57:00	89.8	23.9	1.001	
20-May-04	8:57:20	91.7	23.9	1.001	
20-May-04	8:57:40	91.4	23.9	1.001	
20-May-04	8:58:00	94.2	23.9	1.001	
20-May-04	8:58:20	95.1	23.9	1.001	
20-May-04	8:58:40	95.2	23.9	1.001	
20-May-04	8:59:00	96.7	23.9	1.001	
20-May-04	8:59:20	94.9	23.9	1.001	
20-May-04	8:59:40	97	23.9	1.001	
20-May-04	9:00:00	94.7	23.9	1.001	
20-May-04	9:00:20	93.9	23.9	1.001	
20-May-04	9:00:40	94.8	23.9	1.001	

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
20-May-04	9:01:00	97.4	23.9	1.001
20-May-04	9:01:20	95.6	23.9	1.001
20-May-04	9:01:40	95.5	23.9	1.001
20-May-04	9:02:00	92.6	23.9	1.001
20-May-04	9:02:20	90.3	23.9	1.001
20-May-04	9:02:40	89.5	23.9	1.001
20-May-04	9:03:00	88.5	23.8	1.001
20-May-04	9:03:20	89.3	23.8	1.001
20-May-04	9:03:40	86.3	23.8	1.001
20-May-04	9:04:00	83.9	23.8	1.001
20-May-04	9:04:20	85.5	23.8	1.001
20-May-04	9:04:40	89.5	23.8	1.001
20-May-04	9:05:00	88.8	23.9	1.001
20-May-04	9:05:20	87.1	23.9	1.001
20-May-04	9:05:40	86.8	24	1.001
20-May-04	9:06:00	86.3	24	1.001
20-May-04	9:06:20	86	24	1.001
20-May-04	9:06:40	86.6	24	1.001
20-May-04	9:07:00	84.5	24.1	1.001
20-May-04	9:07:20	85.5	24.1	1.001
20-May-04	9:07:40	86.8	24.1	1.001
20-May-04	9:08:00	88.7	24.1	1.001
20-May-04	9:08:20	88.5	24.1	1.001
20-May-04	9:08:40	90.3	24.2	1.001
20-May-04	9:09:00	90.5	24.2	1.001
20-May-04	9:09:20	90.2	24.3	1.001
20-May-04	9:09:40	92	24.3	1.001
20-May-04	9:10:00	93.2	24.3	1.001
20-May-04	9:10:20	93.7	24.3	1.001
20-May-04	9:10:40	93.7	24.2	1.001
20-May-04	9:11:00	92.4	24.2	1.001
20-May-04	9:11:20	94.2	24.3	1.001
20-May-04	9:11:40	93.5	24.3	1.001
20-May-04	9:12:00	92.9	24.3	1.001
20-May-04	9:12:20	93.1	24.4	1.001
20-May-04	9:12:40	91.9	24.4	1.001
20-May-04	9:13:00	91.4	24.4	1.001
20-May-04	9:13:20	91.4	24.4	1.001
20-May-04	9:13:40	91.2	24.4	1.001
20-May-04	9:14:00	91.8	24.4	1.001
20-May-04	9:14:20	92.9	24.4	1.001
20-May-04	9:14:40	92.8	24.4	1.001
20-May-04	9:15:00	91	24.4	1.001
20-May-04	9:15:20	90	24.4	1.001
20-May-04	9:15:40	90.5	24.4	1.001
20-May-04	9:16:00	91.9	24.3	1.001
20-May-04	9:16:20	91.5	24.3	1.001
20-May-04	9:16:40	90.2	24.3	1.001
20-May-04	9:17:00	92.9	24.3	1.001
20-May-04	9:17:20	92.8	24.3	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
20-May-04	9:17:40	89.9	24.3	1.001
20-May-04	9:18:00	89.2	24.4	1.001
20-May-04	9:18:20	88.2	24.4	1.001
20-May-04	9:18:40	87.8	24.5	1.001
20-May-04	9:19:00	86.4	24.5	1.001
20-May-04	9:19:20	87	24.6	1.001
20-May-04	9:19:40	86.9	24.6	1.001
20-May-04	9:20:00	86.2	24.7	1.001
20-May-04	9:20:20	85	24.7	1.001
20-May-04	9:20:40	83.5	24.7	1.001
20-May-04	9:21:00	82.8	24.7	1.001
20-May-04	9:21:20	82.4	24.6	1.001
20-May-04	9:21:40	80.8	24.6	1.001
20-May-04	9:22:00	80.4	24.6	1.001
20-May-04	9:22:20	77.9	24.7	1.001
20-May-04	9:22:40	76.9	24.7	1.001
20-May-04	9:23:00	77	24.8	1.001
20-May-04	9:23:20	77	24.8	1.001
20-May-04	9:23:40	78.3	24.8	1.001
20-May-04	9:24:00	78.2	24.9	1.001
20-May-04	9:24:20	79	24.9	1.001
20-May-04	9:24:40	80.8	25	1.001
20-May-04	9:25:00	80.5	25	1.001
20-May-04	9:25:20	81.3	25	1.001
20-May-04	9:25:40	83.4	25	1.001
20-May-04	9:26:00	84.3	25	1.001
20-May-04	9:26:20	87	25	1.001
20-May-04	9:26:40	90.3	25	1.001
20-May-04	9:27:00	90.8	25	1.001
20-May-04	9:27:20	89.5	24.9	1.001
20-May-04	9:27:40	90.5	24.9	1.001
20-May-04	9:28:00	93.4	24.9	1.001
20-May-04	9:28:20	93.9	25	1.001
20-May-04	9:28:40	95.1	25	1.001
20-May-04	9:29:00	96.7	25	1.001
20-May-04	9:29:20	96.8	25	1.001
20-May-04	9:29:40	93.8	25.1	1.001
20-May-04	9:30:00	93.6	25.1	1.001
20-May-04	9:30:20	93.4	25.2	1.001
20-May-04	9:30:40	91.5	25.2	1.001
20-May-04	9:31:00	92.7	25.2	1.001
20-May-04	9:31:20	94.1	25.2	1.001
20-May-04	9:31:40	94.4	25.1	1.001
20-May-04	9:32:00	96.2	25.1	1.001
20-May-04	9:32:20	96.5	25	1.001
20-May-04	9:32:40	94.2	25	1.001
20-May-04	9:33:00	94.3	25.1	1.001
20-May-04	9:33:20	91	25.1	1.001
20-May-04	9:33:40	88	25.1	1.001
20-May-04	9:34:00	87.2	25.1	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.
20-May-04	9:34:20	88.4	25.1	1.001
20-May-04	9:34:40	87.5	25.1	1.001
20-May-04	9:35:00	84.7	25.1	1.001
20-May-04	9:35:20	83.8	25.1	1.001
20-May-04	9:35:40	84.2	25	1.001
20-May-04	9:36:00	86.3	25	1.001
20-May-04	9:36:20	85.4	25	1.001
20-May-04	9:36:40	84.4	25.1	1.001
20-May-04	9:37:00	83.8	25.1	1.001
20-May-04	9:37:20	84.4	25.2	1.001
20-May-04	9:37:40	83.4	25.2	1.001
20-May-04	9:38:00	87.3	25.3	1.001
20-May-04	9:38:20	87.3	25.3	1.001
20-May-04	9:38:40	87.3	25.4	1.001
20-May-04	9:39:00	89	25.4	1.001
20-May-04	9:39:20	87.9	25.5	1.001
20-May-04	9:39:40	90.1	25.5	1.001
20-May-04	9:40:00	91.8	25.5	1.001
20-May-04	9:40:20	92.6	25.5	1.001
20-May-04	9:40:40	91.6	25.5	1.001
20-May-04	9:41:00	89.2	25.4	1.001
20-May-04	9:41:20	90.1	25.5	1.001
20-May-04	9:41:40	88.5	25.5	1.001
20-May-04	9:42:00	86.5	25.5	1.001
20-May-04	9:42:20	84.9	25.5	1.001
20-May-04	9:42:40	84	25.6	1.001
20-May-04	9:43:00	83.1	25.6	1.001
20-May-04	9:43:20	81.9	25.6	1.001
20-May-04	9:43:40	80.2	25.6	1.001
20-May-04	9:44:00	81.5	25.7	1.001
20-May-04	9:44:20	84.3	25.7	1.001
20-May-04	9:44:40	85.6	25.7	1.001
20-May-04	9:45:00	86.2	25.7	1.001
20-May-04	9:45:20	84.5	25.7	1.001
20-May-04	9:45:40	83.2	25.6	1.001
20-May-04	9:46:00	84.5	25.6	1.001
20-May-04	9:46:20	88	25.6	1.001
20-May-04	9:46:40	90.1	25.6	1.001
20-May-04	9:47:00	91	25.7	1.001
20-May-04	9:47:20	90.8	25.7	1.001
20-May-04	9:47:40	91.2	25.7	1.001
20-May-04	9:48:00	94	25.7	1.001
20-May-04	9:48:20	93.9	25.7	1.001
20-May-04	9:48:40	93.6	25.7	1.001
20-May-04	9:49:00	92.9	25.7	1.001
20-May-04	9:49:20	92.9	25.8	1.001
20-May-04	9:49:40	92.2	25.8	1.001
20-May-04	9:50:00	92	25.9	1.001
20-May-04	9:50:20	93.5	25.9	1.001
20-May-04	9:50:40	95	26	1.001

Date	Time	PM10 Mass Conc. Ug/m^3	Amb Temp, Deg. C	Amb Pres, Atm.	
20-May-04	9:51:00	95.2	26	1.001	
20-May-04	9:51:20	97.5	26.1	1.001	
20-May-04	9:51:40	98.5	26.1	1.001	
20-May-04	9:52:00	97.9	26.2	1.001	
20-May-04	9:52:20	96.5	26.2	1.001	
20-May-04	9:52:40	94.6	26.3	1.001	Stop Run # 3
Averages		90.4	24.7	1.001	

APPENDIX B

FIELD DATA SHEETS

APPENDIX B1

RMCC TRUCK MIX

FIELD DATA SHEETS

Method 1 - Air Control Techniques, P.C.

Date 12-05-03

Client	READY MIXED
Job #	877
Plant Name	READY MIXED
State	NC
City	WAKE FOREST
Sampling Location	BAGHOUSE INLET (TRUCK)

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	~~14"~~ 4"
Distance From Far Wall To Outside Of Port, Inches	14 1/8"
Nipple Length And/Or Wall Thickness, Inches	1/8"
Depth Of Stack Or Duct, Inches	14"
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches ($\pi \times R^2$ or $L \times W$)	153.936

	Upstream	Downstream
Distance to Flow Disturbances	88"	32"
Diameters	6.286	2.286

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

Velocity	Diameters UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	0.616	3/4"
2	14.6	2.044	2 1/8"
3	29.6	4.144	4 1/8"
4	70.4	9.856	10"
5	85.4	11.956	12 1/8"
6	95.6	13.384	13 1/2"
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000-0.0625 - 0
0.0625-0.1875 - 1/8
0.1875-0.3125 - 1/4
0.3125-0.4375 - 3/8
0.4375-0.5625 - 1/2
0.5625-0.6875 - 5/8
0.6875-0.8125 - 3/4
0.8125-0.9375 - 7/8
0.9375-1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	READY MIXED	Date	12-08-03
City, State	WAKE FOREST, NC	Project #	877
Personnel	TTB, DLS, SSH	Pitot Identification	PT2
Test Location TRUK	BAGHOUSE INLET	Pitot Coefficient (Cp)	0.84

Stack Dimensions			Pressures		
Diameter of Stack (D)	14"	in	Barometric Pressure (Pb)	29.9	in Hg
Width of Stack (W)	NA	in	Static Pressure (Pg)	-3.30	in H_2O
Area of Stack (As)	1.069	ft^2	Absolute Stack Pressure (Ps)	29.66	in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	0.30	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.80	lb/lb-mole

PRELIMINARY TRAVERSE

Pitot Tube Leak Checks | A | B

	Port	Point	Angle, °	Δp, in H_2O	Temp. °F	ft/sec
Start	A	6	-2	1.20	28	59.46
		5	-2	1.25	28	60.68
		4	0	1.10	28	56.93
		3	-1	1.05	28	55.62
		2	0	1.10	28	56.93
		1	-1	1.10	28	56.93
End						

Average Angle, Degrees	1.00
Average Velocity Pressure	1.132
Average Gas Temperature (°F)	28.0
Average Stack Gas Velocity (ft/sec)	57.76
Actual Cubic Feet per minute (ACFM)	3,705
Dry Standard Cubic Feet per Minute (DSCFM)	3,961

IN

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-T-PM10/2.5 -1
Condition	Normal

IDENTIFICATION INFORMATION

Plant Name	Ready Mixed
City	Wake Forest
State	N.C.
Source Number	
Sampling Location	Baghouse Inlet
Test Personnel	TTB, DLS, SSH
Date	12/8/03
Start	0901
Stop	1104
Meterbox ID	802012
ΔH @	1.538
Gamma, γ	1.025
Nozzle ID	1812-1
Nozzle Diameter	0.135
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1001	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000	5.0	5.0

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	~~4~~ 7	~~3~~ 5
Pitot Tube Posttest Leak Check	6	6

Barometric Pressure, In.,Hg.	29.9	Static Pressure, In. W.C.	-3.3

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	3.1	Moisture, %	0.305
CO_2 %	0.0	Md_run	28.84
O_2 %	20.9	Mw_run	28.80

Sampling Information

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)
A	1	21.34	0	980.300	1.35	38	31	1.5	36	0.36
	2	22.48	21:51	988.28	1.43	43	34	1.5	36	0.36
	3	20.59	44:19	996.42	1.20	46	38	1.5	42	0.36
	4	19.26	1:04:54	1003.74	1.05	48	40	1.5	48	0.36
	5	19.71	1:24:10	1010.68	1.10	52	44	1.5	52	0.36
	6	18.98	1:43:53	1017.89	1.02	57	43	1.5	53	0.36
			2:02:52	1024.957						

QA Checks

Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
0.38			
0.38			
0.37			
0.37			
0.37			
0.37			

Total Run Time			
Total Volume, ACF			
Averages	1.1869	47.2	38.3
	in. H2O	°F	°F

Run	14.557

0.366
in H2O

%	microns	

1024.957

157

IN

Run ID	WF-T-PM10/2.5-2
Condition	Normal

Combined Cyclone PM10 & PM2.5 Run Data Sheet

IDENTIFICATION INFORMATION

Plant Name	Ready Mixed
City	Wake Forest
State	N.C.
Source Number	
Sampling Location	Baghouse Inlet
Test Personnel	GSH,
Date	12/8/03
Start	1214
Stop	1412
Meterbox ID	002012
ΔH @	1.538
Gamma, γ	1.025
Nozzle ID	1812-1
Nozzle Diameter	0.135
Orsat/Fyrite	Fyrite

Filter ID	Tare
QT1003	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.008	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000	<0.02 or 4%	5.0

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	8	6
Pitot Tube Posttest Leak Check	7	6

Barometric Pressure, In.,Hg.	29.9	Static Pressure, In. W.C.	-3.3

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	18.4	Moisture, %	2.236
CO_2 %	0.0	Md_run	28.84
O_2 %	20.9	Mw_run	28.59

158

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	1	20.99	0	25.500	1.30	69	45	1.0	46	0.36	0.41			
	2	19.25	20:56	33.39	1.10	70	46	1.0	45	0.36	0.41			
	3	20.11	40:11	40.67	1.20	70	47	1.0	47	0.36	0.40			
1:00:18	1:00:19 4	19.43	~~38~~ 1:00:19	48.36	1.12	67	48	1.0	47	0.36	0.40			
	5	19.25	1:19:43	55:31	1.10	66	48	1.0	48	0.36	0.40			
	6	18.31	1:38:59	62:42	1.05	64	49	1.0	49	0.36	0.47			
			1:57:48	69.368										

Total Run Time	
Total Volume, ACF	

Averages	1.1627	67.7	40.5
	in. H2O	°F	°F

Run	36.920

0.360
in H2O

%	microns	

Inlet

WF-T-IN-PM10/2.5-3

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-T-PM10/2.5-3
Condition	

IDENTIFICATION INFORMATION

Plant Name	Ready Mixed		
City	Wake Forest		
State	N.C.		
Source Number		Date	12/9/03
Sampling Location	Baghouse Inlet	Start	0753
Test Personnel	SSH	Stop	1003

		Filter ID	Tare
Meterbox ID	802012	05100 5	
ΔH @	1.538		
Gamma, γ	1.025		
Nozzle ID	1012-1		
Nozzle Diameter	0.135		
Orsat/Fyrite	Fyrite		

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.001	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000	<0.02 or 4%	5

Stopped for Vacuum Problem 0908 Resume 0911

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	7	6
Pitot Tube Posttest Leak Check	8	6

Barometric Pressure, In.,Hg.	29.6	Static Pressure, In. W.C.	-3.3

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	0.1	Moisture, %	0.010
CO_2 %	0.0	Md_run	28.84
O_2 %	20.9	Mw_run	28.83

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	1	21.95	0	69.500	1.40	34	28	1.0	30	0.36	0.39			
	2	22.33	21:57	77.54	1.45	38	30	1.0	31	0.36	0.39			
	3	20.32	44:17	85.35	1.20	43	32	1.0	32	0.36	0.39			
	4	19.45	1:04:36	92.16	1.10	45	33	1.0	33	0.36	0.39			
	5	19.89	1:24:03	99.09	1.15	48	39	1.5	37	0.36	0.38			
	6	19.45	1:43:56	106.16	1.10	50	39	2.0	39	0.36				
			2:03:24	113.250										

Total Run Time	2:03:24					
Total Volume, ACF	43.750					
Averages	1.2294	43.0	33.5	0.360		
	in. H2O	°F	°F	in H2O	%	microns

Run	

159

Method 4 - Air Control Techniques, P.C.

Date 12-05-03

Facility Information

Client	Ready Mix	Job #	877
City, State	Wake Forest, NC	Condition	Truck Mix

Sampling Information

Run Number	WF-T-IN-PRE4-1	WF-T-IN-PRE4-2	WF-T-IN-PRE4-3	Balance Number	V1200
Sampling Date	12-08-03	12-08-03		Balance Type	ELEC
Recovery Date	12-08-03	12-08-03		Balance Level	YES
Personnel	TTB, DLS, SSH			Recovery Area	LAB

Location Moisture Data

Run Number	WF-T-IN-PRE4-1	WF-T-IN-PRE4-2	WF-T-IN-PRE4-3
FILTERS	QT 1001	QT 1003	QT 1005
Impinger # 1			
Contents -			
Final Weight, grams/mls	619.6	620.7	617.0
Initial Weight, grams/mls	621.6	619.6	620.7
Condensed Water, grams	-2.0	1.1	-3.7
Impinger # 2			
Conents -			
Final Weight, grams/mls	674.1	677.6	674.6
Initial Weight, grams/mls	675.0	674.1	674.6
Condensed Water, grams	-0.9	3.5	0.0
Impiner # 3			
Contents -			
Final Weight, grams/mls	604.3	607.5	607.5
Initial Weight, grams/mls	604.3	604.3	607.5
Condensed Water, grams	0.0	3.2	0.0
Silica Gel			
Final Weight, grams	852.1	863.7	867.5
Initial Weight, grams	846.1	852.1	863.7
Adsorbed Water, grams	6.0	11.6	3.8
Total Water, grams	3.1	18.4	0.1

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04715) * (weight of water collected (g))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	RMCC
City	Wake Forest
State	N.C.
Sampling Location	Baghouse Inlet

PARAMETER	NOMENCLATURE	WF-T-IN-PRE4-1	WF-T-IN-PRE4-2	WF-T-IN-PRE4-3	
Date		12/8/2003	12/8/2003	12/9/2003	
Run Time	Theta	122.86	117.79	124.42	
Nozzle Diameter	inches	0.135	0.135	0.135	
Pitot Tube Coefficient	Cp	0.84	0.84	0.84	
Meter Calibration Factor	Y	1.0250	1.0250	1.0250	
Barometric Pressure, inches Hg	Bp - in Hg	29.90	29.90	29.60	
Meter Box Pressure Differential	ΔH - in. H2O	0.36	0.36	0.36	
Volume of Gas Sampled	Vm - cu. ft.	44.657	43.868	43.750	
Dry Gas Meter Temperature	Tm - °F	47.2	67.7	43.0	
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	47.664	45.003	46.611	
Liquid Collected	ml	3.1	18.4	0.1	
Volume of Water Vapor	Vwstd - cu. ft.	0.146	0.866	0.005	
Moisture Content	$\%H_20$	0.305	1.89	0.01	
Saturation Moisture	$\%H_20$	0.8	0.9	0.7	
Dry Mole Fraction	Mfd	0.997	0.991	1.000	
Carbon Dioxide	$\%CO_2$	0	0	0	
Oxygen	$\%O_2$	20.9	20.9	20.9	
Carbon Monoxide	%CO	0	0	0	
Nitrogen	$\%N_2$	79.1	79.1	79.1	
ıs Molecular Weight, Dry	Md	28.836	28.84	28.84	
ıs Molecular Weight, Wet	Ms	28.803	28.744	28.835	
Static Pressure	Pg - in. H_2O	-3.30	-3.30	-3.30	
Stack Pressure	Ps	29.66	29.66	29.36	
Stack Temperature	Ts - °F	38.3	40.5	33.5	
Average Velocity Head	Δp - in H_2O	1.187	1.144	1.229	
Gas Velocity	vs - ft./sec.	59.75	58.84	60.80	
Stack Area	As - sq. ft.	1.069	1.069	1.069	
Volumetric Air Flow, Actual	Qaw - ACFM	3,833	3,774	3,900	
Volumetric Air Flow, Standard	Qsd - DSCFM	4,013	3,913	4,093	
Isokinetic Sampling Rate	%I	104.0	105.0	98.4	
Total Particulate Catch	Milligrams	291.8	347.7	2768.2	
PM >10 Particulate Catch	Milligrams	201.2	257.7	1751.3	
PM10 Particulate Catch	Milligrams	90.6	90.0	1016.9	
PM>2.5<10 Catch	Milligrams	79.4	81.4	864.1	
PM2.5 Patriculate Catch	Milligrams	11.2	8.6	152.8	
Total Arsenic Catch	Micrograms	11.16	11.65	184.70	
PM >10 Arsenic Catch	Micrograms	4.93	5.05	67.70	
PM10 Arsenic Catch	Micrograms	6.23	6.60	117.00	
Concrete Production During Test	Cubic Yards / Test	75	23	54	
Concrete Production During Test	Tons / Test	142.6	39.8	103.9	Average
Concrete Production Rate	Tons/Hour	69.6	20.3	50.1	46.7
PM10 Arsenic Concentration	ug/mg	0.0688	0.0733	0.1151	0.0857
TSP Arsenic Concentraion	ug/mg	0.0382	0.0335	0.0667	0.0462

Plant	RMCC				
City	Wake Forest				
State	N.C.				
Sampling Location	Baghouse Inlet				
		WF-T-IN-PRE4-1	WF-T-IN-PRE4-2	WF-T-IN-PRE4-3	Average
Total Particulate Emissions					
Grains/DSCF	gr/DSCF	0.09448	0.11923	0.91652	0.37674
Pounds/Hour	lb/hr	3.24971	3.99907	32.15622	13.13500
Pounds/Ton	lb/ton	0.04666	0.19726	0.64181	0.29524
Total Arsenic Emissions					
Grains/DSCF	gr/DSCF	0.000004	0.000004	0.000061	0.000023
Pounds/Hour	lb/hr	0.000124	0.000134	0.002146	0.000801
Pounds/Ton	lb/ton	0.000002	0.000007	0.000043	0.000017
PM_{10} Emissions					
Grains/DSCF	gr/DSCF	0.02933	0.03086	0.33669	0.13229
Pounds/Hour	lb/hr	1.00899	1.03514	11.81261	4.61891
Pounds/Ton	lb/ton	0.01449	0.05106	0.23577	0.10044
PM_{10} Arsenic Emissions					
Grains/DSCF	gr/DSCF	0.000002	0.000002	0.000039	0.000014
Pounds/Hour	lb/hr	0.000069	0.000076	0.001359	0.000501
Pounds/Ton	lb/ton	0.000001	0.000004	0.000027	0.000011
$PM_{>2.5<10}$ Emissions					
Grains/DSCF	gr/DSCF	0.02571	0.02791	0.28610	0.113239
Pounds/Hour	lb/hr	0.88426	0.93622	10.03764	3.952707
Pounds/Ton	lb/ton	0.01270	0.04618	0.20034	0.086406
$PM_{2.5}$ Emissions					
Grains/DSCF	gr/DSCF	0.00363	0.00295	0.05059	0.01906
Pounds/Hour	lb/hr	0.12473	0.09891	1.77497	0.66620
Pounds/Ton	lb/ton	0.00179	0.00488	0.03543	0.01403
Cut Sizes					
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	10.91	10.86	11.16	10.98
Gas viscosity, (micropoise)	μ	173.13	172.48	172.20	172.60
Gas sampling rate, ACFM	Qs	0.37	0.37	0.36	0.37
Renolds number, (dimensionless)	N_{re}	3170	3177	3072	3140
Cunningham correction factor	C	1.06	1.05	1.06	1.06
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - $PM_{2.5}$	2.30	2.30	2.39	2.33
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - $PM_{2.5}$	2.30	2.30	2.36	2.32

Method 1 - Air Control Techniques, P.C.

Date 12-05-03

Client	READY MIXED
Job #	877
Plant Name	READY MIXED
State	NC
City	WAKE FOREST
Sampling Location	BAGHOUSE OUTLET

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	4
Distance From Far Wall To Outside Of Port, Inches	14 1/8
Nipple Length And/Or Wall Thickness, Inches	1/8
Depth Of Stack Or Duct, Inches	14
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches ($\pi \times R^2$ or $L \times W$)	153.936

	Upstream	Downstream
Distance to Flow Disturbances	177"	56"
Diameters	12.643	4.0

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

Diameters

Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	0.616	3/4"
2	14.6	2.044	2 1/8"
3	29.6	4.144	4 1/4"
4	70.4	9.856	10"
5	85.4	11.956	12 1/8"
6	95.6	13.384	13 1/2"
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000-0.0625 - 0
0.0625-0.1875 - 1/8
0.1875-0.3125 - 1/4
0.3125-0.4375 - 3/8
0.4375-0.5625 - 1/2
0.5625-0.6875 - 5/8
0.6875-0.8125 - 3/4
0.8125-0.9375 - 7/8
0.9375-1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	READY MIX	Date	12-08-03
City, State	WAKE FOREST, NC	Project #	877
Personnel	TTB, DLS, SSH	Pitot Identification	PT 2
Test Location	BAGHOUSE OUTLET	Pitot Coefficient (Cp)	0.84

Stack Dimensions			Pressures		
Diameter of Stack (D)	14	in	Barometric Pressure (Pb)	29.9	in Hg
Width of Stack (W)	NA	in	Static Pressure (Pg)	+0.80	in H_2O
Area of Stack (As)	1.069	ft^2	Absolute Stack Pressure (Ps)	29.96	in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	0.3	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.80	lb/lb-mole

PRELIMINARY TRAVERSE

Pitot Tube Leak Checks: A | B

	Port	Point	Angle, °	Δp, in H_2O	Temp. °F	ft/sec
Start	A	6	-7	1.30	38	
		5	-5	2.10	38	
		4	-7	2.10	38	
		3	-5	.80	38	
		2	-5	.15	38	
		1	-3	.05	38	
End						

Average Angle, Degrees: 5.33

Average Velocity Pressure: 1.553

Average Gas Temperature (°F): 28

Average Stack Gas Velocity (ft/sec): ~~67.45~~ 67.30

Actual Cubic Feet per minute (ACFM): ~~5546~~ 4317

Dry Standard Cubic Feet per Minute (DSCFM): ~~7844~~ 4662

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-T-OUT-PRE4-1
Condition	

IDENTIFICATION INFORMATION

Plant Name	KEARY MIXED
City	WAKE FOREST
State	NC
Source Number	
Sampling Location	BAGHOUSE OUTLET
Test Personnel	TTB, DLS, SSH
Date	12-08-03
Start	0901
Stop	1112
Meterbox ID	702233
ΔH @	1.677
Gamma, γ	1.003
Nozzle ID	1814-1
Nozzle Diameter	.134
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT 1002	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		7

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	GOOD @6"	GOOD @5"
Pitot Tube Posttest Leak Check	GOOD @7"	GOOD @5"

Barometric Pressure, In.,Hg.	29.90	Static Pressure, In. W.C.	+0.80

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	2.1	Moisture, %	0.212
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.81

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	6	23.0	0	918.002	2.05	46	34	1	35	0.36	0.42			
	5	23.53	22:59	927.17	2.15	58	38	1	38	0.36	0.42			
23.53	4	46.31	46:31	936.13	2.15	64	42	1	39	0.36	0.42			
	3	23.53	110:02	945.00	2.15	65	46	1	41	0.36	0.41			
	2	21.53	133:34	952.45	1.80	66	46	1	42	0.36	0.41			
	1	16.05	155:07	959.28	1.00	70	46	1	43	0.36	0.42			
			2:11:09	963.871										

Total Run Time	2:11:09	45.869
Total Volume, ACF	1.8552	

Averages	1.8552	61.5	42
	in. H2O	°F	°F

0.36	in H2O

77.2	11.66	2.57
%	microns	

Run	WF-T-OUT-PRE 4-1

165

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-T-OUT-PRE4-2
Condition	

IDENTIFICATION INFORMATION

Plant Name	READY MIXED
City	WAKE FOREST
State	NC
Source Number	
Sampling Location	BAGHOUSE OUTLET
Test Personnel	TTB, DLS, SSH
Date	12-08-03
Start	1214
Stop	1414
Meterbox ID	702233
ΔH @	1.677
Gamma, γ	1.003
Nozzle ID	1814-1
Nozzle Diameter	0.134
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT 1004	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.0		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	600D @ 6"	600D @ 6"
Pitot Tube Posttest Leak Check	600D @ 5"	600D @ 4"

Barometric Pressure, In.,Hg.	29.90	Static Pressure, In. W.C.	+0.80

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	16.8	Moisture, %	1.651
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.66

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	6	21.78	0	963.983	2.20	60	50	1	45	0.47	0.44			
	5	22.03	21:46	971.98	2.25	67	51	1	43	0.47	0.44			
	4	22.27	43:48	980.42	2.30	69	50	1	45	0.47	0.45			
	3	20.50	1:06:04	989.4	1.95	69	50	1	47	0.47	0.45			
	2	18.28	1:26:34	997.69	1.55	68	51	1	51	0.47	0.45			
	1	15.05	1:44:52	1005.09	1.05	67	52	1	52	0.47	0.44			
			1:59:55	1010.794										

Total Run Time	1:59:55
Total Volume, ACF	46.811

Averages	.8523	66.7	50.67
	in. H2O	°F	°F

0.47
in H2O

87.1	10.73	2.26
%	microns	

Run	WF-T-OUT-PRE4-2

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-T-OUT-PBC4-3
Condition	

IDENTIFICATION INFORMATION

Plant Name	READY MIXED
City	WAKE FOREST
State	NC
Source Number	
Sampling Location	BAGHOUSE OUTLET
Test Personnel	TTB, DLS, SSH
Date	12-09-03
Start	0753
Stop	0958
Meterbox ID	702233
ΔH @	1.677
Gamma, γ	1.003
Nozzle ID	1814-1
Nozzle Diameter	0.134
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1006	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.0		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	GOOD @ 7"	GOOD @ 5"
Pitot Tube Posttest Leak Check	GOOD @ 6"	GOOD @ 6"

Barometric Pressure, In.,Hg. 29.60 Static Pressure, In. W.C. +0.80

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	0.7	Moisture, %	0.068
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.83

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	6	23.92	0	11.475	2.65	40	29	1	28	0.48	0.46			
	5	23.92	23:55	20.51	2.65	53	34	1	30	0.48	0.46			
	4	23.47	47:51	29.75	2.55	58	34	1	33	0.48	0.47			
	3	19.99	1:11:19	39.10	1.85	59	34	1	35	0.48	0.47			
	2	15.76	1:31:18	47.08	1.15	61	38	1	37	0.48	0.46			
	1	15.06	1:47:04	52.97	1.05	62	39	1	38	0.48	0.46			
			2:02:07							~~0.48~~				

Total Run Time 2:02:07

Total Volume, ACF 47.406

Averages	1.91816	55.5	34.67
	in. H2O	°F	°F

0.48 in H2O

82.4	10.84	2.28
%	microns	

Run WF-T-OUT-PBC4-3

STOP TEST @ 908 VACUUM PROBLEM WITH INLET TRAIN
RESTART @ 911

167

Method 4 - Air Control Techniques, P.C.

Date 12-05-03

Facility Information

Client	READY MIX	Job #	877
City, State	WAKE FOREST, NC	Condition	TRUCK MIX

Sampling Information

Run Number	WF-T-OUT-PRE4-1	WF-T-OUT-PRE4-2	WF-T-OUT-PRE4-3	Balance Number	N1-1200
Sampling Date	12-08-03	12-08-03		Balance Type	ELEC
Recovery Date	12-08-03	12-08-03		Balance Level	YES
Personnel	TTB, DLS, SSH			Recovery Area	LAB

Location Moisture Data

Run Number	WF-T-OUT-PRE4-1	WF-T-OUT-PRE4-2	WF-T-OUT-PRE4-3
Impinger # 1	Filters QT 1002	QT 1004	QT 1006
Contents -			
Final Weight, grams/mls	688.9	689.2	685.0
Initial Weight, grams/mls	691.6	688.9	689.2
Condensed Water, grams	-2.7	0.3	-4.2
Impinger # 2			
Conents -			
Final Weight, grams/mls	695.5	698.5	698.5
Initial Weight, grams/mls	696.7	695.5	698.5
Condensed Water, grams	-1.2	3.0	0.0
Impiner # 3			
Contents -			
Final Weight, grams/mls	583.8	586.3	586.3
Initial Weight, grams/mls	583.8	583.8	586.3
Condensed Water, grams	0.0	2.5	0.0
Silica Gel			
Final Weight, grams	790.1	801.1	805.0
Initial Weight, grams	784.0	790.1	801.1
Adsorbed Water, grams	6.1	11.0	3.9
Total Water, grams	2.1	16.8	0.7

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04715) * (weight of water collected (g))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	RMCC
City	Wake Forest
State	N.C.
Sampling Location	Baghouse Outlet

PARAMETER	NOMENCLATURE	WF-T-OUT-PRE4-1	WF-T-OUT-PRE-2	WF-T-OUT-PRE4-3
Date		12/8/2003	12/8/2003	12/9/2003
Run Time	Theta	131.16	119.91	122.12
Nozzle Diameter	inches	0.134	0.134	0.134
Pitot Tube Coefficient	Cp	0.84	0.84	0.84
Meter Calibration Factor	Y	1.0030	1.0030	1.0030
Barometric Pressure, inches Hg	Bp - in Hg	29.90	29.90	29.60
Meter Box Pressure Differential	ΔH - in. H2O	0.36	0.47	0.48
Volume of Gas Sampled	Vm - cu. ft.	45.869	46.811	47.406
Dry Gas Meter Temperature	Tm - °F	61.5	66.7	55.5
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	46.590	47.093	48.238
Liquid Collected	ml	2.1	16.8	0.7
Volume of Water Vapor	Vwstd - cu. ft.	0.099	0.791	0.033
Moisture Content	$\%H_20$	0.212	1.65	0.07
Saturation Moisture	$\%H_20$	0.9	1.2	0.7
Dry Mole Fraction	Mfd	0.998	0.988	0.999
Carbon Dioxide	$\%CO_2$	0	0	0
Oxygen	$\%O_2$	20.9	20.9	20.9
Carbon Monoxide	%CO	0	0	0
Nitrogen	$\%N_2$	79.1	79.1	79.1
s Molecular Weight, Dry	Md	28.836	28.84	28.84
s Molecular Weight, Wet	Ms	28.813	28.702	28.829
Static Pressure	Pg - in. H_2O	0.80	0.80	0.80
Stack Pressure	Ps	29.96	29.96	29.66
Stack Temperature	Ts - °F	42.0	50.7	34.7
Average Velocity Head	Δp - in H_2O	1.855	1.852	1.918
Gas Velocity	vs - ft./sec.	74.59	75.32	75.65
Stack Area	As - sq. ft.	1.069	1.069	1.069
Volumetric Air Flow, Actual	Qaw - ACFM	4,784	4,831	4,852
Volumetric Air Flow, Standard	Qsd - DSCFM	5,028	4,939	5,130
Isokinetic Sampling Rate	%I	77.1	86.8	84.0
Total Particulate Catch	Milligrams	1.5	1.0	1.5
PM >10 Particulate Catch	Milligrams	0.0	0.7	0.0
PM10 Particulate Catch	Milligrams	1.5	0.3	1.5
PM>2.5<10 Catch	Milligrams	1.5	0.2	1.0
PM2.5 Patriculate Catch	Milligrams	0.0	0.1	0.5
Total Arsenic Catch	Micrograms	0.0	0.0	0.0
PM >10 Arsenic Catch	Micrograms	0.0	0.0	0.0
PM10 Arsenic Catch	Micrograms	0.0	0.0	0.0
Concrete Production During Test	Cubic Yards / Test	75	23	54
Concrete Production During Test	Tons / Test	142.6	39.8	103.9
Concrete Production Rate	Tons/Hour	65.2	19.9	51.1

Plant	RMCC				
City	Wake Forest				
State	N.C.				
Sampling Location	Baghouse Outlet				
		WF-T-OUT-PRE4-1	WF-T-OUT-PRE-2	WF-T-OUT-PRE4-3	Average
Total Particulate Emissions					
Grains/DSCF	gr/DSCF	0.00050	0.00033	0.00048	0.00043
Pounds/Hour	lb/hr	0.02141	0.01387	0.02110	0.01880
Pounds/Ton	lb/ton	0.00033	0.00070	0.00041	0.00048
PM_{10} Emissions					
Grains/DSCF	gr/DSCF	0.00050	0.00010	0.00048	0.00036
Pounds/Hour	lb/hr	0.02141	0.00416	0.02110	0.01556
Pounds/Ton	lb/ton	0.00033	0.00021	0.00041	0.00032
$PM_{>2.5<10}$ Emissions					
Grains/DSCF	gr/DSCF	0.00050	0.00007	0.00032	0.00029
Pounds/Hour	lb/hr	0.02141	0.00277	0.01407	0.01275
Pounds/Ton	lb/ton	0.00033	0.00014	0.00028	0.00025
$PM_{2.5}$ Emissions					
Grains/DSCF	gr/DSCF	0.00000	0.00003	0.00016	0.00006
Pounds/Hour	lb/hr	0.00000	0.00139	0.00703	0.00281
Pounds/Ton	lb/ton	0.00000	0.00007	0.00014	0.00007
Cut Sizes					
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	11.68	10.73	10.80	11.07
Gas viscosity, (micropoise)	μ	174	175	172	173.87
Gas sampling rate, ACFM	Qs	0	0	0	0.37
nolds number, (dimensionless)	N_{re}	2885	3205	3236	3108
unningham correction factor	C	1.05	1.06	1.06	1.06
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - PM_2	2.58	2.25	2.25	2.36
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - PM_2	2.49	2.26	2.27	2.34

Type of Mix	Truck	Truck	Truck	Averages
Run Numbers	1	2	3	
TEOM Fan ACFM	247	247	246	247
Array 1 Size, SQ FT	100	100	100	100
Array 2 Size, SQ FT	100	100	100	100
Wind Speed Thru Array, MPH	1.1	1.4	1	1.17
Wind Speed Thru Array, FPM	96.8	123.2	88	102.7
ACFM Thru Arrays	19360	24640	17600	20533
Actual Cubic Meters of Gas Thru Arrays per Minute, ACM/M	548	698	498	582
Average PM10 Particulate Concentration, ug/m^3	36.05	130.5	64.6	77.1
Measured PM10 Emissions Thru Array, lb / Hour	0.0026	0.0120	0.0043	0.0063
Calculated TSP Emissions Thru Array, lb / Hour	0.0084	0.0465	0.0116	0.0222
Calculated PM2.5 Emissions Thru Array, lb / Hour	0.0003	0.0012	0.0006	0.0007
Calculated PM>2.5<10 Emissions Thru Array, lb/hour	0.0023	0.0109	0.0036	0.0056
PM10 Emissions, Array + Fabric Filter, lb/hr	0.0240	0.0162	0.0254	0.0219
TSP Emissions, Array + Fabric Filter, lb/hr	0.0298	0.0604	0.0327	0.0410
PM2.5 Emissions, Array + Fabric Filter, lb/hr	0.0003	0.0025	0.0077	0.0035
PM>2.5<10 Emissions, Array + Fabric Filter, lb/hr	0.0237	0.0137	0.0177	0.0184
Average Plant Production Levels During Tests, Tons/Hour	67.4	20.1	50.6	46.0
Total TEOM & Fabric Filter PM10 Emission Factor, lb/ton	0.00036	0.00081	0.00050	0.00055
Total TEOM & Fabric Filter TSP Emission Factor, lb/ton	0.00044	0.00301	0.00065	0.00136
Total TEOM & Fabric Filter PM2.5 Emission Factor, lb/ton	0.000005	0.00013	0.00015	0.00009
Total TEOM & Fabric Filter PM>2.5<10 Emission Factor, lb/ton	0.00035	0.00068	0.00035	0.00046
Truck Hood PM10 Efficiency	99.7%	98.8%	100.0%	99.5%
System Collection Efficiency	97.6%	98.4%	99.8%	98.6%
Fabric Filter Inlet, Total Particulate Concentration, lb/hr	3.24971	3.99907	32.15622	13.1350
Fabric Filter Outlet, Total Particulate Concentration, lb/hr	0.02141	0.01387	0.0211	0.0188
Fabric Filter Total Efficiency	99.3%	99.7%	99.9%	99.6%
Total / PM10 Ratio for TEOM TSP Calc Ratio * Teom PM10 =TEOM TSP lb/ton	3.22	3.86	2.72	3.27
PM2.5 / PM10 Ratio for TEOM PM2.5 Calc Ratio * TEOM PM10 =TEOM PM2.5 lb/ton	0.12	0.10	0.15	0.12
PM<2.5>10 Ratio for TEOM	0.88	0.90	0.85	0.88
Fabric Filter Inlet, PM10 Particulate Concentration, lb/hr	1.00899	1.03514	11.81261	4.6189
Fabric Filter Outlet, PM10 Particulate Concentration, lb/hr	0.02141	0.00416	0.0211	0.0156
Fabric Filter PM10 Efficiency	97.9%	99.6%	99.8%	99.1%
Fabric Filter Inlet, PM2.5 Particulate Concentration, lb/hr	0.12473	0.09891	1.77497	0.6662
Fabric Filter Outlet, PM2.5 Particulate Concentration, lb/hr	0	0.00139	0.00703	0.0028
Fabric Filter PM2.5 Efficiency	100.0%	98.6%	99.6%	99.4%
Fabric Filter Inlet, PM>2.5<10 Particulate Concentration, lb/hr	0.88426	0.93622	10.03764	3.9527
Fabric Filter Outlet, PM>2.5<10 Particulate Concentration, lb/hr	0.02141	0.00277	0.01407	0.0128

RMCC Wake Forest Emission Factor Calculations

RMCC Wake Forest Truck Mix

NOTE Production Average from inlet and outlet sample times

Truck Mix	Array Fugitive Data Lbs/Hour Total	PM10	Arsenic, ug/mg Total	PM10	lbs/hour arsenic Total	PM10	Tons	Lbs/Tons Total	PM10
1	0.0084	0.0026	0.0382	0.0688	3.21E-07	1.79E-07	67.4	4.76E-09	2.65E-09
2	0.0465	0.012	0.0335	0.0733	1.56E-06	8.80E-07	20.05	7.77E-08	4.39E-08
3	0.0116	0.004	0.0667	0.1151	7.74E-07	4.60E-07	50.6	1.53E-08	9.10E-09

Truck Mix	Baghouse Outlet Data Total	PM10	Arsenic, ug/mg Total	PM10	lbs/hour arsenic Total	PM10	Tons	Lbs/Tons Total	PM10
1	0.021413	0.02141	0.0382	0.0688	8.18E-07	1.47E-06	67.4	1.21E-08	2.19E-08
2	0.013874	0.00416	0.0335	0.0733	4.65E-07	3.05E-07	20.05	2.32E-08	1.52E-08
3	0.021103	0.02110	0.0667	0.1151	1.41E-06	2.43E-06	50.6	2.78E-08	4.80E-08

Total Truck Mix Emission Factors

lb/hr	Total	PM10	lb/ton	Total	PM10		
1	1.14E-06	1.65E-06	1	1.69E-08	2.45E-08		
2	2.02E-06	1.18E-06	2	1.01E-07	5.91E-08		
3	2.18E-06	2.89E-06	3	4.31E-08	5.71E-08	AP-42 lb As/Ton Concrete	
							% (RMC/AP-42)*100
Averages	1.78E-06	1.91E-06		5.36E-08	4.69E-08	1.16E-06	4.6%

RMCC Wake Forest Central Mix

Central Mix	Array Fugitive Data Lbs/Hour Total	PM10	Arsenic, ug/mg Total	PM10	Total lbs/hour arsenic	PM10	Tons	Lbs/Tons Total	PM10
1	0.0029	0.0009	0.0309	0.0196	8.96E-08	1.76E-08	47.2	1.90E-09	3.74E-10
2	0.0053	0.002	0.0341	0.0328	1.81E-07	6.56E-08	72.75	2.48E-09	9.02E-10
3	0.0178	0.0067	0.0301	0.0307	5.36E-07	2.06E-07	55.1	9.72E-09	3.73E-09

Central Mix	Baghouse Outlet Data Total	PM10	Arsenic, ug/mg Total	PM10	lbs/hour arsenic Total	PM10	Tons	Lbs/Tons Total	PM10
1	0.026966	0.026966	0.0309	0.0196	8.33262E-07	5.2854E-07	47.2	1.77E-08	1.12E-08
2	0.019828	0.012747	0.0341	0.0328	6.76138E-07	4.1809E-07	72.75	9.29E-09	5.75E-09
3	0.026188	0.014802	0.0301	0.0307	7.88253E-07	4.5442E-07	55.1	1.43E-08	8.25E-09

Total Central Mix Emission Factors

lb/hr	Total	PM10	lb/ton	Total	PM10		
1	9.23E-07	5.46E-07		1.96E-08	1.16E-08		
2	8.57E-07	4.84E-07		1.18E-08	6.65E-09		
3	1.32E-06	6.60E-07		2.40E-08	1.20E-08	AP-42 lb As/Ton Concrete	
							% (RMC/AP-42)*100
Averages	1.03E-06	5.63E-07		1.85E-08	1.01E-08	1.87E-08	98.7%

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB
Date 12/8/03

☆ Truck Mix
RUN# 1

	Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Silt Sample Taken √	LOAD #
	0901/0909		✓	0		7
0911	0910/0918		✓	0		8
	0920/0930		✓	0		9
	0956/1008		✓	0		10
	1009/1016		✓	0		11
10/7/1028	~~1017/1034~~		✓	0		12
1029 ~~1036~~	1029/1034		✓	0		13
	1035/1038		✓	0		14
	1043/1052		✓	0		15
	1054/1107		✓	0		16
☆ Central Mix	1055/1058		✓	0		N/A No Mix Parked
	1104/1111		✓	0		17

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB
Date 12/8/03

RUN #2
TRUCK MIX

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Silt Sample Taken √	LOAD #
1214/1219		✓	0		22
1223/1235		✓	0		23
1245/1255		✓	0		24
1259/1353		✓	0		25
1354/1405		✓	0		26
1407/1414		✓	0		27

spill outside of truck

Waiting to load
Began loading 1345

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB
Date 12/7/03

TRUCK MIX
Run 3

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Silt Sample Taken √	LOAD#
0752 /	0803	✓	0		1
0804/0815		✓	0		2
0817/0826		✓	0		3
0827/0839		✓	0		3
0914/0926		✓	0		4
0921/0929		✓	0		5
0933/0940		✓	0		6
0940/1016		✓	0		7

Method 1 - Air Control Techniques, P.C.

Date 12-05-03

Client	Ready Mixed
Job #	877
Plant Name	Ready Mixed
State	NC
City	Wake Forest
Sampling Location	TEOM Inlet

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	3
Distance From Far Wall To Outside Of Port, Inches	3 1/8
Nipple Length And/Or Wall Thickness, Inches	1/8
Depth Of Stack Or Duct, Inches	3
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches ($\pi \times R^2$ or $L \times W$)	~~7.0776~~ 7.06858

	Upstream	Downstream
Distance to Flow Disturbances	28"	7"
Diameters	9.333	2.333

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

Diameters

Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	6.7	0.50	5/8"
2	25.0	0.75	7/8"
3	75.0	2.25	2 3/8"
4	93.3	2.50	2 5/8"
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000-0.0625 - 0
0.0625-0.1875 - 1/8
0.1875-0.3125 - 1/4
0.3125-0.4375 - 3/8
0.4375-0.5625 - 1/2
0.5625-0.6875 - 5/8
0.6875-0.8125 - 3/4
0.8125-0.9375 - 7/8
0.9375-1.0000 - 1

Method 2 - Air Control Techniques, P.C.

Date 12/8/03

Identification Information

Client	NRMCA	Job #	877
Plant Name	RMCC	Process	TruckMix TEOM
City	WAKE Forest	State	NC

Sampling Location and Port Information

Unit #	TRUCK MIX	Pitot ID	18
Sampling Location	TEOM DUCT INLET	Pitot Coeff. (Cp)	1.00
Barometric Pressure, in. Hg	29.9	TC ID	N/A
O_2,%	20.9	Duct/Stack Dia., in.	3"
CO_2,%	0	Static Pressure, in. WC	+1.7
H_2O,%	0.5		

Leak Checks & Physical Condition

	Side A	Side B
Pre	✓ 3"	✓ 3"
Post	✓ 3"	✓ 3"

0.049 ft²

Measurement Data

	Point	Angle (degrees)	FPM ~~Δp (in. WC)~~	Temp. (°F)
PRE				
810	1	N/A	4954	32
	2		5091	32
816	3		5024	32
	4		5023	32
POST				
1540	1		5022	53
	2		4923	53
	3		5020	53
1544	4		5061	53
	Average		5023	~~32~~ PRE
			5006	53 POST

SCFM (Qsd)	257
ACFM (Qaw)	24[illegible]
Velocity, ft/Sec	83.72
Personnel	TTB

Notes

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Method Run 1-2 Pre Post Truck

Air Control Techniques EPA Method 2 Data Sheet			ACT Job Number	877	
Client	National Ready Mixed Concrete Assoc.		ACT Run Number	Truck Mix - 1/2	
Plant	Ready Mixed Concrete Company		Date	12/8/03	
City/State	Wafe Forest, North Carolina		Gauge ID	ADM - 850	
Location	TEOM Inlet Duct		Pitot ID	Standard-18	
Averages	**5015**	**43**	Thermocouple ID	TC-1	
		Temp			
Point No.	**FPM**	**Deg F**			
1	4954	32	Pre	**Oxygen %**	**20.9**
2	5091	32			
3	5024	32		**Carbon Dioxide %**	**0**
4	5023	32			
5	5022	53	Post	**Moisture %**	**1.10**
6	4923	53			
7	5020	53		**Stack Area sq.in.**	**7.0686**
8	5061	53			
9				**Pbar**	**29.9**
10					
11				**Static Pressure**	**1.7**
12					
13				**Pitot Coef.**	**0.99**
14					
15				**Start Time Pre/Post**	**8:10-15:40**
16					
17				**Stop Time Pre/Post**	**8:16-15:44**
18					
19			**Absolute Gas Pressure inches water**	**Ps =**	**30.03**
20					
21			**Dry Mole Fraction of Gas**	**Mfd =**	**0.98898**
22					
23			**Dry Molecular Weight of Gas lb/lb Mole**	**Md =**	**28.84**
24					
25			**Wet Molecular Weight of Gas lb/lb Mole**	**Ms =**	**28.72**
26					
27			**Average Gas Velocity ft/sec**	**vs =**	**83.72**
28					
29			**Dry Volumetric Gas Flow Rate**		
30			**at Standard Conditions SCFM**	**Qsd =**	**257**
31					
32			**Wet Volumetric Flue Gas Flow Rate**		
33			**at Stack Conditions ACFM**	**Qaw =**	**247**
34					
35					
36					
37					
38					
39					
40					
41					
42					

Method 2 - Air Control Techniques, P.C.

Date 12/9/03

Identification Information

Client	NRMCA	Job #	877
Plant Name	Wake Forest RMCC	Process	TEOM
City	Wake Forest	State	NC

Sampling Location and Port Information

Unit #	TEOM	Pitot ID	18
Sampling Location	TEOM	Pitot Coeff. (Cp)	1.0
Barometric Pressure, in. Hg	29.9	TC ID	N/A
O_2,%	20.9	Duct/Stack Dia., in.	3" Dia
CO_2,%	0		
H_2O,%	0.5	Static Pressure, in. WC	+1.1

Leak Checks & Physical Condition

	Side A	Side B
Pre	3" ✓	3" ✓
Post	3" ✓	3" ✓

Measurement Data

	Point	Angle (degrees)	~~Δp (in. WC)~~ FPM	Temp. (°F)
START 0812	1	N/A	4960	28
	2		5010	28
	3		4756	28
STOP 0815	4		5325	28
START 1040	1		4706	40
	2		4945	40
	3		4871	40
STOP 1044	4		5235	40
	STATIC		+1.30	
	Average			

SCFM (Qsd)	263
ACFM (Qaw)	246
Velocity, ~~ft/Sec~~	83.55
Personnel	TTB, DLS SSH

Notes

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

fpm T

5012 28°F PRE

4939 40°F POST

Air Control Techniques EPA Method 2 Data Sheet			ACT Job Number	877	
Client	National Ready Mixed Concrete Assoc.		ACT Run Number	Truck Mix - 3	
Plant	Ready Mixed Concrete Company		Date	12/9/03	
City/State	Wafe Forest, North Carolina		Gauge ID	ADM - 850	
Location	TEOM Inlet Duct		Pitot ID	Standard-18	
Averages	**4974**	**34**	Thermocouple ID	TC-1	
		Temp			
Point No.	**FPM**	**Deg F**			
1	4960	28	Pre	**Oxygen %**	**20.9**
2	5010	28			
3	4756	28		**Carbon Dioxide %**	**0**
4	5325	28			
5	4706	40	Post	**Moisture %**	**0.04**
6	4945	40			
7	4871	40		**Stack Area sq.in.**	**7.0686**
8	5235	40			
9				**Pbar**	**29.9**
10					
11				**Static Pressure**	**1.2**
12					
13				**Pitot Coef.**	**0.99**
14					
15				**Start Time Pre/Post**	**8:12-10:40**
16					
17				**Stop Time Pre/Post**	**8:15-10:44**
18					
19			**Absolute Gas Pressure inches water**	**Ps =**	**29.99**
20					
21			**Dry Mole Fraction of Gas**	**Mfd =**	**0.9996**
22					
23			**Dry Molecular Weight of Gas lb/lb Mole**	**Md =**	**28.84**
24					
25			**Wet Molecular Weight of Gas lb/lb Mole**	**Ms =**	**28.83**
26					
27			**Average Gas Velocity ft/sec**	**vs =**	**83.55**
28					
29			**Dry Volumetric Gas Flow Rate**		
30			**at Standard Conditions SCFM**	**Qsd =**	**263**
31					
32			**Wet Volumetric Flue Gas Flow Rate**		
33			**at Stack Conditions ACFM**	**Qaw =**	**246**
34					
35					
36					
37					
38					
39					
40					
41					
42					

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB

Date 12/08/03 Time Sample Taken 14:00 Sample Type CEMENT

Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
75mm 3"	499.3	499.3	0	0
19mm 0.75"	550.9	550.9	0	0
850µm NO.20	413.6	413.6	0	0
150µm NO.100	348.3	670.2	321.9	79.96
75µm NO.200	342.4	382.7	40.3	10.01
Pan	370.3	410.7	40.4	10.03
Totals			402.6	100.0

A.) Sample Weight **Wet-Pan Weight** = 401.7 - [redacted]

B.) Sample Weight **Dry-Pan Weight** = 400.6 - [redacted]

C.) % Moisture = **{(A-B)/A}*100** = ~~0.278%~~ [redacted]

TTB 0.274 [redacted]

Date 12/09/03 Time Sample Taken 807 Sample Type FlyASH

Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
75mm 3"	499.3	499.3	0	0
19mm 0.75"	550.9	550.9	0	0
850µm NO.20	413.6	413.6	0	0
150µm NO.100	348.3	365.9	17.6	4.14
75µm NO.200	342.4	389.7	47.3	11.13
Pan	370.3	730.4	360.1	84.73
Totals			425.0	100.0

A.) Sample Weight **Wet-Pan Weight** = 422.2 [redacted]

B.) Sample Weight **Dry-Pan Weight** = 421.3 [redacted]

C.) % Moisture = **{(A-B)/A}*100** = [redacted]

TTB 0.213

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB

Date 12/8/03 Time Sample Taken 13:00 Sample Type SAND

Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
75mm 3"	500.4	500.4	0	0
19mm 0.75"	552.2	552.2	0	0
850µm NO.20	414.6	804.8	390.2	41.06
150µm NO.100	349.1	887.1	538.0	56.61
75µm NO.200	343.2	358.1	14.9	1.56
Pan	372.0	379.3	7.3	0.77
Totals			950.4	100.0

A.) Sample Weight **Wet-Pan Weight** = ~~800.1~~ 1088.0

B.) Sample Weight **Dry-Pan Weight** = 948.0

C.) % Moisture = **{(A-B)/A}*100** = ~~12.868~~ 14.3%
12.868

Date 12/8/03 Time Sample Taken 13:00 Sample Type STONE

Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
75mm 3"	500.4	500.4	0	0.0
19mm 0.75"	552.2	818.7	266.5	33.59
850µm NO.20	414.6	929.8	515.2	64.93
150µm NO.100	349.1	355.2	6.1	0.77
75µm NO.200	343.2	345.9	2.7	0.34
Pan	~~372.0~~ 369.9	372.9	3.0	0.38
Totals			793.5	100.01

A.) Sample Weight **Wet-Pan Weight** = 800.8

B.) Sample Weight **Dry-Pan Weight** = 789.3

C.) % Moisture = **{(A-B)/A}*100** = 1.436%

APPENDIX B2

RMCC CENTRAL MIX

FIELD DATA SHEETS

Method 1 - Air Control Techniques, P.C.

Date 12/10/01

Client	READY MIXED
Job #	877
Plant Name	READY MIXED
State	NC
City	WAKE FOREST
Sampling Location	BAGHOUSE INLET (CENTRAL)

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	4"
Distance From Far Wall To Outside Of Port, Inches	14 1/8
Nipple Length And/Or Wall Thickness, Inches	1/8
Depth Of Stack Or Duct, Inches	14
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches ($\pi \times R^2$ or $L \times W$)	153.936

	Upstream	Downstream
Distance to Flow Disturbances	~170"	34"
Diameters	12.143	2.429

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

Diameters

Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	0.616	3 1/4"
2	14.6	2.044	2 1/8"
3	29.6	4.144	4 1/4"
4	70.4	9.856	10"
5	85.4	11.956	12 1/8"
6	95.6	13.384	13 1/2"
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000-0.0625 - 0
0.0625-0.1875 - 1/8
0.1875-0.3125 - 1/4
0.3125-0.4375 - 3/8
0.4375-0.5625 - 1/2
0.5625-0.6875 - 5/8
0.6875-0.8125 - 3/4
0.8125-0.9375 - 7/8
0.9375-1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	READY MIXED	Date	12-10-03
City, State	WAKE FOREST, NC	Project #	877
Personnel	TTB, DLS, SSH	Pitot Identification	PT2
Test Location	CENTRAL MIX BAGHOUSE INLET	Pitot Coefficient (Cp)	0.84

Stack Dimensions			Pressures		
Diameter of Stack (D)	14	in	Barometric Pressure (Pb)	29.9	in Hg
Width of Stack (W)	—	in	Static Pressure (Pg)	-1.90	in H_2O
Area of Stack (As)		ft^2	Absolute Stack Pressure (Ps)		in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	0.5	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)		lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)		lb/lb-mole

PRELIMINARY TRAVERSE

Pitot Tube Leak Checks			A	B	
Port	Point	Angle, °	Δp, in H_2O	Temp. °F	ft/sec
Start 1327 A	6	+2	1.00	45	
	5	+4	0.94	45	
	4	+4	0.92	45	
	3	+2	1.10	45	
	2	+1	0.93	45	
	1	+1	0.98	45	
End 1332					

Average Angle, Degrees 2.3

Average Velocity Pressure

Average Gas Temperature (°F)

Average Stack Gas Velocity (ft/sec)

Actual Cubic Feet per minute (ACFM)

Dry Standard Cubic Feet per Minute (DSCFM)

Central Mix Inlet

Run ID	WF-C-IN-PM10/2.5-1
Condition	

Combined Cyclone PM10 & PM2.5 Run Data Sheet

IDENTIFICATION INFORMATION

Plant Name	Ready Mixed Con. Co.
City	Wake Forest
State	N.C.
Source Number	Central Mix Inlet
Sampling Location	~~Baghouse Inlet~~
Test Personnel	SSH
Date	12/10/03
Start	0822
Stop	1324
Meterbox ID	802012
ΔH @	1.538
Gamma, γ	1.025
Nozzle ID	1812-1
Nozzle Diameter	0.135
Orsat/Fyrite	Fyrite

Filter ID	Tare
01007	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.003	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.002	<0.02 or 4%	3.0

Stop 0854
Resume 0908

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	8	6
Pitot Tube Posttest Leak Check	7	6

Stop 0950
Resume 1238

Barometric Pressure, In.,Hg.	29.8	Static Pressure, In. W.C.	-1.9 ~~-3.3~~

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	12.6	Moisture, %	1.264
CO_2 %	0.0	Md_run	28.84
O_2 %	20.9	Mw_run	28.70

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	Run Cum. D50s, microns PM2.5
A	1	21.27	0	115.200	1.10	54	44	1.0	45	0.37	0.40			
	2	19.14	21:16	123.18	0.89	56	46	1.0	43	0.37	0.40			
	3	19.77	40:24	130.30	0.95	55	43	1.0	43	0.37	0.41			
1:00.11	4	20.78	60:11	137.53	1.05	55	43	1.0	42	0.37	0.41			
	5	19.03	1:20:57	145.29	0.88	56	52	1.0	49	0.37	0.39			
	6	18.81	1:40:00	152.42	0.86	58	52	1.0	49	0.37	0.39			
			1:58:48	159.480										

Total Run Time	1:58:48
Total Volume, ACF	44.280

Averages	0.9529	55.7	46.8
	in. H2O	°F	°F

0.370
in H2O

%	microns	

Run	

186

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-C-IN-PM10/2.5-2 (Central Mix Inlet)
Condition	

IDENTIFICATION INFORMATION

Plant Name	Ready Mixed Concrete Company
City	Wake Forest
State	N. C.
Source Number	
Sampling Location	Central Mix Inlet
Test Personnel	SSH, TTB, DDH
Date	12/11/03
Start	0731
Stop	0937
Meterbox ID	802012
ΔH @	1.538
Gamma, γ	1.025
Nozzle ID	1812-1
Nozzle Diameter	0.135
Orsat/Fyrite	Fyrite

Filter ID	Tare
QT1009	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.002	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.001	< 0.02 or 4%	3.0

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	8	6
Pitot Tube Posttest Leak Check	6	5

Barometric Pressure, In.,Hg.	29.3	Static Pressure, In. W.C.	-1.9

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	10.4	Moisture, %	1.021
CO_2 %	0.0	Md_run	28.84
O_2 %	20.9	Mw_run	28.73

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	Run Cum. D50s, microns PM2.5
A	1	19.76	0	159.700	0.93	51	47	1.0	46	0.36	0.39			
	2	20.79	19:45	167.10	1.03	52	46	1.0	43	0.36	0.39			
	3	21.49	40:33	174.74	1.10	53	45	1.0	44	0.36	0.40			
	4	20.99	1:02:02	182.54	1.05	54	46	1.0	45	0.36	0.40			
	5	21.28	1:23:02	190.42	1.08	55	46	1.0	45	0.36	0.40			
	6	20.99	1:44:20	197.98	1.05	57	47	1.0	45	0.36	0.40			
			2:05:19	205.618										

Total Run Time	2:05:19				
Total Volume, ACF	45.918				
Averages	1.0393 in. H2O	53.7 °F	46.2 °F	0.360 in H2O	

%	microns	

Run	

Central Mix Inlet

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-C-IN-PM10/2.5- 3
Condition	

Stop Scr
Truck Mix
Stop 1346
Resum 1431

IDENTIFICATION INFORMATION

Plant Name	Ready Mixed Concrete Co.
City	Wake Forest
State	N.C.
Source Number	
Sampling Location	Central Mix Inlet
Test Personnel	SSH
Date	12/11/03
Start	1221
Stop	1508
Meterbox ID	802012
ΔH @	1.538
Gamma, γ	1.025
Nozzle ID	1812-1
Nozzle Diameter	0.135
Orsat/Fyrite	Fyrite

Filter ID	Tare
QT1011	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000	<0.0200 or 4%	3

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	8	7
Pitot Tube Posttest Leak Check	7	6

Barometric Pressure, In.,Hg.	29.3	Static Pressure, In. W.C.	-1.9

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	8.4	Moisture, %	~~1.02~~	0.843
CO_2 %	0.0	Md_run	~~28.84~~	28.84
O_2 %	20.9	Mw_run	28.74	

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	Run Cum. D50s, microns PM2.5
A	1	19.91	0	206.400	1.03	74	54	1.0	52	0.40	0.40			
	2	20.10	19:55	213.79	1.05	74	53	1.0	51	0.40	0.40			
	3	19.02	40:01	221.45	0.94	73	54	1.0	53	0.40	0.40			
	4	21.49	59:02	228.77	1.20	71	54	1.0	53	0.40	0.40			
	5	21.04	1:20:31	237.02	1.15	68	55	1.0	54	0.40	0.39			
	6	20.58	1:41:34	245.04	1.10	62	56	1.0	54	0.40	0.39			
			2:02:08	252.495										

Total Run Time	2:02:08			
Total Volume, ACF	46.495			
Averages	1.0767 in. H2O	70.3 °F	54.2 °F	

Run	

0.400 in H2O

%	microns	

188

Method 4 - Air Control Techniques, P.C.

Date 12/9/03

Identification Information

Client	NRMCA	Job	877
Plant Name	Wake Forest RMCC	Process	Central Mix
City	Wake Forest	State	NC

Sampling Information

Run Number	WF-C-IN-PRE4-1	WF-C-IN-PRE4-2	WF-C-IN-PRE4-3	Balance Number	V1-1200
Sampling Date		12/11/03		Balance Type	ELEC
Analysit Date		12/11/03		Balance Level	✓
Personnel	TTB, DLS, SSH			Recovery Area	LAB

Location Moisture Data

INLET

Run Number	WF-C-IN-PRE4-1	2	3
Impinger 1			
Final Weight, grams/mls	620.2	622.2	622.9
Initial Weight, grams/mls	617.0	620.2	622.2
Condensed Water, grams	3.2	2.2	0.7
Impinger 2 F, Hec # 5			
Final Weight, grams/mls	677.7	678.3	678.1
Initial Weight, grams/mls	674.8	677.7	678.3
Condensed Water, grams	2.9	.6	-0.2
Impinger 3			
Final Weight, grams/mls	605.4	605.8	606.1
Initial Weight, grams/mls	605.0	605.4	605.8
Condensed Water, grams	0.4	.4	0.3
Condensed Water, grams	6.5	3.2	~~0.3~~ 0.8
Silica Gel			
Final Weight, grams	942.0	949.2	936.8
Initial Weight, grams	935.9	942.0	949.2
Adsorbed Water, grams	6.1	7.2	2.6
Adsorbed Water, grams	~~12.0~~ 6.1		
Total Water, grams	12.6	10.4	8.4

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	RMCC
City	Wake Forest
State	North Carolina
Sampling Location	Baghouse Inlet

PARAMETER	NOMENCLATURE	WF-C-IN-PRE4-1	WF-C-IN-PRE4-2	WF-C-IN-PRE4-3	
Date		12/10/2003	12/11/2003	12/11/2003	
Run Time	Theta	118.801	125.320	122.140	
Nozzle Diameter	inches	0.135	0.135	0.135	
Pitot Tube Coefficient	Cp	0.840	0.840	0.840	
Meter Calibration Factor	Y	1.025	1.025	1.025	
Barometric Pressure, inches Hg	Bp - in Hg	29.8	29.3	29.3	
Meter Box Pressure Differential	ΔH - in. H2O	0.370	0.360	0.400	
Volume of Gas Sampled	Vm - cu. ft.	44.280	45.918	46.495	
Dry Gas Meter Temperature	Tm - °F	55.667	53.667	70.333	
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	46.328	47.420	46.511	
Liquid Collected	ml	12.600	10.400	8.400	
Volume of Water Vapor	Vwstd - cu. ft.	0.593	0.490	0.395	
Moisture Content	$\%H_20$	1.264	1.022	0.843	
Saturation Moisture	$\%H_20$	1.086	1.077	1.450	
Dry Mole Fraction	Mfd	0.989	0.990	0.992	
Carbon Dioxide	$\%CO_2$	0	0	0	
Oxygen	$\%O_2$	20.9	20.9	20.9	
Carbon Monoxide	%CO	0	0	0	
Nitrogen	$\%N_2$	79.100	79.100	79.100	
Gas Molecular Weight, Dry	Md	28.836	28.836	28.836	
Gas Molecular Weight, Wet	Ms	28.718	28.725	28.745	
atic Pressure	Pg - in. H_2O	-1.900	-1.900	-1.900	
Stack Pressure	Ps	29.660	29.160	29.160	
Stack Temperature	Ts - °F	46.833	46.167	54.167	
Average Velocity Head	Δp - in H_2O	0.953	1.039	1.077	
Gas Velocity	vs - ft./sec.	54.074	56.909	58.360	
Stack Area	As - sq. ft.	1.069	1.069	1.069	
Volumetric Air Flow, Actual	Qaw - ACFM	3468	3650	3743	
Volumetric Air Flow, Standard	Qsd - DSCFM	3543	3673	3715	
Isokinetic Sampling Rate	%I	118.4	110.8	110.2	
Total Particulate Catch	Milligrams	68.7	150.2	126.1	
PM >10 Particulate Catch	Milligrams	48.0	92.4	78.9	
PM10 Particulate Catch	Milligrams	20.7	57.8	47.2	
PM>2.5<10 Catch	Milligrams	14.6	50.0	40.3	
PM2.5 Patriculate Catch	Milligrams	6.1	7.8	6.9	
Total Arsenic Catch	Micrograms	2.12	5.12	3.80	
PM >10 Arsenic Catch	Micrograms	1.18	2.09	1.38	
PM10 Arsenic Catch	Micrograms	0.94	3.03	2.42	
Concrete Production During Test	Cubic Yards / Test	49	69	64	
Concrete Production During Test	Tons / Test	92.5	132.4	119.4	Average
Concrete Production Rate	Tons/Hour	46.7	63.4	58.7	56.3
PM10 Arsenic Concentration	ug/mg	0.0196	0.0328	0.0307	0.0277
TSP Arsenic Concentraion	ug/mg	0.0309	0.0341	0.0301	0.0317

Plant	RMCC				
City	Wake Forest				
State	North Carolina				
Sampling Location	Baghouse Inlet				
		WF-C-IN-PRE4-1	WF-C-IN-PRE4-2	WF-C-IN-PRE4-3	Average
Total Particulate Emissions					
Grains/DSCF	gr/DSCF	0.02288	0.04888	0.04184	0.03787
Pounds/Hour	lb/hr	0.69496	1.53894	1.33222	1.18870
Pounds/Ton	lb/ton	0.01488	0.02428	0.02271	0.02062
Total Arsenic Emissions					
Grains/DSCF	gr/DSCF	0.0000007	0.0000017	0.0000013	0.0000012
Pounds/Hour	lb/hr	0.0000214	0.0000525	0.0000401	0.0000380
Pounds/Ton	lb/ton	0.0000005	0.0000008	0.0000007	6.6E-07
PM_{10} Emissions					
Grains/DSCF	gr/DSCF	0.00690	0.01881	0.01566	0.01379
Pounds/Hour	lb/hr	0.20940	0.59221	0.49866	0.43342
Pounds/Ton	lb/ton	0.00448	0.00934	0.00850	0.00744
PM_{10} Arsenic Emissions					
Grains/DSCF	gr/DSCF	0.0000003	0.0000010	0.0000008	0.0000007
Pounds/Hour	lb/hr	0.0000095	0.0000310	0.0000256	0.0000220
Pounds/Ton	lb/ton	0.0000002	0.0000005	0.0000004	0.0000004
$PM_{>2.5<10}$ Emissions					
Grains/DSCF	gr/DSCF	0.00486	0.01627	0.01337	0.0115024
Pounds/Hour	lb/hr	0.14769	0.51230	0.42576	0.3619160
Pounds/Ton	lb/ton	0.00316	0.00808	0.00726	0.0061673
$PM_{2.5}$ Emissions					
Grains/DSCF	gr/DSCF	0.00203	0.00254	0.00229	0.00229
Pounds/Hour	lb/hr	0.06171	0.07992	0.07290	0.07151
Pounds/Ton	lb/ton	0.00132	0.00126	0.00124	0.00127
Cut Sizes					
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	10.77	10.94	10.91	10.87
Gas viscosity, (micropoise)	μ	174.46	174.48	176.53	175.16
Gas sampling rate, ACFM	Qs	0.38	0.38	0.38	0.38
Renolds number, (dimensionless)	N_{re}	3183	3082	3062	3109
Cunningham correction factor	C	1.06	1.06	1.06	1.06
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - PM_2	2.26	2.33	2.33	2.31
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - PM_2	2.27	2.31	2.30	2.29

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-C-OUT-PM4-1
Condition	

IDENTIFICATION INFORMATION

Plant Name	READY MIXED
City	WAKE FOREST
State	NC
Source Number	
Sampling Location	BAGHOUSE OUTLET
Test Personnel	TTB, DLS, SSH
Date	12-16-03
Start	0822
Stop	1320
Meterbox ID	702233
ΔH @	1.677
Gamma, γ	1.003
Nozzle ID	1814-1
Nozzle Diameter	0.134
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1008	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	Good C7	Good C5
Pitot Tube Posttest Leak Check	Good C6	Good C4

Barometric Pressure, In.,Hg. 29.80 Static Pressure, In. W.C. +1.10

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	9.1	Moisture, %	0.931
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.74

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	22.83	0	59.358	2.50	59	48	1	44	0.44	0.44			
	5	22.14	22:50	68.11	2.35	66	49	1	38	0.44	0.44			
	4	21.17	44.58	76.60	2.15	68	48	1	38	0.44	0.45			
	3	19.64	1:06:08	85.19	1.85	67	43	1	38	0.44	0.46			
	2	15.82	1:[illegible]	92.77	1.20	64	53	1	42	0.44	0.44			
	1	14.80	1:41.36	98.94	1.05	68	53	1	43	0.44	0.44			
			1:56:24	104.698										

Total Run Time	1:56:24
Total Volume, ACF	45.340

Averages	1.80485	65.3	49
	in. H2O	°F	°F

Run	WF-C-OUT-PM4-1

0.44
in H2O

87.4	10.81	2.28
%	microns	

STOPPED TEST @ 854 PLANT NEEDED TO SWITCH TO TRUCK MIX.
RESTART @ 0908 STOPPED @ 950 RESTART @ 1228 WAITED FOR TRUCK [illegible]

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-C-OUT-PRE4-2
Condition	

IDENTIFICATION INFORMATION

Plant Name	READY MIXED
City	WAKE FOREST
State	NC
Source Number	
Sampling Location	BAGHOUSE OUTLET
Test Personnel	TTB, SSH, DDH
Date	12-11-03
Start	0731
Stop	0932
Meterbox ID	702233
ΔH @	1.677
Gamma, γ	1.003
Nozzle ID	1814-1
Nozzle Diameter	0.134
Orsat/Fyrite	FYRITE

Filter ID	Tare
2TIC10	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.001	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000		2

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	✓	✓
Pitot Tube Posttest Leak Check	✓	✓

Barometric Pressure, In.,Hg.	29.30	Static Pressure, In. W.C.	+1.0

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	4.7	Moisture, %	~~1.233~~ 0.93
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.79

1.233

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	18.03	0	400.610	1.5	51	48	2	40	.44	.44	96.3	10.73	2.25
	5	18.61	18.14	113.715	1.4	65	45	2	40	.44	.45	94.7	10.92	2.32
	4	16.47	35.56	120.340	1.3	66	45	2	40	.44	.45	103.2	10.87	2.30
	3	14.39	52.49	127.051	1.0	66	47	2	41	.44	.45	112.7	10.92	2.32
	2	14.12	1.07.43	132.680	.90	66	47	1	41	.44	.45	120.6	10.93	2.32
	1	14.89	121.50	138.100	1.0	66	47	1	41	.44	.45	109.00	10.98	2.34
			1.36.43	143.746										

LKCK IMP ONLY

B 138.17
E 139.3
sub 1.21

Total Run Time	1.36.43
Total Volume, ACF	36.856

Averages	1.17	63.3	46
	in. H2O	°F	°F

.44	in H2O

105.6	10.96	2.33
%	microns	

Run	

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	WF-C-OUT-PRE4-3
Condition	

IDENTIFICATION INFORMATION

Plant Name	READY MIXED
City	WAKE FOREST
State	NC
Source Number	
Sampling Location	BAGHOUSE OUTLET
Test Personnel	TTB, SSL, DDH
Date	12-11-03
Start	1221
Stop	1535
Meterbox ID	702233
ΔH @	1.677
Gamma, γ	1.003
Nozzle ID	1814-1
Nozzle Diameter	0.134
Orsat/Fyrite	FYRITE

Filter ID	Tare
2T1012	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.002	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000		5

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	✓	✓
Pitot Tube Posttest Leak Check	✓	✓

Barometric Pressure, In.,Hg.	29.3	Static Pressure, In. W.C.	1.10

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	9.4	Moisture, %	0.838
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.75

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$	
A	6	27.4	0	146.100	2.20	62	58	1	40	0.43	0.420	79.4	10.83	2.31	
	5	27.4	27.24	156.700	2.20	75	55	1	47	0.43	0.435	76.5	10.85	2.35	
	4	21.85	54.48	167.195	1.40	77	54	1	47	0.44	0.438	97.0	10.97	2.35	Stopped 1346
	3	23.00	1.16.39	175.710	1.30	76	54	1	50	0.44	0.438	97.0	11.04	2.38	Restart 1431
	2	21.06	1.35.42	183.600	1.30	68	56	1	50	0.44	0.428	100.9	11.00	2.36	
	1	20.23	1.58.46	191.830	1.20	73	54	1	50	0.44	0.435	101.6	11.03	2.38	
			2:19.00	199.915											

Total Run Time			
Total Volume, ACF	53.015		
Averages	1.57	71.8	54.67
	in. H2O	°F	°F

Run	

.44
in H2O

91.1		
%	microns	

Method 4 - Air Control Techniques, P.C.

Date 12/9/03

Identification Information

Client	NRMCA	Job	877
Plant Name	RMCC	Process	Central Mix
City	Wake Forest	State	NC

Sampling Information

Run Number	WF-C-OUT-PREH-1	WF-C-OUT-PREH-2	WF-C-PREH-3	Balance Number	E-2
Sampling Date		12/11/03		Balance Type	Electronic
Analysit Date		12/11/03		Balance Level	✓
Personnel	TTB DLS SSH			Recovery Area	✓

Location Moisture Data

OUTLET

Run Number	WF-C-OUT-PREH-1	2	3
Impinger 1			
Final Weight, grams/mls	689.1 ~~689.6~~ DLS	690.7	690.0
Initial Weight, grams/mls	686.1	689.1	690.7
Condensed Water, grams	3.0	1.5	-.7
Filter #s.			
Impinger 2			
Final Weight, grams/mls	695.6	696.2	696.9
Initial Weight, grams/mls	695.9	695.6	696.2
Condensed Water, grams	-0.3	.6	.7
Impinger 3			
Final Weight, grams/mls	584.6	586.1	586.3
Initial Weight, grams/mls	584.5	584.6	586.1
Condensed Water, grams	0.1	1.5	.2
Condensed Water, grams	2.8	3.6	
Silica Gel			
Final Weight, grams	872.3	878.4	887.6
Initial Weight, grams	866.0	872.3	878.4
Adsorbed Water, grams	6.3	6.1	9.2
Adsorbed Water, grams	9.3		
Total Water, grams	9.1	9.7	9.4

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	RMCC
City	Wake Forest
State	N.C.
Sampling Location	Baghouse Outlet

PARAMETER	NOMENCLATURE	WF-C-OUT-PRE4-1	WF-C-OUT-PRE4-2	WF-C-OUT-PRE4-3
Date		12/10/2003	12/11/2003	12/11/2003
Run Time	Theta	116.40	96.72	139.00
Nozzle Diameter	inches	0.134	0.134	0.134
Pitot Tube Coefficient	Cp	0.84	0.84	0.84
Meter Calibration Factor	Y	1.0030	1.0030	1.0030
Barometric Pressure, inches Hg	Bp - in Hg	29.80	29.30	29.30
Meter Box Pressure Differential	ΔH - in. H2O	0.44	0.44	0.44
Volume of Gas Sampled	Vm - cu. ft.	45.34	36.856	53.615
Dry Gas Meter Temperature	Tm - °F	65.3	63.3	71.8
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	45.573	36.564	52.340
Liquid Collected	ml	9.1	9.7	9.4
Volume of Water Vapor	Vwstd - cu. ft.	0.428	0.457	0.442
Moisture Content	$\%H_20$	0.931	1.23	0.84
Saturation Moisture	$\%H_20$	1.2	1.1	1.5
Dry Mole Fraction	Mfd	0.991	0.989	0.992
Carbon Dioxide	$\%CO_2$	0	0	0
Oxygen	$\%O_2$	20.9	20.9	20.9
Carbon Monoxide	%CO	0	0	0
Nitrogen	$\%N_2$	79.1	79.1	79.1
Gas Molecular Weight, Dry	Md	28.836	28.84	28.84
Gas Molecular Weight, Wet	Ms	28.735	28.721	28.745
tic Pressure	Pg - in. H_2O	1.10	1.00	1.10
Stack Pressure	Ps	29.88	29.37	29.38
Stack Temperature	Ts - °F	49.0	46.0	54.7
Average Velocity Head	Δp - in H_2O	1.805	1.172	1.573
Gas Velocity	vs - ft./sec.	74.280	60.220	70.312
Stack Area	As - sq. ft.	1.069	1.069	1.069
Volumetric Air Flow, Actual	Qaw - ACFM	4,764	3,863	4,510
Volumetric Air Flow, Standard	Qsd - DSCFM	4,890	3,915	4,505
Isokinetic Sampling Rate	%I	87.4	105.4	91.2
Total Particulate Catch	Milligrams	1.9	1.4	2.3
PM >10 Particulate Catch	Milligrams	0.0	0.5	1.0
PM10 Particulate Catch	Milligrams	1.9	0.9	1.3
PM>2.5<10 Catch	Milligrams	0.7	0.9	0.4
PM2.5 Patriculate Catch	Milligrams	1.2	0.0	0.9
Total Arsenic Catch	Micrograms	0.0	0.0	0.0
PM >10 Arsenic Catch	Micrograms	0.0	0.0	0.0
PM10 Arsenic Catch	Micrograms	0.0	0.0	0.0
Concrete Production During Test	Cubic Yards / Test	49	69	64
Concrete Production During Test	Tons / Test	92.5	132.4	119.4
Concrete Production Rate	Tons/Hour	47.7	82.1	51.5

Plant	RMCC				
City	Wake Forest				
State	N.C.				
Sampling Location	Baghouse Outlet				
		WF-C-OUT-PRE4-1	WF-C-OUT-PRE4-2	WF-C-OUT-PRE4-3	Average
Total Particulate Emissions					
Grains/DSCF	gr/DSCF	0.00064	0.00059	0.00068	0.00064
Pounds/Hour	lb/hr	0.02697	0.01983	0.02619	0.02433
Pounds/Ton	lb/ton	0.00057	0.00024	0.00051	0.00044
PM_{10} Emissions					
Grains/DSCF	gr/DSCF	0.00064	0.00038	0.00038	0.00047
Pounds/Hour	lb/hr	0.02697	0.01275	0.01480	0.01817
Pounds/Ton	lb/ton	0.00057	0.00016	0.00029	0.00034
$PM_{>2.5<10}$ Emissions					
Grains/DSCF	gr/DSCF	0.00024	0.00038	0.00012	0.00024
Pounds/Hour	lb/hr	0.00993	0.01275	0.00455	0.00908
Pounds/Ton	lb/ton	0.00021	0.00016	0.00009	0.00015
$PM_{2.5}$ Emissions					
Grains/DSCF	gr/DSCF	0.00041	0.00000	0.00027	0.00022
Pounds/Hour	lb/hr	0.01703	0.00000	0.01025	0.00909
Pounds/Ton	lb/ton	0.00036	0.00000	0.00020	0.00019
Cut Sizes					
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	10.82	10.96	11.03	10.94
Gas viscosity, (micropoise)	μ	175.22	174.28	176.65	175.39
Gas sampling rate, ACFM	Qs	0.38	0.37	0.38	0.38
Renolds number, (dimensionless)	N_{re}	3173	3088	3025	3095
nningham correction factor	C	1.06	1.06	1.06	1.06
$M_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - PM_2	2.28	2.34	2.38	2.33
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - PM_2	2.28	2.32	2.34	2.31

Type of Mix	Central	Central	Central	Averages
Run Numbers	1	2	3	
TEOM Fan ACFM	213	213	213	213
Array 1 Size, SQ FT	100	100	100	100
Array 2 Size, SQ FT	40	40	40	40
Wind Speed Thru Array, MPH	1	2.7	2.5	2.07
Wind Speed Thru Array, FPM	88	237.6	220	181.9
ACFM Thru Arrays	12320	33264	30800	25461
Actual Cubic Meters of Gas Thru Arrays per Minute, ACM/M	349	942	872	721
Average PM10 Particulate Concentration, ug/m^3	18.8	16.4	57.9	31.0
Measured PM10 Emissions Thru Array, lb / Hour	0.0009	0.0020	0.0067	0.0032
Calculated TSP Emissions Thru Array, lb / Hour	0.0029	0.0053	0.0178	0.0087
Calculated PM2.5 Emissions Thru Array, lb / Hour	0.0003	0.0003	0.0010	0.0005
Calculated PM>2.5<10 Emissions Thru Array, lb/hour	0.0006	0.0018	0.0057	0.0027
PM10 Emissions, Array + Fabric Filter, lb/hr	0.0278	0.0148	0.0215	0.0214
TSP Emissions, Array + Fabric Filter, lb/hr	0.0298	0.0251	0.0440	0.0330
PM2.5 Emissions, Array + Fabric Filter, lb/hr	0.0173	0.0003	0.0112	0.0096
PM>2.5<10 Emissions, Array + Fabric Filter, lb/hr	0.0105	0.0145	0.0103	0.0118
Average Plant Production Levels During Tests, Tons/Hour	47.2	72.75	55.1	58.4
Total TEOM & Fabric Filter PM10 Emission Factor, lb/ton	0.00059	0.00020	0.00039	0.00039
Total TEOM & Fabric Filter TSP Emission Factor, lb/ton	0.00063	0.00035	0.00080	0.00059
Total TEOM & Fabric Filter PM2.5 Emission Factor, lb/ton	0.00037	0.000004	0.00020	0.00019
Total TEOM & Fabric Filter PM>2.5<10 Emission Factor, lb/ton	0.00022	0.00020	0.00019	0.00020
Truck Hood PM10 Efficiency	99.6%	99.7%	98.7%	99.3%
System Collection Efficiency	86.7%	97.5%	95.7%	93.3%
Fabric Filter Inlet, Total Particulate Concentration, lb/hr	0.6950	1.5389	1.3322	1.1887
Fabric Filter Outlet, Total Particulate Concentration, lb/hr	0.0270	0.0198	0.0262	0.0243
Fabric Filter Total Efficiency	96.1%	98.7%	98.0%	97.6%
Total / PM10 Ratio for TEOM TSP Calc Ratio * Teom PM10 =TEOM TSP lb/ton	3.32	2.60	2.67	2.86
PM2.5 / PM10 Ratio for TEOM PM2.5 Calc Ratio * TEOM PM10 =TEOM PM2.5 lb/ton	0.29	0.13	0.15	0.19
PM<2.5>10 Ratio for TEOM	0.71	0.87	0.85	0.81
Fabric Filter Inlet, PM10 Particulate Concentration, lb/hr	0.2094	0.5922	0.4987	0.4334
Fabric Filter Outlet, PM10 Particulate Concentration, lb/hr	0.0270	0.0128	0.0148	0.0182
Fabric Filter PM10 Efficiency	87.1%	97.8%	97.0%	94.0%
Fabric Filter Inlet, PM2.5 Particulate Concentration, lb/hr	0.0617	0.0799	0.0729	0.0715
Fabric Filter Outlet, PM2.5 Particulate Concentration, lb/hr	0.0170	0.0000	0.0103	0.0091
Fabric Filter PM2.5 Efficiency	72%	100%	86%	86.1%
Fabric Filter Inlet, PM>2.5<10 Particulate Concentration, lb/hr	0.1477	0.5123	0.4258	0.3619
Fabric Filter Outlet, PM>2.5<10 Particulate Concentration, lb/hr	0.0099	0.0128	0.0046	0.0091

RMCC Wake Forest Emission Factor Calculations

RMCC Wake Forest Truck Mix

NOTE Production Average from inlet and outlet sample times

Truck Mix	Array Fugitive Data Lbs/Hour Total	PM10	Arsenic, ug/mg Total	PM10	lbs/hour arsenic Total	PM10	Tons	Lbs/Tons Total	PM10
1	0.0084	0.0026	0.0382	0.0688	3.21E-07	1.79E-07	67.4	4.76E-09	2.65E-09
2	0.0465	0.012	0.0335	0.0733	1.56E-06	8.80E-07	20.05	7.77E-08	4.39E-08
3	0.0116	0.004	0.0667	0.1151	7.74E-07	4.60E-07	50.6	1.53E-08	9.10E-09

Truck Mix	Baghouse Outlet Data Total	PM10	Arsenic, ug/mg Total	PM10	lbs/hour arsenic Total	PM10	Tons	Lbs/Tons Total	PM10
1	0.021413	0.02141	0.0382	0.0688	8.18E-07	1.47E-06	67.4	1.21E-08	2.19E-08
2	0.013874	0.00416	0.0335	0.0733	4.65E-07	3.05E-07	20.05	2.32E-08	1.52E-08
3	0.021103	0.02110	0.0667	0.1151	1.41E-06	2.43E-06	50.6	2.78E-08	4.80E-08

Total Truck Mix Emission Factors

lb/hr	Total	PM10	lb/ton	Total	PM10		
1	1.14E-06	1.65E-06	1	1.69E-08	2.45E-08		
2	2.02E-06	1.18E-06	2	1.01E-07	5.91E-08		
3	2.18E-06	2.89E-06	3	4.31E-08	5.71E-08	AP-42 lb As/Ton Concrete	
							% (RMC/AP-42)*100
Averages	1.78E-06	1.91E-06		5.36E-08	4.69E-08	1.16E-06	4.6%

RMCC Wake Forest Central Mix

Central Mix	Array Fugitive Data Lbs/Hour Total	PM10	Arsenic, ug/mg Total	PM10	Total lbs/hour arsenic	PM10	Tons	Lbs/Tons Total	PM10
1	0.0029	0.0009	0.0309	0.0196	8.96E-08	1.76E-08	47.2	1.90E-09	3.74E-10
2	0.0053	0.002	0.0341	0.0328	1.81E-07	6.56E-08	72.75	2.48E-09	9.02E-10
3	0.0178	0.0067	0.0301	0.0307	5.36E-07	2.06E-07	55.1	9.72E-09	3.73E-09

Central Mix	Baghouse Outlet Data Total	PM10	Arsenic, ug/mg Total	PM10	lbs/hour arsenic Total	PM10	Tons	Lbs/Tons Total	PM10
1	0.026966	0.026966	0.0309	0.0196	8.33262E-07	5.2854E-07	47.2	1.77E-08	1.12E-08
2	0.019828	0.012747	0.0341	0.0328	6.76138E-07	4.1809E-07	72.75	9.29E-09	5.75E-09
3	0.026188	0.014802	0.0301	0.0307	7.88253E-07	4.5442E-07	55.1	1.43E-08	8.25E-09

Total Central Mix Emission Factors

lb/hr	Total	PM10	lb/ton	Total	PM10		
1	9.23E-07	5.46E-07		1.96E-08	1.16E-08		
2	8.57E-07	4.84E-07		1.18E-08	6.65E-09		
3	1.32E-06	6.60E-07		2.40E-08	1.20E-08	AP-42 lb As/Ton Concrete	
							% (RMC/AP-42)*100
Averages	1.03E-06	5.63E-07		1.85E-08	1.01E-08	1.87E-08	98.7%

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB
Date 12/10/03

Run 1
Central Mix

	Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Silt Sample Taken √	LOAD #
	0826/0834		✓	0		2
	0845/0852		✓	0		3
Truck Mix →	0856/0901		✓	0		4 TRUCK Mix
	0909/0916		✓	0		5
	0925/0933		✓	0		6
0956 Truck Mix	0956/1001		✓	0		
Truck Mix	1032/1039		✓	0		
Truck Mix	1050/1055		✓	0		TRUCK Mix
T.M.	1056/1059		✓	0		
T.M.	1059/1101		✓	0		
TM	1102/1112		✓	0		
	1240/1248		✓	0		11

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB
Date 12/11/03

RUN #2
Central Mix

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Silt Sample Taken √
731/0739	N/A	✓	0	NA
? 0740/0755		✓	0	
0756/0805		✓	0	
0806/0814		✓	0	
0814/0822		✓	0	
0851/0910		✓	0	
0912/0933		✓		
				✓

LOAD #

3
4
5
~~2095~~ 6
~~2216~~ 7
~~2079~~ 8
~~2117~~ 9

Plant Name: Ready Mixed Concrete Company
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Wake Forest, NC Personnel :TTB
Date 12/11/03

Run 3
Central Mix

	Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Silt Sample Taken √
	1222/1228		✓	0	
	1232/1241		✓	0	
Clean Spill	1246/1303	Front loader	Todd operating hand shovel		
1315	~~2029~~ 1315/1322		✓	0	
	1323/1331		✓	0	
	1430/1439		✓	0	
	1440/1449		✓	0	
	1450/1509		✓	0	

Truck Number	LOAD
2216	16
2214	17
2029	18
2113	19
2119	20
2216	22
2214	23

Method 2 - Air Control Techniques, P.C.

Date 12-10-03

Identification Information

Client	Ready Mixed	Job #	877
Plant Name	Ready Mixed	Process	Central Mix
City	Wake Forest	State	NC

Sampling Location and Port Information

Unit #	Central Setup	Pitot ID	18
Sampling Location	Dom Inlet	Pitot Coeff. (Cp)	0.99
Barometric Pressure, in. Hg	29.80	TC ID	N/A
O_2,%	20.9	Duct/Stack Dia., in.	31"
CO_2,%	0		
H_2O,%	0.5	Static Pressure, in. WC	+0.89

Leak Checks & Physical Condition

	Side A	Side B
Pre	3" ✓	3" ✓
Post	3" ✓	3" ✓

Measurement Data

	Point	Angle (degrees)	~~ΔP~~ fpm (in. WC)	Temp. (°F)
START 0756	~~4~~ A ~~6~~		4300	45
	3 ~~5~~		4405	45
	2 ~~4~~		4350	45
STOP 0800	1 ~~3~~		4308	45
	~~2~~			
	~~1~~			
START 1340	~~4~~ Static	+0.93	4204	52
	A 3		4107	52
STOP 1343	2		4280	52
	1		4271	52
	Average			

SCFM (Qsd)	218
ACFM (Qaw)	~~[illegible]~~ 213
Velocity, ft/Sec	72.35
Personnel	TTB, DLS
	SSH

Notes

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

fpm °F
4340 45

Method Run 1 Pre-Post Central

Air Control Techniques EPA Method 2 Data Sheet			ACT Job Number	877	
Client	National Ready Mixed Concrete Assoc.		ACT Run Number	Central Mix - 1	
Plant	Ready Mixed Concrete Company		Date	12/10/03	
City/State	Wafe Forest, North Carolina		Gauge ID	ADM - 850	
Location	TEOM Inlet Duct		Pitot ID	Standard-18	
Averages	**4278**	**49**	Thermocouple ID	TC-1	
		Temp			
Point No.	**FPM**	**Deg F**			
1	4300	45	Pre	**Oxygen %**	**20.9**
2	4405	45			
3	4350	45		**Carbon Dioxide %**	**0**
4	4308	45			
5	4204	52	Post	**Moisture %**	**1.10**
6	4107	52			
7	4280	52		**Stack Area sq.in.**	**7.06858**
8	4271	52			
9				**Pbar**	**29.8**
10					
11				**Static Pressure**	**0.91**
12					
13				**Pitot Coef.**	**0.99**
14					
15				**Start Time Pre/Post**	**7:56-13:40**
16					
17				**Stop Time Pre/Post**	**8:00-13:43**
18					
19			**Absolute Gas Pressure inches water**	**Ps =**	**29.87**
20					
21			**Dry Mole Fraction of Gas**	**Mfd =**	**0.98903**
22					
23			**Dry Molecular Weight of Gas lb/lb Mole**	**Md =**	**28.84**
24					
25			**Wet Molecular Weight of Gas lb/lb Mole**	**Ms =**	**28.72**
26					
27			**Average Gas Velocity ft/sec**	**vs =**	**72.35**
28					
29			**Dry Volumetric Gas Flow Rate**		
30			**at Standard Conditions SCFM**	**Qsd =**	**218**
31					
32			**Wet Volumetric Flue Gas Flow Rate**		
33			**at Stack Conditions ACFM**	**Qaw =**	**213**
34					
35					
36					
37					
38					
39					
40					
41					
42					

Method 2 - Air Control Techniques, P.C.

Date 12/11/03

Identification Information

Client	NRMCA	Job #	877
Plant Name	RMCC	Process	TEOM CENTRAL
City	WAKE FOREST	State	NC

Sampling Location and Port Information

Unit #	Central Mix	Pitot ID	18
Sampling Location	TEOM INLET	Pitot Coeff. (Cp)	1.0
Barometric Pressure, in. Hg	29.3	TC ID	N/A
O_2,%	20.9	Duct/Stack Dia., in.	34
CO_2,%	0		
H_2O,%	0.5	Static Pressure, in. WC	+0.95

Leak Checks & Physical Condition

	Side A	Side B
Pre	3" ✓	3" ✓
Post	3" ✓	3" ✓

Measurement Data

	Point	Angle (degrees)	Δp (in. WC)	Temp. (°F)
START 745	1	N/A	4393	45
	2		4408	45
	3		4428	45
STOP 749	4		4395	45
START 1540	1	N/A	4403	54
	2		4560	54
	3		4630	54
STOP 1545	4		4837	54
	Average			

SCFM (Qsd)	222
ACFM (Qaw)	216
Velocity, ft/Sec	73.43
Personnel	MB
	SSH

Notes

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Air Control Techniques EPA Method 2 Data Sheet			ACT Job Number	877	
Client	National Ready Mixed Concrete Assoc.		ACT Run Number	Central Mix - 2-3	
Plant	Ready Mixed Concrete Company		Date	12/11/03	
City/State	Wafe Forest, North Carolina		Gauge ID	ADM - 850	
Location	TEOM Inlet Duct		Pitot ID	Standard-18	
Averages	4506	50	Thermocouple ID	TC-1	
		Temp			
Point No.	FPM	Deg F			
1	4393	45	Pre	Oxygen %	20.9
2	4408	45			
3	4428	45		Carbon Dioxide %	0
4	4395	45			
5	4403	54	Post	Moisture %	0.98
6	4560	54			
7	4630	54		Stack Area sq.in.	7.06858
8	4837	54			
9				Pbar	29.8
10					
11				Static Pressure	0.91
12					
13				Pitot Coef.	0.99
14					
15				Start Time Pre/Post	7:56-13:40
16					
17				Stop Time Pre/Post	8:00-13:43
18					
19			Absolute Gas Pressure inches water	Ps =	29.87
20					
21			Dry Mole Fraction of Gas	Mfd =	0.99016
22					
23			Dry Molecular Weight of Gas lb/lb Mole	Md =	28.84
24					
25			Wet Molecular Weight of Gas lb/lb Mole	Ms =	28.73
26					
27			Average Gas Velocity ft/sec	vs =	73.43
28					
29			Dry Volumetric Gas Flow Rate		
30			at Standard Conditions SCFM	Qsd =	222
31					
32			Wet Volumetric Flue Gas Flow Rate		
33			at Stack Conditions ACFM	Qaw =	216
34					
35					
36					
37					
38					
39					
40					
41					
42					

APPENDIX B3

S.T. WOOTEN CENTRAL MIX

FIELD DATA SHEETS

Method 1 - Air Control Techniques, P.C.

Date 3-01-04

Client	KEARY MIXED
Job #	8771
Plant Name	ST WOOTEN —
State	NC
City	RALEIGH
Sampling Location	BAGHOUSE INLET

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	4
Distance From Far Wall To Outside Of Port, Inches	14 1/8
Nipple Length And/Or Wall Thickness, Inches	1/8
Depth Of Stack Or Duct, Inches	14
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches (πR^2 or L x W)	153.936

	Upstream	Downstream
Distance to Flow Disturbances	45"	12"
Diameters	3.214	0.857

Diameters			
Velocity	UP	Down	Particulate
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Note: If more than 8 and 2 diameters and duct diameter is greater than 12" and less than 24", use 8 or 9 points.

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	0.616	3/4"
2	14.6	2.044	2 1/8"
3	29.6	4.144	4 1/4"
4	70.4	9.856	10"
5	85.4	11.956	12 1/8"
6	95.6	13.384	13 1/2"
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	38.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000 - 0.0625 - 0
0.0625 - 0.1875 - 1/8
0.1875 - 0.3125 - 1/4
0.3125 - 0.4375 - 3/8
0.4375 - 0.5625 - 1/2
0.5625 - 0.6875 - 5/8
0.6875 - 0.8125 - 3/4
0.8125 - 0.9375 - 7/8
0.9375 - 1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	ST. Wooten Company	**Date**	3/2/2004
City, State	Raleigh, North Carolina	**Project #**	877
Personnel	DLS, TTB	**# of Sampling Points**	6
Test Location	Baghouse Inlet	**Pitot Coefficient** (Cp)	0.84

Stack Dimensions			***Pressures***		
Diameter of Stack (D)	14	in	**Barometric Pressure** (Pb)	29.95	in Hg
Width of Stack (W)		in	**Static Pressure** (Pg)	-1.55	in H_2O
Area of Stack (As)	**1.069**	ft^2	**Absolute Stack Pressure** (Ps)	**29.84**	in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0.0	**Moisture Content** (Bws)	1.00	%
Oxygen (%O_2)	20.9	**Dry Molecular Weight** (Md)	**28.84**	lb/lb-mole
Nitrogen Concentration (%N_2)	**79.1**	**Wet Molecular Weight** (Ms)	**28.73**	lb/lb-mole

PRELIMINARY TRAVERSE

	Pitot Tube Leak Checks			A	B	
	Port	Point	Angle, °	Δp, in H_2O	Temp. °F	ft/sec
Start	A	1	1	1.35	59	64.93
		2	3	1.1	59	58.61
		3	0	1.35	59	64.93
		4	0	0.9	59	53.01
		5	2	0.73	59	47.74
		6	0	0.94	59	54.18
End						

Average Angle, Degrees	**1.00**
Average Velocity Pressure	**1.049**
Average Gas Temperature	**59.0**
Average Stack Gas Velocity	**57.23**
Minimum Stack Gas Velocity	**47.74**
Maximum Stack Gas Velocity	**64.93**
Actual Cubic Feet per minute (ACFM)	**3,671**
Dry Standard Cubic Feet per Minute (DSCFM)	**3,687**

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	ST-C-IN-PRE4-1
Condition	NORMAL

IDENTIFICATION INFORMATION

Plant Name	RMCC
City	RALEIGH
State	NC
Source Number	CENTRAL MIX
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	5-02-04
Start	0910
Stop	1010
Meterbox ID	802012
ΔH @	1.564
Gamma, γ	0.9970
Nozzle ID	1072-2
Nozzle Diameter	0.1453
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1014	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		6"

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	Good @ 6"	Good @ 5"
Pitot Tube Posttest Leak Check	Good @ 7"	Good @ 5"

Barometric Pressure, In.,Hg.	29.95	Static Pressure, In. W.C.	-0.55

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	9.8	Moisture, %	1.854
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.64

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	6	10.92	0	771.708	1.25	66	63	2	56	0.42	0.41			
	5	10.70	10:55	776.04	1.20	67	63	2	54	0.42	0.41			
	4	11.76	21:37	780.36	1.45	69	63	2	56	0.42	0.41			
	3	9.67	33:22	785.15	0.98	70	64	2	57	0.42	0.41			
	2	8.73	43:02	789.09	0.80	72	65	2	58	0.42	0.41			
	1	9.00	51:46	792.60	0.85	73	65	2	59	0.42	0.41			
			100:46	796.215										

Total Run Time	1:00:46			
Total Volume, ACF	24.507			
Averages	1.07605 in. H2O	69.5 °F	63.83 °F	

Run	ST-C-IN-PRE-1

0.42 in H2O

101.0 %	10.53	2.21 microns

210

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	ST-C-IN-PRE4-2
Condition	NORMAL

IDENTIFICATION INFORMATION

Plant Name	RMCC
City	RALEIGH
State	NC
Source Number	CENTRAL MIX
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	3-02-04
Start	1112
Stop	1212
Meterbox ID	802012
ΔH @	1.564
Gamma, γ	0.9970
Nozzle ID	1072-2
Nozzle Diameter	0.1453
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1015	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		7

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	GOOD @ 6"	GOOD @ 4"
Pitot Tube Posttest Leak Check	GOOD @ 7"	GOOD @ 4"

Barometric Pressure, In.,Hg. 29.95 Static Pressure, In. W.C. -1.55

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	11.2	Moisture, %	2.215
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.60

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)	Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	6	10.56	0	796.368	1.20	74	68	2	60	0.41	0.41			
	5	10.78	10:33	800.52	1.25	75	65	2	57	0.41	0.41			
	4	11.61	21:20	804.81	1.45	76	66	2	57	0.41	0.41			
	3	8.57	32:57	809.42	0.79	77	66	2	57	0.41	0.41			
	2	8.89	41:31	812.85	0.85	77	67	2	56	0.41	0.41			
	1	8.89	50:24	816.43	0.85	78	66	2	56	0.41	0.41			
			59:17	820.024										

Total Run Time	59:17
Total Volume, ACF	23.656

Averages	1.05075	76.2	66.33
	in. H2O	°F	°F

Run	ST-C-IN-PRE4-2

0.41
in H2O

100.5	10.66	2.25
%	microns	

211

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	ST-C-IN-PRE4-3
Condition	

IDENTIFICATION INFORMATION

Plant Name	RMMC
City	RALEIGH
State	NC
Source Number	CENTRAL MIX
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	3-02-04
Start	1304
Stop	1405
Meterbox ID	802012
ΔH @	1.564
Gamma, γ	0.9970
Nozzle ID	10T2-2
Nozzle Diameter	0.1453
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1016	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000		5

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	600DC7"	600DC5"
Pitot Tube Posttest Leak Check	600DC6"	600DC4"

Barometric Pressure, In.,Hg.	29.95	Static Pressure, In. W.C.	-1.55

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	7.5	Moisture, %	1.445
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.68

Sampling Information

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΔP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΔH (in. H_2O)
A	6	10.91	0	820.207	1.25	76	66	2	62	0.41
	5	10.91	10:54	824.55	1.25	77	65	2	58	0.41
	4	11.12	21:49	828.94	1.30	78	65	2	58	0.41
	3	10.00	32:56	833.37	1.05	78	66	2	59	0.41
	2	8.83	42:56	837.40	0.82	79	67	2	59	0.41
	1	9.10	51:46	840.96	0.87	80	70	2	60	0.41
			1:00:52	844.759						

QA Checks

Target ΔH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
0.41			
0.42			
0.42			
0.42			
0.41			
0.41			

Total Run Time	1:00:52
Total Volume, ACF	24.552

Averages	1.081328	78.0	66.5
	in. H2O	°F	°F

Run	ST-C-IN-PRE-3

0.41	
in H2O	

99.2	10.68	2.23
%	microns	

212

Method 4 - Air Control Techniques, P.C.

Date 3-02-04

Facility Information

Client	RMCC	Job #	877
City, State	RALEIGH, NC	Condition	NORMAL

Sampling Information

Run Number	ST-C-IN-PRE-1	ST-C-IN-PRE-2	ST-C-IN-PRE-3	Balance Number	N11200
Sampling Date	3-02-04			Balance Type	ELEC
Recovery Date	3-02-04			Balance Level	YES
Personnel	DLS, TTB			Recovery Area	LAB

Location Moisture Data

Run Number	1	2	3
Impinger # 1 FILTER QT-1014			
Contents -			
Final Weight, grams/mls	704.1	707.7	711.4
Initial Weight, grams/mls	700.4	704.1	707.7
Condensed Water, grams	3.7	3.6	3.7
Impinger # 2			
Conents -			
Final Weight, grams/mls	678.1	679.0	679.1
Initial Weight, grams/mls	678.0	678.1	679.0
Condensed Water, grams	0.1	0.9	0.1
Impiner # 3			
Contents -			
Final Weight, grams/mls	510.6	511.8	511.8
Initial Weight, grams/mls	510.2	510.6	511.8
Condensed Water, grams	0.4	1.2	0.0
Silica Gel			
Final Weight, grams	883.1	890.6	893.3
Initial Weight, grams	877.5	885.1	890.6
Adsorbed Water, grams	5.6	5.5	2.7
Total Water, grams	9.8	11.2	7.5

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04715) * (weight of water collected (g))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	ST. Wooten
City	Raleigh
State	North Carolina
Sampling Location	Baghouse Inlet

PARAMETER	NOMENCLATURE	ST-C-IN-PRE4-1	ST-C-IN-PRE4-2	ST-C-IN-PRE4-3
Sampling Location				
Date		3/2/2004	3/2/2004	3/2/2004
Run Time	Theta	60.769	59.290	60.867
Nozzle Diameter	inches	0.145	0.145	0.145
Pitot Tube Coefficient	Cp	0.840	0.840	0.840
Meter Calibration Factor	Y	0.997	0.997	0.997
Barometric Pressure, inches Hg	Bp - in Hg	30.0	30.0	30.0
Meter Box Pressure Differential	ΔH - in. H2O	0.420	0.410	0.410
Volume of Gas Sampled	Vm - cu. ft.	24.507	23.656	24.552
Dry Gas Meter Temperature	Tm - °F	69.500	76.167	78.000
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	24.414	23.272	24.072
Liquid Collected	ml	9.800	11.200	7.500
Volume of Water Vapor	Vwstd - cu. ft.	0.461	0.527	0.353
Moisture Content	$\%H_20$	1.854	2.215	1.445
Saturation Moisture	$\%H_20$	2.003	2.185	2.198
Dry Mole Fraction	Mfd	0.981	0.978	0.986
Carbon Dioxide	$\%CO_2$	0	0	0
Oxygen	$\%O_2$	20.9	20.9	20.9
Carbon Monoxide	%CO	0	0	0
Nitrogen	$\%N_2$	79.100	79.100	79.100
Gas Molecular Weight, Dry	Md	28.836	28.836	28.836
s Molecular Weight, Wet	Ms	28.635	28.599	28.679
Static Pressure	Pg - in. H_2O	-1.550	-1.550	-1.550
Stack Pressure	Ps	29.836	29.836	29.836
Stack Temperature	Ts - °F	63.8	66.3	66.5
Average Velocity Head	Δp - in H_2O	1.076	1.051	1.081
Gas Velocity	vs - ft./sec.	58.329	57.813	58.576
Stack Area	As - sq. ft.	1.069	1.069	1.069
Volumetric Air Flow, Actual	Qaw - ACFM	3741	3708	3757
Volumetric Air Flow, Standard	Qsd - DSCFM	3691	3628	3703
Isokinetic Sampling Rate	%I	101.1	100.4	99.2
Total Particulate Catch	Milligrams	673.0	718.4	625.9
PM >10 Particulate Catch	Milligrams	511.8	595.1	346.0
PM10 Particulate Catch	Milligrams	161.2	123.3	279.9
PM>2.5<10 Catch	Milligrams	147.2	112.9	263.6
PM2.5 Patriculate Catch	Milligrams	14.0	10.4	16.3
Total Arsenic Catch	Micrograms	20.85	28.81	53.60
PM >10 Arsenic Catch	Micrograms	11.40	19.95	21.60
PM10 Arsenic Catch	Micrograms	9.45	8.86	32.00
Concrete Production During Test	Cubic Yards / Test	30	50	58
Concrete Production During Test	Tons / Test	56.9	94.9	109.5
Concrete Production Rate	Tons/Hour	56.2	96.1	106.0
PM10 Arsenic Concentration	ug/mg	0.0586	0.0719	0.1143
TSP Arsenic Concentraion	ug/mg	0.0310	0.0401	0.0856

Plant	ST. Wooten			
City	Raleigh			
State	North Carolina			
Sampling Location	Baghouse Inlet			
		ST-C-IN-PRE4-1	ST-C-IN-PRE4-2	ST-C-IN-PRE4-3
Total Particulate Emissions				
Grains/DSCF	gr/DSCF	0.42541	0.47638	0.40127
Pounds/Hour	lb/hr	13.45794	14.81590	12.73588
Pounds/Ton	lb/ton	0.23940	0.15424	0.12017
Total Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000132	0.0000191	0.0000344
Pounds/Hour	lb/hr	0.0004169	0.0005942	0.0010907
Pounds/Ton	lb/ton	0.0000074	0.0000062	0.0000103
PM_{10} Emissions				
Grains/DSCF	gr/DSCF	0.10190	0.08176	0.17944
Pounds/Hour	lb/hr	3.22351	2.54287	5.69543
Pounds/Ton	lb/ton	0.05734	0.02647	0.05374
PM_{10} Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000060	0.0000059	0.0000205
Pounds/Hour	lb/hr	0.0001890	0.0001827	0.0006511
Pounds/Ton	lb/ton	0.0000034	0.0000019	0.0000061
$PM_{>2.5<10}$ Emissions				
Grains/DSCF	gr/DSCF	0.09305	0.07487	0.16899
Pounds/Hour	lb/hr	2.94355	2.32839	5.36376
Pounds/Ton	lb/ton	0.05236	0.02424	0.05061
$PM_{2.5}$ Emissions				
Grains/DSCF	gr/DSCF	0.00885	0.00690	0.01045
Pounds/Hour	lb/hr	0.27996	0.21448	0.33167
Pounds/Ton	lb/ton	0.00498	0.00223	0.00313
Cut Sizes				
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	10.52	10.66	10.68
Gas viscosity, (micropoise)	μ	178.11	178.44	179.05
Gas sampling rate, ACFM	Qs	0.41	0.40	0.40
Renolds number, (dimensionless)	N_{re}	3222	3150	3147
Cunningham correction factor	C	1.07	1.07	1.07
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - PM_2	2.19	2.25	2.25
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - PM_2	2.21	2.24	2.25

Type of Mix	Central	Central	Central	Averages
Start Time	910	1112	1304	N/A
Stop Time	1010	1212	1405	N/A
Number of Stops	0	0	0	N/A
Test Date	3/2/2004	3/2/2004	3/2/2004	N/A
Run Numbers	1	2	3	
Array 1 Size, SQ FT	100	100	100	100
Array 2 Size, SQ FT	40	40	40	40
Wind Speed Thru Array, MPH	6.98	8.20	2.69	5.96
Wind Speed Thru Array, FPM	614.6	722.0	237.0	524.5
ACFM Thru Arrays	86038	101084.6	33184.52	73436
Actual Cubic Meters of Gas Thru Arrays per Minute, ACM/M	2437	2863	940	2080
Average PM10 Particulate Concentration in Array , ug/m^3	80.8635	426.7028	402.6261	303.4
Measured PM10 Emissions Thru Array, lb / Hour	0.0261	0.1616	0.0501	0.0792
Calculated TSP Emissions Thru Array, lb / Hour	0.1088	0.9414	0.1119	0.3874
Calculated PM2.5 Emissions Thru Array, lb / Hour	0.0023	0.0136	0.0029	0.0063
Calculated PM>2.5<10 Emissions Thru Array, lb/hour	0.0238	0.1480	0.0471	0.0730
Array Average PM10 Particulate Concentration, grains/ACFM	0.0000	0.0002	0.0002	0.0001
PM10 Emissions, Array + Fabric Filter, lb/hr	0.0374	0.1699	0.1724	0.1266
TSP Emissions, Array + Fabric Filter, lb/hr	0.1562	0.9900	0.3855	0.5106
PM2.5 Emissions, Array + Fabric Filter, lb/hr	0.0032	0.0143	0.0100	0.0092
PM>2.5<10 Emissions, Array + Fabric Filter, lb/hr	0.0342	0.1556	0.1624	0.1174
Average Plant Production Levels During Tests, Tons/Hour	56.2164	96.0559	105.9796	86.1
Flow Rate In Fabric Filter Outlet Duct, ACFM	3775.15	3775.15	3775.15	3775.2
Flow Rate in Fabric Filter Outlet, ACM/M	106.914	106.9145	106.9145	106.9
Average PM10 Particulate Concentration in Fabric Filter Outlet TEOI	802.446	589.484	8650.764	3347.6
Measured PM10 Emissions in Fabric Filter Outlet, lb / Hour	0.01135	0.008337	0.12234	0.0
Calculated TSP Emissions in Fabric Filter Outlet, lb / Hour	0.04738	0.048572	0.273572	0.1232
Calculated PM2.5 Emissions in Fabric Filter Outlet, lb / Hour	0.00099	0.000703	0.007124	0.0
Calculated PM>2.5<10 Emissions in Fabric Filter Outlet, lb/hour	0.01036	0.007633	0.115216	0.0
Total Fugitive & Fabric Filter PM10 Emission Factor, lb/ton	0.00067	0.00177	0.00163	0.00135
Total Fugitive & Fabric Filter TSP Emission Factor, lb/ton	0.00278	0.01031	0.00364	0.00557
Total Fugitive & Fabric Filter PM2.5 Emission Factor, lb/ton	0.00006	0.000149	0.00009	0.00010
Total Fugitive & Fabric Filter PM>2.5<10 Emission Factor, lb/ton	0.00061	0.00162	0.00153	0.00125
Truck Hood PM10 Efficiency	99.2%	94.0%	99.1%	97.5%
System Collection Efficiency	98.8%	93.3%	97.0%	96.4%
Fabric Filter Inlet, Total Particulate Concentration, lb/hr	13.46	14.82	12.74	13.67
Fabric Filter Total Efficiency	99.65%	99.67%	97.85%	99.06%
Total / PM10 Ratio for Fugitive TEOM TSP Calc from Inlet Pre4s	4.17	5.83	2.24	4.08
PM2.5 / PM10 Ratio for Fugitive TEOM PM2.5 Calc from Inlet Pre4s	0.09	0.08	0.06	0.08
PM<2.5>10 / PM10 Ratio for Fugitive TEOM from Inlet Pre4s	0.91	0.92	0.94	0.92
Fabric Filter Inlet, PM10 Particulate Concentration, lb/hr	3.224	2.543	5.695	3.821
Fabric Filter PM10 Efficiency	99.65%	99.67%	97.85%	99.06%
Fabric Filter Inlet, PM2.5 Particulate Concentration, lb/hr	0.2800	0.2145	0.3317	0.2754
Fabric Filter PM2.5 Efficiency	99.6%	99.7%	97.9%	99.1%
Fabric Filter Inlet, PM>2.5<10 Particulate Concentration, lb/hr	2.944	2.328	5.364	3.5452

ST Reduced Data & Efficiency

	0.0310	0.0401	0.0856	0.052	Total, ug/mg
	0.0586	0.0719	0.1143	0.082	PM10, ug/mg
	0.996	0.997	0.979	0.991	Fabric Filter Efficiency
Arsenic Emissions	0.992	0.940	0.991	0.975	Hood Efficiency
	13.458	14.816	12.736	13.670	Fabric Filter Total PM Inlet
	3.224	2.543	5.695	3.821	Fabric Filter PM10 Inlet
Total Part, Fabric Filter Outlet	4.74E-02	4.86E-02	2.74E-01	0.12317	Lbs/hour Total PM in fabric filter o
	4.74E-02	4.86E-02	2.74E-01	1.23E-01	Lbs/hour Total PM in fabric filter o
	1.47E-06	**1.95E-06**	**2.34E-05**	8.95E-06	**Lbs/hour arsenic in Total PM**
Total Part, Fugitives	1.079E-01	8.852E-01	1.109E-01	3.68E-01	Lbs/hour Total PM in fugitives
	3.34E-06	**3.55E-05**	**9.50E-06**	1.61E-05	**Lbs/hour arsenic in Fugitive PM**
TSP Arsenic Emission Factors	**4.81E-06**	**3.74E-05**	**3.29E-05**	2.51E-05	**Lbs/hour arsenic emitted**
	8.56E-08	3.90E-07	3.11E-07	2.62E-07	Lbs/Ton
PM10, Fabric Filter Outlet	1.13E-02	0.008337	0.122340	4.73E-02	Lbs/hour PM10 PM in fabric filter c
	6.65E-07	**5.99E-07**	**1.40E-05**	5.08E-06	Lbs/hour As in fabric filer outlet
PM10, Fugitives	0.025854	0.151927	0.049616	7.58E-02	Lbs/hour PM10 in Fugitives
	1.52E-06	**1.09E-05**	**5.67E-06**	6.04E-06	**Lbs/hour As in Fugitives**
PM10 Arsenic Emission Factors	**2.18E-06**	**1.15E-05**	**1.97E-05**	1.11E-05	**Lbs/hour As**
	3.88E-08	1.20E-07	1.85E-07	1.15E-07	**Lbs/ton**

AP-42 Central Mix Total PM - lbs/ton
1.87E-08

Percent of AP-42
1401%

217

Method 1 - Air Control Techniques, P.C.

Date 3-01-04

Client	RMMC
Job #	877
Plant Name	ST WOOTEN
State	NC
City	RALEIGH
Sampling Location	BT ARRAY TEOM

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	1
Distance From Far Wall To Outside Of Port, Inches	3 1/8
Nipple Length And/Or Wall Thickness, Inches	1/8
Depth Of Stack Or Duct, Inches	3
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches (πR^2 or L x W)	7.069

	Upstream	Downstream
Distance to Flow Disturbances	21"	27"
Diameters	7	9

Diameters			
Velocity	UP	Down	Particulate
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Note: If more than 8 and 2 diameters and duct diameter is greater than 12" and less than 24", use 8 or 9 points.

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	6.7	.201	3/8"
2	25.0	.75	7/8
3	75.0	2.25	2 3/8
4	93.3	2.799	2 7/8
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.6	87.5
12											95.8

0.0000 - 0.0625 - 0
0.0625 - 0.1875 - 1/8
0.1875 - 0.3125 - 1/4
0.3125 - 0.4375 - 3/8
0.4375 - 0.5625 - 1/2
0.5625 - 0.6875 - 5/8
0.6875 - 0.8125 - 3/4
0.8125 - 0.9375 - 7/8
0.9375 - 1.0000 - 1

Method 1 - Air Control Techniques, P.C.

Date 3-01-04

Client	RMCC
Job #	877
Plant Name	JT WOOTEN
State	NC
City	RALEIGH
Sampling Location	BAGHOUSE TEOM

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	4
Distance From Far Wall To Outside Of Port, Inches	14 1/8
Nipple Length And/Or Wall Thickness, Inches	1/8
Depth Of Stack Or Duct, Inches	14
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches (πR^2 or L x W)	153.936

	Upstream	Downstream
Distance to Flow Disturbances	65"	19"
Diameters	4.643	1.357

Diameters			
Velocity	UP	Down	Particulate
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Note: If more than 8 and 2 diameters and duct diameter is greater than 12" and less than 24", use 8 or 9 points.

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	0.616	3 1/4"
2	14.6	2.044	2 1/8"
3	29.6	4.144	4 1/4"
4	70.4	9.856	10"
5	85.4	11.956	12 1/8"
6	95.6	13.384	13 1/2"
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	60.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000 - 0.0625 - 0
0.0625 - 0.1875 - 1/8
0.1875 - 0.3125 - 1/4
0.3125 - 0.4375 - 3/8
0.4375 - 0.5625 - 1/2
0.5625 - 0.6875 - 5/8
0.6875 - 0.8125 - 3/4
0.8125 - 0.9375 - 7/8
0.9375 - 1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	ST. Wooten	Date	~~877~~ 3/2/04
City, State	Raleigh, NC	Project #	877
Personnel	TB DLS	Pitot Identification	60-18 STD Pitot
Test Location	See Below	Pitot Coefficient (Cp)	~~0.84~~ 1.00

Stack Dimensions			Pressures		
Diameter of Stack (D)	Below	in	Barometric Pressure (Pb)	29.95	in Hg
Width of Stack (W)	↓	in	Static Pressure (Pg)	See Below	in H_2O
Area of Stack (As)		ft^2	Absolute Stack Pressure (Ps)	N/A	in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	1%	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.73	lb/lb-mole

PRELIMINARY TRAVERSE

Pre
START 831
STOP 834

Post
START 1523
STOP 1527

	Pitot Tube Leak Checks			A		B			
	Port	Point	Angle, °	PRE Δp, in H_2O	POST	Temp. °F		ft/sec	
Start	A-1	1	N/A	3925	4170	62	65	65.4	69.5
	2	2	↓	3890	4137	62	65	64.8	68.5
	3	3	↓	4192	4081	62	65	68.9	68.01
	4	4	↓	4281	3962	62	65	71.4	66.0
	AVG			4072	4087	62	65	67.9	68.1
				ACFM PRE 199.53					
				MPH PRE 4.54					
				ACFM POST 200.29					
				MPH POST 4.55					

ARRAY
TEOM
0.5ft²
3"Dia
sample
Duct
for flow

6"xR"
STATIC PRE
+2.9"W.C
+2.9" Post

				Pre	Post				
PRE START 825	A-1	1	N/A	3737	3883	62	65	62.3	64.7
STOP 830	2	2	↓	3683	3735	62	65	61.4	62.3
	3	3	↓	3560	3703	62	65	59.3	61.7
Post Start 1528	4	4	↓	3855	3809	62	65	64.3	63.4
STOP	5	5	↓	3935	3934	62	65	65.6	65.6
	6	6	↓	3794	3677	62	65	63.2	61.2
	AVG			3760.7	3790	62	65	62.7	63.2
				ACFM PRE 4020.19					
End				MPH PRE 4.44					
				ACFM POST 4051.7					
				MPH POST 4.47					

Baghouse
TEOM
10.293ft²
14"Dia
Sample
Duct
for flow

STATIC PRE
+0.43"W.C.
+1.29 Post

Average Angle, Degrees	
Average Velocity Pressure	
Average Gas Temperature (°F)	
Average Stack Gas Velocity (ft/sec)	
Actual Cubic Feet per minute (ACFM)	
Dry Standard Cubic Feet per Minute (DSCFM)	

Plant Name: ST. WOOTEN
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel : TTB
Date 3/2/04

RUN #1

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load # Plant# Truck#	Plant#
910/914		✓	0	C165	
914/917		✓	0	C217	
919/923		✓	0	C213	
923/930		✓	0	C72	
949/1019		✓	0	C211	

RUN START 9:10

RUN END 10:10

9:10 - 9:25 cement Loading to silos.

Plant Name: St. Wooten
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel : TTB
Date 3/2/04

RUN #2

START 11:12

STOP 12:12

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load # Truck#	Load#
11:12/11:18	–	✓	0	C213	
11:18/11:26	–	✓	0	C167	
11:32/11:37	–	✓	0	C165	
11:46/11:52	–	✓	0	C179	
12:05/1211		✓	0	C42	

Plant Name: St. Wooten
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel : TTB
Date 3/2/04

RUN #3

Start 13:04

Stop 14:06 premixed dumped Immediately

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load # Truck# Load#
13:04/1311	–	✓	0	C142
13:11/1317	–	✓	0	C159
13:22/1328	–	✓	0	C165
1346/1350	–	✓	0	C167
13:50/1356	–	✓	0	C72
14:04/14:06	–	✓	0	C42

Plant Name: ST. WOOTEN
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Personnel :TTB

Date 3/2/04 Time Sample Taken 11:52 Sample Type Cement

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	3" 75mm	501.1	501.1	–	–
	0.75" 19mm	552.9	552.9	–	–
#2	0.033" 850µm	415.2	415.2	–	–
#100	0.0059" 150µm	349.8	478.1	128.3	37.7
#200	0.0029" 75µm	343.7	386.1	42.4	12.5
	Pan	370.4	539.9	169.5	49.8
	Totals			340.2	100.0

A.) Sample Weight **Wet-Pan Weight** = 449.9-109= 340.9

B.) Sample Weight **Dry-Pan Weight** = 448.8-109 339.8

C.) % Moisture = **{(A-B)/A}*100** = 0.3%

Date 3/2/04 Time Sample Taken 13:06 Sample Type Fly ASH

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	3" 75mm	501.1	501.1	–	–
	0.75" 19mm	552.9	552.9	–	–
#20	0.033" 850µm	415.2	416.2	1.0	0.31
#100	0.0059" 150µm	349.8	355.5	5.7	~~0.31~~ 1.78
#200	0.0029" 75µm	343.6	376.7	33.1	10.3
	Pan	370.4	651.6	281.2	87.6
	Totals			321.0	1.00

A.) Sample Weight **Wet-Pan Weight** = ~~449.9~~ 430.0-109=321.0

B.) Sample Weight **Dry-Pan Weight** = 429.7-109= 320.7

C.) % Moisture = **{(A-B)/A}*100** = 0.009%

Plant Name: St. Wooten
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Personnel :TTB

Date 3/2/04 Time Sample Taken 911 Sample Type SAND

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	3" 75mm	500.8	500.8	—	—
	0.75" 19mm	~~548.9~~ 552.8	~~548.9~~ 552.8	—	—
#20	0.0331" 850µm	415.1	501.8	86.7	19.3
#100	0.0059" 150µm	349.7	764.7	355.0	79.1
#200	0.0029" 75µm	~~338.5~~ 343.7	~~338.7~~ 346.9	3.2	0.7
		~~369.9~~			~~0.8~~
	Pan	369.9	373.7	3.8	0.8
	Totals			448.7	99.9

A.) Sample Weight **Wet-Pan Weight** = 853.3 - 369.9 = 483.4

Drying Pan 109g.

B.) Sample Weight **Dry-Pan Weight** = 562.1 - 109 = 453.1

C.) % Moisture = **{(A-B)/A}*100** = 6.3%

Date 3/2/04 Time Sample Taken 11:18 Sample Type STONE

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	3" 75mm	500.8	— 500.8	—	—
	0.75" 19mm	~~548.8~~ 552.8	675.1	122.3	18.8
#2	0.0331" 850µm	415.2	927.5	512.3	78.9
349.7 #100	0.0059" 150µm	~~349.7~~ ~~343.7~~	357.0	7.3	1.1
#200	0.0029" 75µm	~~370.3~~ 343.7	346.5	2.8	0.4
					~~0.8~~
	Pan	370.3	375.2	4.9	0.8
	Totals			649.6	100.0

A.) Sample Weight **Wet-Pan Weight** = 764.7 - 109 = 655.7

B.) Sample Weight **Dry-Pan Weight** = 757.7 - 109 = 648.7

C.) % Moisture = **{(A-B)/A}*100** = 1.1%

APPENDIX B4

CHANDLER CONCRETE TRUCK MIX

FIELD DATA SHEETS

Method 1 - Air Control Techniques, P.C.

Date 3-16-04

Client	NRMCC
Job #	877
Plant Name	CHANDLER CONCRETE
State	VA.
City	TROUTVILLE
Sampling Location	BAGHOUSE INLET

No. of Ports Available	
No. of Ports Used	1
Port Inside Diameter, Inches	4
Distance From Far Wall To Outside Of Port, Inches	14 1/8
Nipple Length And/Or Wall Thickness, Inches	1/8
Depth Of Stack Or Duct, Inches	14
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches ($\pi \times R^2$ or $L \times W$)	153.936

	Upstream	Downstream
Distance to Flow Disturbances	~180"	28"
Diameters	~12.85	2

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

Velocity	Diameters UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	0.616	3/4"
2	14.6	2.044	2 1/8"
3	29.6	4.144	4 1/4"
4	70.4	9.856	10"
5	85.4	11.956	12 1/8"
6	95.6	13.384	13 1/2"
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000-0.0625 - 0
0.0625-0.1875 - 1/8
0.1875-0.3125 - 1/4
0.3125-0.4375 - 3/8
0.4375-0.5625 - 1/2
0.5625-0.6875 - 5/8
0.6875-0.8125 - 3/4
0.8125-0.9375 - 7/8
0.9375-1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	Chandler Concrete	Date	3/17/04
City, State	Troutville, VA	Project #	877
Personnel	JTB, DLS	Pitot Identification	D4A
Test Location	Baghouse, Inlet	Pitot Coefficient (Cp)	0.84

Stack Dimensions			Pressures		
Diameter of Stack (D)	14	in	Barometric Pressure (Pb)	28.7	in Hg
Width of Stack (W)		in	Static Pressure (Pg)		in H_2O
Area of Stack (As)	1.069	ft^2	Absolute Stack Pressure (Ps)		in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	1	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.73	lb/lb-mole

PRELIMINARY TRAVERSE

Pitot Tube Leak Checks			A	B	
Port	Point	Angle, °	Δp, in H_2O	Temp. °F	ft/sec
Start 0630 A	6	2	1.3	37	
	5	9	1.3	37	
	4	8	1.2	37	
	3	7	0.7	37	
	2	11	1.3	37	
	1	4	0.82	37	
End					

Average Angle, Degrees	6.83
Average Velocity Pressure	1.088
Average Gas Temperature (°F)	37.0
Average Stack Gas Velocity (ft/sec)	58.24
Actual Cubic Feet per minute (ACFM)	3736
Dry Standard Cubic Feet per Minute (DSCFM)	3757

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	TV-T-IN-PREL-1
Condition	

IDENTIFICATION INFORMATION

Plant Name	CHANDLER CONCRETE
City	TROUTVILLE
State	VA.
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	TTB, DLS
Date	3-17-04
Start	0717
Stop	0834
Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-1
Nozzle Diameter	0.131
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1018	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	0.003	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	6" ✓	3" ✓
Pitot Tube Posttest Leak Check	5" ✓	4" ✓

Barometric Pressure, In.,Hg. 28.70 Static Pressure, In. W.C. -3.80

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	8.0	Moisture, %	1.518
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.67

Sampling Information / QA Checks

229

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Meter Volume (ft^3)	ΦP (In. H_2O)	Meter Temp. (°F)	Stack Temp., (°F)	Sample Train Vac. (in. Hg)	Impinger Exit Gas Temp., (°F)	ΦH (in. H_2O)	Target ΦH (in.H_2O)	% Iso	Run Cummulative D_{50}s, microns PM_{10}	$PM_{2.5}$
A	6	11.5	0	816.493	1.45	68	39	3	38	0.43	0.45			
	5	10.93	11:33	820.96	1.30	69	37	3	36	0.43	0.45			
10.50	4	10.89	22:29	825.24	1.20	69	37	3	36	0.43	0.45			
	3	9.82	32:59	829.31	1.05	69	38	3	37	0.43	0.45			
	2	10.93	42:48	833.08	1.30	67	38	3	37	0.43	0.45			
	1	11:54	53:44	837.27	1.45	66	37	3	37	0.43	0.45			
			1:05:17	841.783										

Total Run Time	1:05:17			
Total Volume, ACF	25.290			
Averages	1.2878	68.0	37.67	
	in. H2O	°F	°F	

Run	1

0.43 in H2O

~~1.03~~ 1.48 % | 10.83 | 23 microns

STOP @ 0752
RESTART 0758

STOP @ 816
RESTART 0821

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	TV-T-IN-PRE4-2
Condition	

IDENTIFICATION INFORMATION

Plant Name	CHANDLER CONCRETE
City	TROUTVILLE
State	VA.
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	TTB, DLS
Date	3-17-04
Start	0917
Stop	1321
Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-1
Nozzle Diameter	0.131
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT109	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.004		6"

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	Good @ 6	Good @ 4"
Pitot Tube Posttest Leak Check	5" ✓	4" ✓

Barometric Pressure, In.,Hg. 28.70 Static Pressure, In. W.C. -3.60

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	4.7	Moisture, %	0.984
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.73

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	9.24	0	841.904	1.10	63	38	3	38	0.44	0.44			
	5	10.24	9:15	845.51	1.35	62	38	3	37	0.44	0.44			
	4	9.85	19:29	849.39	1.25	64	39	3	38	0.44	0.44			
	3	9.24	29:20	853.17	1.10	64	39	3	37	0.44	0.44			
	2	10.05	38:35	856.71	1.30	64	38	3	37	0.44	0.44			
	1	10.97	48:38	860.56	1.55	65	39	3	38	0.44	0.44			
			59:35	864.763										

Total Run Time		
Total Volume, ACF	22.859	

Averages	1.2704	63.7	38.5
	in. H2O	°F	°F

0.44	in H2O

105.4	10.90	233
%	microns	

Run	2

Stop @ 0926 Stop @ 0952 Stop 1223
Restart @ 0942 Restart 1153 Restart 1311

230

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	TV-T-IN-PRE4-3
Condition	

IDENTIFICATION INFORMATION

Plant Name	CHANDLER CONCRETE
City	TROUTVILLE
State	VA
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	3-18-04
Start	1240
Stop	1450
Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-1
Nozzle Diameter	0.131
Orsat/Fyrite	FYRITE

Filter ID	Tare
GT1022	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.003	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	600DC6"	600DC6"
Pitot Tube Posttest Leak Check	600DC4"	600DC5"

Barometric Pressure, In.,Hg. 29.0 Static Pressure, In. W.C. -3.70

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	5.3	Moisture, %	1.058
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.72

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	9.92	0	873.248	1.25	74	57	3	50	0.44	0.42			
	5	10.31	9:55	877.11	1.35	74	56	3	48	0.44	0.42			
	4	9.92	20:14	881.07	1.25	73	57	3	48	0.44	0.42			
	3	10.68	30:09	884.99	1.45	72	56	3	47	0.44	0.42			
	2	10.87	40:49	889.15	1.50	70	57	3	49	0.44	0.41			
	1	10.31	51:42	893.38	1.35	69	57	3	51	0.44	0.41			
			1:02:00	897.326										

Total Run Time 1:02:00

Total Volume, ACF 24.078

Averages	1.3567	72.0	56.67
	in. H2O	°F	°F

0.44 in H2O

104.9	10.84	2.33
%	microns	

Run	3

Stop @ 1300 Restart @ 1312

Stop @ 1323 Restart @ 1355

Stop @ 1410 Restart @ 1434

231

Method 4 - Air Control Techniques, P.C.

Date 3-17-04

Facility Information

Client	NRMCC	Job #	877
City, State	TROUTVILLE, VA.	Condition	
	CHANDLER CONCRETE		

Sampling Information BAGHOUSE INLET

Run Number	M4-1	M4-2	M4-3	Balance Number	V11200
Sampling Date	3-17-04	3-17-04		Balance Type	ELEC.
Recovery Date	3-17-04	3-17-04		Balance Level	YES
Personnel	DLS, TTB			Recovery Area	LAB

Location Moisture Data

Run Number	1	2	~~3~~	3
Impinger # 1				
Contents -				
Final Weight, grams/mls	694.7	696.7		698.6
Initial Weight, grams/mls	694.5	694.7	~~696.7~~	696.7
Condensed Water, grams	0.2	2.0		1.9
Impinger # 2				
Conents -				
Final Weight, grams/mls	689.0	689.2		689.4
Initial Weight, grams/mls	688.6	689.0	~~689.2~~	689.2
Condensed Water, grams	0.4	0.2		0.2
Impiner # 3				
Contents -				
Final Weight, grams/mls	602.4	602.5		602.6
Initial Weight, grams/mls	601.6	602.4	~~602.5~~	602.5
Condensed Water, grams	0.8	0.1		0.1
Silica Gel				
Final Weight, grams	867.6	870.0		874.5
Initial Weight, grams	862.0	867.6	~~870.0~~	871.4
Adsorbed Water, grams	5.6	2.4		3.1
Total Water, grams	8.0	4.7		5.3

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04715) * (weight of water collected (g))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	Chandler Concrete
City	Troutville
State	Va.
Sampling Location	BH Inlet

PARAMETER	NOMENCLATURE	TV-T-IN-Pre4-1	TV-T-IN-Pre4-2	TV-T-IN-Pre4-3
Sampling Location				
Date		3/17/2004	3/17/2004	3/18/2004
Run Time	Theta	65.279	59.594	62.006
Nozzle Diameter	inches	0.131	0.131	0.131
Pitot Tube Coefficient	Cp	0.840	0.840	0.840
Meter Calibration Factor	Y	1.006	1.006	1.006
Barometric Pressure, inches Hg	Bp - in Hg	28.7	28.7	29.0
Meter Box Pressure Differential	ΔH - in. H2O	0.430	0.440	0.440
Volume of Gas Sampled	Vm - cu. ft.	25.290	22.859	24.078
Dry Gas Meter Temperature	Tm - °F	68.000	63.667	72.000
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	24.431	22.266	23.327
Liquid Collected	ml	8.000	4.700	5.300
Volume of Water Vapor	Vwstd - cu. ft.	0.377	0.221	0.249
Moisture Content	$\%H_20$	1.518	0.984	1.058
Saturation Moisture	$\%H_20$	0.795	0.822	1.612
Dry Mole Fraction	Mfd	0.992	0.992	0.989
Carbon Dioxide	$\%CO_2$	0	0	0
Oxygen	$\%O_2$	20.9	20.9	20.9
Carbon Monoxide	%CO	0	0	0
Nitrogen	$\%N_2$	79.100	79.100	79.100
Gas Molecular Weight, Dry	Md	28.836	28.836	28.836
as Molecular Weight, Wet	Ms	28.750	28.747	28.721
Static Pressure	Pg - in. H_2O	-3.600	-3.600	-3.700
Stack Pressure	Ps	28.435	28.435	28.728
Stack Temperature	Ts - °F	37.667	38.500	56.667
Average Velocity Head	Δp - in H_2O	1.288	1.270	1.357
Gas Velocity	vs - ft./sec.	63.582	63.208	66.190
Stack Area	As - sq. ft.	1.069	1.069	1.069
Volumetric Air Flow, Actual	Qaw - ACFM	4078	4054	4246
Volumetric Air Flow, Standard	Qsd - DSCFM	4079	4048	4122
Isokinetic Sampling Rate	%I	104.8	105.4	104.2
Total Particulate Catch	Milligrams	114.2	75.0	240.5
PM >10 Particulate Catch	Milligrams	58.9	39.6	152.1
PM10 Particulate Catch	Milligrams	55.3	35.4	88.4
PM>2.5<10 Catch	Milligrams	43.8	31.9	77.6
PM2.5 Patriculate Catch	Milligrams	11.5	3.5	10.8
Total Arsenic Catch	Micrograms	10.31	6.42	11.40
PM >10 Arsenic Catch	Micrograms	3.52	2.37	4.42
PM10 Arsenic Catch	Micrograms	6.79	4.05	6.98
Concrete Production During Test	Cubic Yards / Test	24.5	14.5	32.0
Concrete Production During Test	Tons / Test	50.092	31.869	63.697
Concrete Production Rate	Tons/Hour	46.04	32.09	61.64
PM10 Arsenic Concentration	ug/mg	0.1228	0.1143	0.0790
TSP Arsenic Concentraion	ug/mg	0.0903	0.0855	0.0474

Plant	Chandler Concrete
City	Troutville
State	Va.
Sampling Location	BH Inlet

		TV-T-IN-Pre4-1	TV-T-IN-Pre4-2	TV-T-IN-Pre4-3
Total Particulate Emissions				
Grains/DSCF	gr/DSCF	0.07214	0.05198	0.15911
Pounds/Hour	lb/hr	2.52234	1.80340	5.62102
Pounds/Ton	lb/ton	0.05479	0.05620	0.09118
Total Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000065	0.0000044	0.0000075
Pounds/Hour	lb/hr	0.0002277	0.0001543	0.0002664
Pounds/Ton	lb/ton	0.0000049	0.0000048	0.0000043
PM_{10} Emissions				
Grains/DSCF	gr/DSCF	0.03493	0.02454	0.05848
Pounds/Hour	lb/hr	1.22141	0.85121	2.06610
Pounds/Ton	lb/ton	0.02653	0.02653	0.03352
PM_{10} Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000043	0.0000028	0.0000046
Pounds/Hour	lb/hr	0.0001500	0.0000973	0.0001631
Pounds/Ton	lb/ton	0.0000033	0.0000030	0.0000026
$PM_{>2.5<10}$ Emissions				
Grains/DSCF	gr/DSCF	0.02767	0.02211	0.05134
Pounds/Hour	lb/hr	0.96741	0.76705	1.81368
Pounds/Ton	lb/ton	0.02101	0.02390	0.02942
$PM_{2.5}$ Emissions				
Grains/DSCF	gr/DSCF	0.00726	0.00243	0.00714
Pounds/Hour	lb/hr	0.25400	0.08416	0.25242
Pounds/Ton	lb/ton	0.00552	0.00262	0.00409
Cut Sizes				
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	10.83	10.90	10.90
Gas viscosity, (micropoise)	μ	172.07	172.67	176.97
Gas sampling rate, ACFM	Qs	0.38	0.37	0.39
Renolds number, (dimensionless)	N_{re}	3109	3076	3021
Cunningham correction factor	C	1.06	1.06	1.06
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - PM_2	2.30	2.33	2.34
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - PM_2	2.29	2.30	2.30

TV-T-IN-PRE4-1,2,3

Type lix	Truck	Truck	Truck	Averages
Start . .e	717	917	1240	N/A
Stop Time	834	1321	1450	N/A
Test Date	3/17/2004	3/17/2004	3/18/2004	N/A
Number of Stops	2	3	3	N/A
Run Numbers	1	2	3	
Array 1 Size, SQ FT	100	100	100	100
Array 2 Size, SQ FT	40	40	40	40
Wind Speed Thru Array, MPH	1.73	4.33	1.27	2.44
Wind Speed Thru Array, FPM	152.4	381.3	111.7	215.1
ACFM Thru Arrays	21330.15	53386.67	15644.44	30120
Actual Cubic Meters of Gas Thru Arrays per Minute, ACM/M	604	1512	443	853
Average PM10 Particulate Concentration in Array , ug/m^3	983.3709	495.2819	1511.207	996.6
Measured PM10 Emissions Thru Array, lb / Hour	0.0786	0.0991	0.0886	0.0887
Calculated TSP Emissions Thru Array, lb / Hour	0.1623	0.2099	0.2410	0.2044
Calculated PM2.5 Emissions Thru Array, lb / Hour	0.0163	0.0098	0.0108	0.0123
Calculated PM>2.5<10 Emissions Thru Array, lb/hour	0.0622	0.0893	0.0777	0.0764
PM10 Emissions, Array + Fabric Filter, lb/hr	0.1101	0.1290	0.1437	0.1276
TSP Emissions, Array + Fabric Filter, lb/hr	0.2273	0.2734	0.3909	0.2972
PM2.5 Emissions, Array + Fabric Filter, lb/hr	0.0229	0.0128	0.0176	0.0177
PM>2.5<10 Emissions, Array + Fabric Filter, lb/hr	0.0872	0.1163	0.1261	0.1099
Average Plant Production Levels During Tests, Tons/Hour	46.03645	32.0903	61.6446	46.59
Flow Rate In Fabric Filter Outlet Duct, ACFM	3980.5	3980.5	3899.5	3953.5
Flow Rate in Fabric Filter Outlet, ACM/M	112.7301	112.7301	110.4361	112.0
Average PM10 Particulate Concentration in Fabric Filter Outlet TEOM, ug/m^3	2112.069	2010.99	3772.864	2632.0
Measured PM10 Emissions in Fabric Filter Outlet, lb / Hour	0.031	0.030	0.055	0.039
Calculated TSP Emissions in Fabric Filter Outlet, lb / Hour	0.065	0.064	0.150	0.093
Calculated PM2.5 Emissions in Fabric Filter Outlet, lb / Hour	0.007	0.003	0.007	0.005
Calculated PM>2.5<10 Emissions in Fabric Filter Outlet, lb/hour	0.025	0.027	0.048	0.033
Total Fugitive & Fabric Filter PM10 Emission Factor, lb/ton	0.00239	0.00402	0.00233	0.00291
Total Fugitive & Fabric Filter TSP Emission Factor, lb/ton	0.00494	0.00852	0.00634	0.00660
Total Fugitive & Fabric Filter PM2.5 Emission Factor, lb/ton	0.00050	0.000398	0.00028	0.00039
Total Fugitive & Fabric Filter PM>2.5<10 Emission Factor, lb/ton	0.00189	0.00362	0.00205	0.00252
Truck Hood PM10 Efficiency	93.96%	89.58%	95.89%	93.1%
System Collection Efficiency	90.99%	84.84%	93.05%	89.6%
Fabric Filter Inlet, Total Particulate Concentration, lb/hr	2.52234	1.80340	5.62102	3.32
Fabric Filter Total Efficiency	97.4%	96.5%	97.3%	97%
Total / PM10 Ratio for Fugitive TEOM TSP Calc from Inlet Pre4s	2.07	2.12	2.72	2.30
PM2.5 / PM10 Ratio for Fugitive TEOM PM2.5 Calc from Inlet Pre4s	0.21	0.10	0.12	0.14
PM<2.5>10 / PM10 Ratio for Fugitive TEOM from Inlet Pre4s	0.79	0.90	0.88	0.86
Fabric Filter Inlet, PM10 Particulate Concentration, lb/hr	1.22141	0.85121	2.06610	1.380
Fabric Filter PM10 Efficiency	97.4%	96.5%	97.3%	97.1%
Fabric Filter Inlet, PM2.5 Particulate Concentration, lb/hr	0.25400	0.08416	0.25242	0.1969
Fabric Filter PM2.5 Efficiency	97.4%	96.5%	97.3%	97.1%
Fabric Filter Inlet, PM>2.5<10 Particulate Concentration, lb/hr	0.9674	0.7670	1.8137	1.1827

Troutville, Va Chandler Concrete

Arsenic Emissions	0.0903	0.0855	0.0474	0.0744	Arsenic in Total PM, ug/mg
	0.1228	0.1143	0.0790	0.1053	Arsenic in PM10, ug/mg
	0.9742	0.9648	0.9733	0.9708	Fabric Filter Efficiency
	0.9396	0.8958	0.9589	0.9314	Hood Efficiency
	2.5223	1.8034	5.6210	3.3156	Total PM Emissions to Fabric Filter
	1.22141	0.85121	2.06610	1.37957	PM10 Emissions to Fabric Filter
Total Part, FFOUT	6.50E-02	6.35E-02	1.50E-01	9.28E-02	lbs/hour Total PM in FFOUT
	5.87E-06	**5.43E-06**	**7.11E-06**	**6.14E-06**	**Lbs/hour arsenic in Total PM**
Total Part Fugitives	1.52E-01	1.88E-01	2.31E-01	1.90E-01	Lbs/hour Total PM in Fugitives
	1.38E-05	**1.61E-05**	**1.10E-05**	**1.36E-05**	**lbs/hour arsenic in Fugitives**
TSP Arsenic Emission Factors	**1.96E-05**	**2.15E-05**	**1.81E-05**	**1.97E-05**	**lbs/hour arsenic emitted**
	4.265E-07	6.704E-07	2.930E-07	**4.63E-07**	lbs/ton
PM10 FFOUT	3.149E-02	2.999E-02	5.511E-02	**3.89E-02**	lbs/hour PM10 in FFOut
	3.87E-06	3.43E-06	4.35E-06	**3.88E-06**	lbs/hour As PM10 in FFOUT
PM10 Fugitives	7.38E-02	8.87E-02	8.49E-02	**8.25E-02**	lbs/hour PM10 in Fugitives
	9.06E-06	1.01E-05	6.71E-06	**8.64E-06**	lbs/hour As in Fugitives
PM10 Arsenic Emission Factors	1.29E-05	1.36E-05	1.11E-05	**1.25E-05**	lbs/hr As
	2.81E-07	4.23E-07	1.79E-07	**2.94E-07**	lbs/ton

AP-42 Truck Mix Total PM - lbs/ton
1.16E-06

Percent of AP-42
39.9%

236

Plant Name: Chandler Concrete
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Troutville, VA Personnel : TTB
Date 3/17/04

RUN #1

START @ 7:17

STOP @ 7:52
wait for
more Trucks

START @ 7:58

STOP 8:16
wait for more
Trucks

START 8:21

STOP 8:34
RUN

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load # Truck #
7:17 / 722	–	✓	5	942
7:37 / 743	–	✓	5	902
8:00 / 8:05	–	✓	5	954
8:21 / 827	–	✓	5	975

Plant Name: Chandler Concrete
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Toanville, VA Personnel : TTB
Date

RUN #2

* Between Runs
Check Baghouse @ 857 - 907 found 1 Believed to not completely sealed fixed.

STOP 926 wait
START 942
STOP 952

11:00 Began parking all idling trucks downwind.

11:16 Inspect Baghouse No changes
11:40 Complete

11:53 START
12:23 STOP
13:11 START
13:21 RUN STOP

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load # Truck#
917/920	–	✓	5	902
944/948	–	✓	5	942
1155/1201	–	✓	0	954
1312/1316	–	✓	5 diesel	975

Plant Name: Chandler Concrete

Client: National Ready Mixed Concrete Association

Job No.: 877 City/State: Troutville, VA Personnel : TTB

Date 3/18/04

RUN #3

RUN Start 12:40

STOP 13:00

START 13:12

STOP 13:23

START 13:55

STOP 1410

START 1434

STOP END OF RUN 1450

Time In/Out		Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load # Truck #	
1240	1245	—	✓	5	954	
13:12	13:21	–	✓	5	975	waited to load w/ wind
13:55	14:00	–	✓	~~10~~ 5-10	831	
1434	1441	–	✓	5	942	

PRELIMINARY INFORMATION

Plant Name	Chandler Concrete	Date	3/17/04
City, State	Trauteville, VA	Project #	877
Personnel	TTB DLS	Pitot Identification	160-18 STD Pitot
Test Location	See Below	Pitot Coefficient (Cp)	0.99 ~~0.84~~

Stack Dimensions			Pressures		
Diameter of Stack (D)	Below	in	Barometric Pressure (Pb)	28.6	in Hg
Width of Stack (W)	↓	in	Static Pressure (Pg)	See	in H_2O
Area of Stack (As)	↓	ft^2	Absolute Stack Pressure (Ps)	Below	in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	1.2	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.71	lb/lb-mole

PRELIMINARY TRAVERSE

Time Start Stop
Pre 740 745
Post 1420 1425

Pitot Tube Leak Checks			A		B			
Port	Point	Angle, °	Δp, in H_2O		Temp. °F		ft/sec	
Start A-1	1	N/A	~~3960~~	4873	45	43	82.7	81.3
A-2	2	↓	~~3685~~ 4173	4318	45	43	78.9	72.0
A-3	3	↓	3930	3815	45	43	65.5	63.6
A-4	4	↓	4167	3680	45	43	69.5	61.3
AVG			4448	4171	45	43	74.1	69.5
			ACFM PRE	217.8				
			ACFM POST	204.3				
		Pre	Array, MPH	4.95				
		Post	Array, MPH	4.64				
A-1	1	N/A	4072	4099	45	43	67.9	
A-2	2	↓	4336	3792	45	43	72.3	
A-3	3	↓	3907	3669	45	43	65.1	
A-4	4	↓	3990	4003	45	43	66.5	
A-5	5	↓	3584	4078	45	43	59.7	
A-6	6	↓	4130	4109	45	43	68.8	
AVG			4003	3958	45	43	66.7	
		Pre	ACFM,	4279.5				
		Post	ACFM,	4231.4				
End		Pre	MPH DUCT,	4.72				
		Post	MPH DUCT,	4.67				

TEOM Array 0.5 ft^2 3" Dia Sample Duct

Static
Pre 0.69
Post 0.62

Time
START/ 747
STOP 751
START 1430
STOP 1437

Baghouse TEOM 10.293 14" Dia Sample Duct

STATIC
Pre 0.45
Post 0.56

Average Angle, Degrees	
Average Velocity Pressure	
Average Gas Temperature (°F)	
Average Stack Gas Velocity (ft/sec)	
Actual Cubic Feet per minute (ACFM)	
Dry Standard Cubic Feet per Minute (DSCFM)	

PRELIMINARY INFORMATION

Plant Name	Chandler Concrete	Date	3/18/04
City, State	Troutville, VA	Project #	877
Personnel	TIB DLS	Pitot Identification	160-18 STD Pitot
Test Location	See Below	Pitot Coefficient (Cp)	0.99 ~~0.84~~

Stack Dimensions			Pressures		
Diameter of Stack (D)	See	in	Barometric Pressure (Pb)	28.8	in Hg
Width of Stack (W)	Below	in	Static Pressure (Pg)	See	in H_2O
Area of Stack (As)	↓	ft^2	Absolute Stack Pressure (Ps)	Below	in Hg

Stack Gas Composition						Pre	Post
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	1.2	%		78.9	80.8
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole		68.4	64.3
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.71	lb/lb-mole		58.3	65.4
						64.2	55.7

PRELIMINARY TRAVERSE

Time
START STOP
Pre 620 625
Post 1500 1505

	Pitot Tube Leak Checks			A		B				
	Port	Point	Angle, °	Δp, in H_2O		Temp. °F		ft/sec		TEOM Array 0.5 ft^2 3" sample Duct
Start	A	1	N/A	4737	4849	38	57	~~[illegible]~~	~~[illegible]~~	
	A	2	↓	4108	3857	38	57	~~[illegible]~~	~~[illegible]~~	
	A	3	↓	3497	3923	38	57	~~[illegible]~~	~~[illegible]~~	
	A	4	↓	3850	3342	38	57	~~[illegible]~~	~~[illegible]~~	
	AVG			4048	3992	38	57	~~[illegible]~~	~~[illegible]~~	
			Pre	ACFM	198.7			67.5	66.5	
			Post	ACFM	195.9					
			Pre	MPH Array	4.51					
			Post	MPH, Array	4.45					
	A	1	N/A	3229	3494	38	57	65.5	68.2	Baghouse Teom a 0.293 ft 14" Dia sample Duct
	A	2	↓	4422	4471	38	57	77.7	74.5	
	A	3	↓	4356	4219	38	57	72.6	70.3	
	A	4	↓	3835	3806	38	57	63.9	63.4	
	A	5	↓	3679	3493	38	57	61.3	58.2	
	A	6	↓	3453	3641	38	57	57.5	60.7	
	AVG			3945	3854	38	57	65.8	64.2	
			Pre	ACFM,	4217					
			Post	ACFM,	4119					
End			Pre	MPH Duct,	4.65					
			Post	MPH Duct,	4.55					

Time
START STOP
Pre 642 646
Post
1507 1511

Average Angle, Degrees	
Average Velocity Pressure	
Average Gas Temperature (°F)	
Average Stack Gas Velocity (ft/sec)	
Actual Cubic Feet per minute (ACFM)	
Dry Standard Cubic Feet per Minute (DSCFM)	

STATIC
Pre 0.68
Post 0.60

STATIC
Pre ~~0.45~~ 0.33
Post ~~0.56~~ 0.53

Plant Name: Chandler Concrete
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Troutville, VA Personnel :TTB

Date 3/16/04 Time Sample Taken 13:15 Sample Type Cement

Mesh#	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm, 3"	501.1	501.1	–	–
	19mm, 0.75"	552.9	552.9	–	–
	850µm, 0.0331"	415.5	~~572.9~~ 415.5	–	–
#100	150µm, 0.0059"	349.8	573.9	224.1	73.500
#200	75µm, 0.0029	344.0	410.9	66.9	21.942
	Pan	370.4	384.3	13.9	4.559
	Totals			304.9	100

A.) Sample Weight **Wet-Pan Weight** = 415.0 - 109.1 = 305.9

B.) Sample Weight **Dry-Pan Weight** = 413.8 - 109.1 304.7

C.) % Moisture = **{(A-B)/A}*100** = 0.39

Date 3/16/04 Time Sample Taken 14:22 Sample Type FlyASH

Mesh #	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm, 3"	501.1	501.1	–	–
	19mm, 0.75"	552.9	552.9	–	–
	850µm, 0.0331"	415.5	416.4	0.9	0.372
#100	150µm, 0.0059"	349.8	357.5	7.7	3.183
#200	75µm, 0.0029	344.0	367.3	23.3	9.632
	Pan	370.4	580.4	210.0	86.813
	Totals			241.9	100

A.) Sample Weight **Wet-Pan Weight** = 351.4-109.1 = 242.3

B.) Sample Weight **Dry-Pan Weight** = 351.0-109.1 = 241.9

C.) % Moisture = **{(A-B)/A}*100** = 0.16

Plant Name: Chandler Concrete
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Troutville, VA Personnel :TTB

Date 3/16/04 Time Sample Taken 10:57 Sample Type SAND

Mesh #	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm, 3"	501.1	501.1	–	–
	19mm, 0.75"	552.9	552.9	–	–
	850µm, 0.0331"	415.5	438.7	23.2	5.801
#100	150µm, 0.0059	349.8	720.0	370.2	92.573
#200	75µm, 0.0029	344.0	349.7	5.7	1.425
	Pan	370.4	371.2	0.8	0.2
	Totals			399.9	100.0

A.) Sample Weight **Wet-Pan Weight** = 543.0-109.9 = 433.1

B.) Sample Weight **Dry-Pan Weight** = 508.3-109.9 = 398.4

C.) % Moisture = **{(A-B)/A}*100** = 8.01%

Date 3/16/04 Time Sample Taken 12:24 Sample Type STONE

Mesh#	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm, 3"	501.1	501.1	—	
	19mm, 0.75"	552.9	606.9	54.0	9.917
	850µm, 0.0331	415.5	900.4	484.9	89.054
#100	150µm, 0.0059"	349.8	351.7	1.9	0.349
#200	75µm, 0.0029"	344.0	345.0	1.0	0.184
	Pan	370.4	373.1	2.7	0.496
	Totals			544.5	1.000

A.) Sample Weight **Wet-Pan Weight** = 664.2-109.2 = 555.0

B.) Sample Weight **Dry-Pan Weight** = 652.7-109.2 = 543.5

C.) % Moisture = **{(A-B)/A}*100** = 2.07%

APPENDIX B5

CONCRETE SUPPLY TRUCK MIX

FIELD DATA SHEETS

Method 1 - Air Control Techniques, P.C.

Date 5-11-04

Client	NRMCA
Job #	877
Plant Name	Concrete Supply
State	SC
City	Rock Hill
Sampling Location	Baghouse Inlet

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	3"
Distance From Far Wall To Outside Of Port, Inches	14 1/8"
Nipple Length And/Or Wall Thickness, Inches	1/8"
Depth Of Stack Or Duct, Inches	14
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches	153.936
(□ x R^2 or L x W)	

	Upstream	Downstream
Distance to Flow Disturbances	45"	14"
Diameters	3.214	1.0

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

Diameters

Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port	ΔP
1	4.4	0.616	5/8"	1.60
2	14.6	2.044	2 1/8"	1.40
3	29.6	4.144	4 5/8"	1.40
4	70.4	9.856	10"	1.35
5	85.4	11.956	12 1/8"	1.45
6	95.6	13.384	13 5/8"	1.60
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000-0.0625 - 0
0.0625-0.1875 - 1/8
0.1875-0.3125 - 1/4
0.3125-0.4375 - 3/8
0.4375-0.5625 - 1/2
0.5625-0.6875 - 5/8
0.6875-0.8125 - 3/4
0.8125-0.9375 - 7/8
0.9375-1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	CONCRETE SUPPLY	Date	5/11/04
City, State	ROCK HILL, SC	Project #	877
Personnel	DLS, TTB	Pitot Identification	3A
Test Location	BAGHOUSE INLET	Pitot Coefficient (Cp)	0.84

Stack Dimensions			Pressures		
Diameter of Stack (D)	14	in	Barometric Pressure (Pb)	29.8	in Hg
Width of Stack (W)	—	in	Static Pressure (Pg)	-2.60	in H_2O
Area of Stack (As)	153.936	ft^2	Absolute Stack Pressure (Ps)	29.61	in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	0.50	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.78	lb/lb-mole

PRELIMINARY TRAVERSE

Pitot Tube Leak Checks			A	B	
Port	Point	Angle, °	Δp, in H_2O	Temp. °F	ft/sec
Start A	6	-4	1.60	76	72.04
	5	-2	1.45	76	67.39
	4	0	1.35	76	67.39
	3	0	1.40	76	66.17
	2	-2	1.40	76	68.58
	1	-5	1.60	76	72.04
End					

Average Angle, Degrees	2.17
Average Velocity Pressure	1.465
Average Gas Temperature (°F)	76.0
Average Stack Gas Velocity (ft/sec)	68.93
Actual Cubic Feet per minute (ACFM)	4421
Dry Standard Cubic Feet per Minute (DSCFM)	4289

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	CS-T-IN-PRE4-1
Condition	

IDENTIFICATION INFORMATION

Plant Name	CONCRETE SUPPLY
City	ROCK HILL
State	SC

Source Number		Date	5/2/04
Sampling Location	BAGHOUSE INLET	Start	0750
Test Personnel	DLS, TTB	Stop	0850

Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-0
Nozzle Diameter	0.123
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1025	

START 0750 STOP 0850
RESTART

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000		7

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	Good c 6"	Good e 4"
Pitot Tube Posttest Leak Check	5" ✓	3" ✓

Barometric Pressure, In.,Hg. 29.7 Static Pressure, In. W.C. -2.60

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	16.9	Moisture, %	1.363
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.869

DLS 1.363

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	10.77	0	327.21	1.70	68	65	2	66	0.47	0.50			
	5	11.83	10:46	331.46	2.05	69	66	2	64	0.47	0.50			
	4	9.24	22:36	336.14	1.25	70	68	2	63	0.47	0.50			
	3	8.67	31:50	339.81	1.10	71	68	2	64	0.47	0.51			
9.60	2	9.86	40:30	343.26	1.35	73	69	2	64	0.47	0.51			
	1	9.60	50:06	346.99	1.35	74	69	2	65	0.47	0.51			
			59:42	350.852										

Total Run Time	59:42				
Total Volume, ACF	23.642				
Averages	1.4505	70.8	67.5	0.470	
	in. H2O	°F	°F	in H2O	

Run	1

%	microns	

247

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	CS-T-IN-PRE4-2
Condition	

IDENTIFICATION INFORMATION

Plant Name	CONCRETE SUPPLY
City	ROCK HILL
State	SC
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	5-12-04
Start	1007
Stop	1106
Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-0
Nozzle Diameter	0.123
Orsat/Fyrite	FYRITE

Filter ID	Tare
OT 1026	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	6000 C7"	6000 E5"
Pitot Tube Posttest Leak Check	6000 C6"	6000 E5"

Barometric Pressure, In.,Hg.	29.70	Static Pressure, In. W.C.	-2.60

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	12.5	Moisture, %	2.562
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.56

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	10:00	0	351.002	1.45	75	72	2	65	0.46	0.45			
	5	10.67	10:00	354.91	1.65	75	73	2	64	0.46	0.45			
	4	11.29	20:40	359.02	1.85	76	72	2	64	0.46	0.46			
	3	10.17	31:57	363.35	1.50	77	72	2	63	0.46	0.45			
	2	8.30	42:07	367.21	1.00	78	73	2	63	0.46	0.45			
	1	8.51	50:26	370.37	1.05	78	71	2	62	0.46	0.46			
			58:56	373.742										

Total Run Time	58:56					
Total Volume, ACF	22.740					
Averages		1.3996	76.5	72.17	0.46	
		in. H2O	°F	°F	in H2O	

Run	2

%	microns	

248

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	CS-T-IN-AREA3
Condition	

IDENTIFICATION INFORMATION

Plant Name	CONCRETE SUPPLY
City	ROCK HILL
State	SC
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	5/13/04
Start	0906
Stop	1000
Meterbox ID	11677
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-0
Nozzle Diameter	0.123
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1027	

STOP @ 958
RESTART @ 1002

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		7

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	GOOD @ 6"	GOOD @ 7"
Pitot Tube Posttest Leak Check	GOOD @ 4"	GOOD @ 4"

Barometric Pressure, In.,Hg. 29.70 Static Pressure, In. W.C. -2.60

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams		Moisture, %	2.347
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.58

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (In.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	10.35	0	373.991	1.50	71	66	2	65	0.45	0.45			
	5	10.18	10:21	378.00	1.45	72	66	2	62	0.45	0.46			
	4	11.50	20:32	381.96	1.85	73	66	2	62	0.45	0.46			
	3	10.18	32:02	386.44	1.45	75	69	2	62	0.45	0.45			
	2	8.87	42:12	390.46	1.10	76	68	2	63	0.45	0.46			
	1	9.06	51:05	393.90	1.15	77	69	2	65	0.45	0.45			
			1:00:08	397.372										

Total Run Time	1:00:08				
Total Volume, ACF	23.381				
Averages	1.406	74.0	69.33	0.45	
	in. H2O	°F	°F	in H2O	% microns

Run	3

Method 4 - Air Control Techniques, P.C.

Date 5-12-04

Identification Information

Client	NRMCA	Job	877
Plant Name	CONCRETE SUPPLY	Process	CEMENT
City	ROCK HILL	State	SC.

Sampling Information

Run Number	CS-T-IN-PRE4-1	CS-T-IN-PRE4-2	CS-T-IN-PRE4-3	Balance Number	VF 1200
Sampling Date	5-12-04	5-12-04	5-13-04	Balance Type	ELEC
Analysit Date	5-12-04	5-12-04	5-13-04	Balance Level	YES
Personnel	DLS			Recovery Area	

Location Moisture Data

Run Number	1	2	3
Impinger 1			
Final Weight, grams/mls	737.5	745.2	751.4
Initial Weight, grams/mls	735.8	737.5	745.2
Condensed Water, grams	1.7	7.7	6.2
Impinger 2			
Final Weight, grams/mls	643.4	644.0	644.9
Initial Weight, grams/mls	643.4	643.4	644.0
Condensed Water, grams	0.0	0.6	0.9
Impinger 3			
Final Weight, grams/mls	597.0	597.6	598.9
Initial Weight, grams/mls	596.9	597.0	597.6
Condensed Water, grams	0.1	0.6	1.3
Condensed Water, grams	1.8	8.9	8.4
Silica Gel			
Final Weight, grams	851.0	854.6	858.0
Initial Weight, grams	845.9	851.0	854.6
Adsorbed Water, grams	5.1	3.6	3.4
Adsorbed Water, grams	5.1	3.6	3.4
Total Water, grams	6.9	12.5	11.8

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	Concrete Supply
City	Rock Hill
State	S.C.
Sampling Location	BH Inlet

PARAMETER	NOMENCLATURE	CS-T-IN-PRE4-1	CS-T-IN-PRE4-1	CS-T-IN-PRE4-3
Sampling Location				
Date		5/12/2004	5/12/2004	5/13/2004
Run Time	Theta	59.702	58.937	60.136
Nozzle Diameter	inches	0.123	0.123	0.123
Pitot Tube Coefficient	Cp	0.840	0.840	0.840
Meter Calibration Factor	Y	1.006	1.006	1.006
Barometric Pressure, inches Hg	Bp - in Hg	29.7	29.7	29.7
Meter Box Pressure Differential	ΔH - in. H2O	0.470	0.460	0.450
Volume of Gas Sampled	Vm - cu. ft.	23.642	22.740	23.381
Dry Gas Meter Temperature	Tm - °F	70.833	76.500	74.000
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	23.510	22.374	23.112
Liquid Collected	ml	6.900	12.500	11.800
Volume of Water Vapor	Vwstd - cu. ft.	0.325	0.588	0.555
Moisture Content	$\%H_20$	1.363	2.562	2.347
Saturation Moisture	$\%H_20$	2.300	2.697	2.287
Dry Mole Fraction	Mfd	0.986	0.974	0.977
Carbon Dioxide	$\%CO_2$	0	0	0
Oxygen	$\%O_2$	20.9	20.9	20.9
Carbon Monoxide	%CO	0	0	0
Nitrogen	$\%N_2$	79.100	79.100	79.100
Gas Molecular Weight, Dry	Md	28.836	28.836	28.836
as Molecular Weight, Wet	Ms	28.688	28.558	28.588
Static Pressure	Pg - in. H_2O	-2.600	-2.600	-2.600
Stack Pressure	Ps	29.509	29.509	29.509
Stack Temperature	Ts - °F	67.500	72.167	67.333
Average Velocity Head	Δp - in H_2O	1.451	1.400	1.406
Gas Velocity	vs - ft./sec.	68.271	67.511	67.322
Stack Area	As - sq. ft.	1.069	1.069	1.069
Volumetric Air Flow, Actual	Qaw - ACFM	4379	4330	4318
Volumetric Air Flow, Standard	Qsd - DSCFM	4264	4129	4167
Isokinetic Sampling Rate	%I	119.6	119.1	119.5
Total Particulate Catch	Milligrams	666.6	1003.9	1823.4
PM >10 Particulate Catch	Milligrams	538.6	731.3	1585.7
PM10 Particulate Catch	Milligrams	128.0	272.6	237.7
PM>2.5<10 Catch	Milligrams	109.0	249.6	221.2
PM2.5 Patriculate Catch	Milligrams	19.0	23.0	16.5
Total Arsenic Catch	Micrograms	9.31	26.45	50.92
PM >10 Arsenic Catch	Micrograms	6.91	15.60	41.10
PM10 Arsenic Catch	Micrograms	2.40	10.85	9.82
Concrete Production During Test	Cubic Yards / Test	71.3	67.2	43.0
Concrete Production During Test	Tons / Test	141.98	133.33	84.57
Concrete Production Rate	Tons/Hour	142.69	135.74	84.39
PM10 Arsenic Concentration	ug/mg	0.0188	0.0398	0.0413
TSP Arsenic Concentraion	ug/mg	0.0140	0.0263	0.0279

Plant	Concrete Supply			
City	Rock Hill			
State	S.C.			
Sampling Location	BH Inlet			
		CS-T-IN-PRE4-1	CS-T-IN-PRE4-1	CS-T-IN-PRE4-3
Total Particulate Emissions				
Grains/DSCF	gr/DSCF	0.43756	0.69244	1.21754
Pounds/Hour	lb/hr	15.99228	24.50472	43.48263
Pounds/Ton	lb/ton	0.11208	0.18052	0.51528
Total Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000061	0.0000182	0.0000340
Pounds/Hour	lb/hr	0.0002234	0.0006456	0.0012143
Pounds/Ton	lb/ton	0.0000016	0.0000048	0.0000144
PM_{10} Emissions				
Grains/DSCF	gr/DSCF	0.08402	0.18803	0.15872
Pounds/Hour	lb/hr	3.07083	6.65404	5.66843
Pounds/Ton	lb/ton	0.02152	0.04902	0.06717
PM_{10} Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000016	0.0000075	0.0000066
Pounds/Hour	lb/hr	0.0000576	0.0002648	0.0002342
Pounds/Ton	lb/ton	0.0000004	0.0000020	0.0000028
$PM_{>2.5<10}$ Emissions				
Grains/DSCF	gr/DSCF	0.07155	0.17216	0.14770
Pounds/Hour	lb/hr	2.61500	6.09262	5.27496
Pounds/Ton	lb/ton	0.01833	0.04488	0.06251
$PM_{2.5}$ Emissions				
Grains/DSCF	gr/DSCF	0.01247	0.01586	0.01102
Pounds/Hour	lb/hr	0.45583	0.56142	0.39348
Pounds/Ton	lb/ton	0.00319	0.00414	0.00466
Cut Sizes				
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	10.66	10.82	10.75
Gas viscosity, (micropoise)	μ	179.36	179.59	178.59
Gas sampling rate, ACFM	Qs	0.40	0.40	0.40
Renolds number, (dimensionless)	N_{re}	3127	3033	3085
Cunningham correction factor	C	1.07	1.06	1.06
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - PM_2	2.26	2.32	2.29
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - PM_2	2.24	2.29	2.27

Type of Mix	T	Truck	Truck	Averages
Start Time		1007	906	N/A
Stop Time	850	1106	1010	N/A
Test Date	5/12/2004	5/12/2004	5/13/2004	N/A
Number of Stops	0	0	1	N/A
Run Numbers	1	2	3	
Array 1 Size, SQ FT	100	100	100	100
Array 2 Size, SQ FT	40	40	40	40
Wind Speed Thru Array, MPH	1.05	1.48	1.55	1.4
Wind Speed Thru Array, FPM	92.3	130.5	136.7	119.8
ACFM Thru Arrays	12916.129	18274.6667	19131.5385	16774
Actual Cubic Meters of Gas Thru Arrays per Minute, ACM/M	366	518	542	475
Average PM10 Particulate Concentration in Array , ug/m^3	351.0	854.6	527.0	577.5
Measured PM10 Emissions Thru Array, lb / Hour	0.0170	0.0585	0.0378	0.0378
Calculated TSP Emissions Thru Array, lb / Hour	0.0885	0.2154	0.2897	0.1979
Calculated PM2.5 Emissions Thru Array, lb / Hour	0.0025	0.0049	0.0026	0.0034
Calculated PM>2.5<10 Emissions Thru Array, lb/hour	0.0145	0.0536	0.0351	0.0344
PM10 Emissions, Array + Fabric Filter, lb/hr	0.0304	0.0944	0.0628	0.0625
TSP Emissions, Array + Fabric Filter, lb/hr	0.1583	0.3476	0.4814	0.3291
PM2.5 Emissions, Array + Fabric Filter, lb/hr	0.0045	0.0080	0.0044	0.0056
PM>2.5<10 Emissions, Array + Fabric Filter, lb/hr	0.0259	0.0864	0.0584	0.0569
Average Plant Production Levels During Tests, Tons/Hour	142.7	135.7	84.4	120.94
Flow Rate In Fabric Filter Outlet Duct, ACFM	3980.5	3980.5	3899.5	3953.5
Flow Rate in Fabric Filter Outlet, ACM/M	112.730105	112.730105	110.436137	112.0
Average PM10 Particulate Concentration in Fabric Filter Outlet TEOM, ug/m^3	899.5	2406.4	1710.1	1672.0
Measured PM10 Emissions in Fabric Filter Outlet, lb / Hour	0.013	0.036	0.025	0.025
Calculated TSP Emissions in Fabric Filter Outlet, lb / Hour	0.070	0.132	0.192	0.131
Calculated PM2.5 Emissions in Fabric Filter Outlet, lb / Hour	0.002	0.003	0.002	0.002
Calculated PM>2.5<10 Emissions in Fabric Filter Outlet, lb/hour	0.011	0.033	0.023	0.023
Total Fugitive & Fabric Filter PM10 Emission Factor, lb/ton	0.00021	0.00070	0.00074	0.00055
Total Fugitive & Fabric Filter TSP Emission Factor, lb/ton	0.00111	0.00256	0.00570	0.00312
Total Fugitive & Fabric Filter PM2.5 Emission Factor, lb/ton	0.00003	0.000059	0.00005	0.00005
Total Fugitive & Fabric Filter PM>2.5<10 Emission Factor, lb/ton	0.00018	0.00064	0.00069	0.00050
Truck Hood PM10 Efficiency	99.45%	99.13%	99.34%	99.3%
System Collection Efficiency	99.01%	98.58%	98.89%	98.8%
Fabric Filter Inlet, Total Particulate Concentration, lb/hr	15.992	24.505	43.483	27.99
Fabric Filter Total Efficiency	99.6%	99.5%	99.6%	100%
Total / PM10 Ratio for Fugitive TEOM TSP Calc from Inlet Pre4s	5.21	3.68	7.67	5.52
PM2.5 / PM10 Ratio for Fugitive TEOM PM2.5 Calc from Inlet Pre4s	0.15	0.08	0.07	0.10
PM<2.5>10 / PM10 Ratio for Fugitive TEOM from Inlet Pre4s	0.85	0.92	0.93	0.90
Fabric Filter Inlet, PM10 Particulate Concentration, lb/hr	3.071	6.654	5.668	5.131
Fabric Filter PM10 Efficiency	99.6%	99.5%	99.6%	99.5%
Fabric Filter Inlet, PM2.5 Particulate Concentration, lb/hr	0.456	0.561	0.393	0.4702
Fabric Filter PM2.5 Efficiency	99.6%	99.5%	99.6%	99.5%
Fabric Filter Inlet, PM>2.5<10 Particulate Concentration, lb/hr	2.615	6.093	5.275	4.6609

CS Reduced Data Spreadsheet

Arsenic Emissions	0.0140	0.0263	0.0279	0.0227	Arsenic in Total PM, ug/mg
	0.0188	0.0398	0.0413	0.0333	Arsenic in PM10, ug/mg
	0.9956	0.9946	0.9956	0.9953	Fabric Filter Efficiency
	0.9945	0.9913	0.9934	0.9931	Hood Efficiency
	15.9923	24.5047	43.4826	27.9932	Total PM Emissions to Fabric Filter
	3.07083	6.65404	5.66843	5.1311	PM10 Emissions to Fabric Filter
Total Part, FFOUT	6.99E-02	1.32E-01	1.92E-01	1.31E-01	lbs/hour Total PM in FFOUT
	9.76E-07	**3.48E-06**	**5.35E-06**	**3.27E-06**	**Lbs/hour arsenic in Total PM**
Total Part Fugitives	8.80E-02	2.14E-01	2.88E-01	1.96E-01	Lbs/hour Total PM in Fugitives
	1.23E-06	**5.63E-06**	**8.04E-06**	**4.96E-06**	**lbs/hour arsenic in Fugitives**
TSP Arsenic Emission Factors	**2.20E-06**	**9.11E-06**	**1.34E-05**	**8.23E-06**	**lbs/hour arsenic emitted**
	1.545E-08	6.710E-08	1.587E-07	**8.04E-08**	lbs/ton
PM10 FFOUT	1.341E-02	3.588E-02	2.498E-02	**2.48E-02**	lbs/hour PM10 in FFOut
	2.51E-07	1.43E-06	1.03E-06	**9.04E-07**	lbs/hour As PM10 in FFOUT
PM10 Fugitives	1.69E-02	5.80E-02	3.75E-02	**3.75E-02**	lbs/hour PM10 in Fugitives
	3.17E-07	2.31E-06	1.55E-06	**1.39E-06**	lbs/hour As in Fugitives
PM10 Arsenic Emission Factors	5.68E-07	3.74E-06	2.58E-06	**2.30E-06**	lbs/hr As
	3.98E-09	2.75E-08	3.06E-08	**2.07E-08**	lbs/ton

AP-42 Arsenic Truck Mix Total PM - lbs/ton
1.16E-06

Percent of AP-42
6.9%

Plant Name: Concrete Supply
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Rock Hill, SC Personnel : TTB
Date 5/12/04

RUN #1

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load #
750/755		✓	0	174
800/806		✓	0	179
808/812		✓	0	2127
812/816		✓	0	273
816/823		✓	0	2138
827/832		✓	0	2113
834/838		✓	~~0~~ 5	2150
842/850		✓	0	2133

WIND
0-2 S-SW

Note
8:51-
9:45
Loaded Cement
TEOM BH outlet
↑

Plant Name: Concrete Supply
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Rock Hill, SC Personnel : TTB
Date 5/12/04

RUN #2

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load #
1007/1011	—	✓	0	138
1011/1013	—	✓	0	273
1014/1018	—	✓	5	2116
1019/1022	—	✓	5	2143
1023/1028	—	✓	0	2150
1029/1032	—	✓	5	2127
1033/1037	—	✓	0	179
1102/1106	—	✓	0	2113
1038/1042	—	✓	0	2138

WIND Variable 0-4 SE-SW

Picking up as Test went on.

Light Rain started w/ ≈10 min left in test. Complete test/will wait till weather clearsup.

Plant Name: Concrete Supply , NRMCA
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Rock Hill, SC Personnel : TTB
Date 5/13/04

RUN #3

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load #
906/908		✓	0	179
919/923		✓	0	2127
933/938		✓	0	2138
1001/1005		✓	5	~~273~~ 2150
1005/1009		✓	0	273

* Truck Blade ← Design Poor. Too Small opening.

STOP 9:58
START 10:01
STOP 10:~~09~~ 10

Held off test for wind and to load cement.
905 winds looking better, rain on the way decided to start before rain & concrete orders were cance
Finished loading cement @ ≈8:33 AM

Method 2 - Air Control Techniques, P.C.

Identification Information

Client	NRMCA	Job	877
City	Rock Hill	State	SC

Concrete Supply

Sampling Location and Port Information

Sampling Location	Array Duct	Pitot ID	K00-18	STANDARD
Measured Barometric, in. Hg	29.70	Pitot Coeff. (Cp)	~~0.84~~	0.99
Duct/Stack Dia., In.	3" Dia / Team 6"×12" = 0.5 ft²	TC ID	TC-1	

Measurement Data

Date	5/12/04	Date	5/12/04	Date	
Run Identification	Pre	Run Identification	Post	Run Identification	
Stactic Pressure, in. WC	1.57	Stactic Pressure, in. WC	1.62	Stactic Pressure, in. WC	
Start Time	720	Start Time	1206	Start Time	
End Time	723	End Time	1209	End Time	
STATIC	1.57				
Pitot Leak Checks					
Positve Side	4" ✓	Positve Side	6" ✓	Positve Side	
Negative Side	4" ✓	Negative Side	6" ✓	Negative Side	

	Δp, IN WC ~~in. WC~~	Temp. °F	Δp, in. WC	Temp. °F	Δp, in. WC	Temp. °F
1	0.65	65	0.62	71		
2	0.76	65	0.76	71		
3	1.03	65	1.10	71		
4	1.25	65	1.21	71		
5						
6						
7						
8						
9	~~63.4 ft/sec~~					
10	63.38	ft/sec	63.44	ft/sec		
11	187	ACFM	187	ACFM		
12						
13						
14						
15						
16						
17						
18						
Average	~~0.9830~~ 0.9077	65		71		

MPH in TEOM Duct = 4.25 MPH in TEOM Duct = 4.25

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Method 2 - Air Control Techniques, P.C.

Identification Information

Client	NRMCA	Job	877
City	Rock Hill	State	SC

Concrete Supply

Sampling Location and Port Information

Sampling Location	Baghouse Duct	Pitot ID	K00-18	STANDARD
Measured Barometric, in. Hg	29.7	Pitot Coeff. (Cp)	~~0.84~~	0.99
Duct/Stack Dia., In.	14"DIA / Teom 3'2.5"	TC ID	TC-1	

10.293 FT²

Measurement Data

Date	5/12/04	Date	5/12/04	Date	
Run Identification	Pre	Run Identification	Pos 1	Run Identification	
Stactic Pressure, in. WC	2.09	Stactic Pressure, in. WC	2.30	Stactic Pressure, in. WC	
Start Time	740	Start Time	1210	Start Time	
End Time	743	End Time	1214	End Time	

Pitot Leak Checks

Positve Side	5" ✓	Positve Side	6" ✓	Positve Side	
Negative Side	6" ✓	Negative Side	6" ✓	Negative Side	

	Δp, in. WC	Temp. °F	Δp, in. WC	Temp. °F	Δp, in. WC	Temp. °F
1	0.52	65	0.53	71		
2	0.71	65	0.76	71		
3	0.75	65	0.68	71		
4	1.37	65	1.48	71		
5	1.48	65	1.41	71		
6	1.55	65	1.56	71		
7						
8						
9						
10	~~66.90~~	ft/sec	~~67.44~~	ft/sec		
11	6327	ACFM	6378	ACFM		
12						
13						
14						
15						
16						
17						
18						
Average	1.021	65.		71.		.

mph in TEOM Duct = 6.9851 mph in TEOM Duct = 7.04

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Method 2 - Air Control Techniques, P.C.

Identification Information

Client	NRMCA	Job	877
City	Rock Hill Concrete Supply	State	SC

Sampling Location and Port Information

Sampling Location	Array Duct	Pitot ID	V60-18
Measured Barometric, in. Hg	29.7	Pitot Coeff. (Cp)	0.84
Duct/Stack Dia., In.	3" Dia TEOM 0.5FT²	TC ID	TC-1

Measurement Data

Date	5/13/04	Date	5/13/04	Date	
Run Identification	Pre	Run Identification	Post	Run Identification	
Stactic Pressure, in. WC	1.40	Stactic Pressure, in. WC	.62	Stactic Pressure, in. WC	
Start Time	740	Start Time	030	Start Time	
End Time	743	End Time	033	End Time	

Pitot Leak Checks

Positve Side	3" ✓	Positve Side	4" ✓	Positve Side	
Negative Side	3" ✓	Negative Side	5" ✓	Negative Side	

	Δp, in. WC	Temp. °F	Δp, in. WC	Temp. °F	Δp, in. WC	Temp. °F
1	1.31	66	1.12	73		
2	~~0.79~~ 0.99	66	1.06	73		
3	0.62	66	0.74	73		
4	0.74	66	0.71	73		
5						
6						
7						
8						
9						
10	62.81	ft/sec		ft/sec		
11	185	ACFM		ACFM		
12						
13						
14						
15						
16						
17						
18						
Average		66				

MPH in TEOM Duct = 4.20 MPH in TEOM Duct =

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Method 2 - Air Control Techniques, P.C.

Identification Information

Client	NRMCA	Job	877
City	Rock Hill	State	SC
	Concrete Supply		

Sampling Location and Port Information

Sampling Location	Baghouse Duct	Pitot ID	160-18	STD
Measured Barometric, in. Hg	29.7	Pitot Coeff. (Cp)	~~0.84~~	0.99
Duct/Stack Dia., In.	14" Dia / TEOM 10.29 3.14²	TC ID	TC-1	

Measurement Data

Date	5/13/04	Date	5/13/04	Date	
Run Identification	Pre	Run Identification	Post	Run Identification	
Stactic Pressure, in. WC	2.17	Stactic Pressure, in. WC	2.23	Stactic Pressure, in. WC	
Start Time	737	Start Time	1028	Start Time	
End Time	740	End Time	1031	End Time	

Pitot Leak Checks

Positve Side	4" ✓	Positve Side	3" ✓	Positve Side	
Negative Side	3" ✓	Negative Side	3" ✓	Negative Side	

	Δp, in. WC	Temp. °F	Δp, in. WC	Temp. °F	Δp, in. WC	Temp. °F
1	0.57	66	0.58	73		
2	0.86	66	0.83	73		
3	1.13	66	~~0.9~~ 1.04	73		
4	1.37	66	1.47	73		
5	1.53	66	1.58	73		
6	1.42	66	1.39	73		
7						
8						
9						
10	70.08	Ft/sec		Ft/sec		
11	6628	ACFM		ACFM		
12						
13						
14						
15						
16						
17						
18						
Average	1.118	66.		.		.

MPH in TEOM Duct = 7.32 MPH in TEOM Duct =

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Plant Name: Concrete Supply
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Rock Hill, SC Personnel :TTB

Date 5/11/04 Time Sample Taken @13:15 Sample Type cement

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.4	500.4	–	0
	19mm	552.2	552.2	–	0
	850µm	414.9	415.2	0.3	0.09
#100mesh	150µm	349.4	610.8	261.4	80.68
#200mesh	75µm	343.4	402.1	58.7	18.12
	Pan	370.1	373.7	3.6	1.11
	Totals			324.0	100.0

A.) Sample Weight **Wet-Pan Weight** = 432.6 - 109 = 323.6

B.) Sample Weight **Dry-Pan Weight** = 431.6 - 109 = 322.6

C.) % Moisture = **{(A-B)/A}*100** = ~~0.23%~~ 0.31%

Date 5/11/04 Time Sample Taken 1438 Sample Type FlyAsH

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.4	500.4	–	0
	19mm	552.2	552.2	–	0
	850µm	414.9	415.7	0.8	~~[illegible]~~ 0.189
#100mesh	150µm	349.6	366.1	16.5	3.89%
#200mesh	75µm	343.4	395.4	52.0	12.279
	Pan	370.0	724.2	354.2	83.63%
	Totals			423.5	100.00

A.) Sample Weight **Wet-Pan Weight** = 535.1 - 109 = 426.1

B.) Sample Weight **Dry-Pan Weight** = 534.8 - 109 = 425.8

C.) % Moisture = **{(A-B)/A}*100** = 0.07%

Plant Name: Concrete Supply
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Rock Hill, SC Personnel :TTB

Date 5/11/04 Time Sample Taken 15:21 Sample Type SAND

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.4	500.4	-	0
	19mm	552.5	552.5	-	0
	850µm	414.8	569.8	155.0	24.96
100 MESH	150µm	349.3	800.1	450.8	72.59
200 MESH	75µm	343.4	355.6	12.2	1.96
	Pan	370.3	373.3	3.0	0.48
	Totals			621.0	100.0

A.) Sample Weight **Wet-Pan Weight** = 749.5-109=640.5

B.) Sample Weight **Dry-Pan Weight** = 727.5-109=618.5

C.) % Moisture = **{(A-B)/A}*100** = 3.43%

Date 5/11/04 Time Sample Taken 16:33 Sample Type STONE

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.4	500.4	-	0
	19mm	552.5	673.7	121.2	18.87
	850µm	415.2	931.7	516.5	80.41
100 MESH	150µm	349.8	350.9	1.1	0.17
200 MESH	75µm	343.7	344.4	0.7	0.11
	Pan	370.3	373.1	2.8	0.44
	Totals			642.3	100.0

A.) Sample Weight **Wet-Pan Weight** = 755.2-109=646.2

B.) Sample Weight **Dry-Pan Weight** = 752.2-109=643.2

C.) % Moisture = **{(A-B)/A}*100** = 0.46%

APPENDIX B6

RMC CENTRAL MIX

FIELD DATA SHEETS

Method 1 - Air Control Techniques, P.C.

Date 5-18-04

Client	NRMCA
Job #	877
Plant Name	RMC DURANT
State	NC
City	RALEIGH
Sampling Location	BAGHOUSE INLET

No. of Ports Available	1
No. of Ports Used	1
Port Inside Diameter, Inches	4"
Distance From Far Wall To Outside Of Port, Inches	14 1/8"
Nipple Length And/Or Wall Thickness, Inches	1/8"
Depth Of Stack Or Duct, Inches	14
Stack Or Duct Width (if rectangular), Inches	—
Equiv. Diameter = 2DW/(D+W), Inches	—
Stack/Duct Area, Square Inches ($\pi \times R^2$ or $L \times W$)	153.936

	Upstream	Downstream
Distance to Flow Disturbances	29"	24"
Diameters	2.071	1.714

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

Diameters

Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	0.616	3/4"
2	14.6	2.044	2 1/8"
3	29.6	4.144	4 1/4"
4	70.4	9.856	10"
5	85.4	11.956	12 1/8"
6	95.6	13.384	13 1/2"
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000-0.0625 - 0
0.0625-0.1875 - 1/8
0.1875-0.3125 - 1/4
0.3125-0.4375 - 3/8
0.4375-0.5625 - 1/2
0.5625-0.6875 - 5/8
0.6875-0.8125 - 3/4
0.8125-0.9375 - 7/8
0.9375-1.0000 - 1

PRELIMINARY INFORMATION

Plant Name	RMC QUANT	Date	5-18-04
City, State	RALEIGH, NC	Project #	877
Personnel	DLS, TTB	Pitot Identification	3A
Test Location	BAGHOUSE INLET	Pitot Coefficient (Cp)	0.84

Stack Dimensions			Pressures		
Diameter of Stack (D)	14	in	Barometric Pressure (Pb)	30.0	in Hg
Width of Stack (W)	—	in	Static Pressure (Pg)	-1.00	in H_2O
Area of Stack (As)	153.936	IN^2-ft^2	Absolute Stack Pressure (Ps)		in Hg

Stack Gas Composition				
Carbon Dioxide (%CO_2)	0	Moisture Content (Bws)	1.00	%
Oxygen (%O_2)	20.9	Dry Molecular Weight (Md)	28.84	lb/lb-mole
Nitrogen Concentration (%N_2)	79.1	Wet Molecular Weight (Ms)	28.73	lb/lb-mole

PRELIMINARY TRAVERSE

Pitot Tube Leak Checks			A	B	
Port	Point	Angle, °	Δp, in H_2O	Temp. °F	ft/sec
Start A	6	-8	1.15	77	60.86
	5	-4	1.45	77	68.34
	4	-1	1.40	77	67.15
	3	0	1.35	77	65.94
	2	-2	1.30	77	64.71
	1	-5	1.40	77	67.15
End					

Average Angle, Degrees	3.33
Average Velocity Pressure	1.340
Average Gas Temperature (°F)	77.0
Average Stack Gas Velocity (ft/sec)	65.69
Actual Cubic Feet per minute (ACFM)	4214
Dry Standard Cubic Feet per Minute (DSCFM)	4103

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	RMC C-IN-Area 4-1
Condition	

IDENTIFICATION INFORMATION

Plant Name	RMC
City	RALEIGH
State	NC
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	5-19-04
Start	0810
Stop	0909
Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-1
Nozzle Diameter	0.131
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1029	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.001	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	6.000E7"	6.000E5"
Pitot Tube Posttest Leak Check	6.000E6"	6.000E5"

Barometric Pressure, In.,Hg.	30.3	Static Pressure, In. W.C.	-2.70

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	122	Moisture, %	2.381
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.58

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	Run Cum. D50s, microns PM2.5
A	6	9.06	0	425.502	1.10	65	70	2	65	0.46	0.47			
	5	10.22	9:03	429.01	1.40	66	72	2	63	0.46	0.47			
	4	10.04	19:17	433.00	1.35	67	71	2	64	0.46	0.47			
	3	10.04	29:19	436.95	1.35	68	71	2	66	0.46	0.47			
	2	10.22	39:21	440.87	1.40	70	72	2	65	0.46	0.47			
	1	10.04	49:35	444.79	1.35	71	71	2	64	0.46	0.48			
			59:37	448.580										

Total Run Time	59:37				
Total Volume, ACF	23.078				
Averages		1.3229	67.8	71.17	
		in. H2O	°F	°F	
				0.46	
				in H2O	
					% microns

Run	1

267

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	RMC-C-IN-PREY-2
Condition	

IDENTIFICATION INFORMATION

Plant Name	RMC
City	RALEIGH
State	NC
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	5-19-04
Start	1008
Stop	1111
Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-1
Nozzle Diameter	0.131
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT 1030	

START 1008
STOP 1103
RESTART 1106
STOP 1111

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	.000		6

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	GOOD 6"	GOOD 6"
Pitot Tube Posttest Leak Check	GOOD 5"	GOOD 5"

Barometric Pressure, In.,Hg. 30.3 Static Pressure, In. W.C. -2.70

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	11.7	Moisture, %	2.310
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.59

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (In.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	9.12	0	449.000	1.10	71	74	2	65	0.44	0.44			
	5	10.47	9:07	452.51	1.45	71	74	2	63	0.44	0.44			
	4	10.47	19:35	456.52	1.45	72	75	2	63	0.44	0.46			
	3	9.91	30:03	460.53	1.30	74	76	2	64	0.44	0.44			
	2	9.72	39:58	464.36	1.25	74	78	2	65	0.44	0.44			
	1	10.29	49:42	468.13	1.40	75	78	2	66	0.44	0.44			
			59:59	472.043										

Total Run Time	59:59			
Total Volume, ACF	23.043			
Averages	1.3219	72.8	75.83	
	in. H2O	°F	°F	

Run	2

0.44
in H2O

%		microns

Combined Cyclone PM10 & PM2.5 Run Data Sheet

Run ID	RMC-C-IN-PRE4-3
Condition	

IDENTIFICATION INFORMATION

Plant Name	RMC
City	RALEIGH
State	NC
Source Number	
Sampling Location	BAGHOUSE INLET
Test Personnel	DLS, TTB
Date	5-20-04
Start	0852
Stop	0952
	5-20-04
Meterbox ID	11077
ΔH @	1.712
Gamma, γ	1.006
Nozzle ID	1072-1
Nozzle Diameter	0.131
Orsat/Fyrite	FYRITE

Filter ID	Tare
QT1031	

PRELIMINARY CHECKS AND DATA

	Actual	Req'd	Vacuum
Full Train Pretest Leak Check, ACFM	.000	< 0.02 or 4%	15
Partial Train Posttest Leak Check, ACFM	0.000		5

(Remove cyclone sampling head before posttest leak check. Keep cyclone head upright prior to recovery.) Do not leak check during port changes.

	A	B
Pitot Tube Pretest Leak Check	Good @ 6"	Good @ 4"
Pitot Tube Posttest Leak Check	Good @ 7"	Good @ 4"

Barometric Pressure, In.,Hg. 30.0 Static Pressure, In. W.C. -2.85

ACTUAL MOISTURE & GAS COMPOSITION

Water Recovered, grams	14.5	Moisture, %	2.818
CO_2 %	0	Md_run	28.84
O_2 %	20.9	Mw_run	28.53

Sampling Information / QA Checks

Port	Point	Dwell Time, (Min.)	Elapsed Time, h:m:s	Dry Gas Meter, (ft3)	Pitot VP, (In.W.C.)	Meter Temp. (F)	Stack Temp., (F)	Sample Train Vac. (in.)	Impinger Exit Gas Temp., (F)	Orifice Delta H, in. W.C.	Target Orifice Delta H, in. W.C.	% Iso	Run Cum. D50s, microns PM10	PM2.5
A	6	9.12	0	473.201	1.10	66	71	2	64	0.45	0.45			
	5	10.47	9:07	476.70	1.45	66	71	2	60	0.45	0.45			
	4	10.47	19:36	480.72	1.45	67	71	2	60	0.45	0.45			
	3	10.11	30:04	484.75	1.35	68	72	2	60	0.45	0.45			
	2	9.92	40:11	488.67	1.30	70	72	2	61	0.45	0.45			
	1	10.29	50:06	492.52	1.40	71	74	2	61	0.45	0.45			
			1:00:23	496.507										

Total Run Time 1:00:23

Total Volume, ACF 23.306

Averages	1.3388	68.0	71.8
	in. H2O	°F	°F

Run	3

0.45
in H2O

%	microns	

Method 4 - Air Control Techniques, P.C.

Date 5-18-04

Identification Information

Client	NRMCA	Job	877
Plant Name	RMC DURANT	Process	
City	RALEIGH	State	NC

Sampling Information

Run Number	RMC-C-IN-PK4-1	RMC-C-IN-PK4-2	RMC-C-IN-PK4-3	Balance Number	VI 1200
Sampling Date	5-19-04	5-19-04		Balance Type	ELEC
Analysit Date	5-19-04	5-19-04		Balance Level	YES
Personnel	DLS, TTB			Recovery Area	LAB

Location Moisture Data

Run Number	1	2	3
Impinger 1			
Final Weight, grams/mls	716.2	722.3	730.6
Initial Weight, grams/mls	715.3	716.2	722.3
Condensed Water, grams	0.9	6.1	8.3
Impinger 2			
Final Weight, grams/mls	630.0	630.3	631.6
Initial Weight, grams/mls	626.9	630.0	630.3
Condensed Water, grams	3.1	0.3	1.3
Impinger 3			
Final Weight, grams/mls	608.8	609.2	610.0
Initial Weight, grams/mls	606.9	608.8	609.2
Condensed Water, grams	1.9	0.4	0.8
Condensed Water, grams	5.9	6.8	10.4
Silica Gel			
Final Weight, grams	838.7	843.6	847.7
Initial Weight, grams	832.4	838.7	843.6
Adsorbed Water, grams	6.3	4.9	4.1
Adsorbed Water, grams	6.3	4.9	4.1
Total Water, grams	12.2	11.7	14.5

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Plant	RMC
City	Raleigh
State	N.C.
Sampling Location	BH Inlet

PARAMETER	NOMENCLATURE	RMC-C-IN-PRE4-1	RMC-C-IN-PRE4-2	RMC-C-IN-PRE4-3
Sampling Location				
Date		5/19/2004	5/19/2004	5/20/2004
Run Time	Theta	59.619	59.979	60.381
Nozzle Diameter	inches	0.131	0.131	0.131
Pitot Tube Coefficient	Cp	0.840	0.840	0.840
Meter Calibration Factor	Y	1.006	1.006	1.006
Barometric Pressure, inches Hg	Bp - in Hg	30.3	30.3	30.0
Meter Box Pressure Differential	ΔH - in. H2O	0.460	0.440	0.450
Volume of Gas Sampled	Vm - cu. ft.	23.078	23.043	23.306
Dry Gas Meter Temperature	Tm - °F	67.833	72.833	68.000
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	23.545	23.288	23.534
Liquid Collected	ml	12.200	11.700	14.500
Volume of Water Vapor	Vwstd - cu. ft.	0.574	0.551	0.683
Moisture Content	$\%H_20$	2.381	2.310	2.818
Saturation Moisture	$\%H_20$	2.556	2.990	2.642
Dry Mole Fraction	Mfd	0.976	0.977	0.974
Carbon Dioxide	$\%CO_2$	0	0	0
Oxygen	$\%O_2$	20.9	20.9	20.9
Carbon Monoxide	%CO	0	0	0
Nitrogen	$\%N_2$	79.100	79.100	79.100
Gas Molecular Weight, Dry	Md	28.836	28.836	28.836
Gas Molecular Weight, Wet	Ms	28.578	28.586	28.550
Static Pressure	Pg - in. H_2O	-2.700	-2.700	-2.850
Stack Pressure	Ps	30.101	30.101	29.790
Stack Temperature	Ts - °F	71.167	75.833	71.833
Average Velocity Head	Δp - in H_2O	1.323	1.322	1.339
Gas Velocity	vs - ft./sec.	64.902	65.155	65.706
Stack Area	As - sq. ft.	1.069	1.069	1.069
Volumetric Air Flow, Actual	Qaw - ACFM	4163	4179	4214
Volumetric Air Flow, Standard	Qsd - DSCFM	4064	4047	4056
Isokinetic Sampling Rate	%I	111.0	109.6	109.8
Total Particulate Catch	Milligrams	332.0	253.3	449.8
PM >10 Particulate Catch	Milligrams	247.3	187.7	351.3
PM10 Particulate Catch	Milligrams	84.7	65.6	98.5
PM>2.5<10 Catch	Milligrams	78.7	53.7	88.9
PM2.5 Patriculate Catch	Milligrams	6.0	11.9	9.6
Total Arsenic Catch	Micrograms	13.67	6.94	14.11
PM >10 Arsenic Catch	Micrograms	7.01	4.64	8.78
PM10 Arsenic Catch	Micrograms	6.66	2.31	5.33
Concrete Production During Test	Cubic Yards / Test	45.00	29.00	51.00
Concrete Production During Test	Tons / Test	117.99	74.06	138.87
Concrete Production Rate	Tons/Hour	118.75	74.08	119.98
PM10 Arsenic Concentration	ug/mg	0.0786	0.0351	0.0541
TSP Arsenic Concentraion	ug/mg	0.0412	0.0274	0.0314

Plant	RMC
City	Raleigh
State	N.C.
Sampling Location	BH Inlet

		RMC-C-IN-PRE4-1	RMC-C-IN-PRE4-2	RMC-C-IN-PRE4-3
Total Particulate Emissions				
Grains/DSCF	gr/DSCF	0.21761	0.16786	0.29495
Pounds/Hour	lb/hr	7.58019	5.82317	10.25377
Pounds/Ton	lb/ton	0.06383	0.07860	0.08546
Total Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000090	0.0000046	0.0000093
Pounds/Hour	lb/hr	0.0003121	0.0001595	0.0003217
Pounds/Ton	lb/ton	0.0000026	0.0000022	0.0000027
PM_{10} Emissions				
Grains/DSCF	gr/DSCF	0.05552	0.04347	0.06459
Pounds/Hour	lb/hr	1.93386	1.50809	2.24544
Pounds/Ton	lb/ton	0.01628	0.02036	0.01871
PM_{10} Arsenic Emissions				
Grains/DSCF	gr/DSCF	0.0000044	0.0000015	0.0000035
Pounds/Hour	lb/hr	0.0001521	0.0000530	0.0001215
Pounds/Ton	lb/ton	0.0000013	0.0000007	0.0000010
$PM_{>2.5<10}$ Emissions				
Grains/DSCF	gr/DSCF	0.05158	0.03559	0.05829
Pounds/Hour	lb/hr	1.79687	1.23452	2.02659
Pounds/Ton	lb/ton	0.01513	0.01666	0.01689
$PM_{2.5}$ Emissions				
Grains/DSCF	gr/DSCF	0.00393	0.00789	0.00630
Pounds/Hour	lb/hr	0.13699	0.27357	0.21884
Pounds/Ton	lb/ton	0.00115	0.00369	0.00182
Cut Sizes				
PM_{10} Cut Diameter, (microns)	D_{50} - PM_{10}	10.64	10.78	10.64
Gas viscosity, (micropoise)	μ	179.49	180.66	179.32
Gas sampling rate, ACFM	Qs	0.40	0.40	0.41
Renolds number, (dimensionless)	N_{re}	3154	3079	3126
Cunningham correction factor	C	1.07	1.06	1.07
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}<3162 - PM_2	2.24	2.30	2.25
$PM_{2.5}$ cut diameter, (microns)	D_{50} N_{re}>3162 - PM_2	2.24	2.27	2.24

Type of Mix	Central	Central	Central	Averages
Start Time	810	1008	852	N/A
Stop Time	909	1111	952	N/A
Number of Stops	0	1	0	N/A
Test Date	5/19/2004	5/19/2004	5/20/2004	N/A
Run Numbers	1	2	3	
Array 1 Size, SQ FT	100	100	100	100
Array 2 Size, SQ FT	40	40	40	40
Wind Speed Thru Array, MPH	7.10	4.42	1.48	4.3
Wind Speed Thru Array, FPM	624.8	388.7	129.8	381.1
ACFM Thru Arrays	87472	54413.33	18177.05	53354
Actual Cubic Meters of Gas Thru Arrays per Minute, ACM/M	2477	1541	515	1511
Average PM10 Particulate Concentration in Array , ug/m^3	309.2	223.7	193.3	242.1
Measured PM10 Emissions Thru Array, lb / Hour	0.1013	0.0456	0.0132	0.0534
Calculated TSP Emissions Thru Array, lb / Hour	0.3972	0.1761	0.0601	0.2111
Calculated PM2.5 Emissions Thru Array, lb / Hour	0.0072	0.0083	0.0013	0.0056
Calculated PM>2.5<10 Emissions Thru Array, lb/hour	0.0942	0.0373	0.0119	0.0478
Array Average PM10 Particulate Concentration, grains/ACFM	0.0001	0.0001	0.0001	0.0001
PM10 Emissions, Array + Fabric Filter, lb/hr	0.1028	0.0473	0.0144	0.0548
TSP Emissions, Array + Fabric Filter, lb/hr	0.4028	0.1825	0.0659	0.2171
PM2.5 Emissions, Array + Fabric Filter, lb/hr	0.0073	0.0086	0.0014	0.0058
PM>2.5<10 Emissions, Array + Fabric Filter, lb/hr	0.0955	0.0387	0.0130	0.0491
Average Plant Production Levels During Tests, Tons/Hour	118.8	74.1	120.0	104.27
Flow Rate In Fabric Filter Outlet Duct, ACFM	3775.15	3775.15	3775.15	3775.2
Flow Rate in Fabric Filter Outlet, ACM/M	106.9145	106.9145	106.9145	106.9
Average PM10 Particulate Concentration in Fabric Filter Outlet TEOM, ug/m^3	101.9	117.1	90.4	103.1
Measured PM10 Emissions in Fabric Filter Outlet, lb / Hour	0.0014	0.0017	0.0013	0.0015
Calculated TSP Emissions in Fabric Filter Outlet, lb / Hour	0.0056	0.0064	0.0058	0.0060
Calculated PM2.5 Emissions in Fabric Filter Outlet, lb / Hour	0.0001	0.0003	0.0001	0.0002
Calculated PM>2.5<10 Emissions in Fabric Filter Outlet, lb/hour	0.001	0.001	0.001	0.001
Total Fugitive & Fabric Filter PM10 Emission Factor, lb/ton	0.00087	0.00064	0.00012	0.00054
Total Fugitive & Fabric Filter TSP Emission Factor, lb/ton	0.00339	0.00246	0.00055	0.00214
Total Fugitive & Fabric Filter PM2.5 Emission Factor, lb/ton	0.00006	0.000116	0.00001	0.00006
Total Fugitive & Fabric Filter PM>2.5<10 Emission Factor, lb/ton	0.00080	0.00052	0.00011	0.00048
Truck Hood PM10 Efficiency	95.02%	97.06%	99.42%	97.2%
System Collection Efficiency	94.69%	96.87%	99.36%	97.0%
Fabric Filter Inlet, Total Particulate Concentration, lb/hr	7.580	5.823	10.254	7.89
Fabric Filter Total Efficiency	99.9%	99.9%	99.9%	100%
Total / PM10 Ratio for Fugitive TEOM TSP Calc from Inlet Pre4s	3.92	3.86	4.57	4.12
PM2.5 / PM10 Ratio for Fugitive TEOM PM2.5 Calc from Inlet Pre4s	0.07	0.18	0.10	0.12
PM<2.5>10 / PM10 Ratio for Fugitive TEOM from Inlet Pre4s	0.93	0.82	0.90	0.88
Fabric Filter Inlet, PM10 Particulate Concentration, lb/hr	1.934	1.508	2.245	1.896
Fabric Filter PM10 Efficiency	99.9%	99.9%	99.9%	99.9%
Fabric Filter Inlet, PM2.5 Particulate Concentration, lb/hr	0.137	0.274	0.219	0.2098
Fabric Filter PM2.5 Efficiency	99.9%	99.9%	99.9%	99.9%
Fabric Filter Inlet, PM>2.5<10 Particulate Concentration, lb/hr	1.797	1.235	2.027	1.6860

Arsenic Emissions	0.0412	0.0274	0.0314	0.0333	Arsenic in Total PM, ug/mg
	0.0786	0.0351	0.0541	0.0560	Arsenic in PM10, ug/mg
	0.9993	0.9989	0.9994	0.9992	Fabric Filter Efficiency
	0.9502	0.9706	0.9942	0.9717	Hood Efficiency
	7.5802	5.8232	10.2538	7.8857	Total PM Emissions to Fabric Filter
	1.93386	1.50809	2.24544	1.89580	PM10 Emissions to Fabric Filter
Total Part, FFOUT	0.0056	0.0064	0.0058	5.96E-03	lbs/hour Total PM in FFOUT
	2.33E-07	**1.75E-07**	**1.83E-07**	**1.97E-07**	**Lbs/hour arsenic in Total PM**
Total Part Fugitives	3.77E-01	1.71E-01	5.98E-02	2.03E-01	Lbs/hour Total PM in Fugitives
	1.55E-05	**4.68E-06**	**1.87E-06**	**7.37E-06**	**lbs/hour arsenic in Fugitives**
TSP Arsenic Emission Factors	**1.58E-05**	**4.86E-06**	**2.06E-06**	**7.56E-06**	**lbs/hour arsenic emitted**
	1.328E-07	6.558E-08	1.715E-08	**7.18E-08**	lbs/ton
PM10 FFOUT	1.441E-03	1.656E-03	1.279E-03	**1.46E-03**	lbs/hour PM10 in FFOut
	1.13E-07	5.82E-08	6.92E-08	**8.02E-08**	lbs/hour As PM10 in FFOUT
PM10 Fugitives	9.63E-02	4.43E-02	1.31E-02	**5.12E-02**	lbs/hour PM10 in Fugitives
	7.57E-06	1.56E-06	7.08E-07	**3.28E-06**	lbs/hour As in Fugitives
PM10 Arsenic Emission Factors	7.68E-06	1.61E-06	7.77E-07	**3.36E-06**	lbs/hr As
	6.47E-08	2.18E-08	6.48E-09	**3.10E-08**	lbs/ton

AP-42 Central Mix Total PM - lbs/ton
1.87E-08

Percent of AP-42
384.2%

Plant Name: RMC Durant
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel : TTB
Date 5/19/04

RUN # 1

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load # 2454 OK
0810-820	–	✓	0	2454
0820-834	–	✓	0	2424
0835-846	–	✓	0	2425
0847-857	–	✓	0	2418
0857-0909	–	✓	0	2416

WIND
W-SW 5-6
Excellent.

Plant Name: RMC Durant
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel : TTB
Date 5/19/04

RUN #2

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load #
1000-1015	—	✓	0	2452
1015-1031	—	✓	0	2420
1033-1053	—	✓	0	2434
1106-1115	—	✓	0	2433 *

RUN START 1008

STOP RUN @ 11:03 To wait for last Truck

START RUN @ 1106

STOP 1101

START 1008
STOP 1103
START 1106
STOP 1111

* Truck mixed & dumped pulled out late.

Plant Name: RMC Durant
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel : TTB
Date 5/20/04

RUN #3

WIND W 1-3mph

START 852

STOP 952

Time In/Out	Water Truck √	Cement Truck √	Visible Emissions in 5% Increments	Load #
852/855	–	✓	0	2454
857/900	–	✓	0	2424
906/914	–	✓	0	2398
916/920	–	✓	0	2420
~~922~~	Changed Trucks No Load			~~2457~~
923/931	–	✓	0	2430
931/934	–	✓	0	2457
934/942	–	✓	0	2416
944/949	–	✓	0	2433

Method 2 - Air Control Techniques, P.C.

Identification Information

Client	NRMCA RMC	Job	877
City	Raleigh	State	NC

Sampling Location and Port Information

Sampling Location	Regenerative TEOM DUCT	Pitot ID	100-18	0.99
Measured Barometric, in. Hg	30.3/30.0	Pitot Coeff. (Cp)	~~0.84~~	
Duct/Stack Dia., In.	14" Dia 12.5" SQ 10.293	TC ID	TC-1	

RUNS #1 & 2 RUN 3

Measurement Data

Date	5/19/04		Date	5/20/04		Date		
Run Identification	Pre	Post	Run Identification	Post		Run Identification		
Stactic Pressure, in. WC	1.40	1.37	Stactic Pressure, in. WC	~~1.40~~ 1.29	1.33	Stactic Pressure, in. WC		
Start Time	735	1453	Start Time	734	~~1453~~ 1053	Start Time		
End Time	740	1456	End Time	737	1056	End Time		

Pitot Leak Checks

Positve Side	3" ✓	Positve Side	4" ✓	Positve Side	
Negative Side	4" ✓	Negative Side	3" ✓	Negative Side	

	FT/MIN ~~Δp, in. WC~~	Temp. °F		FT/MIN ~~Δp, in. WC~~	Temp. °F		Δp, in. WC	Temp. °F
PRE 1	3505	72	Pre 1	3983	73	1		
2	4504	72	2	3726	73	2		
3	4400	72	3	4356	73	3		
4	3980	72	4	4202	73	4		
5	3625	72	5	3612	73	5		
6	3341	72	6	3326	73	6		
7			7			7		
POST 8			8			8		
9	3541	85	9	3788	80	9		
10	4442	85	10	4104	80	10		
11	4230	85	POST 11	4340	80	11		
12	3643	85	12	3559	80	12		
13	3657	85	13	3489	80	13		
14	3892	85	14	3240	80	14		
15			15			15		
16			16			16		
17			17			17		
18			18			18		
Average	3892	72/85	Average	~~3867~~ 3786	73/80	Average		

Pre MPH@TEOM = 4.59 (3252) Pre MPH@TEOM = 4.56

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Post 3.83 mph Post = 4.47

Method 2 - Air Control Techniques, P.C.

810 #1
909

1008 #2
1015

Identification Information

Client	NRMCA RMC	Job	877
City	RALEIGH	State	NC

Sampling Location and Port Information

Sampling Location	Array TEOM Duct	Pitot ID	100-18
Measured Barometric, in. Hg	30.3 / 30.0	Pitot Coeff. (Cp)	~~0.84~~ 0.99
Duct/Stack Dia., In.	3" Dia w/ 0.5 ft² TEOM Duct 0.0491 ft²	TC ID	TC-1

RUNS 1 & 2 RUN #3

Measurement Data

	Run 1	Run 2	Run 3
Date	5/19/04	5/20/04	
Run Identification	Pre / Post	Pre / Post	
Stactic Pressure, in. WC	0.49 / 0.49	30.0 0.045 / 0.41	
Start Time	731 / 1450	731 / 1049	
End Time	735 / 1453	734 / 1052	

Pitot Leak Checks

	Run 1	Run 2	Run 3
Positve Side	✓ 4" ✓	✓ 3"	
Negative Side	✓ 5"	✓ 3"	

	Run 1 ~~Δp, in. WC~~ ft/min	Temp. °F	Run 2 ~~Δp, in. WC~~ ft/min	Temp. °F	Run 3 Δp, in. WC	Temp. °F
Pre 1	4020	72	4236	73		
2	3940	72	3859	73		
3	3242	72	2931	73		
4	3041	72	3154	73		
5						
6						
Post 7	3996	85				
8	3999	85				
9	3425	85	Post 3997	80		
10	3082	85	3853	80		
11			2915	80		
12			2983	80		
13						
14						
15						
16						
17						
18						
Average	3560 / 3624	72 / 85	3549 / 3687	73 / 80		

Pre MPH TEOM = 3.97 Pre MPH TEOM = 3.96

$V_s = 85.49 * C_p * ((\Delta P \text{ avg}) * (460 + t_s) / (P_s * M_s))^{0.5}$

Post 4.04 Post 4.11

Plant Name: RMC
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel :TTB

Date 5/18/04 Time Sample Taken 12:45 Sample Type SAND

MESH#	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.7	500.7	–	–
	19mm	552.4	552.4	–	–
20	850µm	414.9	538.2	123.3	23.89
100	150µm	349.5	727.6	378.1	73.25
200	75µm	343.5	355.1	11.6	2.25
	Pan	370.2	373.4	3.2	0.62
	Totals			516.2	100.00

A.) Sample Weight **Wet-Pan Weight** = 668.7 -109.1 = 559.6

B.) Sample Weight **Dry-Pan Weight** = 625.6 -109.1 = 516.5

C.) % Moisture = **{(A-B)/A}*100** = 7.7%

Date 5/18/04 Time Sample Taken 1513 Sample Type Cement

MESH #	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.7	500.7	–	–
	19mm	552.4	552.4	–	–
20	850µm	414.8	417.6	2.8	0.70
100	150µm	349.5	715.8	366.3	91.74
200	75µm	343.4	364.4	21.0	5.26
	Pan	370.1	379.3	9.2	2.30
	Totals			399.3	100.00

A.) Sample Weight **Wet-Pan Weight** = 511.9 ~~518.1~~ -109.1 = 402.8

B.) Sample Weight **Dry-Pan Weight** = 507.6 ~~513.8~~ -109.1 = 398.5

C.) % Moisture = **{(A-B)/A}*100** = 1.07

Plant Name: RMC
Client: National Ready Mixed Concrete Association
Job No.: 877 City/State: Raleigh, NC Personnel :TTB

Date 5/18/04 Time Sample Taken 1613 Sample Type FLYASH

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.7	500.7	–	–
MESH	19mm	552.4	552.4	–	–
20	850µm	414.8	415.6	1.0	0.24
100	150µm	349.4	366.5	17.1	4.07
200	75µm	343.4	456.4	113.0	26.87
	Pan	370.1	659.5	289.4	68.82
	Totals			420.5	100.00

A.) Sample Weight **Wet-Pan Weight** = 531.7-109= 422.7

B.) Sample Weight **Dry-Pan Weight** = 530.9-109= 421.9

C.) % Moisture = **{(A-B)/A}*100** = 0.19%

Date 5/18/04 Time Sample Taken 1708 Sample Type STONE

	Pan Sieve or Mesh Size	Tare Weight, Grams	Sample + Tare	Sample Alone	% of Total
	75mm	500.7	500.7	–	–
MESH	19mm	552.4	692.6	140.2	22.05
20	850µm	414.8	903.9	489.1	76.94
100	150µm	349.4	351.9	2.5	0.39
200	75µm	343.5	344.7	1.2	0.19
	Pan	370.2	372.9	2.7	0.42
	Totals			635.7	~~0.4~~ 100.0

A.) Sample Weight **Wet-Pan Weight** = 750.0-109=641.0

B.) Sample Weight **Dry-Pan Weight** = 744.5-109=635.5

C.) % Moisture = **{(A-B)/A}*100** = 0.86%

APPENDIX C

PLANT PRODUCTION DATA

APPENDIX C1

RMCC TRUCK MIX

PLANT PRODUCTION DATA

Parameter												
Date	12//8/03											
Run #	WF-T-1											
Run Time Start	901											
Run Time Stop	1112											Totals
Load Time	902	909	919	1000	1009	1017	1024	1034	1043	1053	1103	
Load #	7	8	9	10	11	12	13	14	15	16	17	11
Sand 1, lb	13800	13880	14160	5680	8520	14120	8360	2720	1520	7640	14040	104440
67 Stone, lb	18000	18000	14000	5520	8280	17960	10640	3520	1320	7600	14000	118840
78 Stone, lb			3960	1520	2360				440	2200	4000	14480
Cement 1, lb	3970	3970	3630	1450	2200	3980	2150	830	350	1990	3650	28170
Flyash, lb	1190	1190	1290	520	770	1200	780	240	140	720	1310	9350
AEA, lb	2.75	2.75	4.31	1.81	2.56	2.75	1.44	0.56	0.44	2.38	4.31	26.0625
WR, lb					5.44		4	1.4375	0.9375			11.8125
Retarder, lb												0
HRWR1, lb												0
CLACCEL, lb			63.75	12.5						35	63.75	175
NCACCEL, lb	70	70				70						210
Water. lb	1376	1264	1128	440	664	1280	800	280	128	760	1432	9552
												Totals
Total, lb	38409	38377	38236	15144	22802	38613	22735	7592	3899	20947	38500	285255
Total, Ton	19.2	19.2	19.1	7.6	11.4	19.3	11.4	3.8	1.9	10.5	19.3	142.6
Yards	10	10	10	4	6	10	6	2	1	5.5	10	75
lb/yd	3841	3838	3824	3786	3800	3861	3789	3796	3899	3809	3850	3827
Ton/Yd	1.92	1.92	1.91	1.89	1.90	1.93	1.89	1.90	1.95	1.90	1.93	1.91

53725 [redacted] 9:02AM 8Dec03 10325335

Load #:. 7

10.00 0.00 0.00 187 3000 PSI yd3

2214

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	13961 Lb	13800	In Tol	11.9%
67STONE	18000 Lb	18000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 Lb	3970	In Tol
FFLYASH	1200 Lb	1190	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	44 oz	44	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	1120 oz	1120	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1379 Lb	1376	In Tol
		Tare	Zero	

037285 [redacted] 9:09AM 8Dec03 1032538

Load #:. 8

10.00 0.00 0.00 187 3000 PSI yd3

2131

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14089 Lb	13880	In Tol	12.7%
67STONE	18000 Lb	18000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 Lb	3970	In Tol
FFLYASH	1200 Lb	1190	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	44 oz	44	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	1120 oz	1120	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1261 Lb	1264	In Tol
		Tare	Zero	

200 [redacted] 9:19AM 8Dec03 1032544

Load #:. 9

10.00 0.00 0.00 19 3000 PSI BLENDED MIX yd3

2029

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14376 Lb	14160	In Tol	13.4%
67STONE	14000 Lb	14000	In Tol	0.0%
78STONE	4000 Lb	3960	Manual	0.0%
				%
				%
	Tare	- 162		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3650 Lb	3630	In Tol
FFLYASH	1300 Lb	1290	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	69 oz	65	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	1022 oz	1020	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1124 Lb	1128	In Tol
		Tare	Zero	

200 [redacted] 10:00PM 8Dec03 1032559

Load #:. 10

4.00 0.00 0.00 19 3000 PSI BLENDED MIX yd3

2119

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	5757 Lb	5680	In Tol	13.5%
67STONE	5600 Lb	5520	In Tol	0.0%
78STONE	1600 Lb	1520	In Tol	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	1460 Lb	1450	In Tol
FFLYASH	520 Lb	520	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	28 oz	29	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL		204 oz	200	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	443 Lb	440	In Tol
		Tare	Zero	

200 [redacted] 10:09AM 8Dec03 1032564

Load #:. 11

6.00 0.00 0.00 19 3000 PSI BLENDED MIX yd3

2021

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	8636 Lb	8520	In Tol	13.5%
67STONE	8400 Lb	8280	In Tol	0.0%
78STONE	2400 Lb	2360	In Tol	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	2190 Lb	2200	In Tol
FFLYASH	780 Lb	770	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	41 oz	41	In Tol
WR		88 oz	87	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	664 Lb	664	In Tol
		Tare	Zero	

93725 [redacted] 10:17AM 8Dec03 1032569

Load #:. 12

10.00 0.00 0.00 187 3000 PSI yd3

2117

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14073 Lb	14120	In Tol	12.6%
67STONE	18000 Lb	17960	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 Lb	3980	In Tol
FFLYASH	1200 Lb	1200	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	44 oz	44	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	1120 oz	1120	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1277 Lb	1280	In Tol
		Tare	Zero	

3942 [redacted] 10:24AM 8Dec03 1032575

Load #:. 13

6.00 0.00 0.00 184 3000 PSI yd3

2026

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	8453 Lb	8360	In Tol	12.2%
67STONE	10800 Lb	10640	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	2124 Lb	2150	OutTol
FFLYASH	780 Lb	780	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	23 oz	23	In Tol
WR		64 oz	64	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	799 Lb	800	In Tol
		Tare	Zero	

200 [redacted] 10:34AM 8Dec03 1032578

Load #: 14

2.00 0.00 0.00 187 3000 PSI yd3

2216

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	2792 Lb	2720	In Tol	11.9%
67STONE	3600 Lb	3520	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	800 Lb	830	OutTol
FFLYASH	240 Lb	240	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	9 oz	9	In Tol
WR		24 oz	23	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	278 Lb	280	In Tol
		Tare	Zero	

53614 [redacted] 10:43AM 8Dec03 10325D3

Load #: 15

1.00 0.00 0.00 19 3000 PSI BLENDED MIX yd3

2005

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	1420 Lb	1520	OutTol	12.3%
67STONE	1400 Lb	1320	In Tol	0.0%
78STONE	400 Lb	440	In Tol	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	365 Lb	350	Manual
FFLYASH	130 Lb	140	Manual
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	7 oz	7	In Tol
WR		15 oz	15	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	130 Lb	128	In Tol
		Tare	Zero	

10859 [redacted] 10:53AM 8Dec03 1032564

Load #:. 16

5.50 0.00 0.00 1S 3000 PSI BLENDED MIX yd3

2222

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	7773 Lb	7640	In Tol	11.9%
67STONE	7700 Lb	7600	In Tol	0.0%
78STONE	2200 Lb	2200	Manual	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	2008 Lb	1990	In Tol
FFLYASH	715 Lb	720	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	38 oz	38	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
MRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	562 oz	560	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	753 Lb	760	In Tol
		Tare	Zero	

200 [redacted] 11:03AM 8Dec03 1032589

Load #: 17

10.00 0.00 0.00 19 3000 PSI BLENDED MIX yd3

2214

1.85 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14068 Lb	14040	In Tol	11.5%
67STONE	14000 Lb	14000	In Tol	0.0%
78STONE	4000 Lb	4000	In Tol	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3650 Lb	3650	In Tol
FFLYASH	1300 Lb	1310	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	69 oz	69	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	1022 oz	1020	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1432 Lb	1432	In Tol
		Tare	Zero	

Date	12//8/03								
Run #	WF-T-2								
Run Time Start	1214								
Run Time Stop	1414								Totals
Load Time	1214	1223	1246	1343	1359	1407			
Load #	22	23	24	25	26	27		Load #	6
Sand 1, lb	2320	8640	4240	3160	6320	5600		Sand 1, lb	30280
67 Stone, lb	1040		5320	4000	8000	7120		67 Stone, l	25480
78 Stone, lb	1040	8920						78 Stone, l	9960
Cement 1, lb	1010	3100	1190	820	1830	1590		Cement 1,	9540
Flyash, lb		780	350	300	560	470		Flyash, lb	2460
AEA, lb	0.19	0.875	0.875	0.25	1.25	1.125	Liquid Air	AEA, lb	4.5625
WR, lb	2.5625	5.875	2.1875		3.3125	3	Water Reducer	WR, lb	16.9375
Retarder, lb							Delays Set Time	Retarder, l	0
HRWR1, lb				3.4375			High Range Water Reducer	HRWR1, lb	3.4375
CLACCEL, lb							Calcium Accelerator Speeds set time	CLACCEL,	0
NCACCEL, lb							Non-Chloride Accelerator Speeds set time	NCACCEL	0
Water. lb	112	416	232	224	448	440		Water. lb	1872
									Totals
Total, lb	5525	21863	11335	8508	17163	15224		Total, lb	79617
Total, Ton	2.8	10.9	5.7	4.3	8.6	7.6		Total, Ton	39.8
Yards	1.5	5.5	3	4	4.5	4		Yards	23
lb/yd	3683	3975	3778	2127	3814	3806		lb/yd	3531
Ton/Yd	1.84	1.99	1.89	1.06	1.91	1.90		Ton/Yd	1.77

14964 [redacted] 12:14PM 8Dec03 1032608

Load #:. 22

1.50 0.00 0.00 1 4000 AIR SCC STONE BLEND yd3

RMCC Truck Mix
Run #2

2021

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	2390 Lb	2320	In Tol	14.3%
78STONE	1101 Lb	1040	In Tol	0.0%
67STONE	1101 Lb	1040	In Tol	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	1013 Lb	1010	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	3 oz	3	In Tol
WR		41 oz	41	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	108 Lb	112	In Tol
		Tare	- 13	

61323 [redacted] 12:23PM 8Dec03 10326111

Load #: 23

5.50 0.00 0.00 18 4000 CHATS yd3

2026

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	8754 Lb	8640	In Tol	14.3%
78STONE	8800 Lb	8920	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3108 Lb	3100	In Tol
FFLYASH	770 Lb	780	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	14 oz	14	In Tol
WR		94 oz	94	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	426 Lb	416	In Tol
		Tare	Zero	

200 [redacted] 12:46PM 8Dec03 1032627

Load #:. 24

3.00 0.00 0.00 107 3000 PSI yd3

2117

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	4286 Lb	4240	In Tol	13.9%
67STONE	5400 Lb	5320	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	1200 Lb	1190	In Tol
FFLYASH	360 Lb	350	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	13 oz	14	In Tol
WR		36 oz	35	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water	Target	Actual	Status
	Tare	Zero	
WATER2	229 Lb	232	In Tol
	Tare	Zero	

71951 [redacted] 1:43PM 8Dec03 1032645

Load #:. 25

4.00 0.00 0.00 91 3000 READYFLOW yd3

2131

1.95 % 0 % 0 %

Aggregate		Target	Actual	Status	Moist
		Tare	Zero		
SAND1	*4	3232 Lb	3160	In Tol	13.0%
67STONE	*4	4050 Lb	4000	In Tol	0.0%
					%
					%
					%
		Tare	Zero		

Cement		Target	Actual	Status
		Tare	Zero	
CEMENT1	*4	797 Lb	820	OutTol
FFLYASH	*4	290 Lb	300	In Tol
		Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*5	4 oz	4	In Tol
WR	*5	0 oz	0	In Tol
RETARDER	*5	0 oz	0	In Tol
HRWR1	*5	55 oz	55	In Tol
CLACCEL	*5	0 oz	0	In Tol
NCACCEL	*5	0 oz	0	In Tol
		Tare	NotZero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*5	229 Lb	224	In Tol
		Tare	Zero	

41225 [redacted] 1:59PM 8Dec03 1032647

Load #: 26

4.50 0.00 0.00 187 3000 PSI yd3

2005

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	6436 Lb	6320	In Tol	14.0%
67STONE	8100 Lb	8000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	1800 Lb	1830	OutTol
FFLYASH	540 Lb	560	OutTol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	NotZero	
AEA	*1	20 oz	20	In Tol
WR		54 oz	53	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	449 Lb	448	In Tol
		Tare	Zero	

13802 [redacted] 2:07PM 08ec03 1032640

Load #:. 27

4.00 0.00 0.00 187 3000 PSI yd3

2222

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	5688 Lb	5600	In Tol	13.5%
67STONE	7200 Lb	7120	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	1600 Lb	1590	In Tol
FFLYASH	480 Lb	470	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	18 oz	18	In Tol
WR		48 oz	48	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	422 Lb	440	In Tol
		Tare	Zero	

Date	12//9/03						
Run #	WF-T-3						
Run Time Start	753						
Run Time Stop	1003						
Load Time	756	817	827	914	924	1014	1025
Load #	1	2	3	4	5	6	7
Sand 1, lb	14520	14360	14120	2800	15920	6240	12400
67 Stone, lb	18080	14040	14000	3560	16360	6400	
78 Stone, lb		3920	3960				12800
Cement 1, lb	3720	3620	3640	800	3710	1510	4480
Flyash, lb	1290	1290	1300	230	1390	570	1110
AEA, lb	4.69	4.3125	4.375	0.5625	3.75	0.5	1.3125
WR, lb		9.0625	9.0625	1.4375	9.25		8.4375
Retarder, lb							
HRWR1, lb							
CLACCEL, lb	33.125					38.75	
NCACCEL, lb							
Water. lb	920	1344	1232	208	744	248	856
Total, lb	38568	38587	38265	7600	38137	15007	31656
Total, Ton	19.3	19.3	19.1	3.8	19.1	7.5	15.8
Yards	10	10	10	2	10	4	8
lb/yd	3857	3859	3827	3800	3814	3752	3957
Ton/Yd	1.93	1.93	1.91	1.90	1.91	1.88	1.98

	Totals
Load #	7
Sand 1, lb	80360
67 Stone, l	72440
78 Stone, l	20680
Cement 1,	21480
Flyash, lb	7180
AEA, lb	19.5
WR, lb	37.25
Retarder, l	0
HRWR1, lb	0
CLACCEL,	71.875
NCACCEL	0
Water. lb	5552

	Totals
Total, lb	207821
Total, Ton	103.9
Yards	54
lb/yd	3838
Ton/Yd	1.92

54501 [redacted] 7:56AM 9Dec03 1332717

Load #:. 1

10.00 0.00 0.00 106 3000 PSI yd3

RMCC Truck Mix Run#3

2029

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14791 Lb	14520	In Tol	14.0%
67STONE	18000 Lb	18080	Manual	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3750 Lb	3720	In Tol
FFLYASH	1300 Lb	1290	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AE9	*1	75 oz	75	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL		525 oz	530	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	929 Lb	920	In Tol
		Tare	Zero	

200 [redacted] 8:17AM 9Dec03 10327?4

Load #: 2

10.00 0.00 0.00 19 3000 PSI BLENDED MIX yd3

2119

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14164 Lb	14360	In Tol	12.1%
67STONE	14000 Lb	14040	In Tol	0.0%
78STONE	4000 Lb	3920	In Tol	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3650 Lb	3620	In Tol
FFLYASH	1300 Lb	1290	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	69 oz	69	In Tol
WR		146 oz	145	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1336 Lb	1344	In Tol
		Tare	Zero	

200 [redacted] 8:27AM 9Dec00 1032736

Load #: 3

10.00 0.00 0.00 19 3000 PSI BLENDED MIX yd3

2220

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14278 Lb	14120	In Tol	12.8%
67STONE	14000 Lb	14000	In Tol	0.0%
78STONE	4000 Lb	3960	In Tol	0.0%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3650 Lb	3640	In Tol
FFLYASH	1300 Lb	1300	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	69 oz	70	In Tol
WR		146 oz	145	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1222 Lb	1232	In Tol
		Tare	Zero	

59641 [redacted] 9:14AM 9Dec03 1032758

Load #:. A

2.00 0.00 0.00 187 3000 PSI yd3

2021

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	2854 Lb	2800	In Tol	13.8%
67STONE	3600 Lb	3560	In Tol	0.0%
				%
				%
				%
	Tare	- 100		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	800 Lb	800	In Tol
FFLYASH	240 Lb	230	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	9 oz	9	In Tol
WR		24 oz	23	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	216 Lb	208	In Tol
		Tare	- 15	

9347 [redacted] 9:24AM 9Dec03 1032759

Load #: 5

10.00 0.00 0.00 190 3000 PSI yd3

2020

4.00 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	15830 Lb	15920	In Tol	12.7%
67STONE	16300 Lb	16360	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3700 Lb	3710	In Tol
FFLYASH	1400 Lb	1390	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	60 oz	60	In Tol
WR		148 oz	148	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	740 Lb	744	In Tol
		Tare	Zero	

5450) [redacted] 9:33AM 9Dec03 1032780

Load #:. 6

10.00 0.00 0.00 186 3000 PSI yd3

2216

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14638 Lb	14480	In Tol	13.1%
67STONE	18000 Lb	18040	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3750 Lb	3720	In Tol
FFLYASH	1300 Lb	1310	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	75 oz	76	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL		525 oz	530	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER3	*1	1132 Lb	1136	In Tol
		Tare	Zero	

14351 [redacted] 10:14AM 9Dec03 1032785

Load #:. 7

4.00 0.00 0.00 190 3000 PSI yd3

2029

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	6347 Lb	6240	In Tol	12.9%
67STONE	6520 Lb	6400	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	1400 Lb	1510	OutTol
FFLYASH	560 Lb	570	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	8 oz	8	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	622 oz	620	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	249 Lb	248	In Tol
		Tare	Zero	

APPENDIX C2

RMCC CENTRAL MIX

PLANT PRODUCTION DATA

Date	12//10/03				
Run #	WF-C-1				
Run Time Start	822				
Run Time Stop	1324				
Load Time	825	843	906	923	1239
Load #	2	3	5	6	11
Sand 1, lb	14640	13040	14080	14000	10800
67 Stone, lb	18000	18000	18000	18040	16200
78 Stone, lb					
Cement 1, lb	3720	4250	3990	3970	6300
Flyash, lb	1290	1070	1210	1200	
AEA, lb	4.69	2.75	2.75	2.8125	1.4375
WR, lb		7.9375	7.5	7.4375	11.9375
Retarder, lb					
HRWR1, lb					
CLACCEL, lb	65.625				
NCACCEL, lb					
Water. lb	1104	544	360	384	768
Total, lb	38824	36915	37650	37604	34081
Total, Ton	19.4	18.5	18.8	18.8	17.0
Yards	10	10	10	10	9
lb/yd	3882	3691	3760	3408	3787
Ton/Yd	1.94	1.85	1.88	1.88	1.89

	Totals
Load #	5
Sand 1, lb	66560
67 Stone, l	88240
78 Stone, l	0
Cement 1,	22230
Flyash, lb	4770
AEA, lb	14.4375
WR, lb	34.8125
Retarder, l	0
HRWR1, lt	0
CLACCEL,	65.625
NCACCEL	0
Water. lb	3160

	Totals
Total, lb	185075
Total, Ton	92.5
Yards	49.0
lb/yd	3706
Ton/Yd	1.89

WAKE
CENTRAL
RUN #1

[redacted]

[illegible] [redacted] [illegible]

Load No. 3

	Target	Actual	Status	Moist
	Tare	Zero		
[illegible]	13108 Lb	13040	In Tol	12.4%
[illegible]	16080 Lb	[illegible]	In Tol	[illegible]
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4230 Lb	4250	In Tol
[illegible]	[illegible]	[illegible]	[illegible]
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	#1	44 oz	[illegible]	In Tol
[illegible]		[illegible] oz	[illegible]	In Tol
RETARDER	#1	0 oz	0	In Tol
[illegible]	#1	0 oz	0	In Tol
[illegible]	#1	0 oz	0	In Tol
[illegible]	#1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	- 227	
WATER	[illegible]	[illegible] Lb	[illegible]	In Tol
		Tare	Zero	

[redacted]

Load #: 5

Aggregate	Target	Actual	Status	Moist.
	Tare	Zero		
SAND	14100 LB	14060	In Tol	13.1%
STONE	18000 LB	18000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT	4000 LB	3998	In Tol
Flyash	1000 LB	1000	In Tol
	Tare	Zero	

Admix	Target	Actual	Status
	Tare	Zero	
AEA #1	44 oz	44	In Tol
WR	100 oz	100	In Tol
RETARDER #1	2 oz	0	In Tol
HRWR1 #1	2 oz	0	In Tol
PLASTIC #1	0 oz	0	In Tol
NONIONIC #1	0 oz	0	In Tol
	Tare	Zero	

Water	Target	Actual	Status
	Tare	Zero	
WATER #1	250 LB	250	In Tol
	Tare	Zero	

[redacted]

0.00	0.00	0.00	127	1020	PSI						

	Tare	Zero		
[illegible]	14100 LB	14000	In Tol	13.0%
[illegible]	[illegible] LB	[illegible]	In Tol	[illegible]
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 LB	3970	In Tol
[illegible]	[illegible] LB	[illegible]	In Tol
	Tare	Zero	

Resin		Target	Actual	Status
		Tare	[illegible]	
RER	#1	44 oz	45	In Tol
WR		100 oz	110	In Tol
RETARDER	#1	2 oz	2	In Tol
[illegible]	#1	0 oz	0	In Tol
ACCEL	#1	0 oz	0	In Tol
[illegible]	#1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	[illegible]	
WATER2	#1	[illegible] LB	[illegible]	In Tol
		Tare	Zero	

39815 [redacted] 12:39PM 10Dec03 1022992

Load #: 11

9.00 0.00 0.00 55 5000 PSI yd3

2119

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	10887 Lb	10800	In Tol	13.2%
67STONE	16200 Lb	16200	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	6354 Lb	6300	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	23 oz	23	In Tol
WR		191 oz	191	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	763 Lb	768	In Tol
		Tare	Zero	

Date	12//11/03						
Run #	WF-C-2						
Run Time Start	731						
Run Time Stop	937						
Load Time	733	741	753	759	812	858	914
Load #	3	4	5	6	7	8	9
Sand 1, lb	13960	14120	14160	14160	14720	14640	10800
67 Stone, lb	18000	18040	18000	18000	17960	17960	16160
78 Stone, lb							
Cement 1, lb	3970	3970	3970	3990	3740	3720	6320
Flyash, lb	1220	1200	1200	1210	1300	1300	
AEA, lb	2.75	2.75	2.75	2.75	4.75	4.6875	1.4375
WR, lb							11.875
Retarder, lb							
HRWR1, lb							
CLACCEL, lb					33.125	33.125	
NCACCEL, lb	70	70	70	70			
Water. lb	1152	1064	1088	1000	168	192	1900
Total, lb	38375	38467	38491	38433	37926	37850	35193
Total, Ton	19.2	19.2	19.2	19.2	19.0	18.9	17.6
Yards	10	10	10	10	10	10	9
lb/yd	3837	3847	3849	3843	3793	3785	3910
Ton/Yd	1.92	1.92	1.92	1.92	1.90	1.89	1.96

	Totals
Load #	7
Sand 1, lb	96560
67 Stone, l	124120
78 Stone, l	0
Cement 1,	29680
Flyash, lb	7430
AEA, lb	21.875
WR, lb	11.875
Retarder, l	0
HRWR1, lb	0
CLACCEL,	66.25
NCACCEL	280
Water. lb	6564
	Totals
Total, lb	264734
Total, Ton	132.4
Yards	69.0
lb/yd	3838
Ton/Yd	1.92

83725 [redacted] 7:33AM 11Dec03 1033034

Load #: 3

10.00 0.00 0.00 187 3000 PSI yd3

2222

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14203 Lb	13960	In Tol	13.4%
67STONE	18000 Lb	18000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 Lb	3970	In Tol
FFLYASH	1200 Lb	1220	OutTol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	44 oz	44	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	1120 oz	1120	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1147 Lb	1152	In Tol
		Tare	Zero	

83725 [redacted] 7:41AM 11Dec03 1033038

Load #:. 4

10.00 0.00 0.00 187 3000 PSI yd3

2214

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14286 Lb	14120	In Tol	13.9%
67STONE	18000 Lb	18040	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 Lb	3970	In Tol
FFLYASH	1200 Lb	1200	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	44 oz	44	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	1120 oz	1120	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1064 Lb	1064	In Tol
		Tare	Zero	

33725 [redacted] 7:53AM 11Dec03 1033042

Load #: 5

10.00 0.00 0.00 187 3000 PSI yd3

2119

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14269 Lb	14150	In Tol	13.0%
67STONE	18000 Lb	18000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 Lb	3970	In Tol
FFLYASH	1200 Lb	1200	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	44 oz	44	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	1120 oz	1120	in Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1081 Lb	1088	In Tol
		Tare	Zero	

93725 [redacted] 7:59AM 11Dec03 1033045

Load #:. 6

10.00 0.00 0.00 187 3000 PSI yd3

2005

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14352 Lb	14160	In Tol	14.3%
67STONE	18000 Lb	18000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	4000 Lb	3990	In Tol
FFLYASH	1200 Lb	1210	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	44 oz	44	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	1120 oz	1120	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	998 Lb	1000	In Tol
		Tare	Zero	

14777 [redacted] 8:12AM 11Dec03 1033053

Load #: 7

10.00 0.00 0.00 186 3000 PSI yd3

2216

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14774 Lb	14720	In Tol	13.9%
67STONE	18000 Lb	17960	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3750 Lb	3740	In Tol
FFLYASH	1300 Lb	1300	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	75 oz	76	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL		525 oz	530	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	- 227	
WATER2	*1	163 Lb	168	In Tol
		Tare	Zero	

14777 [redacted] 8:58AM 11Dec02 1033074

Load #:. 8

10.00 0.00 0.00 186 3000 PSI yd3

2029

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14739 Lb	14640	In Tol	13.7%
67STONE	18000 Lb	17960	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3750 Lb	3720	In Tol
FFLYASH	1300 Lb	1300	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	75 oz	75	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL		525 oz	530	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	- 227	
WATER2	*1	198 Lb	192	In Tol
		Tare	- 12	

39815 [redacted] 9:14AM 11Dec03 1033080

Load #: 9

9.00 0.00 0.00 55 5000 PSI yd3

2117

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	10925 Lb	10800	In Tol	13.5%
67STONE	16200 Lb	16160	In Tol	0.0%
				%
				%
				%
	Tare	6019		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	6354 Lb	6320	In Tol
	Tare	2269	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	23 oz	23	In Tol
WR		191 oz	190	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1603 Lb	1600	In Tol
		Tare	Zero	

9347 [redacted] 10:02AM 11Dec03 1033092

Load #: 10

10.00 0.00 0.00 190 3000 PSI yd3

2222

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	15977 Lb	15800	In Tol	13.5%
67STONE	16300 Lb	16280	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3700 Lb	3670	In Tol
FFLYASH	1400 Lb	1410	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	19 oz	19	In Tol
WR		148 oz	147	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	- 227	
WATER2	*1	543 Lb	552	In Tol
		Tare	Zero	

Date	12/11/2003						
Run #	WF-C-3						
Run Time Start	1221						
Run Time Stop	1535						
Load Time	1221	1232	1315	1321	1346	1430	1435
Load #	16	17	18	19	21	22	23
Sand 1, lb	14400	12840	14440	11040	7120	14400	14400
67 Stone, lb	18000	16360	17960	16160	8840	17960	17960
78 Stone, lb							
Cement 1, lb	3760	3350	3730	6330	2060	3550	3540
Flyash, lb	1290	1190	1300		610	1290	1290
AEA, lb	4.69	4.5625	4.6875	1.4375	1.375	2.375	2.375
WR, lb	7.0625	6.0625	7	11.9375		6.625	6.625
Retarder, lb							
HRWR1, lb							
CLACCEL, lb					17.5		
NCACCEL, lb							
Water. lb	384	360	208	1432	488	120	896
Total, lb	37846	34111	37650	34975	19137	37329	38095
Total, Ton	18.9	17.1	18.8	17.5	9.6	18.7	19.0
Yards	10	10	10	9	5	10	10
lb/yd	3785	3411	3765	3886	3827	3733	3810
Ton/Yd	1.89	1.71	1.88	1.94	1.91	1.87	1.90

	Totals
Load #	7.0
Sand 1, lb	88640.0
67 Stone, l	113240.0
78 Stone, l	0.0
Cement 1,	26320.0
Flyash, lb	6970.0
AEA, lb	21.5
WR, lb	45.3
Retarder, l	0.0
HRWR1, lb	0.0
CLACCEL,	17.5
NCACCEL	0.0
Water. lb	3888.0
	Totals
Total, lb	239142
Total, Ton	119.6
Yards	64.0
lb/yd	3745
Ton/Yd	1.87

400 [redacted] 12:21PM 11Dec03 1033145

Load #:. 16

10.00 0.00 0.00 186 3000 PSI yd3

2215

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14554 Lb	14400	In Tol	12.8%
67STONE	18000 Lb	18000	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3750 Lb	3760	In Tol
FFLYASH	1300 Lb	1290	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	75 oz	75	In Tol
WR		113 oz	113	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	383 Lb	384	In Tol
		Tare	Zero	

400 [redacted] 12:32PM 11Dec03 1033155

Load #: 17

10.00 0.00 0.00 186 3000 PSI yd3

2214

1.25 % 100 % 0 %

Aggregate		Target	Actual	Status	Moist
		Tare	Zero		
SAND1	*4	12913 Lb	12840	In Tol	12.2%
67STONE	*4	16370 Lb	16360	In Tol	0.0%
					%
					%
					%
		Tare	Zero		

Cement		Target	Actual	Status
		Tare	Zero	
CEMENT1	*4	3380 Lb	3350	In Tol
FFLYASH	*4	1160 Lb	1190	OutTol
		Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*5	73 oz	73	In Tol
WR	*4	98 oz	97	In Tol
RETARDER	*5	0 oz	0	In Tol
HRWR1	*5	0 oz	0	In Tol
CLACCEL	*5	0 oz	0	In Tol
NCACCEL	*5	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	- 227	
WATER2	*5	362 Lb	360	In Tol
		Tare	Zero	

400 [redacted] 1:15PM 11Dec03 10S3165

Load #:. 18

10.00 0.00 0.00 186 3000 PSI yd3

8029

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14722 Lb	14440	In Tol	13.6%
67STONE	18000 Lb	17960	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3750 Lb	3730	In Tol
FFLYASH	1300 Lb	1300	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	75 oz	75	In Tol
WR		113 oz	112	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	- 227	
WATER2	*1	215 Lb	208	In Tol
		Tare	Zero	

39815 [redacted] 1:21PM 11Dec03 1033166

Load #:. 19

9.00 0.00 0.00 55 5000 PSI yd3

2117

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	11092 Lb	11040	In Tol	14.8%
67STONE	16200 Lb	16160	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	6354 Lb	6330	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	23 oz	23	In Tol
WR		191 oz	191	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	1436 Lb	1432	In Tol
		Tare	Zero	

TRUCK
mix

37113 [redacted] 1:46PM 11Dec03 1033176

Load #:. 20

5.00 0.00 0.00 187 3000 PSI yd3

2026

1.25 % 0 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	7193 Lb	7120	In Tol	14.5%
67STONE	9000 Lb	8840	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	2000 Lb	2060	OutTol
FFLYASH	600 Lb	610	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	22 oz	22	In Tol
WR	*1	0 oz	0	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL		280 oz	280	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	482 Lb	488	In Tol
		Tare	Zero	

90601 [redacted] 2:30PM 11Dec03 1033193

Load #:. 21

10.00 0.00 0.00 184 3000 PSI yd3

2119

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14468 Lb	14400	In Tol	14.5%
67STONE	18000 Lb	17960	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3540 Lb	3550	In Tol
FFLYASH	1300 Lb	1290	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	38 oz	38	In Tol
WR		106 oz	106	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	- 227	
WATER2	*1	119 Lb	120	In Tol
		Tare	12	

80601 [redacted] 2:35PM 11Dec03 103.194

Load #:. 22

10.00 0.00 0.00 184 3000 PSI yd3

2216

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	14519 Lb	14400	In Tol	14.8%
67STONE	18000 Lb	17960	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	3540 Lb	3540	In Tol
FFLYASH	1300 Lb	1290	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	Zero	
AEA	*1	38 oz	38	In Tol
WR		106 oz	106	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	901 Lb	896	In Tol
		Tare	Zero	

39519 [redacted] 3:00PM 11Dec03 1033202

Load #:. 23

9.00 0.00 0.00 55 5000 PSI yd3

2214

1.25 % 100 % 0 %

Aggregate	Target	Actual	Status	Moist
	Tare	Zero		
SAND1	11105 Lb	11040	In Tol	14.9%
67STONE	16200 Lb	16160	In Tol	0.0%
				%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
CEMENT1	6354 Lb	6300	In Tol
	Tare	Zero	

Admix		Target	Actual	Status
		Tare	NotZero	
AEA	*1	23 oz	23	In Tol
WR		191 oz	191	In Tol
RETARDER	*1	0 oz	0	In Tol
HRWR1	*1	0 oz	0	In Tol
CLACCEL	*1	0 oz	0	In Tol
NCACCEL	*1	0 oz	0	In Tol
		Tare	Zero	

Water		Target	Actual	Status
		Tare	Zero	
WATER2	*1	590 Lb	592	In Tol
		Tare	Zero	

APPENDIX C3

S.T. WOOTEN CENTRAL MIX

PLANT PRODUCTION DATA

Date	3/2/2004				
Run #	ST-C-1				
Run Time Start	910				
Run Time Stop	1010				
Load Time	914	918	922	932	1012
Truck #	165	217	213	72	211
57 Stone, lb	6260	1920	18240	8980	18220
Limestone, lb					
Cement, lb	1380	420	4320	2090	4330
Sand, lb	5220	1650	13640	7220	13660
Flyash, lb	450	300	1100	490	1120
Air, lb	0.44		2.50		2.50
WRDA-35, lb					
Polyheed, lb	7	2	17	9.5	17
HRWR1, lb					
CLACCEL, lb					
NCACCEL, lb					
Water. lb	333.812	83.453	1001.436	525.7539	859.5659

	Totals
Load #	5
57 Stone, lb	53620
Limestone, lb	0
Cement, lb	12540
Sand, lb	41390
Flyash, lb	3460
Air, lb	5.4375
WRDA-35, lb	0
Polyheed, lb	52.5
HRWR1, lb	0
CLACCEL, lb	0
NCACCEL, lb	0
Water. lb	2804.021

Total, lb	13651	4375	38321	19315	38209
Total, Ton	6.8	2.2	19.2	9.7	19.1
Yards	3.5	1	10	5	10
lb/yd	3900	4375	3832	3863	3821
Ton/Yd	1.95	2.19	1.92	1.93	1.91

	Totals
Total, lb	113872
Total, Ton	56.936
Yards	29.500
lb/yd	3958
Ton/Yd	1.98
Test Length, Hr	1.0128
Ton/Hr	56.21641

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

3

AUTHORIZATION TO ADD WATER

BY: _____

_____ GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

4:4

PLANT	
ARRIVED JOB	:
STARTED POUR	:
FINISHED POUR	:
LEFT JOB	:
ARRIVED PLANT	:
ELAPSED TIME	
HRS.	
MINS.	

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3165	Jose B. Bara	3	8	8151329

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.	
	1888280	09604	RALEIGH	Order : 75

SOLD TO: [redacted]

SHIP TO: [redacted]

PRODUCT NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363000	3000 Psi Concrete	CYDS	3.50		
2611	Fiber	/Q	3.50		
2606	Environmental		1.00		
2595	Min Load Charge		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	3.50	3.50		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

8-151329

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN

Acceptance of materials by the Buyer indicates this agreement to pay the rate of finance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does here agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	6275 Lb	6260	In Tol	1.0%	AIR	7 oz	7	In Tol
SAND	4816 Lb	5220	OutTol	6.4%	POLYHEED	109 oz	112	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	1365 Lb	1380	OutTol					
FLYASH	455 Lb	450	In Tol	WATER	#4	40 Gal	43	OutTol
	Tare	15				Tare		

Run#1

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

7:18

LEFT PLANT	
ARRIVED JOB	:
STARTED POUR	:
FINISHED POUR	:
LEFT JOB	:
ARRIVED PLANT	:
ELAPSED TIME	
HRS.	
MINS.	

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3217	Greggory L.	4	8	8151330

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	23	39690		Order :	40

SOLD TO: [redacted]

SHIP TO: [redacted]

PRODUCT NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2536301U	3000 Psi Concrete	CYDS	1.00		
2997	Front Discharge	/Q	1.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	21.00	21.00		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151330

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does hera agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	1793 Lb	1920	OutTol	1.0%	POLYHEED	31 oz	32	In Tol
SAND	1447 Lb	1560	OutTol	6.4%				
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	390 Lb	420	OutTol					
FLYASH	130 Lb	300	OutTol	WATER	#4	10 Gal	8	OutTol
	Tare	Zero				Tare		

Run # 1

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

PLANT	7:17
ARRIVED JOB	:
STARTED POUR	:
FINISHED POUR	:
LEFT JOB	:
ARRIVED PLANT	:
ELAPSED TIME	HRS. / MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3213	Haywood C. A	4	8	8151331

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	3432	58792	ALLJOBS	Order :	114

SOLD TO: [redacted]

SHIP TO: [redacted]

PRODUCT NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363100	3000 Psi Concrete	CYDS	10.00		
2997	Front Discharge	/0	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN/CY/JOB

REMARKS:

TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
20.00	10.00		TAX	
RECD BY: X		COLLECT GRAND TOTAL	TOTAL	
				SLIP NO.

8-151331

CAUTION - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

...apsence of materials by the Buyer indicates this agreement to pay the rate of ...ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does here agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	18160 Lb	18240	In Tol	1.0%	AIR	40 oz	40	In Tol
SAND	13630 Lb	13640	In Tol	6.4%	POLYHEED	270 oz	272	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	4300 Lb	4320	In Tol					
FLYASH	1100 Lb	1100	In Tol	WATER	#4	120 Gal	123	OutTol
	Tare	Zero				Tare		

Run#1

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

7:50 LEFT PLANT
: ARRIVED JOB
: STARTED POUR
: FINISHED POUR
: LEFT JOB
: ARRIVED PLANT
ELAPSED TIME
HRS.
MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3072	NO NAME	4	8	8151333

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	150	33080	ALLJOBS	Order :	31

SOLD TO: [redacted]

SHIP TO: 40[redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363010	3000 Psi Concrete	CYDS	5.00		
2611	Fiber	/Q	5.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:

TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
45.00	45.00		TAX	
REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
				SLIP NO.

8-151333

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

Acceptance of materials by the Buyer indicates this agreement to pay the rate of finance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place t has been requested by the owner or contractor, or representative. The above-signed also does here agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite t proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist
57STONE	8964 Lb	8980	In Tol	1.0%
SAND	7235 Lb	7220	In Tol	6.4%
				%
				%
				%

Admix	Target	Actual	Status
POLYHEED	155 oz	152	In Tol

Cement		Target	Actual	Status
CEMENT	c	2050 Lb	2090	OutTol
FLYASH	c	500 Lb	490	In Tol
		Tare	Zero	

Water		Target	Actual	Status
WATER	c	50 Gal	63	OutTol
		Tare		

RUN #1

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9869

AUTHORIZATION TO ADD WATER

BY: _____

_____ GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

10:17

LEFT PLANT
: ARRIVED JOB
: STARTED POUR
: FINISHED POUR
: LEFT JOB
: ARRIVED PLANT
ELAPSED TIME
_____ HRS.
_____ MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3211	Phil Sneed	4	8	8151334

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	3438	58792	ALLJOBS	Order #	114

SOLD TO [redacted]

SUBMITTED TO [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363100	3000 Psi Concrete	CYDS	10.00		
2997	Front Discharge	/Q	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	20.00	20.00		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION: FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151334

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does hereb agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	18190 Lb	18220	In Tol	1.0%	AIR	40 oz	40	In Tol
SAND	13630 Lb	13660	In Tol	6.4%	POLYHEED	270 oz	272	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	4300 Lb	4330	In Tol					
FLYASH	1120 Lb	1120	OutTol	WATER	#4	160 Gal	103	OutTol
	Tare	Zero				Tare		

RUN #1

Date	3/2/2004				
Run #	ST-C-2				
Run Time Start	1112				
Run Time Stop	1212				
Load Time	1118	1126	1137	1152	1211
Truck #	213	167	165	179	42
57 Stone, lb	17960	17960	17940	17020	17920
Limestone, lb					
Cement, lb	3900	3900	3900	3720	3890
Sand, lb	14540	13800	13680	13060	13700
Flyash, lb	1340	1350	1290	1230	1370
Air, lb		1.25	1.875	1.1875	1.875
WRDA-35, lb					
Polyheed, lb	19.25	19.5	50	18.5	50
HRWR1, lb					
CLACCEL, lb					
NCACCEL, lb					
Water. lb	1502.154	1360.2839	1193.3779	859.5659	1276.831

	Totals
Load #	5
57 Stone, lb	88800
Limestone, lb	0
Cement, lb	19310
Sand, lb	68780
Flyash, lb	6580
Air, lb	6.1875
WRDA-35, lb	0
Polyheed, lb	157.25
HRWR1, lb	0
CLACCEL, lb	0
NCACCEL, lb	0
Water. lb	6192.213

Total, lb	39261	38391	38055	35909	38209
Total, Ton	19.6	19.2	19.0	18.0	19.1
Yards	10	10	10	10	10
lb/yd	3926	3839	3806	3591	3821
Ton/Yd	1.96	1.92	1.90	1.80	1.91

	Totals
Total, lb	189826
Total, Ton	94.913
Yards	50.000
lb/yd	3797
Ton/Yd	1.90
Test Length, Hr	0.9881
Ton/Hr	96.05589

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

LEFT PLANT :
ARRIVED JOB :
STARTED POUR :
FINISHED POUR :
LEFT JOB :
ARRIVED PLANT :
ELAPSED TIME
HRS.
MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3213	Haywood C. A	4	8	8151341

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.	
	[redacted]	09604	RALEIGH	Order # 117

SOLD TO: [redacted]

SHIP TO: [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ACCOUNT
25363010	3000 Psi Concrete	CYDS	10.00		
2997	Front Discharge	/Q	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:

TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
30.00	10.00		TAX	
REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
				SLIP NO.

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN

eptance of materials by the Buyer indicates this agreement to pay the rate of ...ence charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151341

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does here agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist
57STONE	17928 Lb	17960	In Tol	1.0%
SAND	14470 Lb	14540	In Tol	6.4%
				%
				%
				%

Admix	Target	Actual	Status
POLYHEED	310 oz	308	In Tol

Cement	Target	Actual	Status
CEMENT	3900 Lb	3900	In Tol
FLYASH	1300 Lb	1340	OutTol
	Tare	Zero	

Water		Target	Actual	Status
WATER	*4	180 Gal	182	OutTol
		Tare		

Run #2

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9969

AUTHORIZATION TO ADD WATER

BY: _____

_____ GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

: LEFT PLANT
: ARRIVED JOB
: STARTED POUR
: FINISHED POUR
: LEFT JOB
: ARRIVED PLANT
ELAPSED TIME
_____ HRS.
_____ MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3167	Ned T. Hudson	4	8	8151342

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	39	11262	ALL JOBS	Order :	13

SOLD TO
[redacted]

SHIP TO
[redacted]

PRODUCT NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363000	3000 Psi Concrete	LYDS	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:

TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
40.00	40.00		TAX	
REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
				SLIP NO.

8-151342

CAUTION: FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does hereb agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	17928 Lb	17960	In Tol	1.0%	AIR	20 oz	20	In Tol
SAND	13758 Lb	13800	In Tol	6.4%	POLYHEED	310 oz	312	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	3900 Lb	3900	In Tol					
FLYASH	1300 Lb	1350	OutTol	WATER	#4	160 Gal	163	OutTol
	Tare	Zero				Tare		

RW #2

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by this purchaser.

: LEF PLAN
: ARRIVE JOB
: STARTE POUF
: FINISHE POUF
: LEF JOE
: ARRIVE PLAN
ELAPSE TIME
_____ HRS.
_____ MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3165	Jose B. Ramos	4	8	8151343

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	0	40020	ALL JOBS	Dodge	169

SOLD TO [redacted]

SHIP TO [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363001	3000 Psi Concrete 1% Acc	CYDS	10.00		
2603	1% Accelerator	/0	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	20.00	10.00		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND SEEK PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151343

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does harel agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix		Target	Actual	Status
57STONE	17928 Lb	17940	In Tol	1.0%	AIR		30 oz	30	In Tol
SAND	13694 Lb	13680	In Tol	6.4%	ACCEL		800 oz	800	In Tol
				%					
				%					
				%					

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	3900 Lb	3900	In Tol					
FLYASH	1300 Lb	1290	In Tol	WATER	*4	140 Gal	143	OutTol
	Tare	Zero				Tare		

RUN #2

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

LEFT PLANT :
ARRIVED JOB :
STARTED POUR :
FINISHED POUR :
LEFT JOB :
ARRIVED PLANT :
ELAPSED TIME
HRS.
MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	2179	Dean Bill	4	9	8151344

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	[illegible]	08074	ALL JOBS	Cedar [illegible]	175

SOLD TO [redacted]

SHIP TO [redacted]

PRODUCT NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363000	3000 Psi Concrete	CYDS	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	20.00	20.00		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION: - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

...aptance of materials by the Buyer indicates this agreement to pay the rate of ...ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151344

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does here agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate		Target	Actual	Status	Moist
57STONE	#4	17032 Lb	17020	In Tol	1.0%
SAND	#4	13070 Lb	13060	In Tol	6.4%
					%
					%
					%

Admix		Target	Actual	Status
AIR	#4	19 oz	19	In Tol
POLYHEED	#4	295 oz	296	In Tol

Cement		Target	Actual	Status
CEMENT	#4	3705 Lb	3720	In Tol
FLYASH	#4	1235 Lb	1230	In Tol
		Tare	Zero	

Water		Target	Actual	Status
WATER	#4	100 Gal	103	OutTol
		Tare		

RUN # 2

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

: LEFT PLANT
: ARRIVED JOB
: STARTED POUR
: FINISHED POUR
: LEFT JOB
: ARRIVED PLANT
ELAPSED TIME
_____ HRS.
_____ MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3042	Bob Hewett	4	8	8151345

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	0	40270	ALL JOBS	Dodge :	148

SOLD TO [redacted]

SHIP TO [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363001	3000 Psi Concrete 1% Acc	CYDS	10.00		
2603	1% Accelerator	/Q	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	20.00	20.00		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

...ptance of materials by the Buyer indicates this agreement to pay the rate of ...ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151345

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does herel agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix		Target	Actual	Status
57STONE	17920 Lb	17920	In Tol	1.0%	AIR		30 oz	30	In Tol
SAND	13694 Lb	13700	In Tol	6.4%	ACCEL		800 oz	800	In Tol
				%					
				%					
				%					

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	3900 Lb	3890	In Tol					
FLYASH	1300 Lb	1370	OutTol	WATER	#4	150 Gal	153	OutTol
	Tare	Zero				Tare		

Run # 2

Date	3/2/2004					
Run #	ST-C-3					
Run Time Start	1304					
Run Time Stop	1405					
Load Time	1311	1317	1328	1349	1354	1405
Truck #	142	159	165	167	72	42
57 Stone, lb	17860	17920	16840	17920	13420	17920
Limestone, lb						
Cement, lb	3920	3890	5270	3900	2940	3880
Sand, lb	13800	13680	13840	13780	10340	13660
Flyash, lb	1310	1300	990	1300	970	1320
Air, lb	1.25	1.875	1.875	1.25	0.9375	1.875
WRDA-35, lb						
Polyheed, lb	19.5	50		19.25	14.75	50
HRWR1, lb						
CLACCEL, lb						
NCACCEL, lb						
Water. lb	1285.1762	1285.1762	1285.1762	1118.2702	784.4582	1126.616

	Totals
Load #	6
57 Stone, lb	101880
Limestone, lb	0
Cement, lb	23800
Sand, lb	79100
Flyash, lb	7190
Air, lb	9.0625
WRDA-35, lb	0
Polyheed, lb	153.5
HRWR1, lb	0
CLACCEL, lb	0
NCACCEL, lb	0
Water. lb	6884.873

Total, lb	38196	38127	38227	38039	28470	37958
Total, Ton	19.1	19.1	19.1	19.0	14.2	19.0
Yards	10	10	10	10	7.5	10
lb/yd	3820	3813	3823	3804	3796	3796
Ton/Yd	1.910	1.906	1.911	1.90	1.90	1.90

Totals	
Total, lb	219017
Total, Ton	109.509
Yards	57.500
lb/yd	3808
Ton/Yd	1.90
Test Length, Hr	1.0333
Ton/Hr	105.980

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

LEF PLAN
ARRIVEI JOE
STARTEI POUI
FINISHEI POUI
LEF JOE
ARRIVEI PLAN
ELAPSE TIME
HRS.
MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3142	Kevin Sawyer	4	6	8151354

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.	
	4A	34300		Order: 68

SOLD TO [redacted]

SHIP TO [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363000	3000 Psi Concrete	CYDS	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS: Truck from another plant

TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
20.00	20.00		TAX	
REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
				SLIP NO.

8-151354

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does hereb agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	17924 Lb	17860	In Tol	1.0%	AIR	20 oz	20	In Tol
SAND	13758 Lb	13800	In Tol	6.4%	POLYHEED	310 oz	312	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water	Target	Actual	Status
CEMENT	3900 Lb	3920	In Tol				
FLYASH	1300 Lb	1310	In Tol	WATER #4	150 Gal	154	OutTol
	Tare	Zero			Tare		

Run #3

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

_____ GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

LEF PLAN	:
ARRIVE JOE	:
STARTE POUF	:
FINISHE POUF	:
LEF JOE	:
ARRIVE PLAN	:
ELAPSE TIME	
HRS.	
MINS.	

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	2150	Brandon Tow	6	8	8151355

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	6	58272	21 TORS	Order 149	

SOLD TO [redacted]

SHIP TO [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363001	3000 Psi Concrete 1% Acc	CYDS	10.00		
2603	1% Accelerator	/Q	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN/CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	30.00	30.00		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151355

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does herel agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	17920 Lb	17920	In Tol	1.0%	AIR	30 oz	30	In Tol
SAND	13694 Lb	13680	In Tol	6.4%	ACCEL	800 oz	800	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	3900 Lb	3890	In Tol					
FLYASH	1300 Lb	1300	In Tol	WATER	#4	150 Gal	154	OutTol
	Tare	Zero				Tare		

Run #3

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

LEFT PLANT	
ARRIVED JOB	
STARTED POUR	
FINISHED POUR	
LEFT JOB	
ARRIVED PLANT	
ELAPSED TIME	HRS. MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3165	Jose D. Rosa	4	0	8151356

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.	
	25027-1	59095	TRI-CITY	Order # 04

SOLD TO [redacted]

SHIP TO [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25814002	3000 Psi Concrete Wall Mix	CYDS	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	150.00	40.00		TAX	
	RECD BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION: FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151356

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does hereb agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation i a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix		Target	Actual	Status
57STONE	16867 Lb	16840	In Tol	1.0%	AIR		30 oz	30	In Tol
SAND	13900 Lb	13840	In Tol	6.4%	NC534	*1	0 oz	0	In Tol
				%					
				%					
				%					

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	5250 Lb	5270	In Tol					
FLYASH	1000 Lb	990	In Tol	WATER	*4	150 Gal	154	OutTol
	Tare	Zero				Tare		

RUN #3

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

_____ GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

LEFT PLANT	1:47
ARRIVED JOB	:
STARTED POUR	:
FINISHED POUR	:
LEFT JOB	:
ARRIVED PLANT	:
ELAPSED TIME	_____ HRS. _____ MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3467	Ned T. Hudgens	4	5	8151357

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.	
	59	34300		Order # 20

SOLD TO: [redacted]

SHIP TO: [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2536300	3000 Psi Concrete	CYDS	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN/CY/JOB

REMARKS:

TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
20.00	10.00		TAX	
REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
			SLIP NO.	8-151357

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

ptance of materials by the Buyer indicates this agreement to pay the rate of ice charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does herel agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	17928 Lb	17920	In Tol	1.0%	AIR	20 oz	20	In Tol
SAND	13758 Lb	13780	In Tol	6.4%	POLYHEED	310 oz	306	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	3900 Lb	3900	In Tol					
FLYASH	1300 Lb	1300	In Tol	WATER	#4	130 Gal	134	OutTol
	Tare	Zero				Tare		

RUN #3

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

1:54 LEFT PLANT
: ARRIVED JOB
: STARTED POUR
: FINISHED POUR
: LEFT JOB
: ARRIVED PLANT
ELAPSED TIME
_____ HRS.
_____ MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Mar-04	3072	NO NAME	4	6	8-151358

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	105	23504	ALL JOBS	Order #	166

SOLD TO: [redacted]

SHIP TO: [redacted]

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363000	3000 Psi Concrete	CYDS	7.50		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:	TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME	SUBTOTAL	
	7.50	7.50		TAX	
	REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
					SLIP NO.

CAUTION - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

...ptance of materials by the Buyer indicates this agreement to pay the rate of ...ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151358

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does hereb agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
STONE	13446 Lb	13420	In Tol	1.0%	AIR	15 oz	15	In Tol
SAND	10319 Lb	10340	In Tol	6.4%	POLYHEED	233 oz	236	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	2925 Lb	2940	In Tol					
FLYASH	975 Lb	970	In Tol	WATER	#4	30 Gal	34	OutTol
	Tare	Zero				Tare		

RUN #3

3

S.T. Wooten Corporation

6937 Capital Blvd.
RALEIGH, NORTH CAROLINA 27616

PHONE (919) 779-9989

AUTHORIZATION TO ADD WATER

BY: _____

GAL. WATER ADDED

The seller will not assume any responsibility for strength of concrete if water is added to the concrete on the job by the purchaser.

LEFT PLANT	7:05
ARRIVED JOB	:
STARTED POUR	:
FINISHED POUR	:
LEFT JOB	:
ARRIVED PLANT	:
ELAPSED TIME	HRS. / MINS.

DATE	TRUCK NO.	DRIVER	SLUMP	PLANT CODE	TICKET NUMBER
02-Apr-04	3048	Bob Reynolds	4"	8	8151359

JOB NO.	P.O. NO.	ACCOUNT NO.	PROJECT NO.		
	1	00270	ALLJOBS	Order #	174

SOLD TO
MASTERS CONCRETE SERVICES
318 WEBSTER STREET

SHIP TO
MARGOS POND/WALKS
US 1 NORTH..RT ON 1-A..RT ON LIG
ON MILL LF INTO SUB..*WALKS** DS
CAR 369-9185

PRODUCT NO	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
25363001	3000 Psi Concrete 1% Acc	CYDS	10.00		
2603	1% Accelerator	/O	10.00		
2606	Environmental		1.00		

EXTRA CHARGE FOR UNLOADING TIME IN EXCESS OF 10 MIN./CY/JOB

REMARKS:

TOTAL ORDERED	YARDS TODAY	ALLOWABLE TIME		
30.00	30.00		SUBTOTAL	
			TAX	
REC'D BY: X		COLLECT GRAND TOTAL	TOTAL	
				SLIP NO.

CAUTION! - FRESHLY MIXED CEMENT, MORTAR, GROUT OR CONCRETE MAY CAUSE A SEVERE SKIN IRRITATION AND BURNS ON INDIVIDUALS WITH SENSITIVE SKIN. AVOID DIRECT CONTACT WITH SKIN IF POSSIBLE AND WASH EXPOSED SKIN AREAS PROMPTLY WITH WATER. IF ANY OF THESE MATERIALS GET INTO THE EYE, RINSE IMMEDIATELY AND REPEATEDLY WITH WATER AND GET PROMPT MEDICAL ATTENTION. KEEP CEMENT AND FRESHLY MIXED CEMENT PRODUCTS OUT OF THE REACH OF CHILDREN.

ptance of materials by the Buyer indicates this agreement to pay the rate of ance charge of 1-1/2% per month, 18% Annual Percentage Rate, that will be added on all accounts past due. An account is past due when unpaid 30 days after the due date. Buyer also agrees to pay all costs of collections on this account including, but not limited to, attorney fees.

I am _____ Owner _____ Contractor
_____ Sub Contractor
_____ Other, enter _____

8-151359

The above-signed does hereby release S.T. Wooten Corporation or subsidiaries from any claims property damage, such as claims for damage to driveways, septic tanks, shrubs, trees, drains, lawn fences, buildings or any other property that could be damaged by virtue of making delivery to the place th has been requested by the owner or contractor, or representative. The above-signed also does hereb agree to pay any and all wrecker, labor, and equipment rental fees incurred by S.T. Wooten Corporation a result of directing any equipment owned and operated by S.T. Wooten Corporation into a jobsite th proves to be too wet or inaccessible.

Aggregate	Target	Actual	Status	Moist	Admix	Target	Actual	Status
57STONE	17920 Lb	17920	In Tol	1.0%	AIR	30 oz	30	In Tol
SAND	13634 Lb	13660	In Tol	6.4%	ACCEL	800 oz	800	In Tol
				%				
				%				
				%				

Cement	Target	Actual	Status	Water		Target	Actual	Status
CEMENT	3900 Lb	3880	In Tol					
FLYASH	1300 Lb	1320	OutTol	WATER	#4	130 Gal	135	OutTol
	Tare	Zero				Tare		

RUN #3

APPENDIX C4

CHANDLER CONCRETE TRUCK MIX

PLANT PRODUCTION DATA

Parameter					
Date	3/17/2004				
Run #	TV-T-1				
Run Time Start	717		Stop	752	816
Run Time Stop	834		Re-Start	758	821
Load Time	718	741	803	825	
Truck #	942	902	954	975	
57 Stone, lb	12180	9020	8060	13920	
Limestone, lb	12000	4280	3800	12960	
Type 1-2 Cement, lb	3760	2270	2020	4195	
Castle, lb		2780	2320		
Flyash, lb		635	585		
Darex, lb		0.94	0.81		
WRDA-35, lb		6.75	6.0625		
Polarset, lb		36.5	32.5		
HRWR1, lb					
CLACCEL, lb					
NCACCEL, lb					
Water. lb	1460.4275	892.9471	901.2924	2061.289	
Total, lb	29400	19922	17726	33136	
Total, Ton	14.7	10.0	8.9	16.6	
Yards	7	5	4.5	8	
lb/yd	4200	3984	3939	4142	
Ton/Yd	2.10	1.99	1.97	2.07	

		Totals
	Load #	4
	57 Stone, lb	43180
	Limestone, lb	33040
	Type 1-2 Cement, lb	12245
	Castle, lb	5100
	Flyash, lb	1220
	Darex, lb	1.75
	WRDA-35, lb	12.8125
	Polarset, lb	69
	HRWR1, lb	0
	CLACCEL, lb	0
	NCACCEL, lb	0
	Water. lb	5315.956
		Totals
	Total, lb	100185
	Total, Ton	50.092
	Yards	24.500
	lb/yd	4066
	Ton/Yd	2.03
HHMMSS	Test Length, Hr	1.0881
1:05:17	Ton/Hr	46.03645

RUN #1

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0942	USER	1094608	16812	17658	07:18	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
7.00 yd	721	D	18038

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1732 lb	12124 lb	12180	56	0.46%		
LIME	1600 lb	11786 lb	12000	214	1.82%	5.231% A	71.48 gl
TYPE 1-2	517.0 lb	3619.0 lb	3760.0 +	141.0	3.90%		
WATER	35.00 gl	174.80 gl	175.00	0.20	0.11%		175.00 gl

NON-SIMULATED NUM BATCHES: 1
LOAD TOTAL: 29400 lb DESIGN W/C: 0.565 WATER/CEMENT: 0.547A DESIGN WATER: 245.0 gl ACTUAL WATER: 246.5 gl TO ADD: 0.0 gl
SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

115741

RUN #1

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0902	USER	1094622	16813	17659	07:41	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
5.00 yd	763	D	18039

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1800 lb	9000 lb	9020	20	0.22%		
LIME	820 lb	4316 lb	4280	-36	-.83%	5.275% A	25.70 gl
CASTLE	510 lb	2613 lb	2780 +	167	6.39%	2.487% A	8.08 gl
TYPE 1-2	450.0 lb	2250.0 lb	2270.0	20.0	0.89%		
FLYASH	130.0 lb	650.0 lb	635.0	-15.0	-2.31%		
DAREX II	3.00 oz	15.00 oz	15.00	0.00	0.00%		
WRDA-35	21.60 oz	108.00 oz	108.00	0.00	0.00%		
WATER	32.00 gl	126.48 gl	107.00 -	-19.48	-15.40%		107.00 gl
POLARSET	2.00 %	#580.00 oz	584.00	4.00	0.69%		

NON-SIMULATED NUM BATCHES: 1
LOAD TOTAL: 19924 lb DESIGN W/C: 0.460 WATER/CEMENT: 0.460T DESIGN WATER: 160.0 gl ACTUAL WATER: 140.8 gl TO ADD: 19.2 gl
SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

115741

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0954	USER	1094633	16814	17660	08:03	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
4.50 yd	763	D	18040

RUN #1

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1800 lb	8100 lb	8060	-40	-.49%		
LIME	820 lb	3782 lb	3800	18	0.48%	2.493% A	11.07 gl
CASTLE	510 lb	2339 lb	2320	-19	-.81%	1.896% A	5.17 gl
TYPE 1-2	450.0 lb	2025.0 lb	2020.0	-5.0	-.25%		
FLYASH	130.0 lb	585.0 lb	585.0	0.0	0.00%		
DAREX II	3.00 oz	13.50 oz	13.00	-.50	-3.70%		
WRDA-35	21.60 oz	97.20 oz	97.00	-.20	-.21%		
WATER	32.00 gl	127.77 gl	108.00 -	-19.77	-15.47%		108.00 gl
POLARSET	2.00 %	#522.00 oz	520.00	-2.00	-.38%		

NON-SIMULATED NUM BATCHES: 1
LOAD TOTAL: 17727 lb DESIGN W/C: 0.460 WATER/CEMENT: 0.461T DESIGN WATER: 144.0 gl ACTUAL WATER: 124.2 gl TO ADD: 19.8 gl
SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

115741

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0975	USER	1094645	16815	17662	08:25	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
8.00 yd	721	D	18042

RUN #1

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1732 lb	13856 lb	13920	64	0.46%		
LIME	1600 lb	13076 lb	12960	-116	-.89%	2.157% A	32.80 gl
TYPE 1-2	517.0 lb	4136.0 lb	4195.0	59.0	1.43%		
WATER	35.00 gl	246.91 gl	247.00	0.09	0.04%		247.00 gl

NON-SIMULATED NUM BATCHES: 1
LOAD TOTAL: 33136 lb DESIGN W/C: 0.565 WATER/CEMENT: 0.557T DESIGN WATER: 280.0 gl ACTUAL WATER: 279.8 gl TO ADD: 0.2 gl
SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

115742

Date	3/17/2004						
Run #	TV-T-2		Stop	926	952	1223	
Run Time Start	917		Re-Start	942	1153	1311	
Run Time Stop	1321						
Load Time	916	948	9120	1314			
Truck #	902	942	954	975			
57 Stone, lb	2660	7060	9120	9860			
Limestone, lb	1340	6740	4580	4560			
Type 1-2 Cement, lb	545	2090	1500	2555			
Castle, lb	820		2880	2920			
Flyash, lb	175		635	685			
Darex, lb	0.25		0.9375	1.0625			
WRDA-35, lb	1.8125		5.25	7.4375			
Polarset, lb							
HRWR1, lb							
CLACCEL, lb							
NCACCEL, lb							
Water. lb		943.0189	834.53	1218.414			
Total, lb	5542	16833	19556	21807			
Total, Ton	2.8	8.4	9.8	10.9			
Yards	1.5	4	5	4			
lb/yd	3695	4208	3911	5452			
Ton/Yd	1.85	2.10	1.96	2.73			

		Totals
	Load #	4
	57 Stone, lb	28700
	Limestone, lb	17220
	Type 1-2 Cement, lb	6690
	Castle, lb	6620
	Flyash, lb	1495
	Darex, lb	2.25
	WRDA-35, lb	14.5
	Polarset, lb	0
	HRWR1, lb	0
	CLACCEL, lb	0
	NCACCEL, lb	0
	Water. lb	2995.963
		Totals
	Total, lb	63738
	Total, Ton	31.869
	Yards	14.50
	lb/yd	4316
	Ton/Yd	2.16
HHMMSS	Test Length, Hr	0.9931
0:59:35	Ton/Hr	32.09028

RUN #2

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0902	USER	1094676	16816	17663	09:16	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
1.50 yd	765	D	18043

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1800 lb	2700 lb	2660	-40	-1.48%		
LIME	850 lb	1303 lb	1340	37	2.84%	2.157% M	3.39 gl
CASTLE	530 lb	810 lb	820	10	1.23%	1.896% M	1.83 gl
TYPE 1-2	370.0 lb	555.0 lb	545.0	-10.0	-1.80%		
FLYASH	130.0 lb	195.0 lb	175.0	-20.0	-10.26%		
DAREX II	3.00 oz	4.50 oz	4.00	-.50	-11.11%		
WRDA-35	19.20 oz	28.80 oz	29.00	0.20	0.69%		
WATER	0.00 gl #	0.00 gl	0.00	0.00	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 5542 lb DESIGN W/C: 0.000 WATER/CEMENT: 0.060A DESIGN WATER: 0.0 gl ACTUAL WATER: 5.2 gl TO ADD: 0.0

SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

NOTE: Manual Feed Occurred.

RUN #2

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0942	USER	1094703	16817	17664	09:48	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
4.00 yd	721	D	18044

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1732 lb	6928 lb	7060	132	1.91%		
LIME	1600 lb	6620 lb	6740	120	1.81%	3.433% A	26.80 gl
TYPE 1-2	517.0 lb	2068.0 lb	2090.0	22.0	1.06%		
WATER	35.00 gl	113.67 gl	113.00	-.67	-.59%		113.00 gl

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 16833 lb DESIGN W/C: 0.565 WATER/CEMENT: 0.559T DESIGN WATER: 140.0 gl ACTUAL WATER: 139.8 gl TO ADD: 0.2

SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0954	USER	1094775	16818	17665	11:59	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
5.00 yd	764	D	18045

RUN # 2

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1800 lb	9000 lb	9120	120	1.33%		
LIME	870 lb	4494 lb	4580	86	1.91%	3.304% A	17.55 gl
CASTLE	560 lb	2834 lb	2880	46	1.62%	1.207% A	4.12 gl
TYPE 1-2	290.0 lb	1450.0 lb	1500.0 +	50.0	3.45%		
FLYASH	130.0 lb	650.0 lb	635.0	-15.0	-2.31%		
DAREX II	3.00 oz	15.00 oz	15.00	0.00	0.00%		
WRDA-35	16.80 oz	84.00 oz	84.00	0.00	0.00%		
WATER	32.00 gl	118.73 gl	100.00 -	-18.73	-15.78%		100.00 gl

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 19556 lb DESIGN W/C: 0.636 WATER/CEMENT: 0.625T DESIGN WATER: 160.0 gl ACTUAL WATER: 121.7 gl TO ADD: 18.3 gl

SLUMP: 4.00 " WATER IN TRUCK: 20.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0975	USER	1094809	16819	17666	13:14	03/17/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
5.50 yd	763	D	18046

RUN # 2

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1800 lb	9900 lb	9860	-40	-.40%		
LIME	820 lb	4603 lb	4560	-43	-.93%	2.060% A	11.03 gl
CASTLE	510 lb	2850 lb	2920	70	2.46%	1.604% A	5.52 gl
TYPE 1-2	450.0 lb	2475.0 lb	2555.0 +	80.0	3.23%		
FLYASH	130.0 lb	715.0 lb	685.0 -	-30.0	-4.20%		
DAREX II	3.00 oz	16.50 oz	17.00	0.50	3.03%		
WRDA-35	21.60 oz	118.80 oz	119.00	0.20	0.17%		
WATER	32.00 gl	159.48 gl	146.00 -	-13.48	-8.45%		146.00 gl

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 21807 lb DESIGN W/C: 0.460 WATER/CEMENT: 0.453T DESIGN WATER: 176.0 gl ACTUAL WATER: 162.6 gl TO ADD: 13.4 gl

SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

Date	3/18/2004					
Run #	TV-T-3					
Run Time Start	1240		Stop	1300	1323	1410
Run Time Stop	1450		Re-Start	1312	1355	1434
Load Time	1243	1317	1358	1438		
Truck #	954	975	831	942		
57 Stone, lb	14420	14400	14120	14020		
Limestone, lb	6820	6900	7280	7260		
Type 1-2 Cement, lb	2955	2995	3010	2955		
Castle, lb	4340	4400	5200	5180		
Flyash, lb	1025	1025	1025	1030		
Darex, lb	1.50	1.5				
WRDA-35, lb	9.625	9.5625	9.5625	9.625		
Polarset, lb						
HRWR1, lb						
CLACCEL, lb						
NCACCEL, lb						
Water. lb	1777.5489	1719.132	1710.787	1785.894		
Total, lb	31349	31450	32355	32241		
Total, Ton	15.7	15.7	16.2	16.1		
Yards	8	8	8	8		
lb/yd	3919	3931	4044	4030		
Ton/Yd	1.96	1.97	2.02	2.02		

	Totals
Load #	4
57 Stone, lb	56960
Limestone, lb	28260
Type 1-2 Cement, lb	11915
Castle, lb	19120
Flyash, lb	4105
Darex, lb	3
WRDA-35, lb	38.375
Polarset, lb	0
HRWR1, lb	0
CLACCEL, lb	0
NCACCEL, lb	0
Water. lb	6993.361

	Totals
Total, lb	127395
Total, Ton	63.697
Yards	32.00
lb/yd	3981
Ton/Yd	1.99

HHMMSS		
	Test Length, Hr	1.0333
1:02:00	Ton/Hr	61.6446

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0954	USER	1095119	16830	17677	12:43	03/18/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
8.00 yd	765				D	18057

RUN #3

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1800 lb	14400 lb	14420	20	0.14%		
LIME	850 lb	6874 lb	6820	-54	-.79%	1.087% A	8.79 gl
CASTLE	530 lb	4356 lb	4340	-16	-.37%	2.738% A	13.86 gl
TYPE 1-2	370.0 lb	2960.0 lb	2955.0	-5.0	-.17%		
FLYASH	130.0 lb	1040.0 lb	1025.0	-15.0	-1.44%		
DAREX II	3.00 oz	24.00 oz	24.00	0.00	0.00%		
WRDA-35	19.20 oz	153.60 oz	154.00	0.40	0.26%		
WATER	32.00 gl	233.23 gl	213.00 -	-20.23	-8.67%		213.00 gl

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 31349 lb DESIGN W/C: 0.534 WATER/CEMENT: 0.537T DESIGN WATER: 256.0 gl ACTUAL WATER: 235.6 gl TO ADD: 20.4 gl

SLUMP: 4.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0975	USER	1095128	16831	17678	13:17	03/18/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
8.00 yd	765				D	18058

RUN #3

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1800 lb	14400 lb	14400	0	0.00%		
LIME	850 lb	6957 lb	6900	-57	-.82%	2.312% A	18.68 gl
CASTLE	530 lb	4323 lb	4400	77	1.78%	1.965% A	10.16 gl
TYPE 1-2	370.0 lb	2960.0 lb	2995.0	35.0	1.18%		
FLYASH	130.0 lb	1040.0 lb	1025.0	-15.0	-1.44%		
DAREX II	3.00 oz	24.00 oz	24.00	0.00	0.00%		
WRDA-35	19.20 oz	153.60 oz	153.00	-.60	-.39%		
WATER	32.00 gl	207.18 gl	206.00	-1.18	-.57%		206.00 gl

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 31451 lb DESIGN W/C: 0.534 WATER/CEMENT: 0.531T DESIGN WATER: 256.0 gl ACTUAL WATER: 234.8 gl TO ADD: 1.2 g

SLUMP: 4.00 " WATER IN TRUCK: 20.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

#

Run#3

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0831	USER	1095142	16832	17679	13:58	03/18/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
8.00 yd	769	D	18059

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1750 lb	14000 lb	14120	120	0.86%		
LIME	900 lb	7345 lb	7280	-65	-.88%	2.008% A	17.17 gl
CASTLE	620 lb	5113 lb	5200	87	1.70%	3.093% A	18.69 gl
TYPE 1-2	370.0 lb	2960.0 lb	3010.0	50.0	1.69%		
FLYASH	130.0 lb	1040.0 lb	1025.0	-15.0	-1.44%		
WRDA-35	19.20 oz	153.60 oz	153.00	-.60	-.39%		
WATER	34.00 gl	211.30 gl	205.00	-6.30	-2.98%		205.00 gl

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 32356 lb DESIGN W/C: 0.567 WATER/CEMENT: 0.563T DESIGN WATER: 272.0 gl ACTUAL WATER: 240.9 gl TO ADD: 6.1 gl

SLUMP: 4.00 " WATER IN TRUCK: 25.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

115747

#4

Run#3

TRUCK	USER LOGIN	DISP TICKET NUM	TICKET NUM	TICKET ID	TIME	DATE
0942	USER	1095152	16833	17680	14:38	03/18/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
8.00 yd	769	D	18060

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
57 STONE	1750 lb	14000 lb	14020	20	0.14%		
LIME	900 lb	7329 lb	7260	-69	-.94%	1.797% A	15.36 gl
CASTLE	620 lb	5112 lb	5180	68	1.33%	3.072% A	18.50 gl
TYPE 1-2	370.0 lb	2960.0 lb	2955.0	-5.0	-.17%		
FLYASH	130.0 lb	1040.0 lb	1030.0	-10.0	-.96%		
WRDA-35	19.20 oz	153.60 oz	154.00	0.40	0.26%		
WATER	34.00 gl	213.23 gl	214.00	0.77	0.36%		214.00 gl

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 32241 lb DESIGN W/C: 0.567 WATER/CEMENT: 0.571A DESIGN WATER: 272.0 gl ACTUAL WATER: 247.9 gl TO ADD: 0.0 gl

SLUMP: 4.00 " WATER IN TRUCK: 25.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

115741

APPENDIX C5

CONCRETE SUPPLY TRUCK MIX

PLANT PRODUCTION DATA

Parameter								
Date	5/12/2004							
Run #	CS-T-1							
Run Time Start	750		Stop					
Run Time Stop	850		Re-Start					
Load Time	750	800	808	812	816	827	834	842
Truck #	174	179	2127	273	2138	2113	2150	2133
Sand	14751	14060	14730	7970	12880	12870	7010	11460
Stone	17530	18900	17650	14360	17110	17190	12590	15330
Cement	4980	5560	4955	3165	5895	5920	2765	5250
Flyash	0	0	0	950			835	
Water, lb	1644	1827.555	1627.275	1535.48	1134.92	1143.265	1268.44	901.26
Reducer	12.5	14.0625	12.4375	10.44			9.06	
Liquid Air	0.69	0.56	0.63	1			0.9375	
MS Sand				3190			2780	
Retarder					14.75	14.8125		13.25
Adva					18.125	18.75		16.25
Delvo					25.9375	26.0625		23.0625

	Totals
Truck #	8
Sand	95731
Stone	130660
Cement	38490
Flyash	1785
Water, lb	11082.16
Reducer	58.5
Liquid Air	3.8125
MS Sand	5970
Retarder	42.8125
Adva	53.125
Delvo	75.0625

Total, lb	38918	40362	38975	31182	37079	37183	27258	32994
Total, Ton	19.5	20.2	19.5	15.6	18.5	18.6	13.6	16.5
Yards	10	10.25	10	8	9	9	7	8
lb/yd	3892	3938	3898	3898	4120	4131	3894	4124
Ton/Yd	1.95	1.97	1.95	1.95	2.06	2.07	1.95	2.06

	Totals
Total, lb	283951
Total, Ton	141.976
Yards	71.250
lb/yd	3987
Ton/Yd	1.99
HHMMSS Test Length, Hr	0.995
0:59:42 Ton/Hr	142.6892

STONE	270 lb		2700 lb	2660	-40	-1.49%		
PE I	500.0 lb		5000.0 lb	4980.0	-20.0	-.40%		
TER	31.0 gl	#	197.4 gl	197.0	-0.4	-.20%	197.00 gl	
DUCER	4.0 /C		200.0 oz	200.0	0.0	0.00%		
R	1.50 oz		10.00 oz	11.00	1.00	10.00%		
EMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		
3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 38918 lb DESIGN W/C: 0.517 WATER/CEMENT: 0.519T DESIGN WATER: 310.0 gl ACTUAL WATER: 309.3 gl TO ADD: 0.7 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

#174

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
179	USER	179	10529	11028	07:59	05/13/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
0.25 yd	3300				D	11425

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
SF	1291 lb	14143 lb	14060	-83	-.59%	5.277% A	108.41 gl
S ONE	1850 lb	18962 lb	18900	-62	-.33%		
TYPE I	550.0 lb	5637.5 lb	5560.0	-77.5	-1.37%		
ATER	32.0 gl	# 219.0 gl	219.0	0.0	0.00%		219.00 gl
EDUCER	4.0 /C	225.5 oz	225.0	-0.5	-.22%		
IR	1.50 oz	10.25 oz	9.00	-1.25	-12.20%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
ATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 40363 lb DESIGN W/C: 0.486 WATER/CEMENT: 0.492T DESIGN WATER: 328.0 gl ACTUAL WATER: 327.4 gl TO ADD: 0.6 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2127	USER	2127	10524	11029	08:07	05/13/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
0.00 yd	3342				E	11426

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT

25 STONE	270 lb		2700 lb	2700	0	0.00%		
TYPE I	500.0 lb		5000.0 lb	4955.0	-45.0	-.90%		
WATER	31.0 gl	#	195.4 gl	195.0	-0.4	-.20%	195.00 gl	
REDUCER	4.0 /C		200.0 oz	199.0	-1.0	-.50%		
AIR	1.50 oz		10.00 oz	10.00	0.00	0.00%		
TEMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		
W[illegible] 3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 28976 lb DESIGN W/C: 0.517 WATER/CEMENT: 0.522T DESIGN WATER: 310.0 gl ACTUAL WATER: 309.0 gl TO ADD: 1.0 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
273	USER	273	10522	11030	08:11	05/12/2004

LOAD SIZE	MIX CODE	SEQ ID	LOAD ID
2.00 yd	3142		11627

MATERIAL	DESIGN QTY		REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
SAND	940 lb		8050 lb	7970	-80	-.99%	7.045% A	62.86 gl
67 STONE	1500 lb		12000 lb	11980	-20	-.17%		
78 STONE	300 lb		2400 lb	2380	-20	-.83%		
[illegible]	400.0 lb		3200.0 lb	3165.0	-35.0	-1.09%		
FLYASH	120.0 lb		960.0 lb	950.0	-10.0	-1.04%		
WATER	31.0 gl	#	184.5 gl	184.0	-0.5	-.27%	184.00 gl	
REDUCER	4.0 /C		166.4 oz	167.0	0.6	0.36%		
AIR	3.00 oz		16.00 oz	16.00	0.00	0.00%		
MS SAND	400 lb		3200 lb	3190	-10	-.31%		
TEMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 31192 lb DESIGN W/C: 0.498 WATER/CEMENT: 0.503T DESIGN WATER: 248.0 gl ACTUAL WATER: 246.9 gl TO ADD: 1.1 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2138	USER	2138	10524	11031	08:17	05/12/2004

LOAD SIZE	MIX CODE	SEQ ID	LOAD ID
9.00 yd	7344		11628

MATERIAL	DESIGN QTY		REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
TYPE I	660.0 lb		5940.0 lb	5895.0	-45.0	-.76%		
67 STONE	1900 lb		17186 lb	17110	-76	-.44%	0.500% M	10.20 gl
SAND	1352 lb		12898 lb	12880	-18	-.14%	6.000% M	87.36 gl
WATER	26.0 gl		136.3 gl	136.0	-0.3	-.22%		136.00 gl
RETARDER	4.0 /C		237.6 oz	236.0	-1.6	-.67%		
ADVA	5.0 /C		297.0 oz	290.0	-7.0	-2.36%		
DELVO	7.0 /C		415.8 oz	415.0	-0.8	-.19%		
TEMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 37081 lb DESIGN W/C: 0.329 WATER/CEMENT: 0.331T DESIGN WATER: 234.0 gl ACTUAL WATER: 233.6 gl TO ADD: 0.4 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2113	USER	2113	10527	11032	08:26	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
9.00 yd	7344	3	11429

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
TYPE I	660.0 lb	5940.0 lb	5920.0	-20.0	-.34%		
#7 STONE	1900 lb	17186 lb	17190	4	0.02%	0.500% M	10.25 gl
SAND	1352 lb	12898 lb	12870	-28	-.22%	6.000% M	87.30 gl
WATER	26.0 gl	136.3 gl	137.0	0.7	0.51%		137.00 gl
RETARDER	4.0 /C	237.6 oz	237.0	-0.6	-.25%		
ADVA	5.0 /C	297.0 oz	300.0	3.0	1.01%		
DELVO	7.0 /C	415.8 oz	417.0	1.2	0.29%		
TEMPERED	0.0 gl #	0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl #	0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 37185 lb DESIGN W/C: 0.329 WATER/CEMENT: 0.3314 DESIGN WATER: 234.0 gl ACTUAL WATER: 234.5 gl TO ADD: 0.0 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2150	USER	2150	10528	11033	08:34	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
7.00 yd	3145	5	11430

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
SAND	540 lb	7044 lb	7010	-34	-.48%	7.054% A	55.35 gl
#7 STONE	1500 lb	10552 lb	10510	-42	-.40%	0.500% M	6.27 gl
#9 STONE	300 lb	2110 lb	2080	-30	-1.42%	0.500% M	1.24 gl
TYPE I	400.0 lb	2800.0 lb	2765.0	-35.0	-1.25%		
FLYASH	120.0 lb	840.0 lb	835.0	-5.0	-.60%		
WATER	31.0 gl #	152.2 gl	152.0	-0.2	-.13%		152.00 gl
REDUCER	4.0 /C	145.6 oz	145.0	-0.6	-.41%		
AIR	3.00 oz	14.00 oz	15.00	1.00	7.14%		
19 SAND	400 lb	2814 lb	2780	-34	-1.21%	0.500% M	1.66 gl
TEMPERED	0.0 gl #	0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl #	0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 27259 lb DESIGN W/C: 0.498 WATER/CEMENT: 0.5031 DESIGN WATER: 217.0 gl ACTUAL WATER: 216.5 gl TO ADD: 0.5 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2133	USER	2133	10529	11034	08:44	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
5.0 yd	7344	D	11431

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
TYPE I	660.0 lb	5280.0 lb	5250.0	-30.0	-.57%		
#7 STONE	1900 lb	15276 lb	15330	54	0.35%	0.500% M	9.14 gl
SAND	1352 lb	11575 lb	11460	-115	-.99%	7.020% A	90.08 gl
WATER	26.0 gl	107.9 gl	108.0	0.1	0.09%		108.00 gl
RETARDER	4.0 /C	211.2 oz	212.0	0.8	0.38%		

EMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	
ATER 2	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	

ON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 32995 lb DESIGN W/C: 0.329 WATER/CEMENT: 0.331T DESIGN WATER: 208.0 gl ACTUAL WATER: 207.2 gl TO ADD: 0.8 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
33	USER	233	10530	11035	09:29	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
0.00 yd	4000	0	11632

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
AND	1278 lb	13693 lb	13600	-93	-.68%	7.141% A	108.63 gl
7 STONE	1950 lb	18592 lb	18560	-32	-.17%	0.500% M	11.07 gl
YPE I	495.0 lb	4950.0 lb	4910.0	-40.0	-.81%		
LYASH	130.0 lb	1300.0 lb	1290.0	-10.0	-.77%		
ATER	30.0 gl	# 179.5 gl	179.0	-0.5	-.28%		179.00 gl
E ER	4.0 /C	250.0 oz	250.0	0.0	0.00%		
EMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
ATER 2	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

ON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 39870 lb DESIGN W/C: 0.401 WATER/CEMENT: 0.404T DESIGN WATER: 300.0 gl ACTUAL WATER: 298.7 gl TO ADD: 1.3 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
74	USER	174	10531	11036	09:36	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
1 yd	3342	2	11633

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
AND	1385 lb	2967 lb	2930	-37	-1.25%	7.105% A	23.29 gl
7 STONE	1500 lb	3015 lb	2990	-25	-.83%	0.500% M	1.73 gl
8 STONE	270 lb	543 lb	520	-23	-4.24%	0.500% M	0.31 gl
YPE I	500.0 lb	1000.0 lb	945.0	-55.0	-5.50%		
ATER	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

	5/12/04											
Date	~~3/17/2004~~											
Run #	CS-T-2		Stop									
Run Time Start	1007		Re-Start									
Run Time Stop	1106											Totals
Load Time	1007	1011	1014	1019	1023	1029	1033	1038	1102			
Truck #	138	273	2116	2143	2150	2127	179	2138	2113		Truck #	9
Sand	9380	5230	13700	9300	11500	11590	1400	9300	9300		Sand	80700
Stone	12270	6850	18430	12270	15290	15320	2180	12260	12260		Stone	107130
Cement	3965	2210	4895	3940	4960	4980	655	3970	3950		Cement	33525
Flyash	1110	585	1290	1120	1295	1390	110	1150	1110		Flyash	9160
Water, lb	1109.885	859.535	1602.24	1109.885	1560.515	1376.925	100.14	1076.505	1101.54		Water, lb	9897.17
Reducer	9.63		15.5625	9.625			1.375	9.625	9.5		Reducer	55.3125
Liquid Air	2.3125	0.5625		2.25	1.25	2.875		2.375	2.25		Liquid Air	13.875
MS Sand	3640	1990		3670	4460	4570		3690	4130		MS Sand	26150
Retarder		5.3125			11.75	12.0625					Retarder	29.125
Adva											Adva	0
Delvo											Delvo	0
												0
												Totals
Total, lb	31487	17730	39933	31422	39079	39242	4447	31459	31863		Total, lb	266660
Total, Ton	15.7	8.9	20.0	15.7	19.5	19.6	2.2	15.7	15.9		Total, Ton	133.330
Yards	8	4	10	8	10	10	1.2	8	8		Yards	67.20
lb/yd	3936	4433	3993	3928	3908	3924	3705	3932	3983		lb/yd	3971
Ton/Yd	1.97	2.22	2.00	1.96	1.95	1.96	1.85	1.97	1.99		Ton/Yd	1.99
										HHMMSS	Test Length, Hr	0.982
										0:58:56	Ton/Hr	135.7435

372

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	
ATER 3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	

ON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 7388 lb DESIGN W/C: 0.000 WATER/CEMENT: 0.224A DESIGN WATER: 0.0 gl ACTUAL WATER: 25.4 gl TO ADD: 0.0 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

RUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
.35	USER	138	10532	11037	10:06	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
3.00 yd	7030	D	11634

ATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
9 STONE	1540 lb	12320 lb	12270	-50	-.41%		
AND	1090 lb	9344 lb	9380	36	0.39%	7.157% A	75.07 gl
YPE I	500.0 lb	4000.0 lb	3965.0	-35.0	-.88%		
LYASH	140.0 lb	1120.0 lb	1110.0	-10.0	-.89%		
ATER	26.0 gl	# 133.2 gl	133.0	-0.2	-.15%		133.00 gl
E ER	3.0 /C	153.6 oz	154.0	0.4	0.26%		
IR	7.00 oz	37.33 oz	37.00	-.33	-.88%		
S SAND	460 lb	3680 lb	3640	-40	-1.09%		
EMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
ATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

ON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 31487 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.342A DESIGN WATER: 208.0 gl ACTUAL WATER: 208.1 gl TO ADD: 0.0 gl

SLUMP: 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

SUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
73	USER	273	10533	11038	10:10	05/12/2004

SIZE	MIX CODE	SEQ	LOAD ID
4 yd	70333	D	11635

ATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
8 STONE	1536 lb	4912 lb	4850	-62	-.90%		
AND	1069 lb	5148 lb	5230	82	1.59%	7.109% A	41.60 gl
YPE I	500.0 lb	2250.0 lb	2210.0	-40.0	-1.78%		
LYASH	130.0 lb	585.0 lb	585.0	0.0	0.00%		
ATER	32.0 gl	103.1 gl	103.0	-0.1	-.10%		103.00 gl

IS SAND	450 lb		2025 lb	1990	-35	-1.73%	
EMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	
ATER 3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	

ON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 17731 lb DESIGN W/C: 0.424 WATER/CEMENT: 0.432A DESIGN WATER: 144.0 gl ACTUAL WATER: 144.6 gl TO ADD: 0.0 gl

SL' 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2116	USER	2116	10534	11039	10:13	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
10.00 yd	4000	D	11636

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
SAND	1278 lb	13683 lb	13700	17	0.12%	7.068% A	108.37 gl
57 STONE	1850 lb	18500 lb	18430	-70	-.38%		
TYPE I	495.0 lb	4950.0 lb	4895.0	-55.0	-1.11%		
FLYASH	130.0 lb	1300.0 lb	1290.0	-10.0	-.77%		
WATER	30.0 gl	# 191.8 gl	192.0	0.2	0.10%		192.00 gl
RE ER	4.0 /C	250.0 oz	249.0	-1.0	-.40%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 39933 lb DESIGN W/C: 0.401 WATER/CEMENT: 0.405A DESIGN WATER: 300.0 gl ACTUAL WATER: 300.4 gl TO ADD: 0.0 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2143	USER	2143	10535	11040	10:17	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
8.00 yd	7080	D	11637

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
78 STONE	1540 lb	12320 lb	12270	-50	-.41%		
SAND	1090 lb	9346 lb	9300	-46	-.49%	7.181% A	74.67 gl
TYPE I	500.0 lb	4000.0 lb	3940.0	-60.0	-1.50%		
FLYASH	140.0 lb	1120.0 lb	1120.0	0.0	0.00%		
WATER	26.0 gl	# 133.0 gl	133.0	0.0	0.00%		133.00 gl

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
'S SAND	460 lb		3680 lb	3670	-10	-.27%	
TEMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	
WATER 3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%	

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 31422 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.343T DESIGN WATER: 208.0 gl ACTUAL WATER: 207.7 gl TO ADD: 0.3 gl

SL 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
3150	USER	2150	10536	11041	10:21	05/12/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
10.00 yd	70933				D	11638

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
78 STONE	1536 lb	15360 lb	15290	-70	-.46%		
SAND	1068 lb	11451 lb	11500	49	0.43%	7.219% A	92.79 gl
TYPE I	500.0 lb	5000.0 lb	4960.0	-40.0	-.80%		
LYASH	130.0 lb	1300.0 lb	1295.0	-5.0	-.38%		
WATER	28.0 gl	# 197.6 gl	187.0	-0.6	-.32%		187.00 gl
[illegible] DER	3.0 /C	189.0 oz	188.0	-1.0	-.53%		
AIR	8.00 oz	20.00 oz	20.00	0.00	0.00%		
'S SAND	450 lb	4500 lb	4460	-40	-.89%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 39079 lb DESIGN W/C: 0.371 WATER/CEMENT: 0.374T DESIGN WATER: 280.0 gl ACTUAL WATER: 279.8 gl TO ADD: 0.2 gl

SLUMP: 8.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2127	USER	2127	10537	11042	10:26	05/12/2004
[illegible] SIZE	MIX CODE				SEQ	LOAD ID
[illegible] yd	70900				D	11639

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
78 STONE	1540 lb	15400 lb	15320	-80	-.53%		
SAND	1090 lb	11694 lb	11590	-104	-.89%	7.286% A	94.32 gl
TYPE I	500.0 lb	5000.0 lb	4980.0	-20.0	-.40%		
LYASH	140.0 lb	1400.0 lb	1390.0	-10.0	-.71%		
WATER	24.0 gl	# 164.2 gl	165.0	0.8	0.49%		165.00 gl

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19 SAND	460	lb		4600	lb	4570	-30	-.65%
TEMPERED	0.0	gl	#	0.0	gl	0.0	0.0	0.00%
WATER 3	0.0	gl	#	0.0	gl	0.0	0.0	0.00%

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 29243 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.341T DESIGN WATER: 260.0 gl ACTUAL WATER: 259.3 gl TO ADD: 0.7 gl

SL 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
179	USER	179	10539	11043	10:31	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
1.20 yd	4100	D	11640

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
SAND	1113 lb	1432 lb	1400	-32	-2.23%	7.246% A	11.33 gl
#7 STONE	1250 lb	2220 lb	2180	-40	-1.80%		
TYPE I	520.0 lb	624.0 lb	655.0 >	31.0	4.97%		
FLYASH	100.0 lb	120.0 lb	110.0	-10.0	-8.33%		
WATER	20.0 gl	# 12.4 gl	12.0	-0.4	-3.23%		12.00 gl
RETARDER	3.0 /C	22.3 oz	22.0	-0.3	-1.35%		
AIR	2.50 oz	2.00 oz	0.00	-2.00	-100.00%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 4447 lb DESIGN W/C: 0.269 WATER/CEMENT: 0.262T DESIGN WATER: 24.0 gl ACTUAL WATER: 23.3 gl TO ADD: 0.7 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2138	USER	2138	10539	11044	10:32	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
5.[illegible] yd	7030	D	11641

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
#8 STONE	1540 lb	12320 lb	12260	-60	-.49%		
SAND	1090 lb	9367 lb	9300	-67	-.72%	7.417% A	74.99 gl
TYPE I	500.0 lb	4000.0 lb	3970.0	-30.0	-.75%		
FLYASH	140.0 lb	1120.0 lb	1150.0 +	30.0	2.69%		
WATER	26.0 gl	# 130.5 gl	129.0	-1.5	-1.15%		129.00 gl

AIR	7.00 oz		37.33 oz	38.00	0.67	1.79%
1S SAND	460 lb		3680 lb	3690	10	0.27%
TEMPERED	0.0 gl	#	0.0 gl	0.0	0.0	0.00%
WATER 3	0.0 gl	#	0.0 gl	0.0	0.0	0.00%

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 31459 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.3397 DESIGN WATER: 208.0 gl ACTUAL WATER: 206.0 gl TO ADD: 2.0 gl

SLUMP: 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2113	USER	2113	10540	11048	11:01	05/12/2004

LOAD SIZE	MIX CODE	SEQ	LOAD ID
9.00 yd	7030	D	11642

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
7S STONE	1540 lb	12320 lb	12260	-60	-.49%		
SAND	1090 lb	9254 lb	9300	-56	-.60%	7.294% A	75.76 gl
TYPE I	500.0 lb	4000.0 lb	3950.0	-50.0	-1.25%		
FLYASH	140.0 lb	1120.0 lb	1110.0	-10.0	-.89%		
WATER	24.0 gl	# 131.8 gl	132.0	0.2	0.15%		132.00 gl
AL ER	3.0 /C	153.6 oz	152.0	-1.6	-1.04%		
AIR	7.00 oz	37.33 oz	36.00	-1.33	-3.56%		
1S SAND	460 lb	3680 lb	4130MD	450	12.23%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 31864 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.3437 DESIGN WATER: 208.0 gl ACTUAL WATER: 207.8 gl TO ADD: 0.2 gl

SLUMP: 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

NOTE: Manual Feed Occurred.

Date	5/13/2004				
Run #	CS-T-3				
Run Time Start	906		Stop	958	
Run Time Stop	1010		Re-Start	1001	
Load Time	906	919	933	1001	1005
Truck #	179	2127	2138	2150	273
Sand	5720	11630	11710	11710	10310
Stone	6920	15350	15360	15320	13800
Cement	2025	4945	4970	4975	4465
Flyash	555	1395	1395	1400	1165
Water, lb	675.945	1393.615	1385.27	1368.58	1401.96
Reducer	6.50				
Liquid Air	0.1875	2.9375	2.9375	2.875	1.125
MS Sand		4570	4570	4590	4010
Retarder		12	12	12	10.5625
Adva					
Delvo					
Water. lb					
Total, lb	15903	39299	39405	39378	35164
Total, Ton	8.0	19.6	19.7	19.7	17.6
Yards	4	10	10	10	9
lb/yd	3976	3930	3941	3938	3907
Ton/Yd	1.99	1.96	1.97	1.97	1.95

	Totals
Truck #	5
Sand	51080
Stone	66750
Cement	21380
Flyash	5910
Water, lb	6225.37
Reducer	6.5
Liquid Air	10.0625
MS Sand	17740
Retarder	46.5625
Adva	0
Delvo	0
	0

	Totals
Total, lb	169148
Total, Ton	84.574
Yards	43.00
lb/yd	3938
Ton/Yd	1.97

HHMMSS		
	Test Length, Hr	1.002
1:00:08	Ton/Hr	84.38672

WATER	95.0 gl	# 112.2 gl	112.0	-0.2	-.18%		112.00 gl
REDUCER	3.0 oz	78.0 oz	78.0	0.0	0.00%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 20040 lb DESIGN W/C: 0.562 WATER/CEMENT: 0.5457 DESIGN WATER: 175.0 gl ACTUAL WATER: 174.3 gl TO ADD: 0.7 gl
SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
179	USER	179	10530	11046	09:05	05/13/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
4.00 yd	7520				D	11042

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
SAND	1346 lb	5772 lb	5720	-52	-.92%	7.224% A	46.17 gl
#57 STONE	1350 lb	5800 lb	5750	-30	-.52%		
TYPE 1	510.0 lb	2040.0 lb	2025.0	-15.0	-.74%		
FLY ASH	140.0 lb	560.0 lb	555.0	-5.0	-.89%		
WATER 1	22.0 gl	# 81.4 gl	81.0	-0.4	-.49%		81.00 gl
REDUCER	4.0 oz	104.0 oz	104.0	0.0	0.00%		
AIR	1.50 oz	4.00 oz	3.00	-1.00	-25.00%		
#8 STONE	300 lb	1200 lb	1170	-30	-2.50%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER 3	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 15903 lb DESIGN W/C: 0.411 WATER/CEMENT: 0.4147 DESIGN WATER: 128.0 gl ACTUAL WATER: 127.2 gl TO ADD: 0.8 gl
SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
[illegible]	USER	2127	10541	11044	09:20	05/13/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
10.00 yd	7C200				E	11044

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
#8 STONE	1540 lb	15400 lb	15350	-50	-.32%		
SAND	1172 lb	11678 lb	11630	-48	-.41%	7.125% A	72.81 gl
TYPE 1	500.0 lb	5000.0 lb	4945.0	-55.0	-1.10%		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

RETARDER	3.0 /C	192.0 oz	192.0	0.0	0.00%	
AIR	7.00 oz	46.67 oz	47.00	0.33	0.71%	
MB BAND	460 lb	4600 lb	4570	-30	-.65%	
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%	
WATER B	0.0 gl	# 0.0 gl	0.0	0.0	0.00%	

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 39299 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.342T DESIGN WATER: 260.0 gl ACTUAL WATER: 259.8 gl TO ADD: 0.2 gl

SLUMP: 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2138	USER	2138	10542	11047	09:34	05/12/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
10.00 yd	70023				3	11668

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
78 STONE	1540 lb	15400 lb	15360	-40	-.26%		
SAND	1090 lb	11684 lb	11710	24	0.21%	7.215% A	94.40 gl
TYPE I	500.0 lb	5000.0 lb	4970.0	-30.0	-.60%		
FLY ASH	140.0 lb	1400.0 lb	1395.0	-5.0	-.36%		
WATER	26.0 gl	# 165.8 gl	166.0	0.2	0.12%		166.00 gl
RETARDER	3.0 /C	192.0 oz	192.0	0.0	0.00%		
AIR	7.00 oz	46.67 oz	47.00	0.33	0.71%		
MB BAND	460 lb	4600 lb	4570	-30	-.65%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER B	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 39406 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.341A DESIGN WATER: 260.0 gl ACTUAL WATER: 260.4 gl TO ADD: 0.0 gl

SLUMP: 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
2	USER	2150	10522	11036	10:00	05/12/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
10.00 yd	70023				2	11665

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
78 STONE	1540 lb	15400 lb	15360	-40	-.26%		
SAND	1090 lb	11684 lb	11710	26	0.22%	7.244% A	94.72 gl
TYPE I	500.0 lb	5000.0 lb	4975.0	-25.0	-.50%		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]	[illegible]	oz	[illegible]	oz			
RETARDER	3.0	oz	192.0	oz	192.0	0.0	0.00%
AIR	7.00	oz	46.67	oz	46.00	-.67	-1.44%
MS SAND	460	lb	4600	lb	4590	-10	-.22%
TEMPERED	0.0	gl	# 0.0	gl	0.0	0.0	0.00%
WATER 2	0.0	gl	# 0.0	gl	0.0	0.0	0.00%

Y SIMULATED NUM BATCHES: 1

[illegible]TAL: 39378 lb DESIGN W/C: 0.339 WATER/CEMENT: 0.340T DESIGN WATER: 260.0 gl ACTUAL WATER: 258.8 gl TO ADD: 1.2 gl

SLUMP: 1.50 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

TRUCK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
273	USER	273	10564	11069	10:04	05/19/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
5.00 yd	70333				2	11667

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
78 STONE	1536 lb	13824 lb	13800	-24	-.17%		
SAND	1068 lb	10899 lb	10910	11	.11%	7.152% A	88.88 gl
TYPE I	500.0 lb	4500.0 lb	4465.0	-35.0	-.78%		
[illegible]	130.0 lb	1170.0 lb	1165.0	-5.0	-.43%		
WA[illegible]	28.0 gl	# 169.4 gl	168.0	-1.4	-.84%		168.00 gl
RETARDER	3.0 /C	170.1 oz	169.0	-1.1	-.65%		
AIR	3.00 oz	18.00 oz	18.00	0.00	0.00%		
MS SAND	450 lb	4050 lb	4010	-40	-.99%		
TEMPERED	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		
WATER 2	0.0 gl	# 0.0 gl	0.0	0.0	0.00%		

NON-SIMULATED NUM BATCHES: 1

LOAD TOTAL: 35164 lb DESIGN W/C: 0.371 WATER/CEMENT: 0.374T DESIGN WATER: 252.0 gl ACTUAL WATER: 250.5 gl TO ADD: 1.5 gl

SLUMP: 3.00 " WATER IN TRUCK: 0.0 gl ADJUST WATER: 0.0 gl /load TRIM WATER: 0.0 gl /yd

[illegible]CK	USER LOGIN	DRIVER	TICKET NUM	TICKET ID	TIME	DATE
[illegible]	USER	179	10565	11070	10:09	05/19/2004
LOAD SIZE	MIX CODE				SEQ	LOAD ID
2.00 yd	3610				3	11668

MATERIAL	DESIGN QTY	REQUIRED	BATCHED	VAR	% VAR	%MOISTURE	ACTUAL WAT
78 STONE	1740 lb	5220 lb	5170	-50	-.96%		
SAND	1210 lb	3630 lb	3640	-52	-.82%	7.210% A	91.15 gl
TYPE I	530.0 lb	1590.0 lb	1555.0	-35.0	-2.20%		

APPENDIX C6

RMC CENTRAL MIX

PLANT PRODUCTION DATA

Parameter					
Date	5/19/2004				
Run #	RMC-C-1				
Run Time Start	810		Stop		
Run Time Stop	909		Re-Start		
Load Time	810	820	835	847	857
Truck #	2454	2424	2425	2418	2416
Sand	13020	13040	13040	13020	13000
Stone	15740	15720	15900	15720	15780
Cement	4170	4170	4170	4170	4180
Flyash	1050	980	990	990	980
Water, lb	13419	13385.38	13118.34	13118.34	13051.58
Reducer	12.9375	12.875	12.9375	13.00	12.94
Liquid Air					
MS Sand					
Retarder					
Adva					
Delvo					

Total, lb	47412	47308	47231	47031	47005
Total, Ton	23.7	23.7	23.6	23.5	23.5
Yards	9	9	9	9	9
lb/yd	5268	5256	5248	5226	5223
Ton/Yd	2.63	2.63	2.62	2.61	2.61

	Totals
Load #	5
Sand	65120
Stone	78860
Cement	20860
Flyash	4990
Water, lb	66092.4
Reducer	64.6875
Liquid Air	0
MS Sand	0
Retarder	0
Adva	0
Delvo	0
	0

		Totals
	Total, lb	235987
	Total, Ton	117.994
	Yards	45.000
	lb/yd	5244
	Ton/Yd	2.62
HHMMSS	Test Length, Hr	0.994
0:59:37	Ton/Hr	118.7522

ton Time

Ticket Code	Ticket Date	Order Code	Truck Code	Plant Code	Delv Qty	Time Printed	Customer Code	Customer Name	Driver	Mix Products	
20401779	05-19-2004	191	2454	204	9.00 cy	07:55	95562-1	LISBON	FERNANDO DOHNERT	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4170.00	lb	9922	FLY ASH	1050.00	lb
	9915	SAND	13020.00	lb	9901	#57 STONE	15740.00	lb
	9930	WATER	1608.00	ga	9941	WATER REDUCER	207.00	oz

YES

20401780	05-19-2004	189	2420	204	9.00 cy	08:03	95562-1	LISBON	KELVIN HOLDEN	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4200.00	lb	9922	FLY ASH	1020.00	lb
	9915	SAND	12980.00	lb	9901	#57 STONE	15740.00	lb
	9930	WATER	1608.00	ga	9941	WATER REDUCER	207.00	oz

NO

20401781	05-19-2004	189	2424	204	9.00 cy	08:14	95562-1	LISBON	LERON ROGERS	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4170.00	lb	9922	FLY ASH	980.00	lb
	9915	SAND	13040.00	lb	9901	#57 STONE	15720.00	lb
	9930	WATER	1604.00	ga	9941	WATER REDUCER	206.00	oz

20401782	05-19-2004	188	2425	204	9.00 cy	08:16	95562-1	LISBON	CALVIN SHAW	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4170.00	lb	9922	FLY ASH	990.00	lb
	9915	SAND	13040.00	lb	9901	#57 STONE	15900.00	lb
	9930	WATER	1572.00	ga	9941	WATER REDUCER	207.00	oz

20401783	05-19-2004	189	2418	204	9.00 cy	08:19	95562-1	LISBON	JOYCE GODLEY	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4170.00	lb	9922	FLY ASH	990.00	lb
	9915	SAND	13020.00	lb	9901	#57 STONE	15720.00	lb
	9930	WATER	1572.00	ga	9941	WATER REDUCER	208.00	oz

-20401784	05-19-2004	191	2416	204	9.00 cy	08:47	95562-1	LISBON	WESLEY STEED	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4180.00	lb	9922	FLY ASH	980.00	lb
	9915	SAND	13000.00	lb	9901	#57 STONE	15780.00	lb
	9930	WATER	1564.00	ga	9941	WATER REDUCER	207.00	oz

***Ticket Cancelled Reason Code:104 CUSTOMER CANCELLED ORDER

20401785	05-19-2004	188	2423	204	9.00 cy	08:49	95562-1	LISBON	BOBBY WILSON	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4180.00	lb	9922	FLY ASH	990.00	lb
	9915	SAND	13020.00	lb	9901	#57 STONE	15740.00	lb
	9930	WATER	1572.00	ga	9941	WATER REDUCER	207.00	oz

20401786	05-19-2004	189	2416	204	9.00 cy	09:22	95562-1	LISBON	WESLEY STEED	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	.00	lb	9922	FLY ASH	.00	lb
	9915	SAND	.00	lb	9901	#57 STONE	.00	lb
	9930	WATER	.00	ga	9941	WATER REDUCER	.00	oz

Date	5/19/2004			
Run #	RMC-C-2		Stop	1103
Run Time Start	1008		Re-Start	1106
Run Time Stop	1111			
Load Time	1010	1015	1033	2433
Truck #	2452	2420	2434	1106
Sand	2840	11900	13040	11920
Stone	3720	16240	15760	16120
Cement	930	3990	4180	4000
Flyash	210	1000	980	1000
Water, lb	1936.04	12450.74	13084.96	12784.54
Reducer	2.88	9.5625	12.9375	9.5625
Liquid Air		3.0625		
MS Sand				
Retarder				
Adva				
Delvo				

Total, lb	9639	45593	47058	45834
Total, Ton	4.8	22.8	23.5	22.9
Yards	2	9	9	9
lb/yd	4819	5066	5229	5093
Ton/Yd	2.41	2.53	2.61	2.55

	Totals
Truck #	4
Sand	39700
Stone	51840
Cement	13100
Flyash	3190
Water, lb	40256.28
Reducer	34.9375
Liquid Air	3.0625
MS Sand	0
Retarder	0
Adva	0
Delvo	0
	0

		Totals
	Total, lb	148124
	Total, Ton	74.062
	Yards	29.00
	lb/yd	5052
	Ton/Yd	2.53
HHMMSS	Test Length, Hr	0.9997
0:59:59	Ton/Hr	74.08272

Ticket Code	Ticket Date	Order Code	Truck Code	Plant Code	Delv Qty		Time Printed	Customer Code	Customer Name	Driver	Mix Products	
20401787	05-19-2004	171	2458	204	9.00	cy	09:24	1001937-1	VARNER	LEON MCCLAIN	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4190.00	lb	9922	FLY ASH	980.00	lb
	9915	SAND	13060.00	lb	9901	#57 STONE	15800.00	lb
	9930	WATER	1572.00	ga	9941	WATER REDUCER	207.00	oz

-20401788	05-19-2004	191	2452	204	2.50	cy	09:25	95562-1	LISBON	MOISES PEREZ	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	1167.50	lb	9922	FLY ASH	272.50	lb
	9915	SAND	3350.00	lb	9901	#57 STONE	4340.00	lb
	9930	WATER	87.50	ga	9941	WATER REDUCER	57.60	oz

***Ticket Cancelled Reason Code:104 CUSTOMER CANCELLED ORDER

20401789	05-19-2004	173	2398	204	4.00	cy	09:27	505247-1	MORTON	CHRIS HARRIS	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	1850.00	lb	9922	FLY ASH	430.00	lb
	9915	SAND	5780.00	lb	9901	#57 STONE	7060.00	lb
	9930	WATER	564.00	ga	9941	WATER REDUCER	91.00	oz

20401790	05-19-2004	165	2420	204	9.00	cy	09:27	96709-1	CAROLINA	KELVIN HOLDEN	30655	3000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	3990.00	lb	9922	FLY ASH	1000.00	lb
	9915	SAND	11900.00	lb	9901	#57 STONE	16240.00	lb
	3333	AIR ENTRAINING	49.00	oz	9941	WATER REDUCER	153.00	oz
	9931	WATER 2	1492.00	ga				

20401791	05-19-2004	171	2434	204	9.00	cy	09:31	1001937-1	VARNER	DARRELL RAY	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4180.00	lb	9922	FLY ASH	980.00	lb
	9915	SAND	13040.00	lb	9901	#57 STONE	15760.00	lb
	9930	WATER	1568.00	ga	9941	WATER REDUCER	207.00	oz

20401792	05-19-2004	183	2433	204	9.00	cy	09:33	062470-1	BLUERIDG	KEITH DRAHEIM	30655	3000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4000.00	lb	9922	FLY ASH	1000.00	lb
	9915	SAND	11920.00	lb	9901	#57 STONE	16120.00	lb
	3333	AIR ENTRAINING	50.00	oz	9941	WATER REDUCER	153.00	oz
	9931	WATER 2	1532.00	ga				

20401793	05-19-2004	189	2452	204	2.00	cy	10:01	95562-1	LISBON	MOISES PEREZ	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	930.00	lb	9922	FLY ASH	210.00	lb
	9915	SAND	2840.00	lb	9901	#57 STONE	3720.00	lb
	9930	WATER	232.00	ga	9941	WATER REDUCER	46.00	oz

Date	5/20/2004									
Run #	RMC-C-3									
Run Time Start	852									
Run Time Stop	952									Totals
Load Time	852	857	906	916	923	931	934	944		
Truck #	2454	2424	2398	2420	2430	2457	2416	2433	Truck #	8
Sand	1340	11900	11140	12020	14020	7660	13000	10240	Sand	81320
Stone	1920	16280	15720	16140	14300	8340	15760	12240	Stone	100700
Cement	450	4010	4770	3990	3930	2700	4170	3260	Cement	27280
Flyash	350	1010	1230	1010	1190		1020	770	Flyash	6580
Water, lb	1301.82	12550.88	12951.44	12484.12	8144.72	3204.48	1412	9713.58	Water, lb	61763.04
Reducer	1.06	9.5	11.25	9.5625	12.9375		13	10	Reducer	67.3125
Liquid Air	0.375	3.125	4.5	3.0625	5.625	1.5625			Liquid Air	18.25
MS Sand									MS Sand	0
Retarder						6.5			Retarder	6.5
Adva									Adva	0
Delvo									Delvo	0
Water. lb										0
										Totals
Total, lb	5363	45764	45827	45657	41603	21913	35375	36234	Total, lb	277735
Total, Ton	2.7	22.9	22.9	22.8	20.8	11.0	17.7	18.1	Total, Ton	138.868
Yards	1	9	9	9	9	5	9	7	Yards	58.00
lb/yd	5363	5085	5092	5073	4623	4383	3931	5176	lb/yd	4841
Ton/Yd	2.68	2.54	2.55	2.54	2.31	2.19	1.97	2.59	Ton/Yd	2.42
									HHMMSS Test Length, Hr	1.0064
									1:00:23 Ton/Hr	137.986

Ticket Code	Ticket Date	Order Code	Truck Code	Plant Code	Delv Qty		Time Printed	Customer Code	Customer Name	Driver		Mix Products	
20401833	05-20-2004	175	2458	204	9.00	cy	08:41	96253-1	JLCONCRE	LEON MCCLAIN		30655	3000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	3980.00	lb	9922	FLY ASH	1010.00	lb
	9915	SAND	11980.00	lb	9901	#57 STONE	16140.00	lb
	3333	AIR ENTRAINING	49.00	oz	9941	WATER REDUCER	153.00	oz
	9931	WATER 2	1500.00	ga				

20401834	05-20-2004	200	2454	204	1.00	cy	08:41	387681-1	INTERSTA	FERNANDO DOHNERT		30655	3000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	450.00	lb	9922	FLY ASH	350.00	lb
	9915	SAND	1340.00	lb	9901	#57 STONE	1920.00	lb
	3333	AIR ENTRAINING	6.00	oz	9941	WATER REDUCER	17.00	oz
	9931	WATER 2	156.00	ga				

20401835	05-20-2004	175	2424	204	9.00	cy	08:50	96253-1	JLCONCRE	LERON ROGERS		30655	3000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4010.00	lb	9922	FLY ASH	1010.00	lb
	9915	SAND	11900.00	lb	9901	#57 STONE	16280.00	lb
	3333	AIR ENTRAINING	50.00	oz	9941	WATER REDUCER	152.00	oz
	9931	WATER 2	1504.00	ga				

20401836	05-20-2004	178	2398	204	9.00	cy	09:03	818922-1	VENTURE	CHRIS HARRIS		40655	4000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4770.00	lb	9922	FLY ASH	1230.00	lb
	9915	SAND	11140.00	lb	9901	#57 STONE	15720.00	lb
	3333	AIR ENTRAINING	72.00	oz	9941	WATER REDUCER	180.00	oz
	9930	WATER	1552.00	ga				

20401837	05-20-2004	175	2420	204	9.00	cy	09:03	96253-1	JLCONCRE	KELVIN HOLDEN		30655	3000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	3990.00	lb	9922	FLY ASH	1010.00	lb
	9915	SAND	12020.00	lb	9901	#57 STONE	16140.00	lb
	3333	AIR ENTRAINING	49.00	oz	9941	WATER REDUCER	153.00	oz
	9931	WATER 2	1496.00	ga				

20401838	05-20-2004	185	2430	204	9.00	cy	09:21	97549-1	CERTIFIE	RONALD BUTTS		32655	NC CLASS B C&G

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	3930.00	lb	9922	FLY ASH	1190.00	lb
	9915	SAND	14020.00	lb	9901	#57 STONE	14300.00	lb
	3333	AIR ENTRAINING	90.00	oz	9930	WATER	976.00	ga
	9941	WATER REDUCER	207.00	oz				

20401839	05-20-2004	155	2457	204	5.00	cy	09:25	97549-1	CERTIFIE	MICHAEL ABRAMS		32155	CLASS B C&G #57

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	2700.00	lb	9915	SAND	7660.00	lb
	9901	#57 STONE	8340.00	lb	9930	WATER	384.00	ga
	3333	AIR ENTRAINING	25.00	oz	9949	RETARDER	104.00	oz

Ticket Code	Ticket Date	Order Code	Truck Code	Plant Code	Delv Qty	Time Printed	Customer Code	Customer Name	Driver	Mix Products	
20401840	05-20-2004	204	2416	204	9.00	cy 09:29	95585-1	FAISONS	WESLEY STEED	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4170.00	lb	9922	FLY ASH	1020.00	lb
	9915	SAND	13000.00	lb	9901	#57 STONE	15760.00	lb
	9930	WATER	1412.00	ga	9941	WATER REDUCER	208.00	oz

20401841	05-20-2004	167	2433	204	7.00	cy 09:42	96206-1	ATLANTIC	KEITH DRAHEIM	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	3260.00	lb	9922	FLY ASH	770.00	lb
	9915	SAND	10240.00	lb	9901	#57 STONE	12240.00	lb
	9930	WATER	1164.00	ga	9941	WATER REDUCER	160.00	oz

20401842	05-20-2004	178	2452	204	9.00	cy 09:57	818922-1	VENTURE	MOISES PEREZ	40655	4000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4820.00	lb	9922	FLY ASH	1190.00	lb
	9915	SAND	11160.00	lb	9901	#57 STONE	15860.00	lb
	3333	AIR ENTRAINING	72.00	oz	9941	WATER REDUCER	180.00	oz
	9930	WATER	1636.00	ga				

20401843	05-20-2004	204	2423	204	9.00	cy 10:09	95585-1	FAISONS	BOBBY WILSON	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4240.00	lb	9922	FLY ASH	1000.00	lb
	9915	SAND	13080.00	lb	9901	#57 STONE	15740.00	lb
	9930	WATER	1644.00	ga	9941	WATER REDUCER	206.00	oz

20401844	05-20-2004	162	2425	204	9.00	cy 10:16	95727-1	HOUSEMAN	CALVIN SHAW	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4210.00	lb	9922	FLY ASH	980.00	lb
	9915	SAND	13000.00	lb	9901	#57 STONE	15760.00	lb
	9930	WATER	1500.00	ga	9941	WATER REDUCER	208.00	oz

20401845	05-20-2004	204	2418	204	9.00	cy 10:24	95585-1	FAISONS	JOYCE GODLEY	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4180.00	lb	9922	FLY ASH	1040.00	lb
	9915	SAND	13060.00	lb	9901	#57 STONE	15760.00	lb
	9930	WATER	1644.00	ga	9941	WATER REDUCER	206.00	oz

20401846	05-20-2004	176	2435	204	5.00	cy 10:28	96253-1	JLCONCRE	MARK GERMOND	30655	3000 PSI AE

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	2240.00	lb	9922	FLY ASH	550.00	lb
	9915	SAND	6660.00	lb	9901	#57 STONE	9000.00	lb
	3333	AIR ENTRAINING	27.00	oz	9941	WATER REDUCER	85.00	oz
	9931	WATER 2	664.00	ga				

20401847	05-20-2004	171	2454	204	9.00	cy 10:29	1002196-1	ALBERTO	FERNANDO DOHNERT	30654	3000 PSI

	Product		Quantity		Product		Quantity	
Weights	9920	TYPE I CEMENT	4200.00	lb	9922	FLY ASH	990.00	lb
	9915	SAND	13080.00	lb	9901	#57 STONE	15760.00	lb
	9930	WATER	1420.00	ga	9941	WATER REDUCER	207.00	oz

APPENDIX D

WIND SPEED AND DIRECTION DATA

APPENDIX D1

RMCC TRUCK MIX

WIND SPEED AND DIRECTION DATA

AnythingWeather.com

Raleigh, NC Weather Website

Sponsored By:
Skyview Weather
Skyview Weather

previous day

AnythingWeather Daily Report
December 8, 2003

next day

Daily Summary:

High Temperature: 52.1°F 2:30:00 PM
Low Temperature: 22.4°F 7:30:00 AM
High Humidity: 85% 8:30:00 AM
Low Humidity: 31% 2:40:00 PM
Total Precipitation: 0.01"
Peak Wind Gust: 8 mph 1:40:00 PM

Station Location:

10 miles north of Raleigh Durham Airport
Raleigh, NC
Elevation: 427 Feet
Lat: 35.87N Long: 078.78W

Use metric units | Back to Current Conditions Report | Back to Daily

Time	Temp. (°F)	Humidity (%)	Dew Pt. (°F)	Barometric Pressure (in.)	Wind Speed (mph)	Peak Gust (mph)	Wind Direction	Precip. (in.)
00:00	26.5	77	20.3	30.15	0	0	W	0.00
00:10	26.3	77	20.1	30.15	0	0	W	0.00
00:20	26.4	77	20.2	30.15	0	0	W	0.00
00:30	26.2	77	20.0	30.16	0	1	W	0.00
00:40	26.0	76	19.5	30.15	0	2	W	0.00
00:50	26.0	77	19.8	30.15	0	0	W	0.00
01:00	26.0	76	19.5	30.16	0	2	W	0.00
01:10	26.0	76	19.5	30.15	0	0	W	0.00
01:20	26.0	76	19.5	30.15	1	2	W	0.00
01:30	25.9	76	19.4	30.15	0	2	W	0.00
01:40	25.7	76	19.2	30.15	0	0	W	0.00
01:50	25.6	76	19.1	30.15	0	0	W	0.00
02:00	25.4	76	18.9	30.15	0	0	W	0.00
02:10	25.4	78	19.5	30.15	0	0	W	0.00
02:20	25.6	79	20.0	30.16	0	0	W	0.00
02:30	25.5	78	19.6	30.16	0	0	W	0.00
02:40	25.2	77	19.0	30.16	0	0	W	0.00
02:50	24.9	78	19.0	30.16	0	0	W	0.00
03:00	24.8	78	19.0	30.16	0	0	W	0.00
03:10	24.6	79	19.0	30.16	0	0	W	0.00
03:20	24.7	79	19.1	30.16	0	0	W	0.00
03:30	24.6	79	19.1	30.17	0	0	W	0.00
03:40	24.6	80	19.3	30.17	0	0	W	0.00
03:50	24.5	80	19.2	30.17	0	0	W	0.00
04:00	24.3	80	19.0	30.17	0	0	W	0.00
04:10	24.1	80	18.8	30.17	0	0	W	0.00
04:20	24.0	80	18.7	30.17	0	0	W	0.00
04:30	23.6	80	18.4	30.17	0	0	W	0.00
04:40	23.5	80	18.2	30.17	0	0	W	0.00

04:50	23.3	80	18.1	30.18	0	0	W	0.00
05:00	23.3	81	18.3	30.18	0	0	W	0.00
05:10	23.5	82	18.8	30.18	0	0	W	0.00
05:20	23.7	83	19.3	30.19	0	0	W	0.00
05:30	23.6	83	19.2	30.20	0	0	W	0.00
05:40	23.6	83	19.2	30.20	0	0	W	0.00
05:50	23.6	83	19.2	30.20	0	0	W	0.00
06:00	23.5	82	18.8	30.20	0	0	W	0.00
06:10	23.3	82	18.6	30.20	0	0	W	0.00
06:20	23.2	82	18.6	30.21	0	0	W	0.00
06:30	23.1	82	18.4	30.21	0	0	W	0.00
06:40	23.1	82	18.4	30.21	0	0	W	0.00
06:50	23.0	82	18.3	30.21	0	0	W	0.00
07:00	22.7	82	18.0	30.22	0	0	W	0.00
07:10	22.6	82	17.9	30.22	0	0	W	0.00
07:20	22.5	82	17.8	30.23	0	0	W	0.00
07:30	22.4	82	17.7	30.23	0	0	W	0.00
07:40	22.6	83	18.2	30.24	0	0	W	0.00
07:50	22.6	82	18.0	30.24	0	0	W	0.00
08:00	23.0	83	18.6	30.25	0	0	W	0.00
08:10	23.5	84	19.3	30.25	0	0	W	0.00
08:20	23.9	84	19.8	30.25	0	0	W	0.00
08:30	24.8	85	20.9	30.25	0	0	W	0.00
08:40	25.9	85	22.0	30.24	0	0	W	0.00
08:50	26.9	85	23.0	30.25	0	0	W	0.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9:10	31.3	85	27.3	30.25	0	0	W	0.00
9:20	34.0	79	28.2	30.26	0	0	W	0.00
9:30	36.4	69	27.2	30.26	0	0	SSE	0.00
:40	38.4	60	25.7	30.26	0	3	ENE	0.00
:50	39.3	58	25.8	30.26	0	3	NNE	0.00
:00	40.7	54	25.4	30.26	0	5	ENE	0.00
:10	41.7	54	26.3	30.26	0	2	E	0.00
:20	42.2	52	25.9	30.25	0	7	ENE	0.00
:30	43.5	50	26.1	30.25	1	5	E	0.00
:40	44.1	47	25.2	30.25	0	3	ENE	0.00
:50	45.1	44	24.5	30.25	0	3	SE	0.00
1:00	45.5	45	25.4	30.25	0	5	ENE	0.00
1:10	45.9	43	24.7	30.24	1	7	ESE	0.00
1:20	46.4	41	24.0	30.24	0	6	ESE	0.00
1:30	46.7	43	25.4	30.24	1	6	E	0.00
1:40	47.4	40	24.3	30.23	2	7	ESE	0.00
1:50	47.7	39	24.0	30.22	0	5	SSE	0.00
2:00	47.9	38	23.5	30.22	1	5	SE	0.00
2:10	48.3	38	23.9	30.21	0	6	ESE	0.00
2:20	49.0	38	24.5	30.21	0	6	ESE	0.00
2:30	49.0	36	23.2	30.20	0	3	NE	0.00
2:40	49.1	37	24.0	30.20	0	3	WSW	0.00
2:50	50.3	38	25.7	30.19	0	0	SE	0.00
3:00	50.3	35	23.7	30.19	0	3	SSW	0.00
3:10	50.5	37	25.2	30.19	0	6	SSE	0.00
3:20	50.9	35	24.2	30.18	0	3	W	0.00
3:30	51.4	35	24.7	30.17	0	1	ESE	0.00
3:40	51.3	37	25.9	30.17	0	8	S	0.00
3:50	51.4	35	24.7	30.16	0	3	SSE	0.00
4:00	51.6	33	23.4	30.16	0	3	ESE	0.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14:20	51.8	32	22.9	30.16	0	5	S	0.00
14:30	52.1	32	23.2	30.15	0	3	W	0.00
14:40	51.3	31	21.7	30.15	0	2	SSW	0.00

14:50	50.6	33	22.6	30.15	1	5	S	0.00
15:00	50.1	33	22.1	30.15	1	7	S	0.00
15:10	50.4	33	22.4	30.16	0	3	SSE	0.00
15:20	50.4	33	22.4	30.16	2	6	S	0.00
15:30	50.0	33	22.1	30.16	0	6	SW	0.00
15:40	49.4	33	21.5	30.16	0	0	SSE	0.00
15:50	48.7	34	21.6	30.16	0	2	SSW	0.00
16:00	48.0	35	21.7	30.17	0	1	SW	0.00
16:10	47.5	36	21.9	30.17	1	3	SE	0.00
16:20	47.2	37	22.3	30.16	0	3	SSE	0.00
16:30	46.8	37	21.9	30.17	0	0	SSE	0.00
16:40	46.2	42	24.4	30.17	0	0	SSE	0.00
16:50	45.2	44	24.6	30.18	0	0	SSE	0.00
17:00	44.0	45	24.0	30.18	0	0	SSE	0.00
17:10	42.8	47	24.0	30.18	0	0	SSE	0.00
17:20	41.9	50	24.6	30.18	0	0	SSE	0.00
17:30	41.0	52	24.7	30.18	0	0	SSE	0.00
17:40	39.9	52	23.8	30.18	0	0	SSE	0.00
17:50	39.2	57	25.3	30.18	0	0	SSE	0.00
18:00	38.5	59	25.4	30.19	0	0	SSE	0.00
18:10	37.7	60	25.1	30.19	0	0	SSE	0.00
18:20	36.9	60	24.3	30.19	0	0	SSE	0.00
18:30	36.3	60	23.8	30.19	0	0	SSE	0.00
18:40	35.7	62	24.0	30.20	0	0	SSE	0.00
18:50	35.3	65	24.7	30.20	0	0	SSE	0.00
19:00	34.7	65	24.2	30.20	0	0	SSE	0.00
19:10	34.1	66	23.9	30.20	0	0	SSE	0.00
19:20	33.7	66	23.5	30.20	0	0	SSE	0.00
19:30	33.4	68	24.0	30.20	0	0	SSE	0.00
19:40	33.2	69	24.1	30.20	0	0	SSE	0.00
19:50	32.9	68	23.5	30.20	0	0	SSE	0.00
20:00	32.6	69	23.6	30.20	0	0	SSE	0.00
20:10	32.0	70	23.3	30.20	0	0	SSE	0.00
20:20	32.1	70	23.4	30.19	0	0	SSE	0.00
20:30	31.8	71	23.5	30.19	0	0	SSE	0.00
20:40	31.7	72	23.7	30.19	0	0	SSE	0.00
20:50	31.5	73	23.9	30.19	0	1	SSE	0.00
21:00	31.5	74	24.2	30.19	0	1	SSE	0.00
21:10	31.4	74	24.1	30.19	0	0	SSE	0.00
21:20	31.3	74	24.0	30.20	0	0	SSE	0.00
21:30	31.5	76	24.8	30.20	0	0	SSE	0.00
21:40	31.5	74	24.2	30.20	0	0	SSE	0.00
21:50	31.2	73	23.6	30.21	0	0	SSE	0.00
22:00	30.9	74	23.6	30.21	0	0	SSE	0.00
22:10	30.5	75	23.5	30.22	0	0	SSE	0.00
22:20	30.1	75	23.1	30.21	0	0	SSE	0.00
22:30	29.9	76	23.3	30.22	0	0	SSE	0.00
22:40	29.7	77	23.4	30.21	0	0	SSE	0.00
22:50	29.4	76	22.7	30.21	0	0	SSE	0.00
23:00	29.1	76	22.5	30.21	0	0	SSE	0.00
23:10	28.9	76	22.3	30.21	0	0	SSE	0.00
23:20	28.8	77	22.5	30.20	0	0	SSE	0.00
23:30	28.7	78	22.7	30.20	0	0	SSE	0.00
23:40	28.6	78	22.6	30.20	0	0	SSE	0.00
23:50	28.4	78	22.4	30.20	0	0	SSE	0.00

Use metric units

AnythingWeather Communications, Inc.
2350 N Rocky View Rd | Castle Rock, CO 80104 | Phone: 1- 508-557-1155 | Copyright 2001,2002

AnythingWeather.com

Raleigh, NC Weather Website

Sponsored By:
HailWatch
Nationwide Storm Damage Reports

previous day

AnythingWeather Daily Report
December 9, 2003

next day

Daily Summary:

High Temperature: 60.4°F 2:00:00 PM
Low Temperature: 24.7°F 7:20:00 AM
High Humidity: 88% 9:10:00 AM
Low Humidity: 38% 2:20:00 PM
Total Precipitation: 0.00"
Peak Wind Gust: 10 mph 12:40:00 PM

Station Location:

10 miles north of Raleigh Durham Airport
Raleigh, NC
Elevation: 427 Feet
Lat: 35.87N Long: 078.78W

Use metric units | Back to Current Conditions Report | Back to Daily

Time	Temp. (°F)	Humidity (%)	Dew Pt. (°F)	Barometric Pressure (in.)	Wind Speed (mph)	Peak Gust (mph)	Wind Direction	Precip. (in.)
00:00	28.4	78	22.4	30.20	0	0	SSE	0.00
00:10	28.3	79	22.6	30.20	0	0	SSE	0.00
00:20	28.2	79	22.5	30.20	0	0	SSE	0.00
00:30	28.1	79	22.4	30.20	0	0	SSE	0.00
00:40	27.9	79	22.3	30.21	0	0	SSE	0.00
00:50	27.8	79	22.1	30.21	0	0	SSE	0.00
01:00	27.6	79	21.9	30.21	0	0	SSE	0.00
01:10	27.5	79	21.8	30.21	0	0	SSE	0.00
01:20	27.4	80	22.1	30.21	0	0	SSE	0.00
01:30	27.2	80	21.9	30.21	0	0	SSE	0.00
01:40	27.0	80	21.7	30.21	0	0	SSE	0.00
01:50	26.9	80	21.6	30.21	0	0	SSE	0.00
02:00	26.8	80	21.5	30.21	0	0	SSE	0.00
02:10	26.7	81	21.7	30.21	0	0	SSE	0.00
02:20	26.7	81	21.7	30.21	0	0	SSE	0.00
02:30	26.8	82	22.1	30.22	0	0	SSE	0.00
02:40	26.7	82	22.0	30.22	0	0	SSE	0.00
02:50	26.5	81	21.5	30.22	0	0	SSE	0.00
03:00	26.4	81	21.3	30.22	0	0	SSE	0.00
03:10	26.4	82	21.7	30.22	0	0	SSE	0.00
03:20	26.5	82	21.8	30.22	0	0	SSE	0.00
03:30	26.5	83	22.1	30.22	0	0	SSE	0.00
03:40	26.5	82	21.8	30.22	0	0	SSE	0.00
03:50	26.3	82	21.6	30.22	0	0	SSE	0.00
04:00	26.3	83	21.8	30.22	0	0	SSE	0.00
04:10	26.1	82	21.4	30.22	0	0	SSE	0.00
04:20	26.1	82	21.4	30.22	0	0	SSE	0.00
04:30	25.8	82	21.1	30.22	0	0	SSE	0.00

04:40	25.9	83	21.5	30.23	0	0	SSE	0.00
04:50	25.8	82	21.1	30.23	0	0	SSE	0.00
05:00	25.7	82	21.0	30.23	0	0	SSE	0.00
05:10	25.5	82	20.8	30.23	0	0	SSE	0.00
05:20	25.3	82	20.6	30.23	0	0	SSE	0.00
05:30	25.3	83	20.9	30.23	0	0	SSE	0.00
05:40	25.4	83	21.0	30.23	0	0	SSE	0.00
05:50	25.4	83	21.0	30.23	0	0	SSE	0.00
06:00	25.4	83	21.0	30.23	0	0	SSE	0.00
06:10	25.4	84	21.2	30.23	0	0	SSE	0.00
06:20	25.1	83	20.7	30.23	0	0	SSE	0.00
06:30	25.2	83	20.8	30.24	0	0	SSE	0.00
06:50	24.9	83	20.5	30.24	0	0	SSE	0.00
07:00	24.8	83	20.4	30.24	0	0	SSE	0.00
07:10	24.8	83	20.4	30.24	0	0	SSE	0.00
07:20	24.7	83	20.3	30.25	0	0	SSE	0.00
07:40	25.0	84	20.8	30.25	0	0	SSE	0.00
[redacted]								
:20	26.5	86	22.9	30.25	0	1	SSE	0.0
:30	27.5	86	23.9	30.26	0	1	SSE	0.0
:40	28.7	86	25.0	30.26	0	1	SSE	0.0
:10	33.2	88	30.0	30.26	0	0	SSE	0.0
:30	38.4	78	32.2	30.27	0	0	ESE	0.0
:40	39.1	74	31.5	30.27	0	0	ESE	0.0
[redacted]								
10:20	45.9	65	34.8	30.26	2	3	ESE	0.00
10:40	49.0	62	36.6	30.26	1	6	SSE	0.00
10:50	50.1	60	36.8	30.26	2	5	SE	0.00
11:00	49.5	59	35.8	30.25	0	6	S	0.00
11:20	53.0	55	37.3	30.24	2	6	ENE	0.00
11:30	53.9	53	37.2	30.23	2	7	SSW	0.00
11:40	55.1	54	38.8	30.23	2	7	SE	0.00
12:40	58.3	44	36.5	30.21	7	10	SSE	0.00
12:50	59.0	43	36.6	30.20	5	10	S	0.00
13:00	59.1	42	36.1	30.19	5	8	S	0.00
13:10	59.2	42	36.1	30.18	5	8	S	0.00
13:20	59.6	42	36.5	30.18	3	7	SSW	0.00
13:30	59.9	42	36.8	30.18	2	7	ESE	0.00
13:40	60.2	40	35.8	30.18	2	8	SSW	0.00
13:50	60.3	40	35.9	30.18	2	7	SSW	0.00
14:00	60.4	39	35.3	30.17	3	8	S	0.00
14:10	60.2	40	35.8	30.18	1	7	SE	0.00
14:20	60.3	38	34.6	30.17	1	5	SE	0.00
14:30	59.7	40	35.4	30.17	1	7	ENE	0.00
14:40	59.1	40	34.9	30.16	5	6	SSE	0.00
14:50	58.4	41	34.8	30.16	1	6	E	0.00
15:00	58.1	42	35.2	30.16	3	6	SSE	0.00
15:10	58.0	42	35.1	30.16	5	7	ESE	0.00
15:20	57.6	41	34.1	30.16	0	6	E	0.00
15:30	56.8	43	34.5	30.16	1	5	ESE	0.00
15:40	56.2	43	34.0	30.17	3	5	E	0.00
15:50	55.7	43	33.6	30.17	5	7	SE	0.00
16:00	55.2	45	34.3	30.17	2	8	ESE	0.00
16:10	54.6	46	34.3	30.17	1	5	ESE	0.00
16:20	54.2	46	33.9	30.17	1	3	E	0.00
16:30	53.8	47	34.1	30.18	1	3	SE	0.00
16:40	53.3	48	34.1	30.17	0	3	SE	0.00
16:50	52.4	50	34.3	30.17	0	2	SE	0.00
17:00	51.3	51	33.8	30.18	0	0	SE	0.00
17:10	50.3	52	33.4	30.17	0	0	SE	0.00

17:20	49.5	54	33.5	30.18	0	0	SE	0.00
17:30	48.6	55	33.2	30.18	0	0	SE	0.00
17:40	47.9	56	33.0	30.18	0	0	SE	0.00
17:50	47.2	58	33.2	30.18	0	0	SE	0.00
18:00	46.5	59	32.9	30.18	0	0	SE	0.00
18:10	45.8	61	33.2	30.18	0	0	SE	0.00
18:20	45.4	62	33.1	30.17	0	0	SE	0.00
18:30	44.8	63	33.0	30.17	0	0	SE	0.00
18:40	44.5	65	33.5	30.18	0	0	SE	0.00
18:50	44.0	65	33.0	30.17	0	1	SE	0.00
19:00	43.5	66	32.9	30.18	1	2	SE	0.00
19:10	43.3	68	33.4	30.16	0	2	SE	0.00
19:20	42.9	68	33.1	30.16	0	0	SE	0.00
19:30	42.6	68	32.8	30.16	0	0	SE	0.00
19:40	42.3	69	32.9	30.16	0	0	SE	0.00
19:50	42.1	70	33.0	30.17	0	0	SE	0.00
20:00	41.7	71	33.0	30.16	0	0	SE	0.00
20:10	41.3	72	33.0	30.19	0	0	SE	0.00
20:20	40.9	72	32.6	30.16	0	0	SE	0.00
20:30	40.5	72	32.2	30.16	0	0	SE	0.00
20:40	40.3	74	32.7	30.15	0	0	SE	0.00
20:50	40.0	74	32.4	30.16	0	0	SE	0.00
21:00	39.7	75	32.4	30.16	0	0	SE	0.00
21:10	39.5	75	32.2	30.17	0	0	SE	0.00
21:20	39.0	75	31.8	30.17	0	0	SE	0.00
21:30	38.9	76	32.0	30.18	0	0	SE	0.00
21:40	38.4	77	31.9	30.16	0	0	SE	0.00
21:50	38.2	77	31.7	30.15	0	0	SE	0.00
22:00	38.0	78	31.8	30.15	0	0	SE	0.00
22:10	37.7	78	31.5	30.16	0	0	SE	0.00
22:20	37.5	78	31.3	30.16	0	0	SE	0.00
22:30	37.4	79	31.5	30.15	0	2	ENE	0.00
22:40	37.5	79	31.6	30.15	0	1	ENE	0.00
22:50	37.3	79	31.4	30.15	0	0	ENE	0.00
23:00	37.1	80	31.5	30.15	0	0	ENE	0.00
23:10	36.8	79	30.9	30.15	0	0	ENE	0.00
23:20	36.6	80	31.0	30.15	0	0	ENE	0.00
23:30	36.4	80	30.8	30.14	0	0	ENE	0.00
23:40	36.4	81	31.2	30.14	0	1	ENE	0.00
23:50	36.5	81	31.2	30.15	0	0	ENE	0.00

Use metric units

AnythingWeather Communications, Inc.
2350 N Rocky View Rd | Castle Rock, CO 80104 | Phone: 1- 508-557-1155 | Copyright 2001,2002

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/8/2003	9:01a	0.0	0.0	---	Start Run # 1
12/8/2003	9:02a	0.0	0.0	---	Truck
12/8/2003	9:03a	0.0	0.0	---	
12/8/2003	9:04a	0.0	0.0	---	
12/8/2003	9:05a	0.0	0.0	---	
12/8/2003	9:06a	0.0	0.0	---	
12/8/2003	9:07a	0.0	0.0	---	
12/8/2003	9:08a	0.0	0.0	---	
12/8/2003	9:09a	0.0	0.0	---	
12/8/2003	9:10a	0.0	0.0	---	
12/8/2003	9:11a	0.0	0.0	---	
12/8/2003	9:12a	0.0	0.0	---	
12/8/2003	9:13a	0.0	0.0	---	
12/8/2003	9:14a	0.0	0.0	---	
12/8/2003	9:15a	0.0	0.0	---	
12/8/2003	9:16a	0.0	0.0	---	
12/8/2003	9:17a	0.0	0.0	---	
12/8/2003	9:18a	0.0	0.0	---	
12/8/2003	9:19a	0.0	0.0	---	
12/8/2003	9:20a	0.0	0.0	---	
12/8/2003	9:21a	0.0	0.0	---	
12/8/2003	9:22a	0.0	0.0	---	
12/8/2003	9:23a	0.0	0.0	---	
12/8/2003	9:24a	0.0	0.0	---	
12/8/2003	9:25a	0.0	0.0	---	
12/8/2003	9:26a	0.0	0.0	---	
12/8/2003	9:27a	0.0	0.0	---	
12/8/2003	9:28a	0.0	0.0	---	
12/8/2003	9:29a	0.0	0.0	---	
12/8/2003	9:30a	0.0	1.0	NNW	
12/8/2003	9:31a	0.0	1.0	NNW	
12/8/2003	9:32a	0.0	1.0	NNW	
12/8/2003	9:33a	0.0	1.0	NNW	
12/8/2003	9:34a	1.0	1.0	NNW	
12/8/2003	9:35a	0.0	1.0	NNW	
12/8/2003	9:36a	1.0	2.0	NNW	
12/8/2003	9:37a	0.0	0.0	---	
12/8/2003	9:38a	0.0	0.0	---	
12/8/2003	9:39a	0.0	0.0	---	
12/8/2003	9:40a	0.0	0.0	---	
12/8/2003	9:41a	0.0	0.0	---	
12/8/2003	9:42a	0.0	0.0	---	
12/8/2003	9:43a	0.0	0.0	---	
12/8/2003	9:44a	0.0	0.0	---	
12/8/2003	9:45a	0.0	0.0	---	
12/8/2003	9:46a	0.0	0.0	---	
12/8/2003	9:47a	0.0	0.0	---	
12/8/2003	9:48a	0.0	0.0	---	
12/8/2003	9:49a	0.0	0.0	---	
12/8/2003	9:50a	0.0	0.0	---	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir
12/8/2003	9:51a	0.0	0.0	---
12/8/2003	9:52a	0.0	0.0	---
12/8/2003	9:53a	0.0	0.0	---
12/8/2003	9:54a	0.0	0.0	---
12/8/2003	9:55a	0.0	0.0	---
12/8/2003	9:56a	0.0	1.0	N
12/8/2003	9:57a	1.0	2.0	N
12/8/2003	9:58a	0.0	0.0	---
12/8/2003	9:59a	0.0	0.0	---
12/8/2003	10:00a	0.0	0.0	---
12/8/2003	10:01a	0.0	0.0	---
12/8/2003	10:02a	0.0	0.0	---
12/8/2003	10:03a	0.0	0.0	---
12/8/2003	10:04a	0.0	1.0	NE
12/8/2003	10:05a	0.0	1.0	NE
12/8/2003	10:06a	0.0	0.0	---
12/8/2003	10:07a	0.0	1.0	ENE
12/8/2003	10:08a	2.0	4.0	SSE
12/8/2003	10:09a	1.0	2.0	S
12/8/2003	10:10a	0.0	1.0	S
12/8/2003	10:11a	0.0	0.0	---
12/8/2003	10:12a	0.0	0.0	---
12/8/2003	10:13a	0.0	1.0	SSW
12/8/2003	10:14a	0.0	1.0	SSW
12/8/2003	10:15a	0.0	1.0	SSW
12/8/2003	10:16a	0.0	0.0	---
12/8/2003	10:17a	0.0	1.0	S
12/8/2003	10:18a	0.0	0.0	---
12/8/2003	10:19a	0.0	0.0	---
12/8/2003	10:20a	0.0	0.0	---
12/8/2003	10:21a	0.0	1.0	NE
12/8/2003	10:22a	0.0	0.0	---
12/8/2003	10:23a	0.0	0.0	---
12/8/2003	10:24a	1.0	3.0	SSE
12/8/2003	10:25a	0.0	0.0	---
12/8/2003	10:26a	0.0	0.0	---
12/8/2003	10:27a	0.0	0.0	---
12/8/2003	10:28a	0.0	0.0	---
12/8/2003	10:29a	1.0	2.0	S
12/8/2003	10:30a	0.0	1.0	S
12/8/2003	10:31a	0.0	1.0	SSE
12/8/2003	10:32a	0.0	1.0	SE
12/8/2003	10:33a	0.0	0.0	---
12/8/2003	10:34a	0.0	0.0	---
12/8/2003	10:35a	0.0	0.0	---
12/8/2003	10:36a	0.0	1.0	---
12/8/2003	10:37a	0.0	1.0	SE
12/8/2003	10:38a	2.0	5.0	WSW
12/8/2003	10:39a	1.0	3.0	SW
12/8/2003	10:40a	0.0	1.0	SW

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/8/2003	10:41a	1.0	2.0	S	
12/8/2003	10:42a	0.0	1.0	S	
12/8/2003	10:43a	0.0	2.0	WSW	
12/8/2003	10:44a	0.0	1.0	WSW	
12/8/2003	10:45a	1.0	2.0	SSW	
12/8/2003	10:46a	1.0	4.0	SSE	
12/8/2003	10:47a	1.0	3.0	SSE	
12/8/2003	10:48a	0.0	1.0	SSE	
12/8/2003	10:49a	0.0	0.0	---	
12/8/2003	10:50a	0.0	0.0	---	
12/8/2003	10:51a	2.0	4.0	SSE	
12/8/2003	10:52a	1.0	2.0	SSE	
12/8/2003	10:53a	0.0	1.0	S	
12/8/2003	10:54a	0.0	1.0	S	
12/8/2003	10:55a	1.0	2.0	NNW	
12/8/2003	10:56a	0.0	1.0	WNW	
12/8/2003	10:57a	0.0	1.0	WNW	
12/8/2003	10:58a	0.0	1.0	WNW	
12/8/2003	10:59a	0.0	2.0	W	
12/8/2003	11:00a	0.0	1.0	W	
12/8/2003	11:01a	0.0	1.0	W	
12/8/2003	11:02a	2.0	3.0	WSW	
12/8/2003	11:03a	2.0	4.0	SW	
12/8/2003	11:04a	1.0	3.0	WSW	
12/8/2003	11:05a	0.0	1.0	WSW	
12/8/2003	11:06a	2.0	4.0	SSE	
12/8/2003	11:07a	0.0	1.0	SSE	
12/8/2003	11:08a	0.0	0.0	---	
12/8/2003	11:09a	0.0	0.0	---	
12/8/2003	11:10a	0.0	0.0	---	
12/8/2003	11:11a	1.0	2.0	ESE	
12/8/2003	11:12a	1.0	2.0	ESE	Stop Run # 1
Averages		0.2	0.7		Truck
12/8/2003	12:14p	1.0	2.0	SSW	Start Run # 2
12/8/2003	12:15p	0.0	1.0	---	Truck
12/8/2003	12:16p	0.0	2.0	SW	
12/8/2003	12:17p	0.0	1.0	W	
12/8/2003	12:18p	0.0	0.0	---	
12/8/2003	12:19p	1.0	3.0	W	
12/8/2003	12:20p	2.0	4.0	SW	
12/8/2003	12:21p	2.0	4.0	WSW	
12/8/2003	12:22p	1.0	3.0	WSW	
12/8/2003	12:23p	1.0	4.0	WSW	
12/8/2003	12:24p	2.0	4.0	WSW	
12/8/2003	12:25p	1.0	2.0	W	
12/8/2003	12:26p	1.0	3.0	NW	

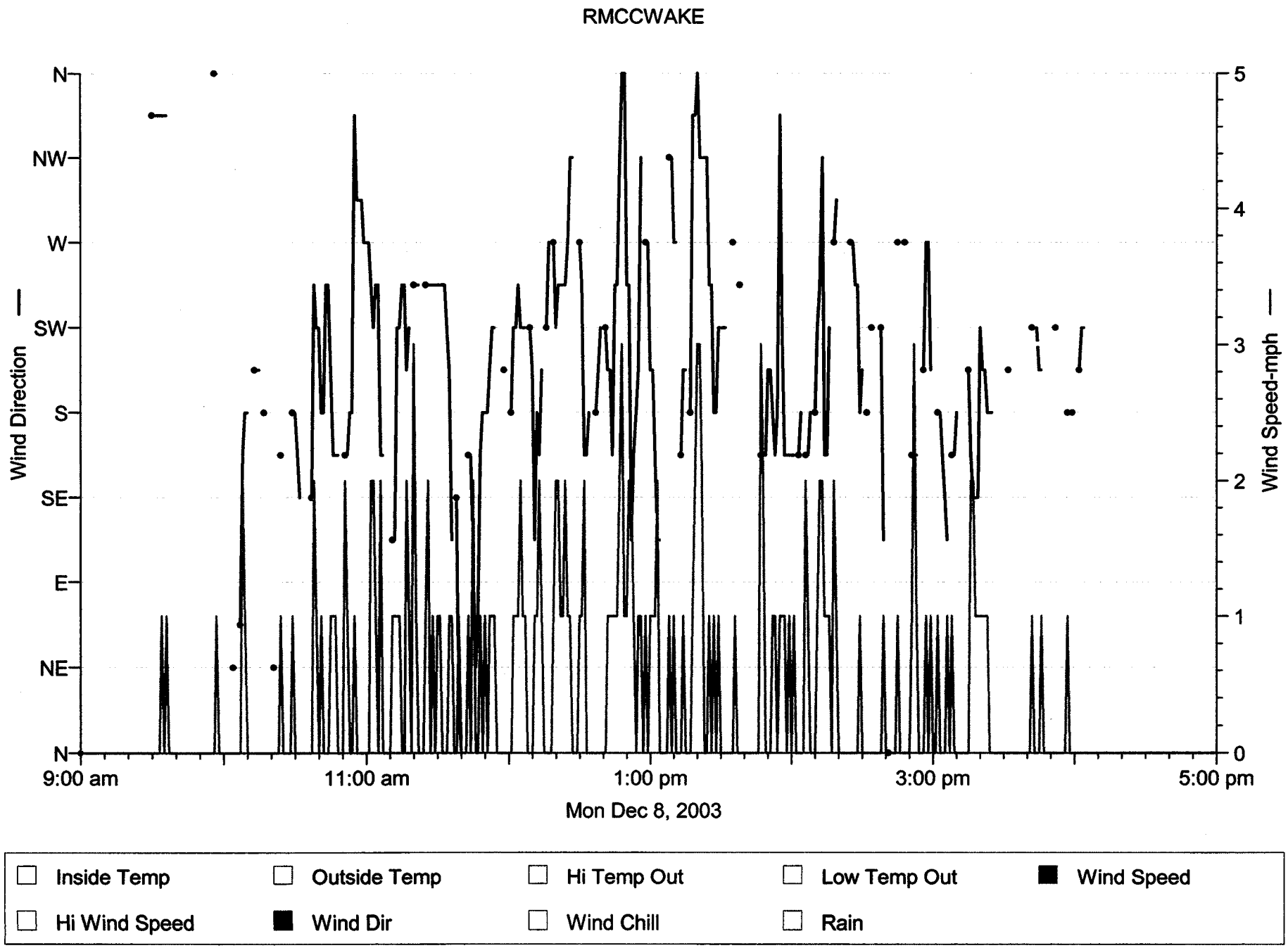
Date	Time	Wind Speed	[redacted] Hi	Arc Dir
12/8/2003	12:27p	0.0	1.0	NW
12/8/2003	12:28p	0.0	0.0	---
12/8/2003	12:29p	0.0	0.0	---
12/8/2003	12:30p	1.0	3.0	W
12/8/2003	12:31p	1.0	2.0	WSW
12/8/2003	12:32p	2.0	4.0	SSE
12/8/2003	12:33p	0.0	2.0	SSE
12/8/2003	12:34p	0.0	1.0	S
12/8/2003	12:35p	0.0	0.0	---
12/8/2003	12:36p	0.0	0.0	---
12/8/2003	12:37p	0.0	1.0	S
12/8/2003	12:38p	0.0	1.0	SSW
12/8/2003	12:39p	0.0	1.0	SW
12/8/2003	12:40p	0.0	0.0	---
12/8/2003	12:41p	0.0	1.0	SW
12/8/2003	12:42p	1.0	2.0	SSW
12/8/2003	12:43p	1.0	3.0	SSW
12/8/2003	12:44p	1.0	3.0	SSE
12/8/2003	12:45p	1.0	3.0	WSW
12/8/2003	12:46p	1.0	2.0	WSW
12/8/2003	12:47p	2.0	4.0	NW
12/8/2003	12:48p	3.0	5.0	N
12/8/2003	12:49p	1.0	2.0	N
12/8/2003	12:50p	1.0	3.0	WSW
12/8/2003	12:51p	2.0	4.0	WSW
12/8/2003	12:52p	2.0	3.0	ESE
12/8/2003	12:53p	1.0	3.0	SSE
12/8/2003	12:54p	0.0	1.0	S
12/8/2003	12:55p	1.0	2.0	SSW
12/8/2003	12:56p	1.0	2.0	NW
12/8/2003	12:57p	0.0	1.0	---
12/8/2003	12:58p	1.0	2.0	W
12/8/2003	12:59p	0.0	1.0	W
12/8/2003	1:00p	1.0	2.0	SSW
12/8/2003	1:01p	1.0	2.0	SSW
12/8/2003	1:02p	1.0	2.0	SSE
12/8/2003	1:03p	2.0	3.0	ESE
12/8/2003	1:04p	0.0	3.0	ESE
12/8/2003	1:05p	0.0	0.0	---
12/8/2003	1:06p	0.0	0.0	---
12/8/2003	1:07p	0.0	0.0	---
12/8/2003	1:08p	1.0	2.0	NW
12/8/2003	1:09p	0.0	1.0	NW
12/8/2003	1:10p	1.0	2.0	W
12/8/2003	1:11p	0.0	1.0	W
12/8/2003	1:12p	0.0	0.0	---
12/8/2003	1:13p	0.0	1.0	SSE
12/8/2003	1:14p	1.0	2.0	SSW
12/8/2003	1:15p	0.0	1.0	SSW
12/8/2003	1:16p	0.0	0.0	---

Date	Time	Wind Speed	[redacted] Hi	Arc Dir
12/8/2003	1:17p	0.0	1.0	S
12/8/2003	1:18p	1.0	3.0	NNW
12/8/2003	1:19p	2.0	4.0	NNW
12/8/2003	1:20p	3.0	4.0	N
12/8/2003	1:21p	3.0	4.0	NW
12/8/2003	1:22p	2.0	3.0	NW
12/8/2003	1:23p	0.0	1.0	NW
12/8/2003	1:24p	0.0	1.0	NW
12/8/2003	1:25p	1.0	2.0	WSW
12/8/2003	1:26p	0.0	1.0	WSW
12/8/2003	1:27p	1.0	2.0	S
12/8/2003	1:28p	0.0	2.0	S
12/8/2003	1:29p	1.0	2.0	SW
12/8/2003	1:30p	0.0	2.0	SW
12/8/2003	1:31p	0.0	1.0	SW
12/8/2003	1:32p	0.0	1.0	SW
12/8/2003	1:33p	0.0	1.0	---
12/8/2003	1:34p	0.0	0.0	---
12/8/2003	1:35p	0.0	1.0	W
12/8/2003	1:36p	1.0	2.0	W
12/8/2003	1:37p	0.0	0.0	---
12/8/2003	1:38p	0.0	1.0	WSW
12/8/2003	1:39p	0.0	0.0	---
12/8/2003	1:40p	0.0	0.0	---
12/8/2003	1:41p	0.0	0.0	---
12/8/2003	1:42p	0.0	0.0	---
12/8/2003	1:43p	0.0	0.0	---
12/8/2003	1:44p	0.0	0.0	---
12/8/2003	1:45p	0.0	0.0	---
12/8/2003	1:46p	0.0	1.0	---
12/8/2003	1:47p	3.0	4.0	SSE
12/8/2003	1:48p	2.0	3.0	SSE
12/8/2003	1:49p	0.0	1.0	SSE
12/8/2003	1:50p	0.0	1.0	SSW
12/8/2003	1:51p	0.0	1.0	SSW
12/8/2003	1:52p	1.0	2.0	S
12/8/2003	1:53p	1.0	3.0	SSE
12/8/2003	1:54p	0.0	1.0	S
12/8/2003	1:55p	1.0	2.0	NNW
12/8/2003	1:56p	1.0	2.0	SW
12/8/2003	1:57p	1.0	2.0	SSE
12/8/2003	1:58p	0.0	2.0	SSE
12/8/2003	1:59p	1.0	2.0	SSE
12/8/2003	2:00p	0.0	3.0	SSE
12/8/2003	2:01p	1.0	3.0	SSE
12/8/2003	2:02p	0.0	0.0	---
12/8/2003	2:03p	0.0	1.0	SSE
12/8/2003	2:04p	0.0	1.0	S
12/8/2003	2:05p	0.0	0.0	---
12/8/2003	2:06p	2.0	2.0	SSE

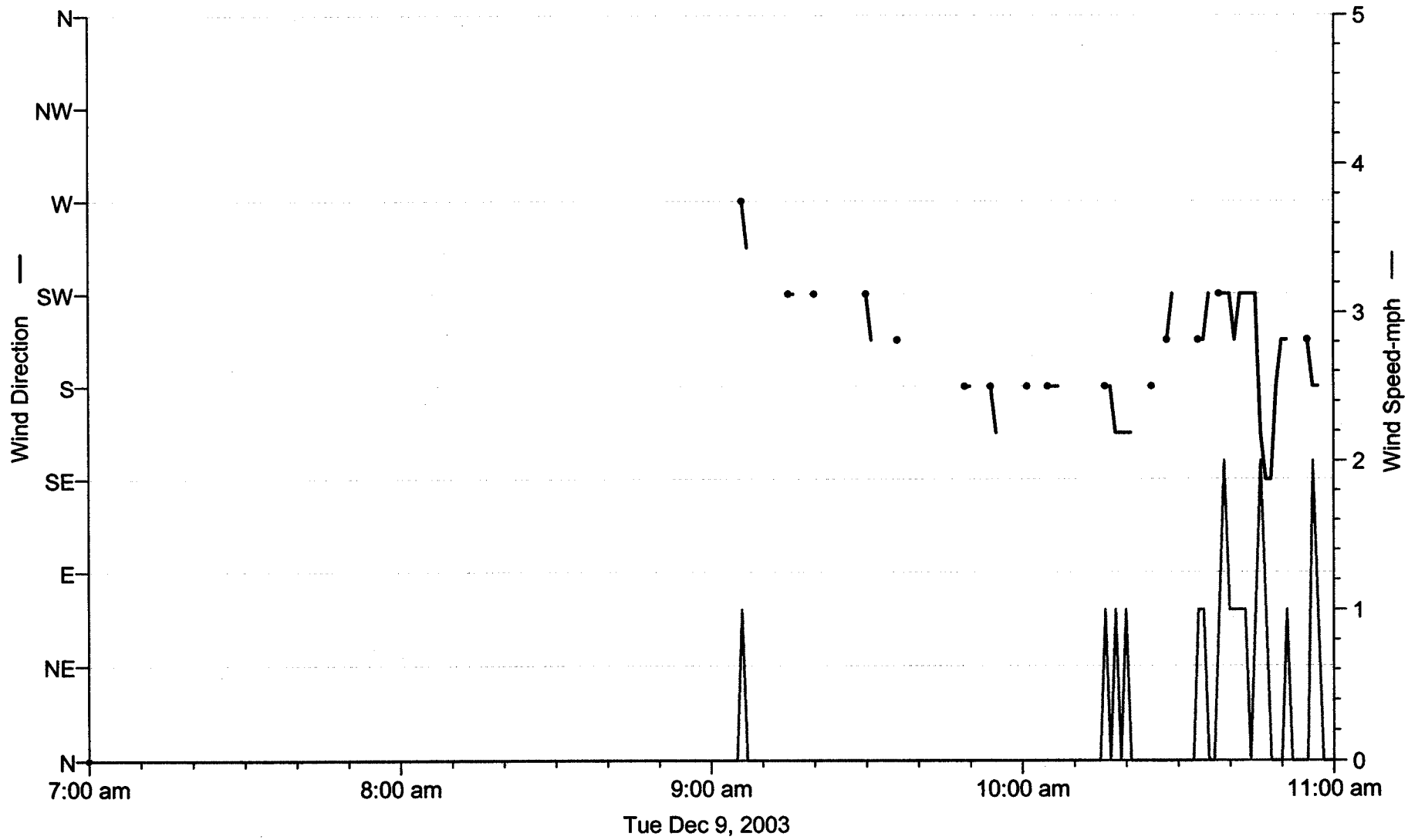
Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/8/2003	2:07p	1.0	2.0	SSE	
12/8/2003	2:08p	0.0	1.0	S	
12/8/2003	2:09p	0.0	1.0	---	
12/8/2003	2:10p	0.0	1.0	S	
12/8/2003	2:11p	1.0	2.0	SW	
12/8/2003	2:12p	2.0	4.0	WSW	
12/8/2003	2:13p	2.0	3.0	NW	
12/8/2003	2:14p	1.0	3.0	SSE	Stop Run # 2
Average		0.7	1.7		Truck
12/9/2003	7:53a	0.0	0.0	---	Start Run # 3
12/9/2003	7:54a	0.0	0.0	---	Truck
12/9/2003	7:55a	0.0	0.0	---	
12/9/2003	7:56a	0.0	0.0	---	
12/9/2003	7:57a	0.0	0.0	---	
12/9/2003	7:58a	0.0	0.0	---	
12/9/2003	7:59a	0.0	0.0	---	
12/9/2003	8:00a	0.0	0.0	---	
12/9/2003	8:01a	0.0	0.0	---	
12/9/2003	8:02a	0.0	0.0	---	
12/9/2003	8:03a	0.0	0.0	---	
12/9/2003	8:04a	0.0	0.0	---	
12/9/2003	8:05a	0.0	0.0	---	
12/9/2003	8:06a	0.0	0.0	---	
12/9/2003	8:07a	0.0	0.0	---	
12/9/2003	8:08a	0.0	0.0	---	
12/9/2003	8:09a	0.0	0.0	---	
12/9/2003	8:10a	0.0	0.0	---	
12/9/2003	8:11a	0.0	0.0	---	
12/9/2003	8:12a	0.0	0.0	---	
12/9/2003	8:13a	0.0	0.0	---	
12/9/2003	8:14a	0.0	0.0	---	
12/9/2003	8:15a	0.0	0.0	---	
12/9/2003	8:16a	0.0	0.0	---	
12/9/2003	8:17a	0.0	0.0	---	
12/9/2003	8:18a	0.0	0.0	---	
12/9/2003	8:19a	0.0	0.0	---	
12/9/2003	8:20a	0.0	0.0	---	
12/9/2003	8:21a	0.0	0.0	---	
12/9/2003	8:22a	0.0	0.0	---	
12/9/2003	8:23a	0.0	0.0	---	
12/9/2003	8:24a	0.0	0.0	---	
12/9/2003	8:25a	0.0	0.0	---	
12/9/2003	8:26a	0.0	0.0	---	
12/9/2003	8:27a	0.0	0.0	---	
12/9/2003	8:28a	0.0	0.0	---	
12/9/2003	8:29a	0.0	0.0	---	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir
12/9/2003	8:30a	0.0	0.0	---
12/9/2003	8:31a	0.0	0.0	---
12/9/2003	8:32a	0.0	0.0	---
12/9/2003	8:33a	0.0	0.0	---
12/9/2003	8:34a	0.0	0.0	---
12/9/2003	8:35a	0.0	0.0	---
12/9/2003	8:36a	0.0	0.0	---
12/9/2003	8:37a	0.0	0.0	---
12/9/2003	8:38a	0.0	0.0	---
12/9/2003	8:39a	0.0	0.0	---
12/9/2003	8:40a	0.0	0.0	---
12/9/2003	8:41a	0.0	0.0	---
12/9/2003	8:42a	0.0	0.0	---
12/9/2003	8:43a	0.0	0.0	---
12/9/2003	8:44a	0.0	0.0	---
12/9/2003	8:45a	0.0	0.0	---
12/9/2003	8:46a	0.0	0.0	---
12/9/2003	8:47a	0.0	0.0	---
12/9/2003	8:48a	0.0	0.0	---
12/9/2003	8:49a	0.0	0.0	---
12/9/2003	8:50a	0.0	0.0	---
12/9/2003	8:51a	0.0	0.0	---
12/9/2003	8:52a	0.0	0.0	---
12/9/2003	8:53a	0.0	0.0	---
12/9/2003	8:54a	0.0	0.0	---
12/9/2003	8:55a	0.0	0.0	---
12/9/2003	8:56a	0.0	0.0	---
12/9/2003	8:57a	0.0	0.0	---
12/9/2003	8:58a	0.0	0.0	---
12/9/2003	8:59a	0.0	0.0	---
12/9/2003	9:00a	0.0	0.0	---
12/9/2003	9:01a	0.0	0.0	---
12/9/2003	9:02a	0.0	0.0	---
12/9/2003	9:03a	0.0	0.0	---
12/9/2003	9:04a	0.0	0.0	---
12/9/2003	9:05a	0.0	0.0	---
12/9/2003	9:06a	1.0	2.0	W
12/9/2003	9:07a	0.0	2.0	WSW
12/9/2003	9:08a	0.0	0.0	---
12/9/2003	9:09a	0.0	0.0	---
12/9/2003	9:10a	0.0	0.0	---
12/9/2003	9:11a	0.0	0.0	---
12/9/2003	9:12a	0.0	0.0	---
12/9/2003	9:13a	0.0	0.0	---
12/9/2003	9:14a	0.0	0.0	---
12/9/2003	9:15a	0.0	1.0	SW
12/9/2003	9:16a	0.0	1.0	SW
12/9/2003	9:17a	0.0	0.0	---
12/9/2003	9:18a	0.0	0.0	---
12/9/2003	9:19a	0.0	0.0	---

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/9/2003	9:20a	0.0	1.0	SW	
12/9/2003	9:21a	0.0	0.0	---	
12/9/2003	9:22a	0.0	0.0	---	
12/9/2003	9:23a	0.0	0.0	---	
12/9/2003	9:24a	0.0	0.0	---	
12/9/2003	9:25a	0.0	0.0	---	
12/9/2003	9:26a	0.0	0.0	---	
12/9/2003	9:27a	0.0	0.0	---	
12/9/2003	9:28a	0.0	0.0	---	
12/9/2003	9:29a	0.0	0.0	---	
12/9/2003	9:30a	0.0	1.0	SW	
12/9/2003	9:31a	0.0	2.0	SSW	
12/9/2003	9:32a	0.0	0.0	---	
12/9/2003	9:33a	0.0	0.0	---	
12/9/2003	9:34a	0.0	0.0	---	
12/9/2003	9:35a	0.0	1.0	---	
12/9/2003	9:36a	0.0	1.0	SSW	
12/9/2003	9:37a	0.0	0.0	---	
12/9/2003	9:38a	0.0	0.0	---	
12/9/2003	9:39a	0.0	0.0	---	
12/9/2003	9:40a	0.0	0.0	---	
12/9/2003	9:41a	0.0	0.0	---	
12/9/2003	9:42a	0.0	0.0	---	
12/9/2003	9:43a	0.0	0.0	---	
12/9/2003	9:44a	0.0	0.0	---	
12/9/2003	9:45a	0.0	0.0	---	
12/9/2003	9:46a	0.0	0.0	---	
12/9/2003	9:47a	0.0	0.0	---	
12/9/2003	9:48a	0.0	0.0	---	
12/9/2003	9:49a	0.0	1.0	S	
12/9/2003	9:50a	0.0	1.0	S	
12/9/2003	9:51a	0.0	0.0	---	
12/9/2003	9:52a	0.0	0.0	---	
12/9/2003	9:53a	0.0	0.0	---	
12/9/2003	9:54a	0.0	2.0	S	
12/9/2003	9:55a	0.0	1.0	SSE	
12/9/2003	9:56a	0.0	0.0	---	
12/9/2003	9:57a	0.0	0.0	---	
12/9/2003	9:58a	0.0	0.0	---	
12/9/2003	9:59a	0.0	0.0	---	
12/9/2003	10:00a	0.0	0.0	---	
12/9/2003	10:01a	0.0	1.0	S	
12/9/2003	10:02a	0.0	0.0	---	
12/9/2003	10:03a	0.0	0.0	---	Stop Run # 3
Averages		0.0	0.1		Truck


RMCCWAKE
Wind Direction
N
NW
W
SW
S
SE
E
NE
N
Wind Speed-mph
5
4
3
2
1
0
9:00 am
11:00 am
1:00 pm
3:00 pm
5:00 pm
Mon Dec 8, 2003
Inside Temp
Outside Temp
Hi Temp Out
Low Temp Out
Wind Speed
Hi Wind Speed
Wind Dir
Wind Chill
Rain

RMCCWAKE



☐ Inside Temp ☐ Outside Temp ☐ Hi Temp Out ☐ Low Temp Out ■ Wind Speed

☐ Hi Wind Speed ■ Wind Dir ☐ Wind Chill ☐ Rain

APPENDIX D2

RMCC CENTRAL MIX

WIND SPEED AND DIRECTION DATA

AnythingWeather.com

Raleigh, NC Weather Website

Sponsored By:
Experts.com
The Name Speaks For Itself!
The Name Speaks For Itself!

previous day

AnythingWeather Daily Report December 10, 2003

next day

Daily Summary:

High Temperature: 61.4°F 8:50:00 PM
Low Temperature: 36.9°F 12:10:00 AM
High Humidity: 91% 7:40:00 PM
Low Humidity: 68% 6:10:00 AM
Total Precipitation: 0.17"
Peak Wind Gust: 17 mph 9:30:00 PM

Station Location:

10 miles north of Raleigh Durham Airport
Raleigh, NC
Elevation: 427 Feet
Lat: 35.87N Long: 078.78W

Use metric units | Back to Current Conditions Report | Back to Daily

Time	Temp. (°F)	Humidity (%)	Dew Pt. (°F)	Barometric Pressure (in.)	Wind Speed (mph)	Peak Gust (mph)	Wind Direction	Precip. (in.)
00:00	36.7	81	31.4	30.15	0	0	ENE	0.00
00:10	36.9	81	31.6	30.15	0	0	ENE	0.00
00:20	37.2	81	31.9	30.14	0	3	ENE	0.00
00:30	37.5	79	31.6	30.14	0	1	ENE	0.00
00:40	37.5	79	31.6	30.14	1	3	NE	0.00
00:50	38.1	77	31.5	30.14	0	3	NE	0.00
01:00	38.3	77	31.7	30.14	1	2	NE	0.00
01:10	38.5	76	31.6	30.15	1	2	NE	0.00
01:20	38.7	78	32.4	30.13	1	2	NE	0.00
01:30	38.7	77	32.1	30.13	1	3	NE	0.00
01:40	38.6	76	31.7	30.13	1	2	NE	0.00
01:50	38.6	77	32.0	30.13	0	2	NE	0.00
02:00	39.1	76	32.2	30.13	0	0	NE	0.00
02:10	39.5	76	32.6	30.13	1	2	NE	0.00
02:20	39.9	76	33.0	30.13	0	2	NE	0.00
02:30	40.2	76	33.3	30.13	0	0	NE	0.00
02:40	40.5	76	33.5	30.12	1	2	NE	0.00
02:50	40.7	74	33.1	30.12	3	5	NNE	0.00
03:00	41.0	72	32.7	30.10	1	5	NE	0.00
03:10	41.2	71	32.5	30.10	1	5	ENE	0.00
03:20	41.4	70	32.3	30.10	1	3	ESE	0.00
03:30	41.3	70	32.2	30.10	0	5	NE	0.00
03:40	40.9	70	31.9	30.09	2	3	NE	0.00
03:50	40.4	69	31.1	30.09	0	3	ENE	0.00
04:00	40.0	70	31.0	30.08	0	2	ENE	0.00
04:10	39.8	71	31.2	30.08	1	2	ENE	0.00
04:20	40.1	70	31.1	30.07	0	3	ENE	0.00
04:30	40.3	69	31.0	30.07	0	3	ENE	0.00
04:40	40.3	69	31.0	30.07	1	3	ENE	0.00

05:00	40.1	70	31.1	30.06	1	3	ENE	0.00
05:10	40.1	69	30.8	30.06	1	3	ENE	0.00
05:30	40.3	69	31.0	30.05	0	3	ENE	0.00
05:40	40.4	70	31.4	30.04	0	2	ENE	0.00
06:10	41.1	68	31.4	30.05	0	3	NE	0.00
06:30	41.4	70	32.4	30.04	0	2	ENE	0.00
06:40	41.5	70	32.5	30.03	0	2	ENE	0.00
07:00	41.8	70	32.7	30.04	1	3	ENE	0.00
07:10	41.9	71	33.2	30.04	0	5	ENE	0.00
07:20	41.9	72	33.6	30.04	0	2	ENE	0.00
07:30	41.9	74	34.2	30.04	0	1	ENE	0.00
19:40	60.7	91	58.1	29.51	3	6	E	0.00
19:50	60.8	90	57.8	29.50	2	9	ESE	0.00
20:00	60.8	91	58.2	29.50	3	7	ESE	0.02
20:10	60.9	91	58.2	29.50	3	9	ESE	0.01
20:20	60.9	91	58.3	29.49	5	9	ESE	0.01
20:50	61.4	91	58.7	29.48	3	9	SSE	0.08
21:00	61.4	90	58.4	29.47	6	12	SSW	0.02
21:10	60.6	88	57.0	29.48	6	16	S	0.01
21:30	58.8	87	55.0	29.48	3	17	SSW	0.02
21:40	57.7	84	52.9	29.48	7	15	S	0.00
22:00	55.6	81	49.9	29.48	7	12	S	0.00
22:30	54.1	81	48.4	29.47	1	9	SSW	0.00
22:50	53.3	79	47.0	29.47	3	12	SSW	0.00
23:10	52.5	79	46.2	29.46	2	13	SSW	0.00
23:40	51.7	82	46.4	29.46	3	12	SSW	0.00

Use metric units

AnythingWeather Communications, Inc.
2350 N Rocky View Rd | Castle Rock, CO 80104 | Phone: 1- 508-557-1155 | Copyright 2001,2002

AnythingWeather.com

Raleigh, NC
Weather Website

Sponsored By:
Skyview Weather
Skyview Weather

previous day

AnythingWeather Daily Report
December 11, 2003

next day

Daily Summary:

High Temperature: 56.7°F 2:10:00 PM
Low Temperature: 35.4°F 11:50:00 PM
High Humidity: 82% 1:40:00 AM
Low Humidity: 42% 1:40:00 PM
Total Precipitation: 0.00"
Peak Wind Gust: 25 mph 11:50:00 AM

Station Location:

10 miles north of Raleigh Durham Airport
Raleigh, NC
Elevation: 427 Feet
Lat: 35.87N Long: 078.78W

Use metric units | Back to Current Conditions Report | Back to Daily

Time	Temp. (°F)	Humidity (%)	Dew Pt. (°F)	Barometric Pressure (in.)	Wind Speed (mph)	Peak Gust (mph)	Wind Direction	Precip. (in.)
00:00	51.4	81	45.8	29.46	6	12	SW	0.00
00:10	51.2	81	45.6	29.45	6	12	SSW	0.00
00:20	51.2	80	45.2	29.45	6	13	SSE	0.00
00:30	51.1	79	44.8	29.45	3	15	SSW	0.00
00:50	50.4	80	44.5	29.44	5	15	SSW	0.00
01:10	50.3	81	44.7	29.46	8	13	S	0.00
01:40	50.2	82	44.9	29.46	3	12	SSW	0.00
01:50	50.2	82	44.9	29.47	3	12	SSW	0.00
02:00	50.1	82	44.8	29.46	6	10	SSW	0.00
02:10	50.0	82	44.7	29.47	5	12	SSW	0.00
02:30	49.9	82	44.6	29.48	3	13	SW	0.00
02:50	49.8	82	44.5	29.49	7	10	SSW	0.00
03:10	49.8	81	44.2	29.50	7	13	SSW	0.00
03:50	49.2	70	39.9	29.52	8	15	W	0.00
04:00	48.9	70	39.6	29.52	7	15	WSW	0.00
04:10	48.8	68	38.7	29.52	5	12	WSW	0.00
04:30	48.4	69	38.7	29.53	9	17	WSW	0.00
04:40	48.3	67	37.9	29.53	6	17	WSW	0.00
04:50	48.0	66	37.2	29.54	5	20	SW	0.00
05:00	47.7	67	37.3	29.54	3	9	WSW	0.00
05:10	47.5	66	36.7	29.54	7	10	WSW	0.00
05:20	47.3	67	36.9	29.55	2	12	WSW	0.00
05:50	46.5	66	35.8	29.56	2	17	WSW	0.00
06:00	46.5	66	35.8	29.56	6	17	SW	0.00
06:10	46.5	66	35.8	29.56	6	0	SW	0.00
06:40	44.3	66	33.7	29.59	2	3	WSW	0.00
06:50	43.8	66	33.2	29.60	5	10	SSW	0.00
07:00	43.6	65	32.6	29.60	6	14	WSW	0.00
07:10	43.3	65	32.3	29.61	6	10	W	0.00

07:20	43.0	64	31.7	29.62	6	15	SSW	0.00
7:40	42.6	65	31.7	29.63	5	12	SW	0.0
7:50	42.4	64	31.1	29.63	3	12	W	0.0
8:00	42.3	65	31.4	29.64	5	12	WSW	0.0
8:10	42.3	65	31.4	29.63	5	10	SW	0.0
8:20	42.6	63	30.9	29.64	6	13	WSW	0.0
8:30	43.1	62	31.0	29.65	6	12	WSW	0.0
8:40	43.6	62	31.5	29.64	2	12	WSW	0.0
8:50	43.9	61	31.3	29.66	7	16	WSW	0.0
9:00	44.5	60	31.5	29.66	6	16	SSW	0.0
9:10	45.7	58	31.8	29.66	6	16	SSW	0.0
9:20	46.6	57	32.2	29.67	5	17	SW	0.0
9:30	47.4	56	32.5	29.67	3	15	W	0.0
9:40	47.9	56	33.0	29.68	8	17	W	0.0
9:50	48.3	54	32.4	29.68	3	22	WSW	0.0
10:00	48.8	53	32.4	29.68	8	15	WSW	0.0
10:10	49.2	52	32.3	29.69	5	18	WSW	0.0
10:20	49.6	51	32.2	29.69	5	21	WSW	0.0
10:30	50.1	51	32.7	29.70	6	20	W	0.0
10:40	50.3	52	33.4	29.71	6	20	W	0.0
10:50	50.8	51	33.4	29.71	6	17	WSW	0.0
11:00	51.1	50	33.1	29.71	3	18	W	0.0
11:10	51.5	51	34.0	29.72	7	16	WSW	0.0
11:20	51.7	49	33.2	29.71	9	15	WSW	0.0
11:30	52.1	49	33.5	29.72	3	18	WSW	0.0
11:40	52.6	49	34.0	29.72	2	18	W	0.0
11:50	52.9	47	33.2	29.71	7	25	WSW	0.0
12:00	52.9	47	33.2	29.71	6	17	W	0.0
12:10	53.1	46	32.9	29.71	6	16	WSW	0.0
12:20	53.5	48	34.3	29.71	2	12	WNW	0.0
12:30	53.9	48	34.7	29.70	6	15	W	0.0
12:40	54.1	46	33.8	29.71	2	15	WNW	0.0
12:50	54.2	46	33.9	29.71	7	16	W	0.0
13:00	54.9	47	35.0	29.71	7	15	WNW	0.0
13:10	55.4	44	33.9	29.71	7	12	WSW	0.0
13:20	55.9	44	34.3	29.71	5	15	SW	0.0
13:30	56.1	43	34.0	29.71	5	20	WNW	0.0
13:40	56.2	42	33.4	29.71	5	14	WSW	0.0
13:50	56.6	42	33.8	29.71	9	15	W	0.0
14:00	56.4	42	33.6	29.72	5	16	WNW	0.0
14:10	56.7	43	34.5	29.73	5	12	WSW	0.0
14:20	56.2	43	34.0	29.74	8	17	SW	0.0
14:30	55.9	42	33.2	29.74	7	14	SW	0.0
14:40	55.7	44	34.1	29.75	5	16	SSW	0.0
14:50	54.7	43	32.7	29.75	5	16	W	0.0
15:00	54.3	45	33.4	29.76	6	13	WSW	0.0
15:10	54.4	43	32.4	29.76	9	17	WSW	0.0
15:20	54.3	44	32.9	29.78	5	18	W	0.0
15:40	53.5	44	32.1	29.79	5	13	WSW	0.00
15:50	52.9	46	32.7	29.80	3	16	W	0.00
16:00	52.4	46	32.2	29.81	3	13	SW	0.00
16:10	51.9	47	32.3	29.82	3	18	WSW	0.00
16:20	51.3	48	32.3	29.82	3	9	SW	0.00
16:30	50.7	48	31.7	29.83	5	12	WSW	0.00
16:40	50.3	48	31.4	29.83	6	18	WSW	0.00
16:50	49.7	48	30.8	29.84	3	14	WSW	0.00
17:00	49.2	49	30.9	29.85	3	10	WSW	0.00
17:10	48.4	50	30.7	29.85	5	13	SW	0.00

17:20	47.8	51	30.6	29.86	1	8	WSW	0.00
17:30	47.1	52	30.4	29.86	3	8	SW	0.00
17:40	46.5	54	30.7	29.87	2	8	W	0.00
17:50	46.0	54	30.3	29.87	6	13	WSW	0.00
18:00	45.8	53	29.7	29.88	5	15	WSW	0.00
18:10	45.5	54	29.8	29.89	2	7	W	0.00
18:20	44.8	54	29.2	29.89	5	8	W	0.00
18:30	44.4	55	29.3	29.90	3	8	W	0.00
18:40	44.0	55	28.9	29.90	3	7	W	0.00
18:50	43.4	56	28.8	29.91	2	5	WSW	0.00
19:00	42.9	56	28.3	29.92	2	5	WNW	0.00
19:10	42.7	57	28.5	29.91	5	10	W	0.00
19:20	42.6	57	28.4	29.91	3	10	WNW	0.00
19:30	42.3	57	28.1	29.92	3	7	W	0.00
19:40	42.1	56	27.5	29.92	2	9	WSW	0.00
19:50	42.1	56	27.5	29.92	2	7	SW	0.00
20:00	41.9	56	27.4	29.93	3	7	W	0.00
20:10	41.7	56	27.2	29.92	6	12	W	0.00
20:20	41.6	56	27.1	29.93	3	9	W	0.00
20:30	41.3	56	26.8	29.93	5	10	WSW	0.00
20:40	41.0	56	26.6	29.94	3	13	WSW	0.00
20:50	40.7	56	26.2	29.94	2	12	W	0.00
21:00	40.3	57	26.3	29.95	3	8	WNW	0.00
21:10	40.3	57	26.3	29.95	2	10	WSW	0.00
21:20	39.9	57	25.9	29.96	3	12	W	0.00
21:30	39.6	58	26.0	29.96	3	7	W	0.00
21:40	39.1	58	25.6	29.97	1	8	WSW	0.00
21:50	38.8	59	25.7	29.98	2	7	W	0.00
22:00	38.6	59	25.5	29.98	2	8	W	0.00
22:10	38.3	59	25.2	29.97	3	5	WNW	0.00
22:20	38.0	60	25.4	29.98	2	5	W	0.00
22:30	37.7	61	25.5	29.98	2	5	WSW	0.00
22:40	37.5	61	25.3	29.98	3	6	W	0.00
22:50	37.2	62	25.3	29.99	1	6	W	0.00
23:00	36.7	63	25.3	29.99	1	8	WSW	0.00
23:10	36.3	64	25.3	29.99	2	6	WSW	0.00
23:20	36.2	64	25.2	29.99	2	6	W	0.00
23:30	35.9	64	24.9	29.99	2	6	W	0.00
23:40	35.8	65	25.2	29.98	2	6	W	0.00
23:50	35.4	66	25.2	29.98	2	6	W	0.00

Use metric units

AnythingWeather Communications, Inc.
2350 N Rocky View Rd | Castle Rock, CO 80104 | Phone: 1- 508-557-1155 | Copyright 2001,2002

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/10/2003	8:22a	0.0	0.0	---	Start Run # 1
12/10/2003	8:23a	0.0	0.0	---	Central
12/10/2003	8:24a	0.0	0.0	---	
12/10/2003	8:25a	0.0	0.0	---	
12/10/2003	8:26a	0.0	1.0	---	
12/10/2003	8:27a	0.0	1.0	N	
12/10/2003	8:28a	0.0	0.0	---	
12/10/2003	8:29a	0.0	0.0	---	
12/10/2003	8:30a	0.0	0.0	---	
12/10/2003	8:31a	0.0	0.0	---	
12/10/2003	8:32a	0.0	0.0	---	
12/10/2003	8:33a	0.0	0.0	---	
12/10/2003	8:34a	0.0	0.0	---	
12/10/2003	8:35a	0.0	0.0	---	
12/10/2003	8:36a	0.0	0.0	---	
12/10/2003	8:37a	0.0	0.0	---	
12/10/2003	8:38a	0.0	0.0	---	
12/10/2003	8:39a	0.0	0.0	---	
12/10/2003	8:40a	0.0	0.0	---	
12/10/2003	8:41a	0.0	0.0	---	
12/10/2003	8:42a	0.0	0.0	---	
12/10/2003	8:43a	0.0	0.0	---	
12/10/2003	8:44a	0.0	0.0	---	
12/10/2003	8:45a	0.0	0.0	---	
12/10/2003	8:46a	0.0	0.0	---	
12/10/2003	8:47a	0.0	0.0	---	
12/10/2003	8:48a	0.0	0.0	---	
12/10/2003	8:49a	0.0	0.0	---	
12/10/2003	8:50a	0.0	0.0	---	
12/10/2003	8:51a	0.0	0.0	---	
12/10/2003	8:52a	0.0	0.0	---	
12/10/2003	8:53a	0.0	0.0	---	Stop @ 854
12/10/2003	9:08a	0.0	0.0	---	Start @ 908
12/10/2003	9:09a	0.0	0.0	---	
12/10/2003	9:10a	0.0	0.0	---	
12/10/2003	9:11a	0.0	0.0	---	
12/10/2003	9:12a	0.0	0.0	---	
12/10/2003	9:13a	0.0	0.0	---	
12/10/2003	9:14a	0.0	0.0	---	
12/10/2003	9:15a	0.0	0.0	---	
12/10/2003	9:16a	0.0	0.0	---	
12/10/2003	9:17a	0.0	0.0	---	
12/10/2003	9:18a	0.0	0.0	---	
12/10/2003	9:19a	0.0	0.0	---	
12/10/2003	9:20a	0.0	0.0	---	
12/10/2003	9:21a	0.0	0.0	---	
12/10/2003	9:22a	0.0	0.0	---	
12/10/2003	9:23a	0.0	0.0	---	
12/10/2003	9:24a	0.0	0.0	---	
12/10/2003	9:25a	0.0	0.0	---	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/10/2003	9:26a	0.0	0.0	---	
12/10/2003	9:27a	0.0	0.0	---	
12/10/2003	9:28a	0.0	0.0	---	
12/10/2003	9:29a	0.0	0.0	---	
12/10/2003	9:30a	0.0	0.0	---	
12/10/2003	9:31a	0.0	0.0	---	
12/10/2003	9:32a	0.0	0.0	---	
12/10/2003	9:33a	0.0	0.0	---	
12/10/2003	9:34a	0.0	0.0	---	
12/10/2003	9:35a	0.0	0.0	---	
12/10/2003	9:36a	0.0	0.0	---	
12/10/2003	9:37a	0.0	0.0	---	
12/10/2003	9:38a	0.0	0.0	---	
12/10/2003	9:39a	0.0	0.0	---	
12/10/2003	9:40a	0.0	0.0	---	
12/10/2003	9:41a	0.0	0.0	---	
12/10/2003	9:42a	0.0	0.0	---	
12/10/2003	9:43a	0.0	0.0	---	
12/10/2003	9:44a	0.0	0.0	---	
12/10/2003	9:45a	0.0	0.0	---	
12/10/2003	9:46a	0.0	0.0	---	
12/10/2003	9:47a	0.0	0.0	---	
12/10/2003	9:48a	0.0	0.0	---	
12/10/2003	9:49a	0.0	0.0	---	Stop @ 950
12/10/2003	12:38p	0.0	0.0	---	Start @ 1238
12/10/2003	12:39p	0.0	0.0	---	
12/10/2003	12:40p	0.0	0.0	---	
12/10/2003	12:41p	0.0	0.0	---	
12/10/2003	12:42p	0.0	0.0	---	
12/10/2003	12:43p	0.0	0.0	---	
12/10/2003	12:44p	0.0	0.0	---	
12/10/2003	12:45p	0.0	0.0	---	
12/10/2003	12:46p	0.0	0.0	---	
12/10/2003	12:47p	0.0	0.0	---	
12/10/2003	12:48p	0.0	0.0	---	
12/10/2003	12:49p	0.0	0.0	---	
12/10/2003	12:50p	0.0	0.0	---	
12/10/2003	12:51p	0.0	0.0	---	
12/10/2003	12:52p	0.0	0.0	---	
12/10/2003	12:53p	0.0	0.0	---	
12/10/2003	12:54p	0.0	0.0	---	
12/10/2003	12:55p	0.0	0.0	---	
12/10/2003	12:56p	0.0	0.0	---	
12/10/2003	12:57p	0.0	0.0	---	
12/10/2003	12:58p	0.0	0.0	---	
12/10/2003	12:59p	0.0	0.0	---	
12/10/2003	1:00p	0.0	0.0	---	
12/10/2003	1:01p	0.0	0.0	---	
12/10/2003	1:02p	0.0	0.0	---	
12/10/2003	1:03p	0.0	0.0	---	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/10/2003	1:04p	0.0	0.0	---	
12/10/2003	1:05p	0.0	0.0	---	
12/10/2003	1:06p	0.0	0.0	---	
12/10/2003	1:07p	0.0	0.0	---	
12/10/2003	1:08p	0.0	0.0	---	
12/10/2003	1:09p	0.0	0.0	---	
12/10/2003	1:10p	0.0	0.0	---	
12/10/2003	1:11p	0.0	0.0	---	
12/10/2003	1:12p	0.0	0.0	---	
12/10/2003	1:13p	0.0	0.0	---	
12/10/2003	1:14p	0.0	0.0	---	
12/10/2003	1:15p	0.0	0.0	---	
12/10/2003	1:16p	0.0	0.0	---	
12/10/2003	1:17p	0.0	0.0	---	
12/10/2003	1:18p	0.0	0.0	---	
12/10/2003	1:19p	0.0	0.0	---	
12/10/2003	1:20p	0.0	0.0	---	
12/10/2003	1:21p	0.0	0.0	---	
12/10/2003	1:22p	0.0	0.0	---	
12/10/2003	1:23p	0.0	0.0	---	
12/10/2003	1:24p	0.0	0.0	---	Stop Run # 1
Averages		0.0	0.0		Central
12/11/2003	7:31a	4.0	8.0	WNW	Start Run # 2
12/11/2003	7:32a	4.0	9.0	WNW	Central
12/11/2003	7:33a	4.0	11.0	NW	
12/11/2003	7:34a	3.0	6.0	WSW	
12/11/2003	7:35a	3.0	7.0	W	
12/11/2003	7:36a	4.0	8.0	NW	
12/11/2003	7:37a	3.0	4.0	WNW	
12/11/2003	7:38a	3.0	6.0	NW	
12/11/2003	7:39a	2.0	3.0	WNW	
12/11/2003	7:40a	1.0	2.0	WNW	
12/11/2003	7:41a	1.0	3.0	WNW	
12/11/2003	7:42a	2.0	3.0	WNW	
12/11/2003	7:43a	2.0	4.0	WNW	
12/11/2003	7:44a	0.0	2.0	W	
12/11/2003	7:45a	2.0	6.0	W	
12/11/2003	7:46a	1.0	3.0	W	
12/11/2003	7:47a	3.0	6.0	W	
12/11/2003	7:48a	3.0	6.0	WNW	
12/11/2003	7:49a	4.0	10.0	WNW	
12/11/2003	7:50a	1.0	4.0	WNW	
12/11/2003	7:51a	3.0	8.0	WNW	
12/11/2003	7:52a	1.0	3.0	W	
12/11/2003	7:53a	3.0	5.0	WSW	
12/11/2003	7:54a	3.0	5.0	W	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir
12/11/2003	7:55a	1.0	4.0	NW
12/11/2003	7:56a	3.0	6.0	W
12/11/2003	7:57a	2.0	5.0	W
12/11/2003	7:58a	2.0	5.0	NW
12/11/2003	7:59a	3.0	7.0	NW
12/11/2003	8:00a	3.0	5.0	WSW
12/11/2003	8:01a	2.0	4.0	WSW
12/11/2003	8:02a	3.0	6.0	WNW
12/11/2003	8:03a	3.0	5.0	WNW
12/11/2003	8:04a	3.0	5.0	WNW
12/11/2003	8:05a	2.0	4.0	WNW
12/11/2003	8:06a	4.0	7.0	W
12/11/2003	8:07a	4.0	10.0	WNW
12/11/2003	8:08a	6.0	11.0	WNW
12/11/2003	8:09a	5.0	8.0	WNW
12/11/2003	8:10a	5.0	10.0	WNW
12/11/2003	8:11a	4.0	7.0	NW
12/11/2003	8:12a	3.0	7.0	WSW
12/11/2003	8:13a	2.0	4.0	W
12/11/2003	8:14a	4.0	6.0	W
12/11/2003	8:15a	3.0	5.0	WSW
12/11/2003	8:16a	4.0	6.0	W
12/11/2003	8:17a	1.0	4.0	W
12/11/2003	8:18a	4.0	6.0	WNW
12/11/2003	8:19a	3.0	5.0	WNW
12/11/2003	8:20a	3.0	5.0	WNW
12/11/2003	8:21a	3.0	6.0	WNW
12/11/2003	8:22a	2.0	5.0	N
12/11/2003	8:23a	3.0	5.0	NW
12/11/2003	8:24a	4.0	8.0	NW
12/11/2003	8:25a	4.0	7.0	NW
12/11/2003	8:26a	3.0	6.0	NW
12/11/2003	8:27a	4.0	6.0	NW
12/11/2003	8:28a	5.0	13.0	NW
12/11/2003	8:29a	2.0	6.0	WNW
12/11/2003	8:30a	4.0	7.0	WNW
12/11/2003	8:31a	3.0	5.0	WNW
12/11/2003	8:32a	4.0	8.0	NW
12/11/2003	8:33a	3.0	6.0	WNW
12/11/2003	8:34a	2.0	4.0	WNW
12/11/2003	8:35a	2.0	4.0	NW
12/11/2003	8:36a	3.0	4.0	WNW
12/11/2003	8:37a	2.0	3.0	WNW
12/11/2003	8:38a	3.0	5.0	SW
12/11/2003	8:39a	3.0	5.0	W
12/11/2003	8:40a	3.0	6.0	NW
12/11/2003	8:41a	2.0	3.0	W
12/11/2003	8:42a	3.0	6.0	NW
12/11/2003	8:43a	2.0	4.0	NW
12/11/2003	8:44a	3.0	6.0	NW

Date	Time	Wind Speed	[redacted] Hi	Arc Dir
12/11/2003	8:45a	3.0	5.0	NW
12/11/2003	8:46a	1.0	3.0	SW
12/11/2003	8:47a	4.0	11.0	SW
12/11/2003	8:48a	4.0	7.0	WNW
12/11/2003	8:49a	5.0	12.0	WNW
12/11/2003	8:50a	6.0	11.0	NW
12/11/2003	8:51a	2.0	5.0	NW
12/11/2003	8:52a	4.0	9.0	WNW
12/11/2003	8:53a	1.0	4.0	WNW
12/11/2003	8:54a	4.0	6.0	NW
12/11/2003	8:55a	3.0	4.0	WNW
12/11/2003	8:56a	4.0	7.0	WNW
12/11/2003	8:57a	4.0	9.0	WNW
12/11/2003	8:58a	3.0	4.0	WNW
12/11/2003	8:59a	2.0	3.0	NW
12/11/2003	9:00a	2.0	5.0	NW
12/11/2003	9:01a	1.0	3.0	W
12/11/2003	9:02a	2.0	3.0	SW
12/11/2003	9:03a	2.0	4.0	WNW
12/11/2003	9:04a	2.0	3.0	WSW
12/11/2003	9:05a	4.0	7.0	W
12/11/2003	9:06a	4.0	7.0	NW
12/11/2003	9:07a	5.0	9.0	NW
12/11/2003	9:08a	3.0	4.0	NW
12/11/2003	9:09a	2.0	7.0	WNW
12/11/2003	9:10a	3.0	6.0	WNW
12/11/2003	9:11a	3.0	7.0	WNW
12/11/2003	9:12a	2.0	4.0	WNW
12/11/2003	9:13a	3.0	6.0	W
12/11/2003	9:14a	2.0	6.0	WSW
12/11/2003	9:15a	3.0	5.0	NW
12/11/2003	9:16a	4.0	8.0	NW
12/11/2003	9:17a	2.0	5.0	NW
12/11/2003	9:18a	3.0	13.0	NW
12/11/2003	9:19a	6.0	10.0	NW
12/11/2003	9:20a	2.0	7.0	NW
12/11/2003	9:21a	5.0	10.0	NW
12/11/2003	9:22a	5.0	12.0	NW
12/11/2003	9:23a	4.0	11.0	WNW
12/11/2003	9:24a	3.0	5.0	W
12/11/2003	9:25a	4.0	5.0	WSW
12/11/2003	9:26a	3.0	7.0	W
12/11/2003	9:27a	5.0	10.0	WNW
12/11/2003	9:28a	7.0	12.0	NW
12/11/2003	9:29a	3.0	5.0	W
12/11/2003	9:30a	2.0	5.0	WNW
12/11/2003	9:31a	2.0	6.0	WSW
12/11/2003	9:32a	3.0	7.0	NW
12/11/2003	9:33a	3.0	4.0	NW
12/11/2003	9:34a	1.0	3.0	WSW

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/11/2003	9:35a	4.0	7.0	WNW	
12/11/2003	9:36a	3.0	6.0	W	
12/11/2003	9:37a	2.0	5.0	WNW	Stop Run # 2
Averages		3.0	6.1		Central

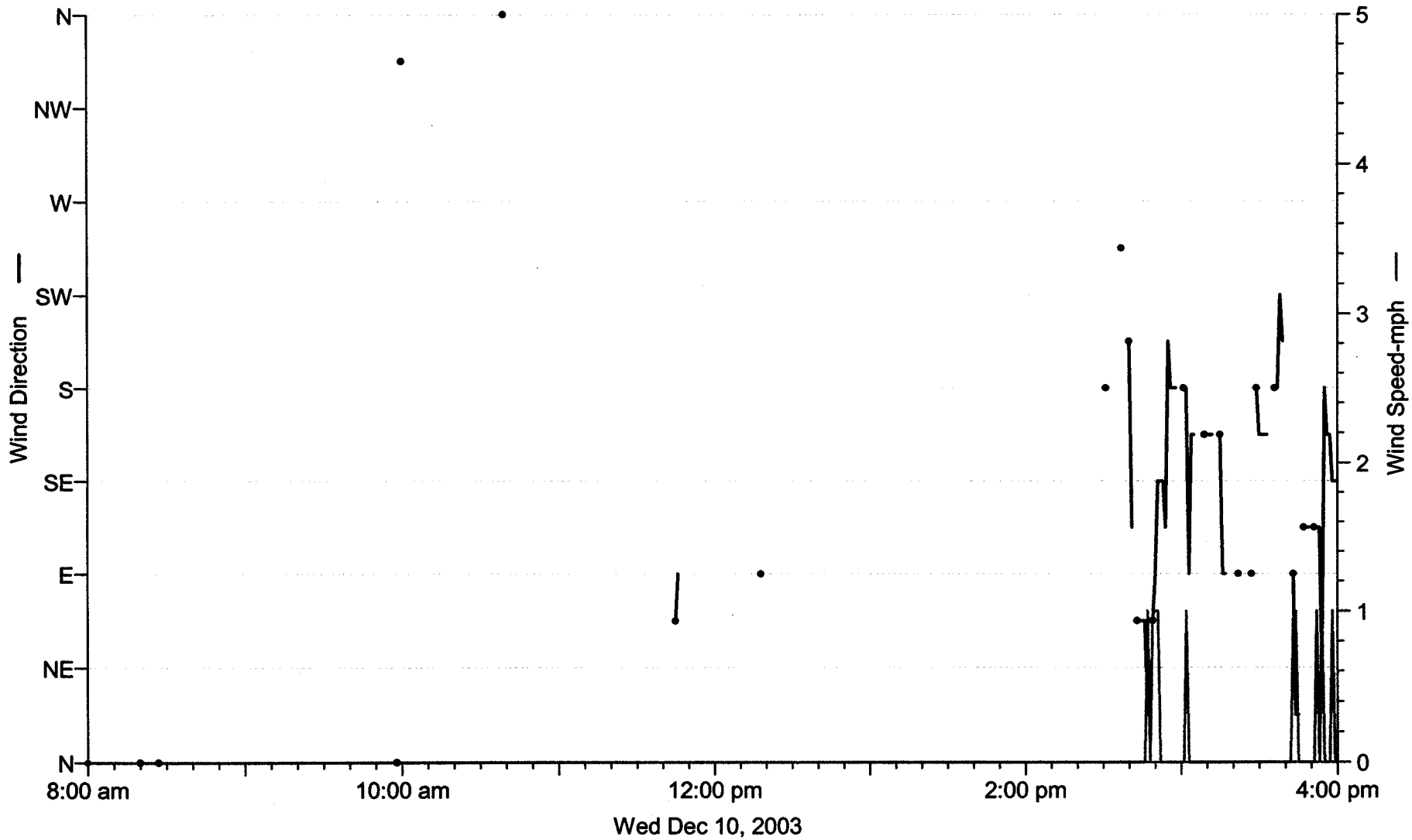
12/11/2003	12:21p	2.0	4.0	WNW	Start Run # 3
12/11/2003	12:22p	5.0	7.0	NW	Central
12/11/2003	12:23p	3.0	6.0	NW	
12/11/2003	12:24p	2.0	4.0	NW	
12/11/2003	12:25p	5.0	9.0	W	
12/11/2003	12:26p	4.0	8.0	WNW	
12/11/2003	12:27p	3.0	6.0	NW	
12/11/2003	12:28p	5.0	13.0	NW	
12/11/2003	12:29p	2.0	4.0	WNW	
12/11/2003	12:30p	5.0	11.0	NW	
12/11/2003	12:31p	1.0	2.0	WNW	
12/11/2003	12:32p	2.0	4.0	WNW	
12/11/2003	12:33p	2.0	4.0	NW	
12/11/2003	12:34p	4.0	7.0	NW	
12/11/2003	12:35p	1.0	3.0	NW	
12/11/2003	12:36p	4.0	5.0	NW	
12/11/2003	12:37p	1.0	3.0	NW	
12/11/2003	12:38p	3.0	5.0	NW	
12/11/2003	12:39p	3.0	7.0	W	
12/11/2003	12:40p	3.0	4.0	WSW	
12/11/2003	12:41p	5.0	9.0	NW	
12/11/2003	12:42p	2.0	3.0	WNW	
12/11/2003	12:43p	4.0	13.0	NW	
12/11/2003	12:44p	7.0	12.0	NW	
12/11/2003	12:45p	6.0	10.0	NW	
12/11/2003	12:46p	2.0	5.0	W	
12/11/2003	12:47p	4.0	6.0	NW	
12/11/2003	12:48p	6.0	15.0	WNW	
12/11/2003	12:49p	4.0	9.0	NW	
12/11/2003	12:50p	4.0	9.0	NW	
12/11/2003	12:51p	6.0	8.0	NW	
12/11/2003	12:52p	5.0	12.0	WNW	
12/11/2003	12:53p	5.0	11.0	WNW	
12/11/2003	12:54p	7.0	12.0	NW	
12/11/2003	12:55p	4.0	8.0	NW	
12/11/2003	12:56p	5.0	9.0	NW	
12/11/2003	12:57p	4.0	6.0	NW	
12/11/2003	12:58p	3.0	6.0	WNW	
12/11/2003	12:59p	2.0	4.0	NW	
12/11/2003	1:00p	1.0	3.0	NE	
12/11/2003	1:01p	0.0	0.0	---	
12/11/2003	1:02p	0.0	1.0	NE	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/11/2003	1:03p	1.0	3.0	WSW	
12/11/2003	1:04p	3.0	6.0	WNW	
12/11/2003	1:05p	5.0	10.0	NW	
12/11/2003	1:06p	4.0	6.0	NW	
12/11/2003	1:07p	4.0	7.0	W	
12/11/2003	1:08p	3.0	7.0	WNW	
12/11/2003	1:09p	4.0	7.0	WNW	
12/11/2003	1:10p	4.0	7.0	WNW	
12/11/2003	1:11p	2.0	4.0	SW	
12/11/2003	1:12p	3.0	7.0	WNW	
12/11/2003	1:13p	4.0	8.0	WNW	
12/11/2003	1:14p	2.0	3.0	WNW	
12/11/2003	1:15p	3.0	6.0	WNW	
12/11/2003	1:16p	3.0	6.0	NW	
12/11/2003	1:17p	4.0	8.0	NW	
12/11/2003	1:18p	3.0	4.0	WSW	
12/11/2003	1:19p	7.0	11.0	NW	
12/11/2003	1:20p	4.0	8.0	NW	
12/11/2003	1:21p	2.0	4.0	W	
12/11/2003	1:22p	2.0	3.0	NW	
12/11/2003	1:23p	2.0	3.0	NW	
12/11/2003	1:24p	2.0	4.0	WSW	
12/11/2003	1:25p	2.0	3.0	WNW	
12/11/2003	1:26p	2.0	5.0	WNW	
12/11/2003	1:27p	4.0	7.0	W	
12/11/2003	1:28p	2.0	4.0	W	
12/11/2003	1:29p	3.0	5.0	W	
12/11/2003	1:30p	5.0	9.0	NW	
12/11/2003	1:31p	3.0	6.0	NW	
12/11/2003	1:32p	4.0	8.0	NW	
12/11/2003	1:33p	3.0	5.0	NW	
12/11/2003	1:34p	6.0	8.0	NW	
12/11/2003	1:35p	5.0	9.0	WSW	
12/11/2003	1:36p	3.0	9.0	NW	
12/11/2003	1:37p	2.0	5.0	NW	
12/11/2003	1:38p	5.0	11.0	NW	
12/11/2003	1:39p	3.0	8.0	NW	
12/11/2003	1:40p	5.0	9.0	NW	
12/11/2003	1:41p	4.0	9.0	NW	
12/11/2003	1:42p	4.0	9.0	NW	
12/11/2003	1:43p	3.0	6.0	NW	
12/11/2003	1:44p	2.0	4.0	NW	
12/11/2003	1:45p	3.0	12.0	NW	Stop @ 1346
12/11/2003	2:31p	6.0	10.0	NW	Start @ 1431
12/11/2003	2:32p	4.0	9.0	W	
12/11/2003	2:33p	3.0	6.0	NW	
12/11/2003	2:34p	2.0	5.0	WSW	
12/11/2003	2:35p	3.0	6.0	WSW	
12/11/2003	2:36p	2.0	6.0	WSW	
12/11/2003	2:37p	2.0	3.0	WNW	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir
12/11/2003	2:38p	2.0	3.0	WSW
12/11/2003	2:39p	5.0	8.0	NW
12/11/2003	2:40p	1.0	5.0	WNW
12/11/2003	2:41p	2.0	3.0	WNW
12/11/2003	2:42p	3.0	7.0	W
12/11/2003	2:43p	4.0	11.0	WNW
12/11/2003	2:44p	2.0	4.0	NW
12/11/2003	2:45p	3.0	5.0	WNW
12/11/2003	2:46p	4.0	7.0	NW
12/11/2003	2:47p	2.0	4.0	WNW
12/11/2003	2:48p	1.0	4.0	W
12/11/2003	2:49p	1.0	3.0	W
12/11/2003	2:50p	3.0	6.0	NW
12/11/2003	2:53p	5.0	9.0	WNW
12/11/2003	2:54p	3.0	6.0	WNW
12/11/2003	2:55p	3.0	6.0	WNW
12/11/2003	2:56p	3.0	5.0	WNW
12/11/2003	2:57p	3.0	7.0	NW
12/11/2003	2:58p	5.0	7.0	NW
12/11/2003	2:59p	3.0	7.0	WNW
12/11/2003	3:00p	3.0	5.0	NW
12/11/2003	3:01p	4.0	12.0	WNW
12/11/2003	3:02p	6.0	13.0	NW
12/11/2003	3:03p	4.0	8.0	WNW
12/11/2003	3:04p	3.0	6.0	WNW
12/11/2003	3:05p	1.0	3.0	WNW
12/11/2003	3:06p	2.0	4.0	W
12/11/2003	3:07p	3.0	8.0	WNW
12/11/2003	3:08p	2.0	4.0	NW
12/11/2003	3:09p	5.0	8.0	WNW
12/11/2003	3:10p	1.0	3.0	NW
12/11/2003	3:11p	2.0	6.0	NW
12/11/2003	3:12p	3.0	6.0	NW
12/11/2003	3:13p	2.0	5.0	W
12/11/2003	3:14p	4.0	8.0	WNW
12/11/2003	3:15p	3.0	6.0	NW
12/11/2003	3:16p	2.0	4.0	WNW
12/11/2003	3:17p	2.0	6.0	NW
12/11/2003	3:18p	4.0	8.0	NW
12/11/2003	3:19p	3.0	5.0	NW
12/11/2003	3:20p	2.0	5.0	NW
12/11/2003	3:21p	3.0	6.0	WNW
12/11/2003	3:22p	3.0	6.0	WNW
12/11/2003	3:23p	3.0	5.0	WNW
12/11/2003	3:24p	3.0	10.0	NW
12/11/2003	3:25p	3.0	7.0	NW
12/11/2003	3:26p	3.0	7.0	WNW
12/11/2003	3:27p	5.0	11.0	WNW
12/11/2003	3:28p	2.0	4.0	WNW
12/11/2003	3:29p	3.0	4.0	WNW

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	
12/11/2003	3:30p	4.0	11.0	WNW	
12/11/2003	3:31p	5.0	7.0	WNW	
12/11/2003	3:32p	6.0	13.0	NW	
12/11/2003	3:33p	5.0	9.0	NW	
12/11/2003	3:34p	3.0	8.0	NW	
12/11/2003	3:35p	6.0	10.0	NW	Stop Run # 3
Averages		3.3	6.6		Central

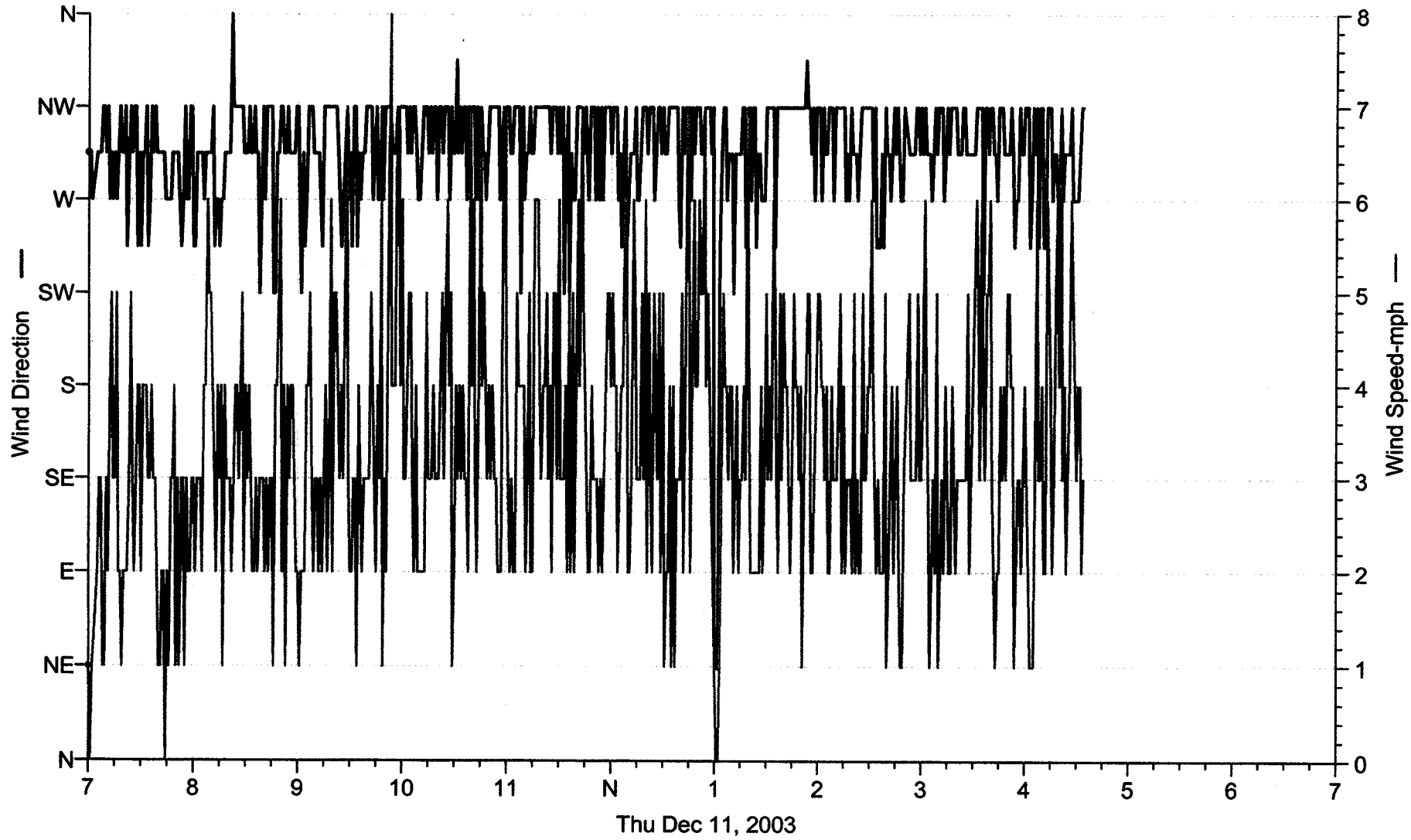
RMCCWAKE



☐ Inside Temp ☐ Outside Temp ☐ Hi Temp Out ☐ Low Temp Out ■ Wind Speed

☐ Hi Wind Speed ■ Wind Dir ☐ Wind Chill ☐ Rain

RMCCWAKE



☐ Inside Temp	☐ Outside Temp	☐ Hi Temp Out	☐ Low Temp Out	■ Wind Speed
☐ Hi Wind Speed	■ Wind Dir	☐ Wind Chill	☐ Rain	

APPENDIX D3

S.T. WOOTEN CENTRAL MIX

WIND SPEED AND DIRECTION DATA

	Run 1	Run 2	Run 3	
Large Array				Average
Average Wind Speed	6.3	8.2	3.5	6.0
Average Wind Angle	223.5	231.3	252.9	235.9
	SW	SW	WSW	SW
Small Array				
Wind Speed	7.689	8.2	1.935	5.93478
Average Wind Angle	190.7	196.2	223	203.318
	S	SSW	SW	SSW
Array Averages				
Average Speed	6.98	8.20	2.69	5.96
Average Wind Angle	207.1	213.8	238	219.615
Average Direction	SSW	SW	WSW	SW

N	0
Nne	22.5
NE	45
ENE	67.5
E	90
ESE	112.5
SE	135
SSE	157.5
S	180
SSW	202.5
SW	225
WSW	247.5
W	270
WNW	292.5
NW	315
NNW	337.5

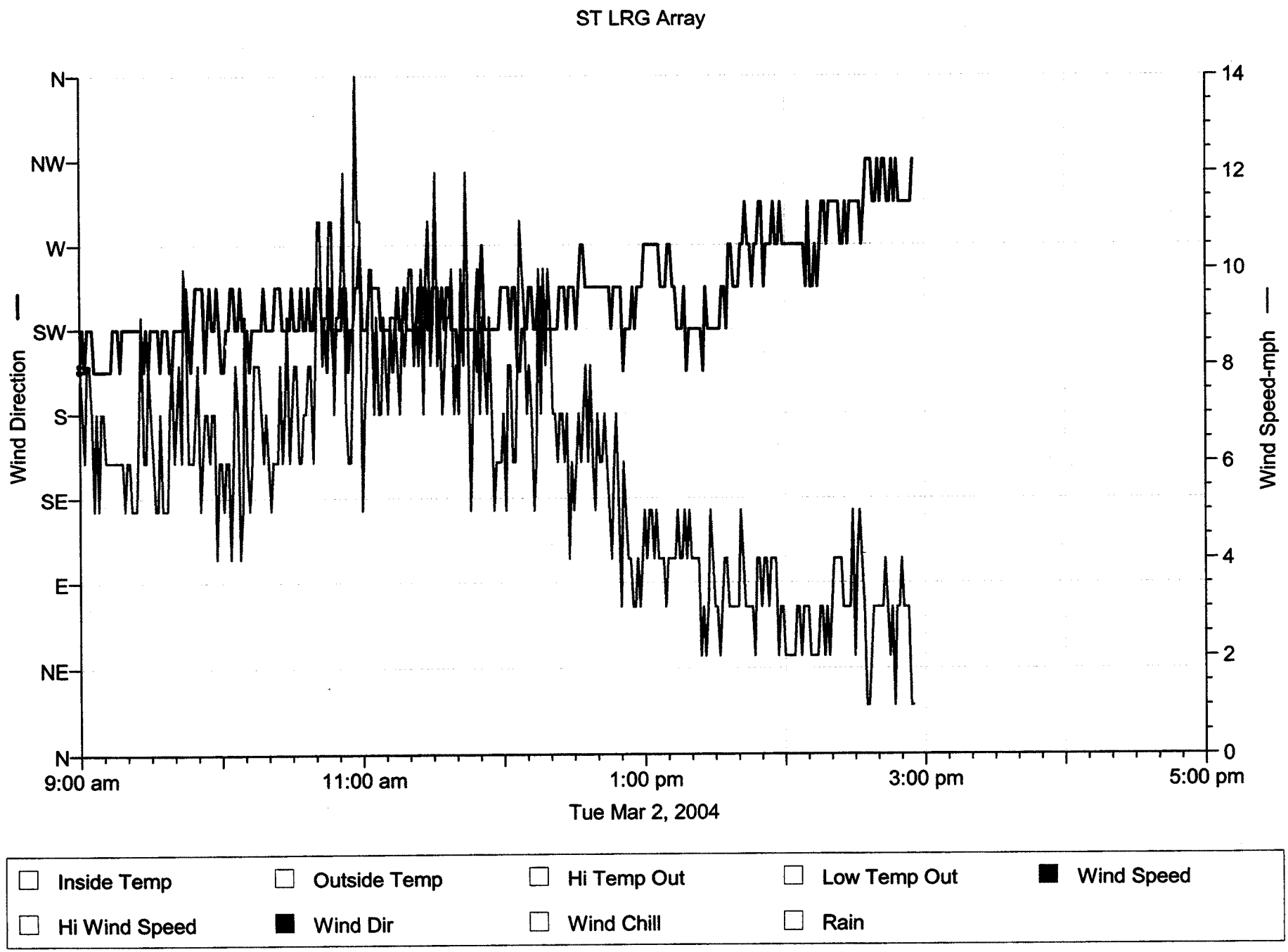
Date	Time	Wind Speed	Wind Hi	Dir	Angle	
3/2/2004	9:10a	7	10	SSW	202.5	Start Run # 1
3/2/2004	9:11a	6	10	SSW	202.5	
3/2/2004	9:12a	6	9	SSW	202.5	
3/2/2004	9:13a	6	9	SSW	202.5	
3/2/2004	9:14a	6	9	SW	225	
3/2/2004	9:15a	6	8	SW	225	
3/2/2004	9:16a	6	10	SW	225	
3/2/2004	9:17a	6	9	SSW	202.5	
3/2/2004	9:18a	6	8	SW	225	
3/2/2004	9:19a	5	7	SW	225	
3/2/2004	9:20a	6	8	SW	225	
3/2/2004	9:21a	6	9	SW	225	
3/2/2004	9:22a	5	8	SW	225	
3/2/2004	9:23a	5	7	SW	225	
3/2/2004	9:24a	5	8	SW	225	
3/2/2004	9:25a	7	11	SW	225	
3/2/2004	9:26a	9	13	SW	225	
3/2/2004	9:27a	6	8	SSW	202.5	
3/2/2004	9:28a	6	7	SW	225	
3/2/2004	9:29a	8	11	SSW	202.5	
3/2/2004	9:30a	7	10	SW	225	
3/2/2004	9:31a	6	8	SW	225	
3/2/2004	9:32a	5	8	SW	225	
3/2/2004	9:33a	5	6	SW	225	
3/2/2004	9:34a	7	9	SSW	202.5	
3/2/2004	9:35a	5	7	SW	225	
3/2/2004	9:36a	5	8	SW	225	
3/2/2004	9:37a	5	7	SW	225	
3/2/2004	9:38a	7	11	SSW	202.5	
3/2/2004	9:39a	8	10	SSW	202.5	
3/2/2004	9:40a	6	10	SW	225	
3/2/2004	9:41a	7	9	SW	225	
3/2/2004	9:42a	8	14	SW	225	
3/2/2004	9:43a	6	9	SW	225	
3/2/2004	9:44a	10	12	SW	225	
3/2/2004	9:45a	9	12	WSW	247.5	
3/2/2004	9:46a	6	8	SW	225	
3/2/2004	9:47a	6	9	SSW	202.5	
3/2/2004	9:48a	6	9	SW	225	
3/2/2004	9:49a	7	10	WSW	247.5	
3/2/2004	9:50a	8	11	WSW	247.5	
3/2/2004	9:51a	5	7	WSW	247.5	
3/2/2004	9:52a	6	7	WSW	247.5	
3/2/2004	9:53a	7	10	SSW	202.5	
3/2/2004	9:54a	7	12	SW	225	
3/2/2004	9:55a	6	7	WSW	247.5	
3/2/2004	9:56a	7	11	SW	225	
3/2/2004	9:57a	7	10	SW	225	
3/2/2004	9:58a	4	9	WSW	247.5	
3/2/2004	9:59a	6	8	SW	225	

Direction	Angle
N	0
Nne	22.5
NE	45
ENE	67.5
E	90
ESE	112.5
SE	135
SSE	157.5
S	180
SSW	202.5
SW	225
WSW	247.5
W	270
WNW	292.5
NW	315
NNW	337.5

Date	Time	Wind Speed	Wind Hi	Dir	Angle	
3/2/2004	10:00a	6	7	SSW	202.5	
3/2/2004	10:01a	5	8	SSW	202.5	
3/2/2004	10:02a	6	9	SW	225	
3/2/2004	10:03a	6	9	SW	225	
3/2/2004	10:04a	4	6	WSW	247.5	
3/2/2004	10:05a	6	12	WSW	247.5	
3/2/2004	10:06a	8	13	SW	225	
3/2/2004	10:07a	7	9	SW	225	
3/2/2004	10:08a	4	9	WSW	247.5	
3/2/2004	10:09a	5	8	SW	225	
3/2/2004	10:10a	9	12	SW	225	Stop Run # 1
Average		6.3	9.2		223.5246	SW
3/2/2004	11:12a	9	16	SW	225	Start Run # 2
3/2/2004	11:13a	9	13	SSW	202.5	
3/2/2004	11:14a	9	12	SW	225	
3/2/2004	11:15a	8	11	WSW	247.5	
3/2/2004	11:16a	7	12	SW	225	
3/2/2004	11:17a	9	13	SW	225	
3/2/2004	11:18a	8	12	WSW	247.5	
3/2/2004	11:19a	9	11	SW	225	
3/2/2004	11:20a	10	13	SW	225	
3/2/2004	11:21a	10	13	SW	225	
3/2/2004	11:22a	8	11	SW	225	
3/2/2004	11:23a	9	11	SW	225	
3/2/2004	11:24a	8	14	WSW	247.5	
3/2/2004	11:25a	10	12	SW	225	
3/2/2004	11:26a	7	11	WSW	247.5	
3/2/2004	11:27a	10	15	WSW	247.5	
3/2/2004	11:28a	11	15	SW	225	
3/2/2004	11:29a	8	11	SW	225	
3/2/2004	11:30a	9	17	WSW	247.5	
3/2/2004	11:31a	12	15	WSW	247.5	
3/2/2004	11:32a	8	10	WSW	247.5	
3/2/2004	11:33a	9	12	SW	225	
3/2/2004	11:34a	7	10	WSW	247.5	
3/2/2004	11:35a	8	11	SW	225	
3/2/2004	11:36a	9	15	WSW	247.5	
3/2/2004	11:37a	9	12	WSW	247.5	
3/2/2004	11:38a	10	12	SW	225	
3/2/2004	11:39a	7	10	SW	225	
3/2/2004	11:40a	8	11	SW	225	
3/2/2004	11:41a	7	9	SSW	202.5	
3/2/2004	11:42a	10	13	SW	225	
3/2/2004	11:43a	8	13	SW	225	
3/2/2004	11:44a	12	15	SW	225	
3/2/2004	11:45a	9	12	SW	225	

Date	Time	Wind Speed	Wind Hi	Dir	Angle	
3/2/2004	11:46a	5	8	SW	225	
3/2/2004	11:47a	7	10	SW	225	
3/2/2004	11:48a	9	12	SW	225	
3/2/2004	11:49a	10	13	SSW	202.5	
3/2/2004	11:50a	7	8	WSW	247.5	
3/2/2004	11:51a	9	11	W	270	
3/2/2004	11:52a	8	12	SW	225	
3/2/2004	11:53a	7	11	SW	225	
3/2/2004	11:54a	9	11	SW	225	
3/2/2004	11:55a	7	11	SW	225	
3/2/2004	11:56a	5	9	SW	225	
3/2/2004	11:57a	6	11	SW	225	
3/2/2004	11:58a	6	8	SW	225	
3/2/2004	11:59a	6	9	WSW	247.5	
3/2/2004	12:00p	7	10	WSW	247.5	
3/2/2004	12:01p	5	7	WSW	247.5	
3/2/2004	12:02p	8	12	WSW	247.5	
3/2/2004	12:03p	8	11	SW	225	
3/2/2004	12:04p	6	8	WSW	247.5	
3/2/2004	12:05p	6	8	WSW	247.5	
3/2/2004	12:06p	8	11	SSW	202.5	
3/2/2004	12:07p	11	14	SSW	202.5	
3/2/2004	12:08p	10	14	SW	225	
3/2/2004	12:09p	9	12	SW	225	
3/2/2004	12:10p	7	10	SW	225	
3/2/2004	12:11p	8	12	WSW	247.5	
3/2/2004	12:12p	7	9	WSW	247.5	Stop Run # 2
Average		8.2	11.6		231.2705	SW
3/2/2004	1:04p	4	6	W	270	Start Run # 3
3/2/2004	1:05p	5	7	W	270	
3/2/2004	1:06p	4	6	W	270	
3/2/2004	1:07p	4	6	WSW	247.5	
3/2/2004	1:08p	4	6	WSW	247.5	
3/2/2004	1:09p	3	4	WSW	247.5	
3/2/2004	1:10p	4	7	W	270	
3/2/2004	1:11p	4	5	W	270	
3/2/2004	1:12p	4	6	WSW	247.5	
3/2/2004	1:13p	4	6	WSW	247.5	
3/2/2004	1:14p	5	8	SW	225	
3/2/2004	1:15p	4	6	SW	225	
3/2/2004	1:16p	4	5	SW	225	
3/2/2004	1:17p	5	7	WSW	247.5	
3/2/2004	1:18p	4	5	SSW	202.5	
3/2/2004	1:19p	5	6	SW	225	
3/2/2004	1:20p	4	6	SW	225	
3/2/2004	1:21p	4	5	SW	225	

Date	Time	Wind Speed	Wind Hi	Dir	Angle	
3/2/2004	1:22p	4	6	SW	225	
3/2/2004	1:23p	4	5	SW	225	
3/2/2004	1:24p	2	4	SW	225	
3/2/2004	1:25p	3	3	SSW	202.5	
3/2/2004	1:26p	2	3	WSW	247.5	
3/2/2004	1:27p	3	5	SW	225	
3/2/2004	1:28p	5	6	SW	225	
3/2/2004	1:29p	4	5	SW	225	
3/2/2004	1:30p	3	5	SW	225	
3/2/2004	1:31p	3	4	SW	225	
3/2/2004	1:32p	2	3	SW	225	
3/2/2004	1:33p	3	5	WSW	247.5	
3/2/2004	1:34p	4	5	WSW	247.5	
3/2/2004	1:35p	4	5	SW	225	
3/2/2004	1:36p	3	5	W	270	
3/2/2004	1:37p	3	4	W	270	
3/2/2004	1:38p	3	4	WSW	247.5	
3/2/2004	1:39p	3	5	WSW	247.5	
3/2/2004	1:40p	3	4	WSW	247.5	
3/2/2004	1:41p	5	8	W	270	
3/2/2004	1:42p	4	6	W	270	
3/2/2004	1:43p	3	5	WNW	292.5	
3/2/2004	1:44p	3	4	W	270	
3/2/2004	1:45p	3	4	W	270	
3/2/2004	1:46p	3	4	WSW	247.5	
3/2/2004	1:47p	2	6	W	270	
3/2/2004	1:48p	4	6	W	270	
3/2/2004	1:49p	4	6	WNW	292.5	
3/2/2004	1:50p	3	5	WNW	292.5	
3/2/2004	1:51p	4	5	WSW	247.5	
3/2/2004	1:52p	4	6	W	270	
3/2/2004	1:53p	3	4	W	270	
3/2/2004	1:54p	4	5	W	270	
3/2/2004	1:55p	4	6	WNW	292.5	
3/2/2004	1:56p	4	5	W	270	
3/2/2004	1:57p	2	4	W	270	
3/2/2004	1:58p	3	4	WNW	292.5	
3/2/2004	1:59p	3	4	W	270	
3/2/2004	2:00p	2	5	W	270	
3/2/2004	2:01p	2	3	W	270	
3/2/2004	2:02p	2	3	W	270	
3/2/2004	2:03p	2	3	W	270	
3/2/2004	2:04p	2	3	W	270	
3/2/2004	2:05p	3	3	W	270	Stop Run 3
Averages		3.5	5.0		252.9435	WSW


ST LRG Array
Wind Direction
N
NW
W
SW
S
SE
E
NE
N
Wind Speed-mph
14
12
10
8
6
4
2
0
9:00 am
11:00 am
1:00 pm
3:00 pm
5:00 pm
Tue Mar 2, 2004
Inside Temp
Outside Temp
Hi Temp Out
Low Temp Out
Wind Speed
Hi Wind Speed
Wind Dir
Wind Chill
Rain

Date	Wind Time	Wind Speed	Hi	Dir	Angle	
3/2/2004	9:10a	9	15	S	180	Start Run # 1
3/2/2004	9:11a	10	15	S	180	
3/2/2004	9:12a	11	14	S	180	
3/2/2004	9:13a	8	12	SSE	157.5	
3/2/2004	9:14a	8	12	S	180	
3/2/2004	9:15a	7	10	S	180	
3/2/2004	9:16a	7	12	S	180	
3/2/2004	9:17a	7	9	S	180	
3/2/2004	9:18a	7	11	S	180	
3/2/2004	9:19a	7	12	SSW	202.5	
3/2/2004	9:20a	10	13	S	180	
3/2/2004	9:21a	7	10	SSW	202.5	
3/2/2004	9:22a	5	7	S	180	
3/2/2004	9:23a	6	9	SSW	202.5	
3/2/2004	9:24a	6	13	SSW	202.5	
3/2/2004	9:25a	7	11	SSW	202.5	
3/2/2004	9:26a	10	17	SSW	202.5	
3/2/2004	9:27a	8	12	S	180	
3/2/2004	9:28a	7	10	SSW	202.5	
3/2/2004	9:29a	10	15	S	180	
3/2/2004	9:30a	10	15	S	180	
3/2/2004	9:31a	6	9	S	180	
3/2/2004	9:32a	5	10	SSW	202.5	
3/2/2004	9:33a	7	10	S	180	
3/2/2004	9:34a	8	12	S	180	
3/2/2004	9:35a	6	10	SSW	202.5	
3/2/2004	9:36a	7	13	S	180	
3/2/2004	9:37a	7	9	S	180	
3/2/2004	9:38a	9	13	S	180	
3/2/2004	9:39a	11	14	S	180	
3/2/2004	9:40a	10	16	S	180	
3/2/2004	9:41a	10	14	SSW	202.5	
3/2/2004	9:42a	12	20	SSW	202.5	
3/2/2004	9:43a	7	11	S	180	
3/2/2004	9:44a	13	23	SSW	202.5	
3/2/2004	9:45a	6	8	SSW	202.5	
3/2/2004	9:46a	7	12	S	180	
3/2/2004	9:47a	6	9	S	180	
3/2/2004	9:48a	6	10	SSW	202.5	
3/2/2004	9:49a	6	10	SSW	202.5	
3/2/2004	9:50a	9	15	SSW	202.5	
3/2/2004	9:51a	3	9	SSW	202.5	
3/2/2004	9:52a	2	3	SW	225	
3/2/2004	9:53a	6	12	S	180	
3/2/2004	9:54a	10	14	S	180	
3/2/2004	9:55a	6	11	SSW	202.5	
3/2/2004	9:56a	8	15	SSW	202.5	
3/2/2004	9:57a	10	21	SSW	202.5	
3/2/2004	9:58a	4	10	SSW	202.5	
3/2/2004	9:59a	9	17	SSW	202.5	

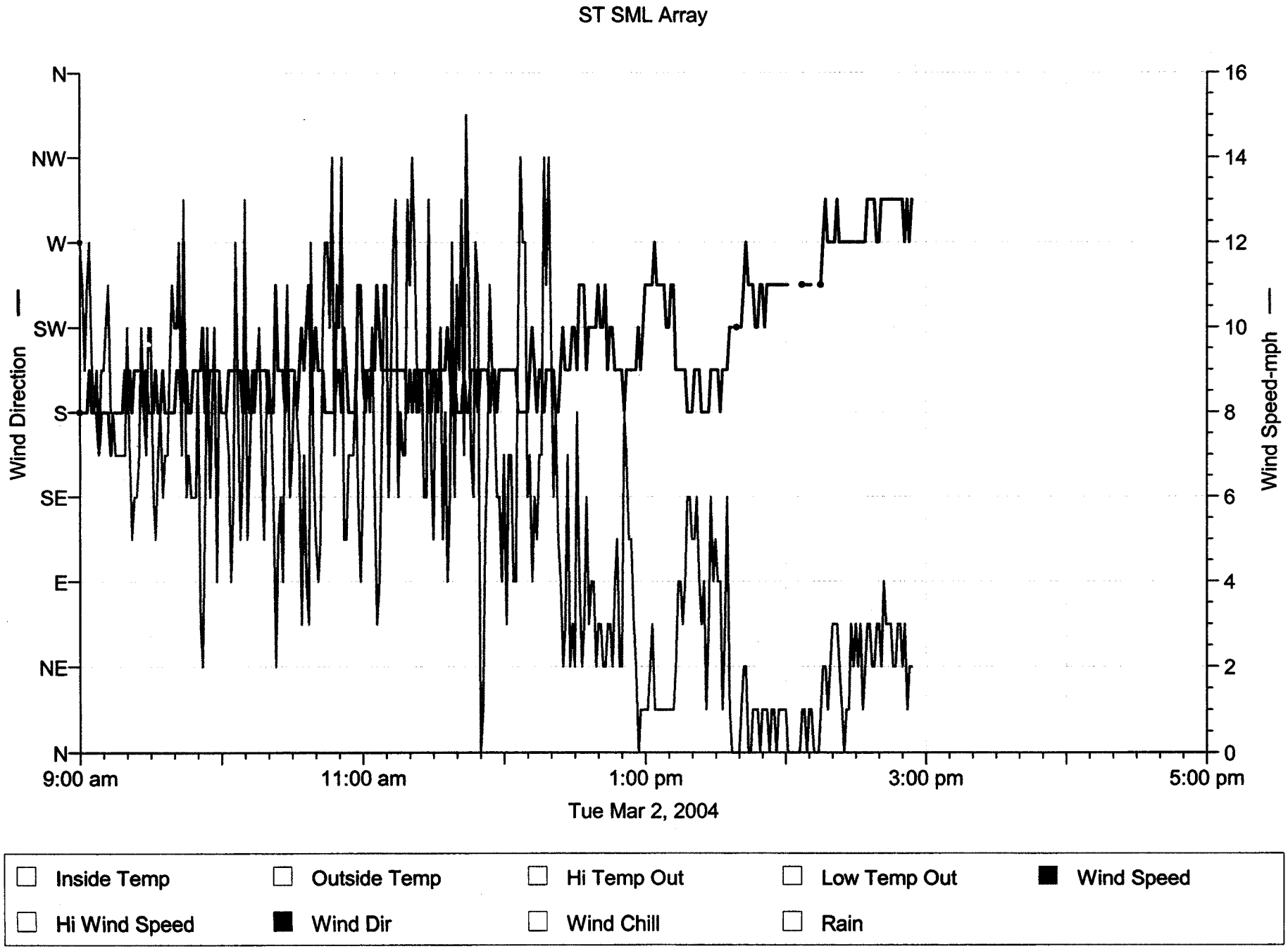
Direction	Angle
N	0
Nne	22.5
NE	45
ENE	67.5
E	90
ESE	112.5
SE	135
SSE	157.5
S	180
SSW	202.5
SW	225
WSW	247.5
W	270
WNW	292.5
NW	315
NNW	337.5

Date	Wind Time	Wind Speed	[redacted] Hi	Dir	Angle	
3/2/2004	10:00a	8	11	S	180	
3/2/2004	10:01a	8	13	S	180	
3/2/2004	10:02a	8	12	S	180	
3/2/2004	10:03a	7	11	SSW	202.5	
3/2/2004	10:04a	4	10	SSW	202.5	
3/2/2004	10:05a	6	14	SSW	202.5	
3/2/2004	10:06a	12	18	SSW	202.5	
3/2/2004	10:07a	8	14	SSW	202.5	
3/2/2004	10:08a	5	8	SSW	202.5	
3/2/2004	10:09a	7	15	S	180	
3/2/2004	10:10a	13	22	S	180	Stop Run # 1
Average		7.7	12.5		190.7	S
3/2/2004	11:12a	9	18	SSW	202.5	Start Run # 2
3/2/2004	11:13a	12	16	SSW	202.5	
3/2/2004	11:14a	13	21	SSW	202.5	
3/2/2004	11:15a	6	12	SSW	202.5	
3/2/2004	11:16a	8	14	SSW	202.5	
3/2/2004	11:17a	7	14	SSW	202.5	
3/2/2004	11:18a	7	17	SSW	202.5	
3/2/2004	11:19a	13	17	S	180	
3/2/2004	11:20a	11	19	SSW	202.5	
3/2/2004	11:21a	14	19	S	180	
3/2/2004	11:22a	12	19	SSW	202.5	
3/2/2004	11:23a	9	14	S	180	
3/2/2004	11:24a	8	14	SSW	202.5	
3/2/2004	11:25a	9	12	SSW	202.5	
3/2/2004	11:26a	6	12	SSW	202.5	
3/2/2004	11:27a	6	15	SSW	202.5	
3/2/2004	11:28a	13	21	S	180	
3/2/2004	11:29a	7	15	S	180	
3/2/2004	11:30a	5	14	SSW	202.5	
3/2/2004	11:31a	9	19	SSW	202.5	
3/2/2004	11:32a	8	14	SSW	202.5	
3/2/2004	11:33a	10	17	SSW	202.5	
3/2/2004	11:34a	5	17	SSW	202.5	
3/2/2004	11:35a	8	13	SSW	202.5	
3/2/2004	11:36a	4	9	SW	225	
3/2/2004	11:37a	6	10	SSW	202.5	
3/2/2004	11:38a	12	20	S	180	
3/2/2004	11:39a	6	13	SSW	202.5	
3/2/2004	11:40a	11	18	S	180	
3/2/2004	11:41a	9	13	S	180	
3/2/2004	11:42a	13	24	S	180	
3/2/2004	11:43a	7	11	SSW	202.5	
3/2/2004	11:44a	15	20	S	180	
3/2/2004	11:45a	11	16	S	180	

Date	Wind Time	Wind Speed	Hi	Dir	Angle	
3/2/2004	11:46a	7	11	SSW	202.5	
3/2/2004	11:47a	6	14	SSW	202.5	
3/2/2004	11:48a	12	17	SSW	202.5	
3/2/2004	11:49a	11	17	S	180	
3/2/2004	11:50a	0	4	SSW	202.5	
3/2/2004	11:51a	1	6	SSW	202.5	
3/2/2004	11:52a	5	13	SSW	202.5	
3/2/2004	11:53a	7	15	SSW	202.5	
3/2/2004	11:54a	11	16	S	180	
3/2/2004	11:55a	9	13	SSW	202.5	
3/2/2004	11:56a	8	13	SSW	202.5	
3/2/2004	11:57a	6	11	S	180	
3/2/2004	11:58a	6	13	SSW	202.5	
3/2/2004	11:59a	4	8	SSW	202.5	
3/2/2004	12:00p	7	15	SSW	202.5	
3/2/2004	12:01p	3	5	SSW	202.5	
3/2/2004	12:02p	7	16	SSW	202.5	
3/2/2004	12:03p	7	14	SSW	202.5	
3/2/2004	12:04p	4	10	SSW	202.5	
3/2/2004	12:05p	4	11	SSW	202.5	
3/2/2004	12:06p	10	16	S	180	
3/2/2004	12:07p	14	17	S	180	
3/2/2004	12:08p	12	17	S	180	
3/2/2004	12:09p	12	20	S	180	
3/2/2004	12:10p	6	9	S	180	
3/2/2004	12:11p	7	12	SSW	202.5	
3/2/2004	12:12p	4	11	SW	225	Stop Run # 2
Average		8.2	14.4		196.2	SSW

3/2/2004	1:04p	1	2	W	270	Start Run # 3
3/2/2004	1:05p	1	3	WSW	247.5	
3/2/2004	1:06p	1	2	WSW	247.5	
3/2/2004	1:07p	1	4	WSW	247.5	
3/2/2004	1:08p	1	2	WSW	247.5	
3/2/2004	1:09p	1	2	SW	225	
3/2/2004	1:10p	1	2	SW	225	
3/2/2004	1:11p	1	2	WSW	247.5	
3/2/2004	1:12p	1	4	WSW	247.5	
3/2/2004	1:13p	2	5	SSW	202.5	
3/2/2004	1:14p	4	6	SSW	202.5	
3/2/2004	1:15p	4	8	SSW	202.5	
3/2/2004	1:16p	3	6	SSW	202.5	
3/2/2004	1:17p	4	7	SSW	202.5	
3/2/2004	1:18p	6	8	S	180	
3/2/2004	1:19p	6	9	S	180	
3/2/2004	1:20p	5	9	S	180	
3/2/2004	1:21p	5	7	SSW	202.5	

Date	Wind Time	Wind Speed	[redacted] Hi	Dir	Angle	
3/2/2004	1:22p	6	9	SSW	202.5	
3/2/2004	1:23p	4	7	SSW	202.5	
3/2/2004	1:24p	3	5	S	180	
3/2/2004	1:25p	4	6	S	180	
3/2/2004	1:26p	1	3	S	180	
3/2/2004	1:27p	3	6	S	180	
3/2/2004	1:28p	6	9	SSW	202.5	
3/2/2004	1:29p	4	7	SSW	202.5	
3/2/2004	1:30p	5	7	SSW	202.5	
3/2/2004	1:31p	4	6	SSW	202.5	
3/2/2004	1:32p	4	6	S	180	
3/2/2004	1:33p	1	2	SSW	202.5	
3/2/2004	1:34p	3	5	SSW	202.5	
3/2/2004	1:35p	6	8	SSW	202.5	
3/2/2004	1:36p	1	2	SW	225	
3/2/2004	1:37p	0	1	SW	225	
3/2/2004	1:38p	0	1	---		
3/2/2004	1:39p	0	2	SW	225	
3/2/2004	1:40p	0	1	SW	225	
3/2/2004	1:41p	1	2	SW	225	
3/2/2004	1:42p	2	3	WSW	247.5	
3/2/2004	1:43p	2	4	W	270	
3/2/2004	1:44p	0	2	WSW	247.5	
3/2/2004	1:45p	0	1	WSW	247.5	
3/2/2004	1:46p	1	4	WSW	247.5	
3/2/2004	1:47p	1	3	SW	225	
3/2/2004	1:48p	1	2	SW	225	
3/2/2004	1:49p	0	2	WSW	247.5	
3/2/2004	1:50p	1	3	WSW	247.5	
3/2/2004	1:51p	1	2	SW	225	
3/2/2004	1:52p	1	2	WSW	247.5	
3/2/2004	1:53p	0	1	WSW	247.5	
3/2/2004	1:54p	1	2	WSW	247.5	
3/2/2004	1:55p	1	2	WSW	247.5	
3/2/2004	1:56p	0	1	WSW	247.5	
3/2/2004	1:57p	1	3	WSW	247.5	
3/2/2004	1:58p	1	3	WSW	247.5	
3/2/2004	1:59p	1	2	WSW	247.5	
3/2/2004	2:00p	1	2	WSW	247.5	
3/2/2004	2:01p	0	1	WSW	247.5	
3/2/2004	2:02p	0	0	---		
3/2/2004	2:03p	0	0	---		
3/2/2004	2:04p	0	0	---		
3/2/2004	2:05p	0	0	---		Stop Run # 3
Average		1.9	3.7		223.0	SW


ST SML Array
Wind Direction
N
NW
W
SW
S
SE
E
NE
N
Wind Speed-mph
16
14
12
10
8
6
4
2
0
9:00 am
11:00 am
1:00 pm
3:00 pm
5:00 pm
Tue Mar 2, 2004
Inside Temp
Outside Temp
Hi Temp Out
Low Temp Out
Wind Speed
Hi Wind Speed
Wind Dir
Wind Chill
Rain

APPENDIX D4

CHANDLER CONCRETE TRUCK MIX

WIND SPEED AND DIRECTION DATA

Date	Time	Wind Speed	Hi	Dir	Angle	
3/17/2004	7:17a	0	1	WNW	292.5	Start Run # 1
3/17/2004	7:18a	1	1	WNW	292.5	
3/17/2004	7:19a	0	2	WNW	292.5	
3/17/2004	7:20a	1	2	WNW	292.5	
3/17/2004	7:21a	0	0	---		
3/17/2004	7:22a	1	3	WNW	292.5	
3/17/2004	7:23a	2	3	WNW	292.5	
3/17/2004	7:24a	1	2	WNW	292.5	
3/17/2004	7:25a	2	3	WNW	292.5	
3/17/2004	7:26a	1	3	WNW	292.5	
3/17/2004	7:27a	1	4	WNW	292.5	
3/17/2004	7:28a	3	4	WNW	292.5	
3/17/2004	7:29a	3	4	WNW	292.5	
3/17/2004	7:30a	1	2	WNW	292.5	
3/17/2004	7:31a	2	2	WNW	292.5	
3/17/2004	7:32a	2	4	WNW	292.5	
3/17/2004	7:33a	2	3	WNW	292.5	
3/17/2004	7:34a	4	6	WNW	292.5	
3/17/2004	7:35a	3	5	W	270	
3/17/2004	7:36a	3	4	W	270	
3/17/2004	7:37a	2	3	W	270	
3/17/2004	7:38a	2	4	W	270	
3/17/2004	7:39a	0	1	W	270	
3/17/2004	7:40a	0	1	W	270	
3/17/2004	7:41a	1	2	W	270	
3/17/2004	7:42a	2	3	W	270	
3/17/2004	7:43a	1	2	W	270	
3/17/2004	7:44a	2	4	W	270	
3/17/2004	7:45a	2	3	W	270	
3/17/2004	7:46a	2	2	W	270	
3/17/2004	7:47a	1	2	W	270	
3/17/2004	7:48a	1	2	W	270	
3/17/2004	7:49a	2	4	W	270	
3/17/2004	7:50a	1	4	W	270	
3/17/2004	7:51a	1	3	W	270	Stop 752
3/17/2004	7:58a	2	5	WNW	292.5	Start 758
3/17/2004	7:59a	3	6	NW	315	
3/17/2004	8:00a	2	3	WNW	292.5	
3/17/2004	8:01a	1	2	WNW	292.5	
3/17/2004	8:02a	1	3	NW	315	
3/17/2004	8:03a	0	1	NW	315	
3/17/2004	8:04a	1	2	NW	315	
3/17/2004	8:05a	1	2	NW	315	
3/17/2004	8:06a	1	1	NW	315	
3/17/2004	8:07a	0	1	NW	315	
3/17/2004	8:08a	1	2	NW	315	
3/17/2004	8:09a	2	5	NW	315	
3/17/2004	8:10a	2	5	NW	315	
3/17/2004	8:11a	2	3	NW	315	
3/17/2004	8:12a	1	3	NW	315	

Direction	Angle
N	0
Nne	22.5
NE	45
ENE	67.5
E	90
ESE	112.5
SE	135
SSE	157.5
S	180
SSW	202.5
SW	225
WSW	247.5
W	270
WNW	292.5
NW	315
NNW	337.5

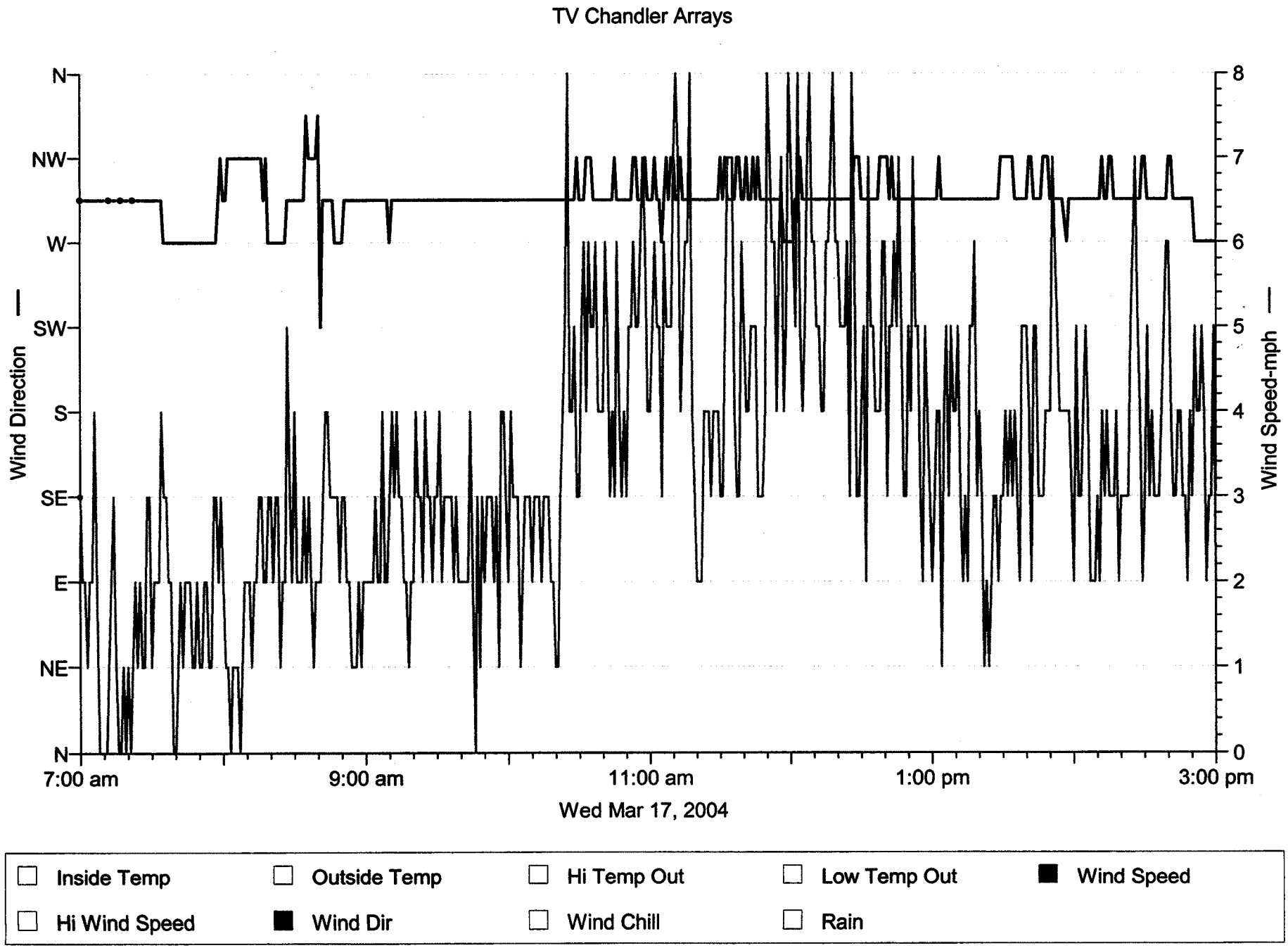
Date	Time	Wind Speed	[redacted] Hi	Arc Dir	Angle	
3/17/2004	8:13a	2	3	NW	315	
3/17/2004	8:14a	2	3	NW	315	
3/17/2004	8:15a	3	5	NW	315	Stop 816
3/17/2004	8:21a	2	4	W	270	Start 821
3/17/2004	8:22a	3	5	W	270	
3/17/2004	8:23a	3	4	W	270	
3/17/2004	8:24a	1	2	W	270	
3/17/2004	8:25a	2	3	W	270	
3/17/2004	8:26a	2	7	W	270	
3/17/2004	8:27a	5	7	WNW	292.5	
3/17/2004	8:28a	3	4	WNW	292.5	
3/17/2004	8:29a	2	3	WNW	292.5	
3/17/2004	8:30a	4	5	WNW	292.5	
3/17/2004	8:31a	2	3	WNW	292.5	
3/17/2004	8:32a	2	4	WNW	292.5	
3/17/2004	8:33a	2	4	WNW	292.5	
3/17/2004	8:34a	3	5	WNW	292.5	Stop Run # 1
Averages		1.73	3.2		289.8	WNW

3/17/2004	9:17a	2	3	WNW	292.5	Start Run # 2		
3/17/2004	9:18a	1	2	WNW	292.5			
3/17/2004	9:19a	2	4	WNW	292.5			
3/17/2004	9:20a	2	4	WNW	292.5			
3/17/2004	9:21a	4	7	WNW	292.5			
3/17/2004	9:22a	3	6	WNW	292.5			
3/17/2004	9:23a	3	5	WNW	292.5			
3/17/2004	9:24a	2	4	WNW	292.5			
3/17/2004	9:25a	4	6	WNW	292.5	Stop 926		
3/17/2004	9:42a	2	4	WNW	292.5	Start 942		
3/17/2004	9:43a	2	4	WNW	292.5		Direction	Angle
3/17/2004	9:44a	4	6	WNW	292.5		N	0
3/17/2004	9:45a	2	4	WNW	292.5		Nne	22.5
3/17/2004	9:46a	0	1	WNW	292.5		NE	45
3/17/2004	9:47a	3	5	WNW	292.5		ENE	67.5
3/17/2004	9:48a	1	4	WNW	292.5		E	90
3/17/2004	9:49a	3	5	WNW	292.5		ESE	112.5
3/17/2004	9:50a	2	4	WNW	292.5		SE	135
3/17/2004	9:51a	3	4	WNW	292.5	Stop 952	SSE	157.5
3/17/2004	11:53a	6	9	WNW	292.5	Start 1153	S	180
3/17/2004	11:54a	4	6	WNW	292.5		SSW	202.5
3/17/2004	11:55a	6	9	WNW	292.5		SW	225
3/17/2004	11:56a	7	9	WNW	292.5		WSW	247.5
3/17/2004	11:57a	4	5	W	270		W	270
3/17/2004	11:58a	5	10	W	270		WNW	292.5
3/17/2004	11:59a	8	10	W	270		NW	315
3/17/2004	12:00p	7	10	W	270		NNW	337.5
3/17/2004	12:01p	6	9	W	270			

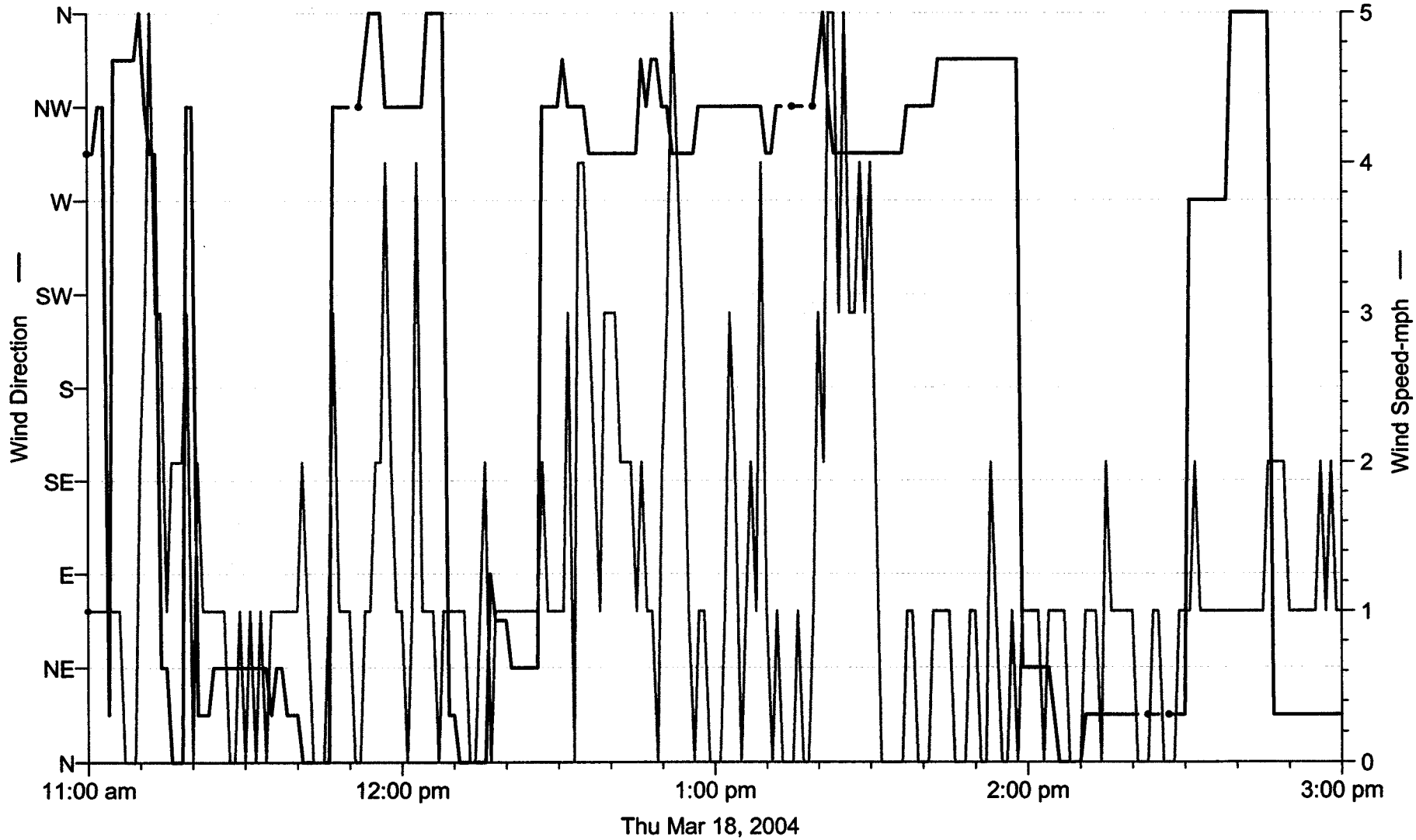
Date	Time	Wind Speed	[redacted] Hi	Arc Dir	Angle	
3/17/2004	12:02p	5	13	WNW	292.5	
3/17/2004	12:03p	8	12	WNW	292.5	
3/17/2004	12:04p	5	8	NW	315	
3/17/2004	12:05p	4	7	WNW	292.5	
3/17/2004	12:06p	5	7	WNW	292.5	
3/17/2004	12:07p	7	10	WNW	292.5	
3/17/2004	12:08p	8	13	WNW	292.5	
3/17/2004	12:09p	6	7	WNW	292.5	
3/17/2004	12:10p	6	8	WNW	292.5	
3/17/2004	12:11p	5	8	WNW	292.5	
3/17/2004	12:12p	5	7	WNW	292.5	
3/17/2004	12:13p	4	7	WNW	292.5	
3/17/2004	12:14p	4	8	WNW	292.5	
3/17/2004	12:15p	6	8	WNW	292.5	
3/17/2004	12:16p	6	10	WNW	292.5	
3/17/2004	12:17p	7	10	WNW	292.5	
3/17/2004	12:18p	8	10	WNW	292.5	
3/17/2004	12:19p	6	8	WNW	292.5	
3/17/2004	12:20p	6	11	WNW	292.5	
3/17/2004	12:21p	5	7	WNW	292.5	
3/17/2004	12:22p	5	7	WNW	292.5	Stop 1223
3/17/2004	1:11p	5	8	WNW	292.5	Start 1311
3/17/2004	1:12p	3	5	WNW	292.5	
3/17/2004	1:13p	2	3	WNW	292.5	
3/17/2004	1:14p	3	5	WNW	292.5	
3/17/2004	1:15p	2	4	WNW	292.5	
3/17/2004	1:16p	5	6	WNW	292.5	
3/17/2004	1:17p	5	9	WNW	292.5	
3/17/2004	1:18p	6	8	WNW	292.5	
3/17/2004	1:19p	3	5	WNW	292.5	
3/17/2004	1:20p	4	5	WNW	292.5	
3/17/2004	1:21p	3	4	WNW	292.5	Stop Run # 2
Averages		4.3	6.8		291.0	WNW

3/18/2004	12:40p	3	5	WNW	292.5	Start Run # 3
3/18/2004	12:41p	3	4	WNW	292.5	
3/18/2004	12:42p	2	3	WNW	292.5	
3/18/2004	12:43p	2	3	WNW	292.5	
3/18/2004	12:44p	2	4	WNW	292.5	
3/18/2004	12:45p	1	3	WNW	292.5	
3/18/2004	12:46p	2	4	NNW	337.5	
3/18/2004	12:47p	1	2	NW	315	
3/18/2004	12:48p	1	2	NNW	337.5	
3/18/2004	12:49p	0	1	NNW	337.5	
3/18/2004	12:50p	2	5	NW	315	
3/18/2004	12:51p	3	5	NW	315	
3/18/2004	12:52p	5	8	WNW	292.5	
3/18/2004	12:53p	4	5	WNW	292.5	

Date	Time	Wind Speed	[redacted] Hi	Arc Dir	Angle			
3/18/2004	12:54p	3	4	WNW	292.5			
3/18/2004	12:55p	1	2	WNW	292.5			
3/18/2004	12:56p	0	2	WNW	292.5			
3/18/2004	12:57p	1	2	NW	315			
3/18/2004	12:58p	1	2	NW	315			
3/18/2004	12:59p	0	2	NW	315	Stop 1300		
3/18/2004	1:12p	1	2	NW	315	Start 1312		
3/18/2004	1:13p	0	1	NW	315			
3/18/2004	1:14p	0	1	---				
3/18/2004	1:15p	0	1	NW	315			
3/18/2004	1:16p	1	2	NW	315			
3/18/2004	1:17p	0	2	NW	315			
3/18/2004	1:18p	0	1	---				
3/18/2004	1:19p	1	2	NW	315			
3/18/2004	1:20p	3	4	NNW	337.5			
3/18/2004	1:21p	2	4	N	360			
3/18/2004	1:22p	5	6	NW	315	Stop 1323		
3/18/2004	1:55p	0	1	NNW	337.5	Start 1355		
3/18/2004	1:56p	0	1	NNW	337.5			
3/18/2004	1:57p	1	1	NNW	337.5		Direction	Angle
3/18/2004	1:58p	0	1	NNW	337.5		N	360
3/18/2004	1:59p	1	2	NE	405		Nne	382.5
3/18/2004	2:00p	1	2	NE	405		NE	405
3/18/2004	2:01p	1	3	NE	405		ENE	427.5
3/18/2004	2:02p	1	3	NE	405		E	450
3/18/2004	2:03p	0	1	NE	405		ESE	112.5
3/18/2004	2:04p	1	2	NE	405		SE	135
3/18/2004	2:05p	1	2	NNE	282.5		SSE	157.5
3/18/2004	2:06p	1	3	N	360		S	180
3/18/2004	2:07p	1	1	N	360		SSW	202.5
3/18/2004	2:08p	0	1	N	360		SW	225
3/18/2004	2:09p	0	1	N	360	Stop 1410	WSW	247.5
3/18/2004	2:34p	1	1	W	270	Start 1434	W	270
3/18/2004	2:35p	1	1	W	270		WNW	292.5
3/18/2004	2:36p	1	3	W	270		NW	315
3/18/2004	2:37p	1	1	W	270		NNW	337.5
3/18/2004	2:38p	1	2	W	270			
3/18/2004	2:39p	1	2	N	360			
3/18/2004	2:40p	1	2	N	360			
3/18/2004	2:41p	1	2	N	360			
3/18/2004	2:42p	1	2	N	360			
3/18/2004	2:43p	1	2	N	360			
3/18/2004	2:44p	1	2	N	360			
3/18/2004	2:45p	1	2	N	360			
3/18/2004	2:46p	2	3	N	360			
3/18/2004	2:47p	2	4	NNE	382.5			
3/18/2004	2:48p	2	3	NNE	382.5			
3/18/2004	2:49p	2	3	NNE	382.5			
3/18/2004	2:50p	1	2	NNE	382.5			
Average		1.3	2.5		332.54098	NNW		


TV Chandler Arrays
Wind Direction
N
NW
W
SW
S
SE
E
NE
N
Wind Speed-mph
8
7
6
5
4
3
2
1
0
7:00 am
9:00 am
11:00 am
1:00 pm
3:00 pm
Wed Mar 17, 2004
Inside Temp
Outside Temp
Hi Temp Out
Low Temp Out
Wind Speed
Hi Wind Speed
Wind Dir
Wind Chill
Rain

TV Chandler Arrays



☐ Inside Temp	☐ Outside Temp	☐ Hi Temp Out	☐ Low Temp Out	■ Wind Speed
☐ Hi Wind Speed	■ Wind Dir	☐ Wind Chill	☐ Rain	

APPENDIX D5

CONCRETE SUPPLY TRUCK MIX

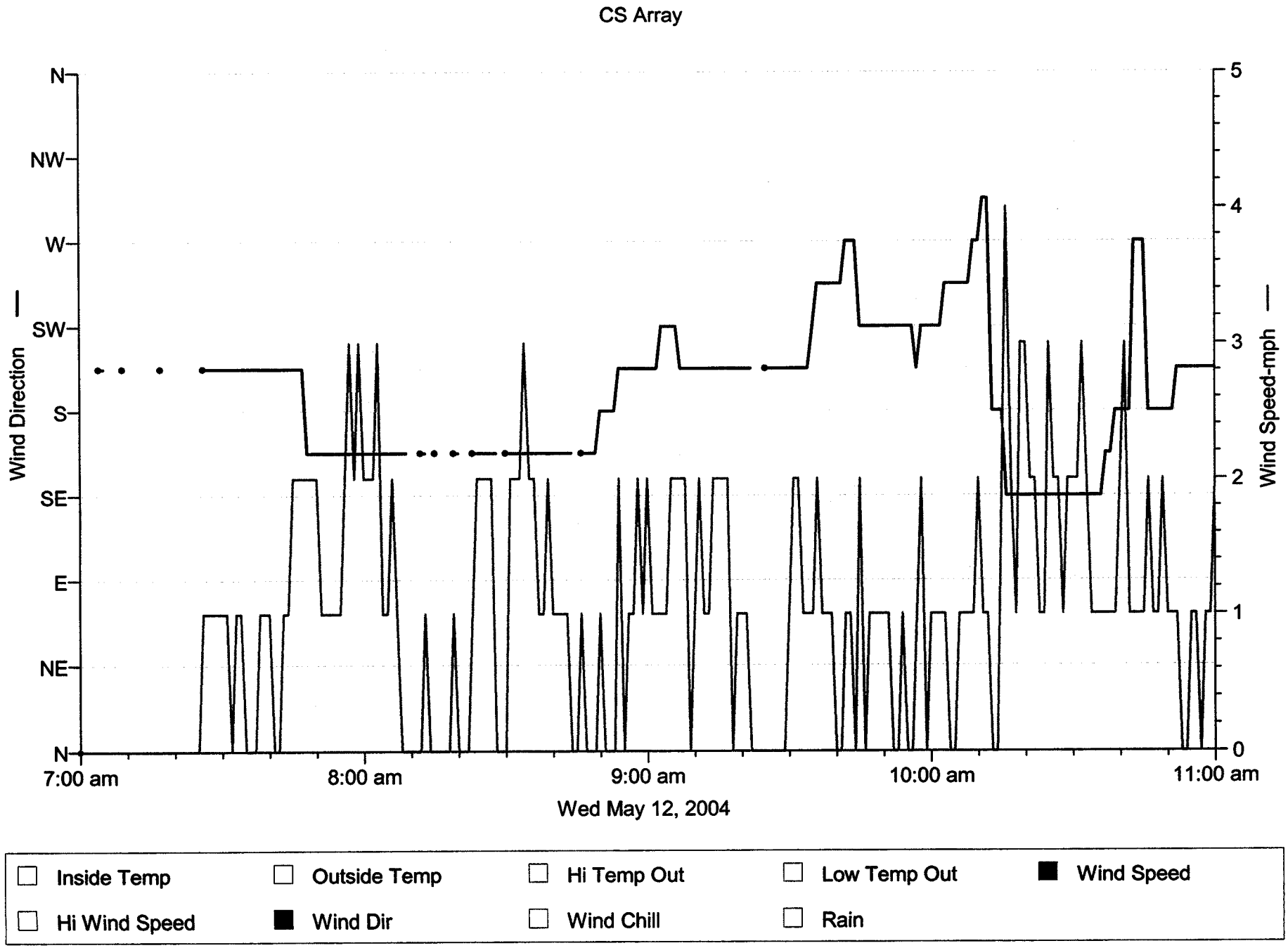
WIND SPEED AND DIRECTION DATA

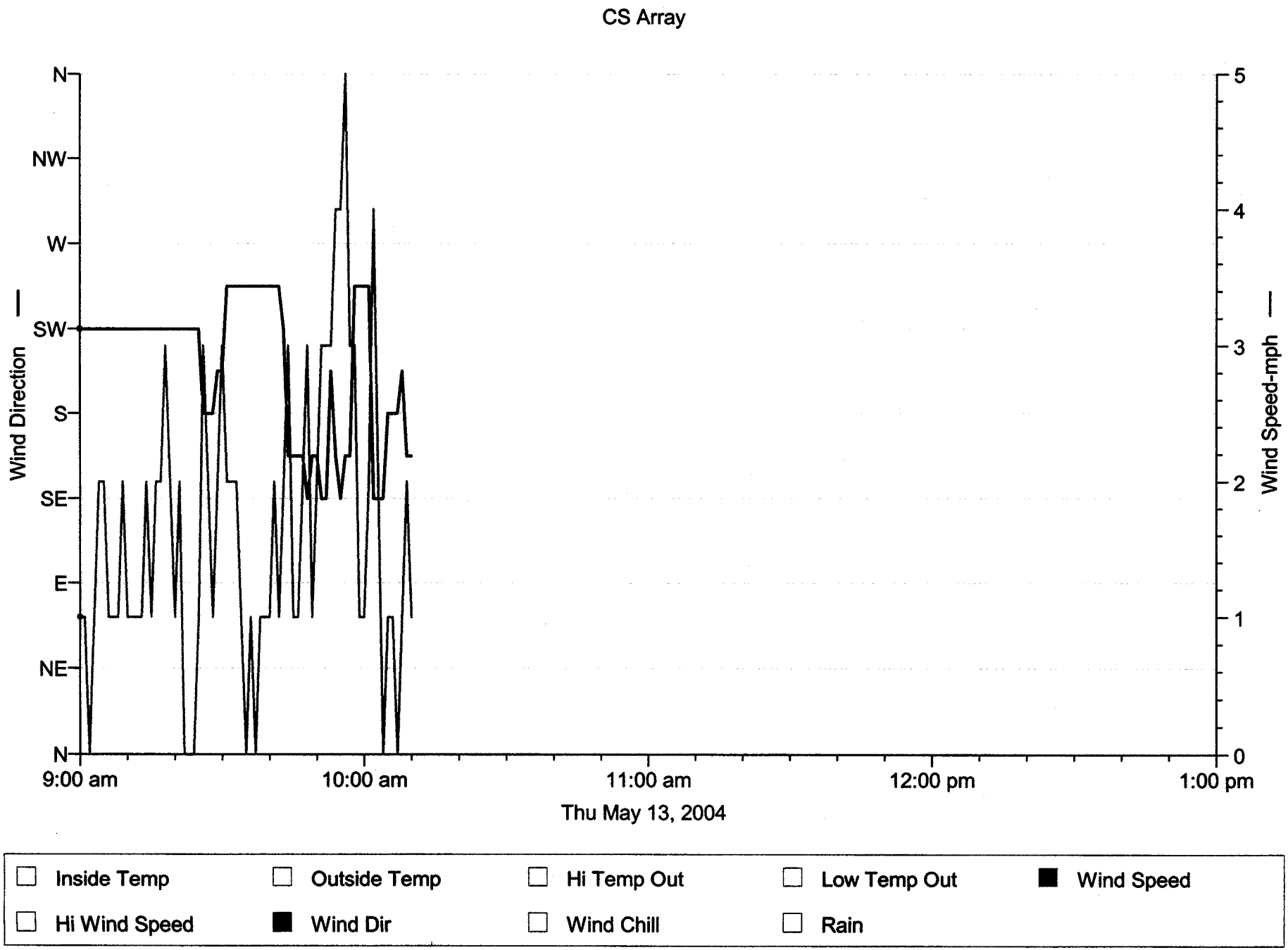
Date	Time	Avg Wind Speed	Wind Hi	Arc Dir	Angle		
5/12/2004	7:50a	2	3	SSE	157.5	Start Run # 1	
5/12/2004	7:51a	1	2	SSE	157.5		
5/12/2004	7:52a	1	2	SSE	157.5		
5/12/2004	7:53a	1	2	SSE	157.5		
5/12/2004	7:54a	1	3	SSE	157.5		
5/12/2004	7:55a	1	2	SSE	157.5		
5/12/2004	7:56a	2	3	SSE	157.5		
5/12/2004	7:57a	3	4	SSE	157.5		
5/12/2004	7:58a	2	3	SSE	157.5		
5/12/2004	7:59a	3	3	SSE	157.5		
5/12/2004	8:00a	2	2	SSE	157.5		
5/12/2004	8:01a	2	4	SSE	157.5		
5/12/2004	8:02a	2	2	SSE	157.5		
5/12/2004	8:03a	3	3	SSE	157.5		
5/12/2004	8:04a	1	3	SSE	157.5		
5/12/2004	8:05a	1	2	SSE	157.5		
5/12/2004	8:06a	2	3	SSE	157.5		
5/12/2004	8:07a	1	3	SSE	157.5		
5/12/2004	8:08a	0	2	SSE	157.5		
5/12/2004	8:09a	0	2	SSE	157.5		
5/12/2004	8:10a	0	1	---			
5/12/2004	8:11a	0	0	---			
5/12/2004	8:12a	0	2	SSE	157.5		
5/12/2004	8:13a	1	2	SSE	157.5	N	0
5/12/2004	8:14a	0	1	---		NNE	22.5
5/12/2004	8:15a	0	1	SSE	157.5	NE	45
5/12/2004	8:16a	0	0	---		ENE	67.5
5/12/2004	8:17a	0	0	---		E	90
5/12/2004	8:18a	0	0	---		ESE	112.5
5/12/2004	8:19a	1	2	SSE	157.5	SE	135
5/12/2004	8:20a	0	1	SSE	157.5	SSE	157.5
5/12/2004	8:21a	0	0	---		S	180
5/12/2004	8:22a	0	1	---		SSW	202.5
5/12/2004	8:23a	1	2	SSE	157.5	SW	225
5/12/2004	8:24a	2	3	SSE	157.5	WSW	247.5
5/12/2004	8:25a	2	3	SSE	157.5	W	270
5/12/2004	8:26a	2	3	SSE	157.5	WNW	292.5
5/12/2004	8:27a	2	3	SSE	157.5	NW	315
5/12/2004	8:28a	0	1	SSE	157.5	NNW	337.5
5/12/2004	8:29a	0	0	---			
5/12/2004	8:30a	0	1	SSE	157.5		
5/12/2004	8:31a	2	3	SSE	157.5		
5/12/2004	8:32a	2	4	SSE	157.5		
5/12/2004	8:33a	2	3	SSE	157.5		
5/12/2004	8:34a	3	4	SSE	157.5		
5/12/2004	8:35a	2	3	SSE	157.5		
5/12/2004	8:36a	2	3	SSE	157.5		
5/12/2004	8:37a	1	2	SSE	157.5		
5/12/2004	8:38a	1	2	SSE	157.5		
5/12/2004	8:39a	2	3	SSE	157.5		

Date	Time	Avg Wind Speed	Wind Hi	Arc Dir	Angle		
5/12/2004	8:40a	1	2	SSE	157.5		
5/12/2004	8:41a	1	2	SSE	157.5		
5/12/2004	8:42a	1	2	SSE	157.5		
5/12/2004	8:43a	1	2	SSE	157.5		
5/12/2004	8:44a	0	1	SSE	157.5		
5/12/2004	8:45a	0	0	---			
5/12/2004	8:46a	1	1	SSE	157.5		
5/12/2004	8:47a	0	1	SSE	157.5		
5/12/2004	8:48a	0	1	SSE	157.5		
5/12/2004	8:49a	0	1	SSE	157.5		
5/12/2004	8:50a	1	2	S	180		
5/12/2004	8:51a	0	1	S	180	Stop Run # 1	
Averages		1.05	1.98	SSE	158.3654		
5/12/2004	10:07a	1	1	WSW	247.5	Start Run # 2	
5/12/2004	10:08a	1	2	WSW	247.5		
5/12/2004	10:09a	1	2	W	270		
5/12/2004	10:10a	2	2	W	270		
5/12/2004	10:11a	1	2	WNW	292.5		
5/12/2004	10:12a	1	2	WNW	292.5		
5/12/2004	10:13a	0	1	S	180		
5/12/2004	10:14a	0	1	S	180		
5/12/2004	10:15a	2	3	S	180	N	0
5/12/2004	10:16a	4	4	SE	135	NNE	22.5
5/12/2004	10:17a	2	4	SE	135	NE	45
5/12/2004	10:18a	1	3	SE	135	ENE	67.5
5/12/2004	10:19a	3	4	SE	135	E	90
5/12/2004	10:20a	3	4	SE	135	ESE	112.5
5/12/2004	10:21a	2	4	SE	135	SE	135
5/12/2004	10:22a	2	3	SE	135	SSE	157.5
5/12/2004	10:23a	1	2	SE	135	S	180
5/12/2004	10:24a	1	3	SE	135	SSW	202.5
5/12/2004	10:25a	3	5	SE	135	SW	225
5/12/2004	10:26a	2	3	SE	135	WSW	247.5
5/12/2004	10:27a	2	3	SE	135	W	270
5/12/2004	10:28a	1	3	SE	135	WNW	292.5
5/12/2004	10:29a	2	3	SE	135	NW	315
5/12/2004	10:30a	2	3	SE	135	NNW	337.5
5/12/2004	10:31a	2	3	SE	135		
5/12/2004	10:32a	3	4	SE	135		
5/12/2004	10:33a	2	4	SE	135		
5/12/2004	10:34a	1	2	SE	135		
5/12/2004	10:35a	1	1	SE	135		
5/12/2004	10:36a	1	2	SE	135		
5/12/2004	10:37a	1	2	SSE	157.5		
5/12/2004	10:38a	1	2	SSE	157.5		
5/12/2004	10:39a	1	2	S	180		
5/12/2004	10:40a	2	3	S	180		

Date	Time	Avg Wind Speed	Wind Hi	Arc Dir	Angle		
5/12/2004	10:41a	3	3	S	180		
5/12/2004	10:42a	1	2	S	180		
5/12/2004	10:43a	1	3	W	270		
5/12/2004	10:44a	1	2	W	270		
5/12/2004	10:45a	1	3	W	270		
5/12/2004	10:46a	2	4	S	180		
5/12/2004	10:47a	1	1	S	180		
5/12/2004	10:48a	1	2	S	180		
5/12/2004	10:49a	2	3	S	180		
5/12/2004	10:50a	1	2	S	180		
5/12/2004	10:51a	1	2	S	180		
5/12/2004	10:52a	1	2	SSW	202.5		
5/12/2004	10:53a	0	2	SSW	202.5		
5/12/2004	10:54a	0	1	SSW	202.5		
5/12/2004	10:55a	1	2	SSW	202.5		
5/12/2004	10:56a	1	1	SSW	202.5		
5/12/2004	10:57a	0	1	SSW	202.5		
5/12/2004	10:58a	1	2	SSW	202.5		
5/12/2004	10:59a	1	2	SSW	202.5		
5/12/2004	11:00a	2	3	SSW	202.5		
5/12/2004	11:01a	2	4	SSW	202.5		
5/12/2004	11:02a	3	4	SW	225		
5/12/2004	11:03a	2	4	SW	225		
5/12/2004	11:04a	2	4	WSW	247.5		
5/12/2004	11:05a	2	5	WSW	247.5		
5/12/2004	11:06a	1	2	WSW	247.5	Stop Run # 2	
Averages		1.48	2.63	S	185.6		
5/13/2004	9:06a	1	2	SW	225	Start Run # 3	
5/13/2004	9:07a	1	1	SW	225		
5/13/2004	9:08a	1	2	SW	225		
5/13/2004	9:09a	2	3	SW	225	N	0
5/13/2004	9:10a	1	2	SW	225	NNE	22.5
5/13/2004	9:11a	1	3	SW	225	NE	45
5/13/2004	9:12a	1	2	SW	225	ENE	67.5
5/13/2004	9:13a	1	2	SW	225	E	90
5/13/2004	9:14a	2	3	SW	225	ESE	112.5
5/13/2004	9:15a	1	2	SW	225	SE	135
5/13/2004	9:16a	2	3	SW	225	SSE	157.5
5/13/2004	9:17a	2	4	SW	225	S	180
5/13/2004	9:18a	3	4	SW	225	SSW	202.5
5/13/2004	9:19a	2	3	SW	225	SW	225
5/13/2004	9:20a	1	2	SW	225	WSW	247.5
5/13/2004	9:21a	2	2	SW	225	W	270
5/13/2004	9:22a	0	2	SW	225	WNW	292.5
5/13/2004	9:23a	0	1	SW	225	NW	315
5/13/2004	9:24a	0	1	SW	225	NNW	337.5

Date	Time	Avg Wind Speed	Wind Hi	Arc Dir	Angle	
5/13/2004	9:25a	1	4	SW	225	
5/13/2004	9:26a	3	5	S	180	
5/13/2004	9:27a	2	3	S	180	
5/13/2004	9:28a	1	2	S	180	
5/13/2004	9:29a	2	4	SSW	202.5	
5/13/2004	9:30a	3	4	SSW	202.5	
5/13/2004	9:31a	2	3	WSW	247.5	
5/13/2004	9:32a	2	3	WSW	247.5	
5/13/2004	9:33a	2	4	WSW	247.5	
5/13/2004	9:34a	1	3	WSW	247.5	
5/13/2004	9:35a	0	1	WSW	247.5	
5/13/2004	9:36a	1	1	WSW	247.5	
5/13/2004	9:37a	0	1	WSW	247.5	
5/13/2004	9:38a	1	2	WSW	247.5	
5/13/2004	9:39a	1	2	WSW	247.5	
5/13/2004	9:40a	1	4	WSW	247.5	
5/13/2004	9:41a	2	3	WSW	247.5	
5/13/2004	9:42a	1	2	WSW	247.5	
5/13/2004	9:43a	2	3	SW	225	
5/13/2004	9:44a	3	6	SSE	157.5	
5/13/2004	9:45a	1	2	SSE	157.5	
5/13/2004	9:46a	1	2	SSE	157.5	
5/13/2004	9:47a	2	4	SSE	157.5	
5/13/2004	9:48a	3	5	SE	135	
5/13/2004	9:49a	1	2	SSE	157.5	
5/13/2004	9:50a	2	4	SSE	157.5	
5/13/2004	9:51a	3	5	SE	135	
5/13/2004	9:52a	3	5	SE	135	
5/13/2004	9:53a	3	5	SSW	202.5	
5/13/2004	9:54a	4	7	SSE	157.5	
5/13/2004	9:55a	4	6	SE	135	
5/13/2004	9:56a	5	7	SSE	157.5	
5/13/2004	9:57a	3	5	SSE	157.5	Stop @ 958
5/13/2004	10:02a	4	7	SE	135	Start @ 1002
5/13/2004	10:03a	2	3	SE	135	
5/13/2004	10:04a	0	1	SE	135	
5/13/2004	10:05a	1	2	S	180	
5/13/2004	10:06a	1	1	S	180	
5/13/2004	10:07a	0	1	S	180	
5/13/2004	10:08a	1	2	SSW	202.5	
5/13/2004	10:09a	2	4	SSE	157.5	
5/13/2004	10:10a	1	2	SSE	157.5	Stop Run # 3
Averages		1.67	3.05	SSW	201.0	


CS Array
Wind Direction
N
NW
W
SW
S
SE
E
NE
N
Wind Speed-mph
5
4
3
2
1
0
7:00 am
8:00 am
9:00 am
10:00 am
11:00 am
Wed May 12, 2004
Inside Temp
Outside Temp
Hi Temp Out
Low Temp Out
Wind Speed
Hi Wind Speed
Wind Dir
Wind Chill
Rain


CS Array
N
NW
W
SW
S
SE
E
NE
N
Wind Direction
5
4
3
2
1
0
Wind Speed-mph
9:00 am
10:00 am
11:00 am
12:00 pm
1:00 pm
Thu May 13, 2004
Inside Temp
Outside Temp
Hi Temp Out
Low Temp Out
Wind Speed
Hi Wind Speed
Wind Dir
Wind Chill
Rain

APPENDIX D6

RMC CENTRAL MIX

WIND SPEED AND DIRECTION DATA

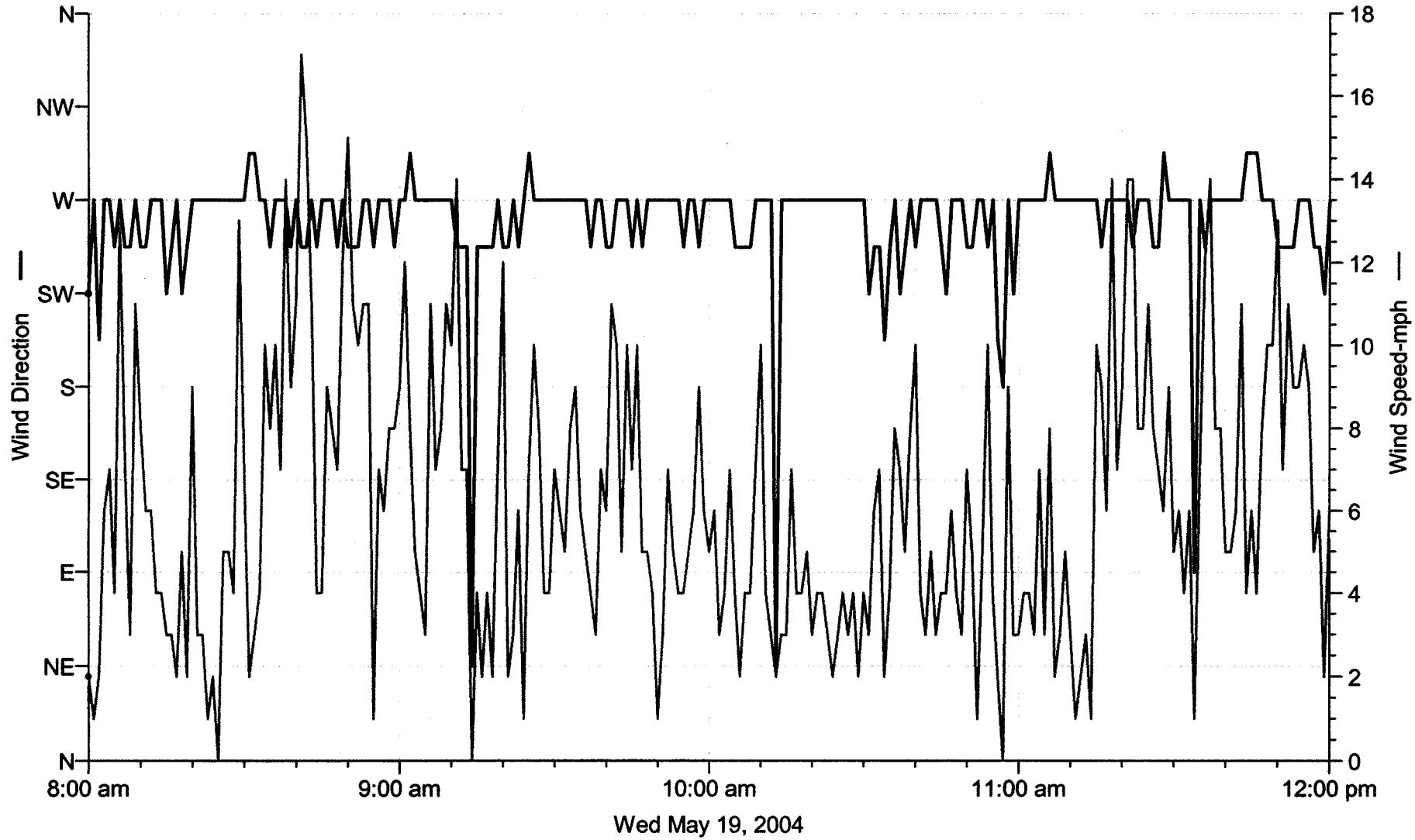
Date	Time	AVG Wind Speed	Wind Hi	Arc Dir	Angle		
5/19/2004	8:10a	8	14	WSW	247.5	Start Run # 1	
5/19/2004	8:11a	6	10	WSW	247.5		
5/19/2004	8:12a	6	12	W	207		
5/19/2004	8:13a	4	9	W	207		
5/19/2004	8:14a	4	11	W	207		
5/19/2004	8:15a	3	7	SW	225		
5/19/2004	8:16a	3	8	WSW	247.5		
5/19/2004	8:17a	2	7	W	270		
5/19/2004	8:18a	5	12	SW	225		
5/19/2004	8:19a	2	7	WSW	247.5		
5/19/2004	8:20a	9	18	W	270		
5/19/2004	8:21a	3	9	W	270		
5/19/2004	8:22a	3	9	W	270		
5/19/2004	8:23a	1	2	W	270		
5/19/2004	8:24a	2	7	W	270		
5/19/2004	8:25a	0	1	W	270	N	0
5/19/2004	8:26a	5	7	W	270	NNE	22.5
5/19/2004	8:27a	5	10	W	270	NE	45
5/19/2004	8:28a	4	10	W	270	ENE	67.5
5/19/2004	8:29a	13	18	W	270	E	90
5/19/2004	8:30a	7	14	W	270	ESE	112.5
5/19/2004	8:31a	2	5	WNW	292.5	SE	135
5/19/2004	8:32a	3	9	WNW	292.5	SSE	157.5
5/19/2004	8:33a	4	10	W	270	S	180
5/19/2004	8:34a	10	16	W	270	SSW	202.5
5/19/2004	8:35a	8	12	WSW	247.5	SW	225
5/19/2004	8:36a	10	23	W	270	WSW	247.5
5/19/2004	8:37a	7	16	W	270	W	270
5/19/2004	8:38a	14	22	W	270	WNW	292.5
5/19/2004	8:39a	9	17	WSW	247.5	NW	315
5/19/2004	8:40a	11	21	W	270	NNW	337.5
5/19/2004	8:41a	17	26	WSW	247.5		
5/19/2004	8:42a	15	24	WSW	247.5		
5/19/2004	8:43a	11	22	W	270		
5/19/2004	8:44a	4	13	WSW	247.5		
5/19/2004	8:45a	4	10	W	270		
5/19/2004	8:46a	9	21	W	270		
5/19/2004	8:47a	8	16	W	270		
5/19/2004	8:48a	7	12	WSW	247.5		
5/19/2004	8:49a	12	20	W	270		
5/19/2004	8:50a	15	31	WSW	247.5		
5/19/2004	8:51a	11	20	WSW	247.5		
5/19/2004	8:52a	10	15	WSW	247.5		
5/19/2004	8:53a	11	22	W	270		
5/19/2004	8:54a	11	22	W	270		
5/19/2004	8:55a	1	5	WSW	247.5		
5/19/2004	8:56a	7	15	W	270		
5/19/2004	8:57a	6	13	W	270		
5/19/2004	8:58a	8	27	W	270		
5/19/2004	8:59a	8	17	WSW	247.5		

Date	Time	AVG Wind Speed	Wind Hi	Arc Dir	Angle		
5/19/2004	9:00a	9	22	W	270		
5/19/2004	9:01a	12	18	W	270		
5/19/2004	9:02a	8	12	WNW	292.5		
5/19/2004	9:03a	5	10	W	270		
5/19/2004	9:04a	4	10	W	270		
5/19/2004	9:05a	3	6	W	270		
5/19/2004	9:06a	11	17	W	270		
5/19/2004	9:07a	7	13	W	270		
5/19/2004	9:08a	8	16	W	270		
5/19/2004	9:09a	11	22	W	270	Stop Run # 1	
Averages		7.1	14.2	W	260.85		
5/19/2004	10:08a	4	8	WSW	247.5	Start Run # 2	
5/19/2004	10:09a	7	15	W	270		
5/19/2004	10:10a	10	20	W	270		
5/19/2004	10:11a	4	10	W	270		
5/19/2004	10:12a	3	16	W	270		
5/19/2004	10:13a	2	5	NE	45		
5/19/2004	10:14a	3	9	W	270		
5/19/2004	10:15a	3	9	W	270	N	0
5/19/2004	10:16a	7	19	W	270	NNE	22.5
5/19/2004	10:17a	4	9	W	270	NE	45
5/19/2004	10:18a	4	11	W	270	ENE	67.5
5/19/2004	10:19a	5	10	W	270	E	90
5/19/2004	10:20a	3	8	W	270	ESE	112.5
5/19/2004	10:21a	4	21	W	270	SE	135
5/19/2004	10:22a	4	10	W	270	SSE	157.5
5/19/2004	10:23a	3	7	W	270	S	180
5/19/2004	10:24a	2	8	W	270	SSW	202.5
5/19/2004	10:25a	3	12	W	270	SW	225
5/19/2004	10:26a	4	11	W	270	WSW	247.5
5/19/2004	10:27a	3	11	W	270	W	270
5/19/2004	10:28a	4	12	W	270	WNW	292.5
5/19/2004	10:29a	2	9	W	270	NW	315
5/19/2004	10:30a	4	10	W	270	NNW	337.5
5/19/2004	10:31a	3	8	SW	225		
5/19/2004	10:32a	6	14	WSW	247.5		
5/19/2004	10:33a	7	14	WSW	247.5		
5/19/2004	10:34a	2	8	SSW	202.5		
5/19/2004	10:35a	4	9	WSW	247.5		
5/19/2004	10:36a	8	12	W	270		
5/19/2004	10:37a	7	12	SW	225		
5/19/2004	10:38a	5	8	WSW	247.5		
5/19/2004	10:39a	8	14	W	270		
5/19/2004	10:40a	10	16	WSW	247.5		
5/19/2004	10:41a	4	10	W	270		
5/19/2004	10:42a	3	9	W	270		

Date	Time	AVG Wind Speed	Wind Hi	Arc Dir	Angle		
5/19/2004	10:43a	5	12	W	270		
5/19/2004	10:44a	3	8	W	270		
5/19/2004	10:45a	4	9	WSW	247.5		
5/19/2004	10:46a	4	9	SW	225		
5/19/2004	10:47a	6	10	W	270		
5/19/2004	10:48a	4	7	W	270		
5/19/2004	10:49a	3	6	W	270		
5/19/2004	10:50a	7	11	WSW	247.5		
5/19/2004	10:51a	5	10	WSW	247.5		
5/19/2004	10:52a	1	6	W	270		
5/19/2004	10:53a	5	10	W	270		
5/19/2004	10:54a	10	16	WSW	247.5		
5/19/2004	10:55a	4	7	W	270		
5/19/2004	10:56a	2	5	SSW	202.5		
5/19/2004	10:57a	0	8	S	180		
5/19/2004	10:58a	9	13	W	270		
5/19/2004	10:59a	3	7	SW	225		
5/19/2004	11:00a	3	6	W	270		
5/19/2004	11:01a	4	9	W	270		
5/19/2004	11:02a	4	13	W	270	Stop @ 1103	
5/19/2004	11:06a	8	14	WNW	292.5	Start @ 1108	
5/19/2004	11:08a	3	8	W	270		
5/19/2004	11:09a	5	13	W	270		
5/19/2004	11:10a	3	12	W	270		
5/19/2004	11:11a	1	6	W	270	Stop Run # 2	
Averages		4.42	10.5	WSW	256.13		
5/20/2004	8:52a	2	6	W	270	Start Run # 3	
5/20/2004	8:53a	3	8	W	270		
5/20/2004	8:54a	2	5	W	270		
5/20/2004	8:55a	2	3	W	270	N	0
5/20/2004	8:56a	3	6	W	270	NNE	22.5
5/20/2004	8:57a	2	4	WSW	247.5	NE	45
5/20/2004	8:58a	4	6	W	270	ENE	67.5
5/20/2004	8:59a	2	3	W	270	E	90
5/20/2004	9:00a	2	7	W	270	ESE	112.5
5/20/2004	9:01a	4	7	W	270	SE	135
5/20/2004	9:02a	4	8	W	270	SSE	157.5
5/20/2004	9:03a	5	8	W	270	S	180
5/20/2004	9:04a	2	5	W	270	SSW	202.5
5/20/2004	9:05a	2	4	W	270	SW	225
5/20/2004	9:06a	0	2	W	270	WSW	247.5
5/20/2004	9:07a	1	4	WSW	247.5	W	270
5/20/2004	9:08a	2	5	W	270	WNW	292.5
5/20/2004	9:09a	3	6	W	270	NW	315
5/20/2004	9:10a	1	8	WSW	247.5	NNW	337.5
5/20/2004	9:11a	5	8	WSW	247.5		

Date	Time	AVG Wind Speed	Wind Hi	Arc Dir	Angle		
5/20/2004	9:12a	1	6	WSW	247.5		
5/20/2004	9:13a	3	9	W	270		
5/20/2004	9:14a	4	8	W	270		
5/20/2004	9:15a	4	8	W	270		
5/20/2004	9:16a	2	8	W	270		
5/20/2004	9:17a	2	7	W	270		
5/20/2004	9:18a	2	6	W	270		
5/20/2004	9:19a	0	2	W	270		
5/20/2004	9:20a	0	2	W	270		
5/20/2004	9:21a	0	1	W	270		
5/20/2004	9:22a	0	1	WSW	247.5		
5/20/2004	9:23a	1	4	WSW	247.5		
5/20/2004	9:24a	1	3	WSW	247.5	N	0
5/20/2004	9:25a	1	4	W	270	NNE	22.5
5/20/2004	9:26a	1	4	WSW	247.5	NE	45
5/20/2004	9:27a	1	4	W	270	ENE	67.5
5/20/2004	9:28a	1	3	WSW	247.5	E	90
5/20/2004	9:29a	1	5	WSW	247.5	ESE	112.5
5/20/2004	9:30a	1	5	W	270	SE	135
5/20/2004	9:31a	3	6	W	270	SSE	157.5
5/20/2004	9:32a	0	3	WSW	247.5	S	180
5/20/2004	9:33a	2	5	WSW	247.5	SSW	202.5
5/20/2004	9:34a	2	6	W	270	SW	225
5/20/2004	9:35a	0	1	W	270	WSW	247.5
5/20/2004	9:36a	1	4	N	360	W	270
5/20/2004	9:37a	1	4	N	360	WNW	292.5
5/20/2004	9:38a	0	0	---		NW	315
5/20/2004	9:39a	1	4	E	90	NNW	337.5
5/20/2004	9:40a	0	3	WSW	247.5		
5/20/2004	9:41a	0	1	W	270		
5/20/2004	9:42a	0	0	---			
5/20/2004	9:43a	0	0	---			
5/20/2004	9:44a	1	5	W	270		
5/20/2004	9:45a	1	3	W	270		
5/20/2004	9:46a	0	2	SW	225		
5/20/2004	9:47a	0	0	---			
5/20/2004	9:48a	0	1	WSW	247.5		
5/20/2004	9:49a	0	1	---			
5/20/2004	9:50a	0	0	---			
5/20/2004	9:51a	0	0	---			
5/20/2004	9:52a	1	3	ESE	112.5	Stop Run # 3	
Averages		1.48	4.18		260.0		

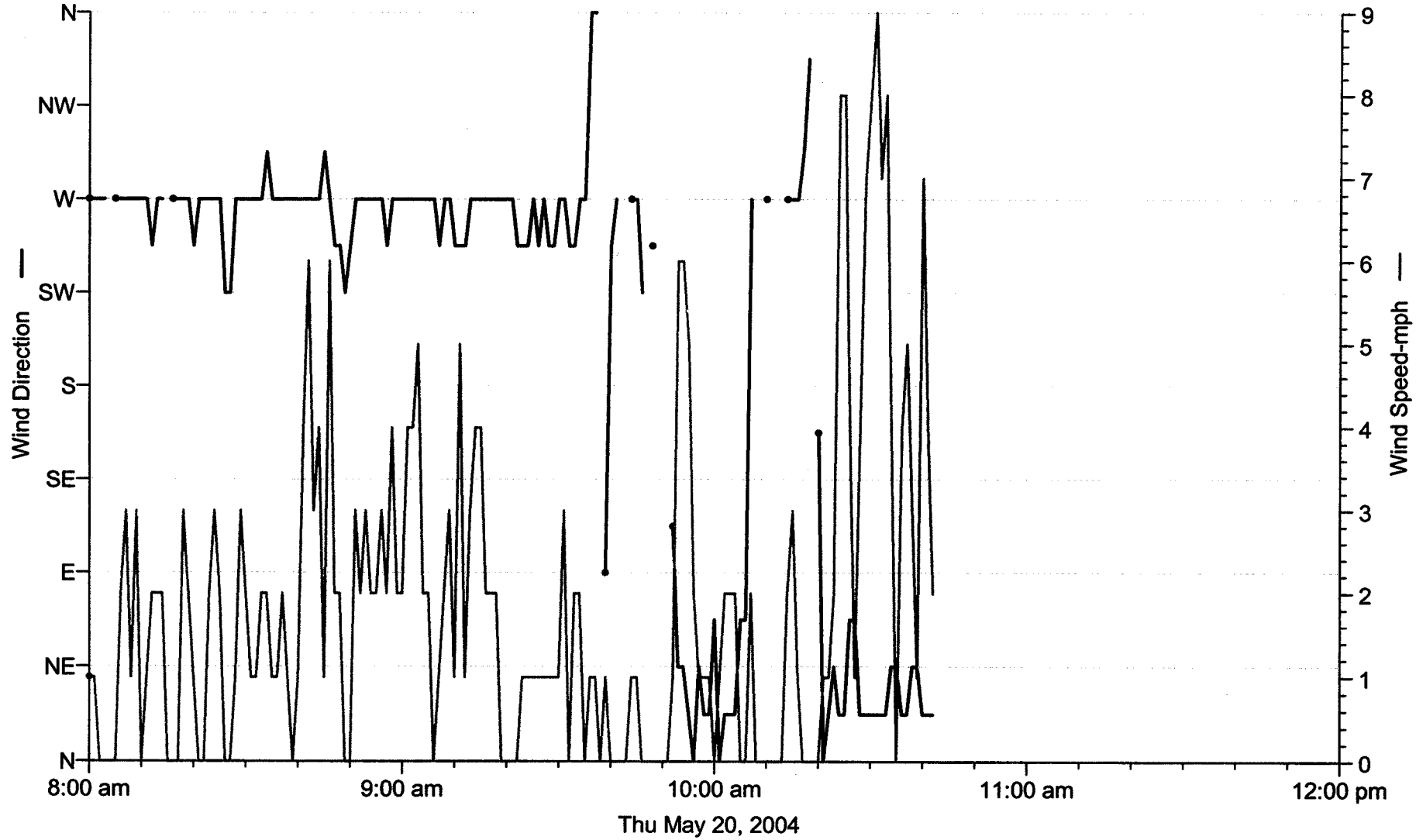
RMCARY



☐ Inside Temp ☐ Outside Temp ☐ Hi Temp Out ☐ Low Temp Out ■ Wind Speed

☐ Hi Wind Speed ■ Wind Dir ☐ Wind Chill ☐ Rain

RMCARY



☐ Inside Temp	☐ Outside Temp	☐ Hi Temp Out	☐ Low Temp Out	■ Wind Speed
☐ Hi Wind Speed	■ Wind Dir	☐ Wind Chill	☐ Rain	

APPENDIX E

EQUIPMENT CALIBRATION DATA

APPENDIX E1

RMCC TRUCK MIX &

RMCC CENTRAL MIX

EQUIPMENT CALIBRATION DATA

TEOM Verification/Audit Procedures

Plant Name: Ready Mixed Concrete CO. Client: NRMCA

Job No.: 877 City/State: Cary, NC Personnel : TTB

Date 12/1/03 Time 1405 Sampler Serial Number 24116

Calibration Constant 13528 Instrument Type AB

Constant A 3 Constant B 103

Audit Parameter	Reference Measurement	TEOM Measurement	Difference	Tolerances Allowed	Meets Tolerances √
Main Flow Leak Check	N/A	0.09	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.27	N/A	Less Than 0.60 L/min	✓
Ambient Temperature	20.6 °C	20.9 °C	0.3 °C	± 2 °C	✓
Ambient Temperature[1]	293.6 °K	N/A	N/A	N/A	N/A
Ambient Pressure	749.3 mm Hg	751.6 mm Hg	2.3 mm Hg	± 10 mm Hg	✓
Ambient Pressure[1]	0.986 atm	N/A	N/A	N/A	N/A
Total Flow Rate, Audit Qact	16.49 L/min	16.64 L/min	0.15 L/min	16.67 ± 1.0 L/min	✓
Main Flow Rate, Audit Qact [2]	2.98 L/min	2.99 L/min	0.01 L/min	3.0 ± 0.2 L/min	✓
Main Flow Leak Check	N/A	0.06	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.20	N/A	Less Than 0.60 L/min	✓

[1] Ambient temperature (°K) and pressure (atm) used for flow audit calculations.
[2]The end of the flow splitter must be capped to perform the main flow audit.

- °C = 5/9 * (°F – 32)
- °K = °C + 273
- To convert from atmospheres to mm Hg, multiply by 760.
- To convert from inches Hg to mm Hg, multiply by 25.4

$$Qact = \left[m * \left(\sqrt{(\Delta P)(Tamb) / (Pamb)} \right) + b \right.$$

Total Flow m= 0.3916 b= -0.4733

Main Flow m= 0.0864 b= -0.2383

m and b are unit less and dependant on the calibration device units:

Qact = liters/minute
ΔP = inches W.C.
Tamb = °K
Pamb = atm

Rupprecht & Patashnick Co., Inc.

26 Corporate Circle, Albany, NY 12203, USA
Phone(518)452-0065
Fax(518)452-4495

Telefax Transmission Cover Sheet

____ PAGES (including this cover sheet)

To: Todd Brozell - Air Control Techniques

Fax No: (919) 460-7897

From: J. Prescott - Service Dept

Re: Calibration record - TEOM S/N: 140AB24116020.5

Date: 2-18-04

SERVICE REPORT 140AB TYPE CONTROL UNITS

Customer Name: R+P RN#: Demo

Complete description of items received and the conditions in which they were received.
Get photos if necessary. OK

140AB24116020 5

Print a copy of the current view screen from the customer's unit. This will be used to record the customer's operating parameters.
Give a full description of any and all parts replaced or installed and why.

Verify and make necessary adjustments to the following:

Check that the corcom and voltage select switches are set for proper line voltage.
Measure the voltage at TP ACIN: -24.60
Interface board measure and adjust the following testpoints:

+15VDC: 15.16 -15VDC: -15.15
+10VDC: 10.01 +5VDC: 4.96
24VAC: 25.61 ACCU 24VAC: 25.61

Test ACCU Relays for proper operation.

Analog Outputs:
D/A0: 9
D/A1: 9
D/A2: 9
D/A3: 9
D/A4: 9
D/A5: 9

Analog Inputs:
A/D0: 90
A/D1: 90
A/D2: 90
A/D3: 90
A/D4: 90
A/D5: 90
A/D6: 90
A/D7: 90
A/D8: 90
A/D9: 90
A/D10: 90
A/D11: 90
A/D12: 90
A/D13: 90
A/D14: 90
A/D15: 90

Ambient Temperature Sensor: Room Temp: 25.5 C
Probe reading adjust A/D8: 25.5 C
Ambient Pressure Sensor: Room Pressure: .990 atm
Sensor reading adjust R503: .990 atm

Flow Controllers: Main Flow:
0.50LPM: .4682 1.0LPM: 1.004
4.50LPM: 4.521 2.0LPM: 2.007
Offset: .12 3.0LPM: 3.006

Aux Flow: 2.0LPM: 2.226 15.7LPM: 15.70
18.0LPM: 18.04 14.7LPM: 14.68
Offset: -.17 13.7LPM: 13.67

Software Version Loaded: 3.017

When testing is completed verify the customer's operating parameters have been reset from the copy of the view screen print.

140AB TYPE SENSOR UNIT

Mass Transducer Serial Number: 1200C-168730204 K0: 13528

Connect sensor unit to a controller and allow a warm-up period of at least 3Hrs.

Verify the following:

Temperature Zones:

Case Temperature: setpoint: 50°C actual reading: 50°C
Air Temperature: setpoint: 50°C actual reading: 50°C
Cap Temperature: setpoint: 50°C actual reading: 50°C

Verify and make the following adjustments as necessary on the Amplifier Board:

TP0: -4.23 VDC TP3: 338.1mVRMS
TP0: 220.0mVRMS TP4: -1.008 VDC
TP1: 3.004 RMS TP5: 7.69 RMS
TP2: 7.02 RMS

Mass verification 5 filter check:

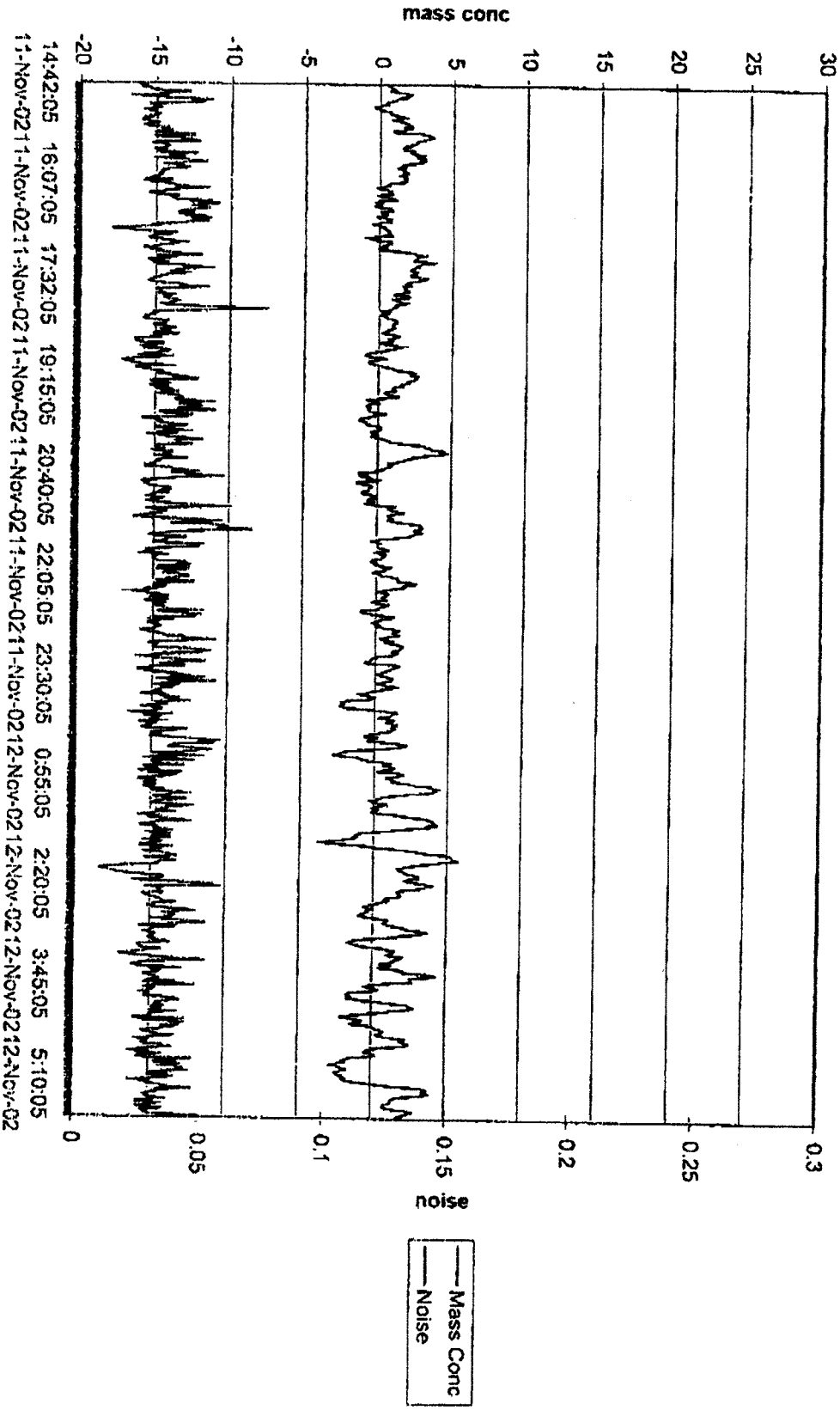
Mass	F0	F1	Audit K0	% Diff
113.04	331.00616	239.98776	13725	1.46
112.92	331.00250	239.98440	13710	1.35
112.62	331.00653	240.00650	13679	1.11
112.58	331.06445	240.27247	13738	1.55
112.21	331.00003	240.17483	13670	1.05

Sensor unit should be operated with control unit for at least a 24 hour period with the zero filter installed. Resolution should be +/- 5ug/m^3 from the baseline. Noise level below 0.100. Provide printed graphs.

Technician: T. Torrence Date: 11/6/02

Approval for shipment: D. Bowe Date: 11/13/02
(Supervisor/Assistant Supervisor)

24116


mass conc
30
25
20
15
10
5
0
-5
-10
-15
-20
noise
0.3
0.25
0.2
0.15
0.1
0.05
0
14:42:05
16:07:05
17:32:05
19:15:05
20:40:05
22:05:05
23:30:05
0:55:05
2:20:05
3:45:05
5:10:05
11-Nov-02
11-Nov-02
11-Nov-02
11-Nov-02
11-Nov-02
11-Nov-02
11-Nov-02
12-Nov-02
12-Nov-02
12-Nov-02
12-Nov-02
Mass Conc
Noise

		CHEROKEE INSTRUMENTS				
C # 1812	PM1O	NOZZLE CALIBRATION SHEET				
DATE	NOZZLE ID#	NOZZLE DIAMETER, DN (INCHES)				
		<1>	<2>	<3>	HI-LO	AVG
6/17/03	1J	0.135	0.134	0.135	0.001	0.135
6/17/03	2J	0.150	0.150	0.149	0.001	0.150
6/17/03	3J	0.175	0.175	0.175	0.000	0.175
6/17/03	4J	0.178	0.179	0.178	0.001	0.178
6/17/03	5J	0.195	0.194	0.195	0.001	0.195
6/17/03	6J	0.215	0.215	0.215	0.000	0.215
6/17/03	7J	0.233	0.233	0.233	0.000	0.233
6/17/03	8J	0.263	0.263	0.263	0.000	0.263
6/17/03	9J	0.300	0.299	0.299	0.001	0.299
6/17/03	10J	0.340	0.340	0.340	0.000	0.340
6/17/03	11J	0.390	0.390	0.390	0.000	0.390
parts are not interchangeable						
QA/QC	CHECK					
YES	EACH DIAMETER MEASURED TO WITHIN =/- O.OO1 INCHES					
YES	HIGH - LOW </- O.OO4 INCHES					
PREPARED BY :		MARK CATON			DATE:	6/17/03

		CHEROKEE INSTRUMENTS				
C # 1814	PM10	NOZZLE CALIBRATION SHEET				
DATE	NOZZLE ID#	NOZZLE DIAMETER, DN (INCHES)				
		<1>	<2>	<3>	HI-LO	AVG
6/17/03	1I	0.135	0.134	0.134	0.001	0.134
7/30/03	2I	0.145	0.145	0.145	0.000	0.145
6/17/03	3I	0.163	0.162	0.163	0.001	0.163
6/17/03	4I	0.179	0.180	0.180	0.001	0.180
6/17/03	5I	0.196	0.196	0.196	0.000	0.196
6/17/03	6I	0.214	0.214	0.214	0.000	0.214
6/17/03	7I	0.236	0.236	0.236	0.000	0.236
6/17/03	8I	0.262	0.262	0.263	0.001	0.262
6/17/03	9I	0.300	0.300	0.300	0.000	0.300
6/17/03	10I	0.340	0.340	0.340	0.000	0.340
6/17/03	11I	0.390	0.390	0.390	0.000	0.390
parts are not interchangeable						
QA/QC	CHECK					
YES	EACH DIAMETER MEASURED TO WITHIN =/- 0.001 INCHES					
YES	HIGH - LOW </- 0.004 INCHES					
PREPARED BY :		MARK CATON			DATE:	6/17/03

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	702233
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	09/15/03	
Barometric Pressure		29.7	in Hg
Theoretical Critical Vacuum[1]		14.0	in Hg
Calibration Technician		DLS	

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, $(ft^3 \cdot {}^oR^{1/2})/(in.Hg \cdot min)$.

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_{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
11.0	0.62	728.928	734.002	77	77	FO 48	0.3533	76	76	17.5
11.0	0.6	734.002	739.064	77	78	FO 48	0.3533	76	76	17.5
11.0	0.6	739.064	744.143	78	79	FO 48	0.3533	76	76	17.5

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	
4.960	0.451	4.986	0.453	1.005	-0.002	0.453	1.663	0.002
4.944	0.449	4.986	0.453	1.008	0.002	0.453	1.662	0.001
4.951	0.450	4.986	0.453	1.007	0.000	0.453	1.659	-0.003
Pretest Gamma	1.003	% Deviation	0.4	1.007	Y Average		1.661	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 Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Signature [signature] Date 9-15-03

APEX INSTRUMENTS

EPA Method 5

522 Series Meter Box Calibration

Post-Test Orifice Method

English Meter Box Units, English K' Factor

Filename: \\ACT-W2K-S01\ACT Data\Engineering\Calibration Sheets and Programs\DRY GAS METER CALS\ACTPC

Revised: 7/25/95 Version: 2.2

Model #:	522	Date: ---------->	12/19/03	
Serial #:	702233	Barometric Pressure: ---------->	29.60	(in. Hg)
Meterbox Y, (Gamma)	1.003	Theoretical Critical Vacuum:--->	13.96	(in. Hg)

!!!!!!!!!

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical

IMPORTANT Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units,

IMPORTANT (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	-- Initial Temps -		-- Final Temps. -		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
1.80	8.50	704.298	710.929	6.631	75.0	75.0	73.0	73.0	FO 63	0.5986	18.0	63.0	63.0	63.0
1.80	7.00	710.929	716.394	5.465	73.0	73.0	72.0	72.0	FO 63	0.5986	18.0	63.0	63.0	63.0
1.80	7.00	716.394	721.879	5.485	72.0	72.0	72.0	72.0	FO 63	0.5986	18.0	63.0	63.0	63.0

702233

********** RESULTS **********

--- DRY GAS METER ---		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------		
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	CALIBRATION FACTOR		CALIBRATION FACTOR		
CORRECTED	CORRECTED	CORRECTED	CORRECTED	NOMINAL	Y		dH@		
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)
6.513	184.4	6.586	186.5	6.596	1.011	0.004	1.650	41.91	-0.004
5.383	152.4	5.423	153.6	5.432	1.008	0.000	1.655	42.03	0.001
5.407	153.1	5.423	153.6	5.432	1.003	-0.004	1.656	42.06	0.003
							1.654	42.00	Average dH@

Average Y, (Gamma)	1.007
Percent Deviation from Pre-te	-0.42

Note: Acceptable tolerance of average Calibration Factor (Y) to pre-test calibration Y is +- 5 percent.

SIGNED: _____ Date: 12-19-03

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	802012
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	09/15/03	
Barometric Pressure		29.7	in Hg
Theoretical Critical Vacuum[1]		14.0	in Hg
Calibration Technician		DLS	

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
8.5	1.05	127.300	132.425	77	78	FO 55	0.4650	76	76	17.5
8.5	1.05	132.425	137.552	78	79	FO 55	0.4650	76	76	17.5
10.5	1.05	137.552	143.914	79	80	FO 55	0.4650	76	76	17.5

Results

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Critical Orifice		Calibration Factor		Flowrate	ΔH @	
				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	
5.010	0.589	5.070	0.597	1.012	0.000	0.597	1.628	0.003
5.003	0.589	5.070	0.597	1.013	0.001	0.597	1.625	0.000
6.197	0.590	6.263	0.597	1.011	-0.001	0.597	1.622	-0.003
Pretest Gamma	1.025	% Deviation	1.3	1.012	Y Average		1.625	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 Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Signature [signature] Date 9-15-03

469

APEX INSTRUMENTS
EPA Method 5
522 Series Meter Box Calibration
Post-Test Orifice Method
English Meter Box Units, English K' Factor

Filename: \\ACT-W2K-S01\ACT Data\Engineering\Calibration Sheets and Programs\DRY GAS METER CALS\ACTPC
Revised: 7/25/95 Version: 2.2

Model #:	522	Date: ---------->	12/19/03	
Serial #:	802012	Barometric Pressure: ---------->	29.60	(in. Hg)
Meterbox Y, (Gamma)	1.025	Theoretical Critical Vacuum:--->	13.96	(in. Hg)

!!!!!!!!!
IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical
IMPORTANT Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units,
IMPORTANT (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	-- Initial Temps -		-- Final Temps. -		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
1.05	8.50	113.600	118.791	5.191	74.0	74.0	73.0	73.0	FO 55	0.4650	20.0	63.0	63.0	63.0
1.05	8.50	118.791	123.981	5.190	73.0	73.0	72.0	72.0	FO 55	0.4650	20.0	63.0	63.0	63.0
1.05	8.50	123.981	129.173	5.192	72.0	72.0	72.0	72.0	FO 55	0.4650	20.0	63.0	63.0	63.0

802012

********** RESULTS **********

--- DRY GAS METER ---		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------		
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	CALIBRATION FACTOR		CALIBRATION FACTOR		
CORRECTED	CORRECTED	CORRECTED	CORRECTED	NOMINAL	Y		dH@		
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)
5.094	144.3	5.116	144.9	5.124	1.004	0.002	1.596	40.55	-0.002
5.102	144.5	5.116	144.9	5.124	1.003	0.000	1.599	40.63	0.000
5.109	144.7	5.116	144.9	5.124	1.001	-0.001	1.601	40.66	0.002
							1.599	40.61	Average dH@

Average Y, (Gamma)	1.003
Percent Deviation from Pre-te	2.17

Note: Acceptable tolerance of average Calibration Factor (Y) to pre-test calibration Y is +- 5 percent.

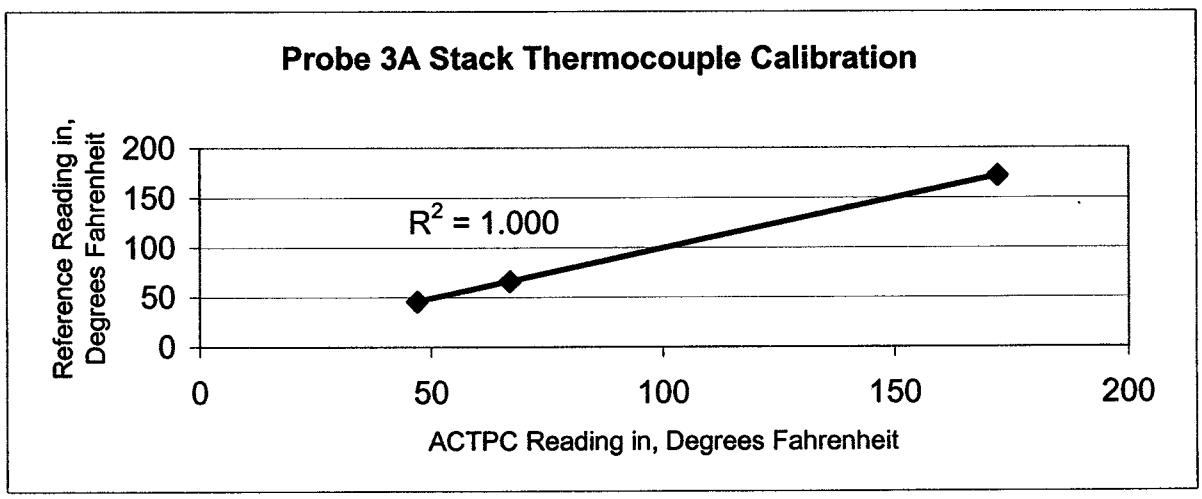
SIGNED: _____ Date: 12-19-03

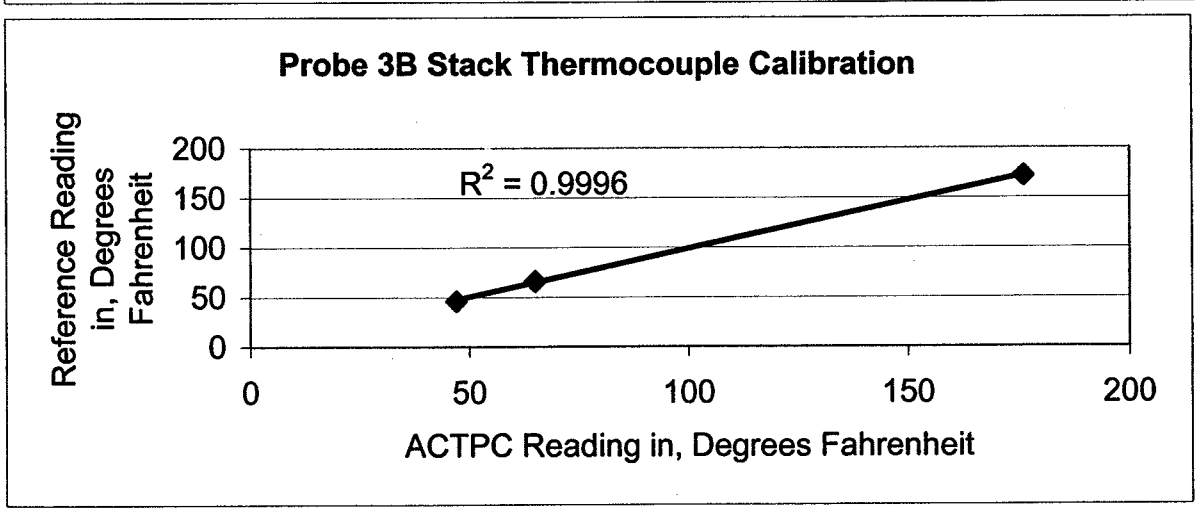
Air Control Techniques, P.C.
Probe Stack Thermocouple Calibrations

Date:	12/6/2004
Performed by:	TTB
Signature	

Thermocouple I.D.	ACT, P.C. *	Reference *
Stack 3A	47	46
Stack 3A	67	66
Stack 3A	172	172
Stack 3A	47	46
Stack 3A	65	66
Stack 3A	176	172

* = Degrees Fahreheit





Type S Pitot Tube Inspection
Air Control Techniques, P.C.

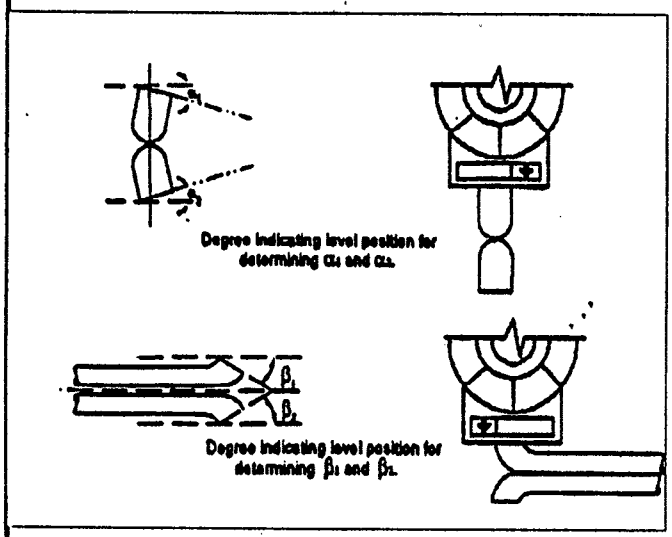
Date 5-06-02

Identification Information

Client	IN HOUSE	Job	NA
Plant Name	NA	Process	NA
City	CARY, NC	State	NC

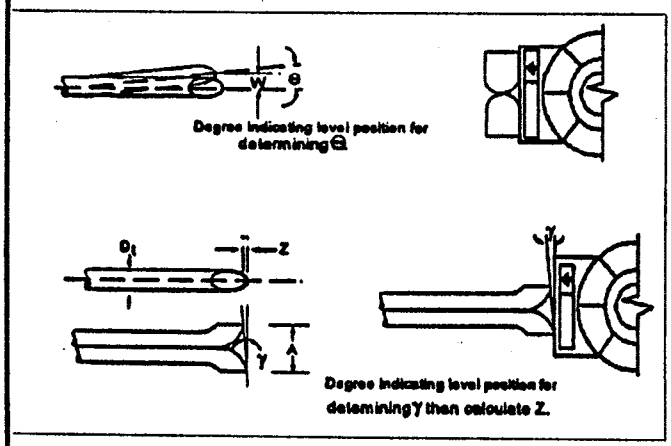
Pitot ID 3A

Inspection Results



Inspection Data

Level and Perpendicular?	YES
Obstruction?	NO
Damaged?	NO
α1 (-10° ≤ α1 ≤ + 10°)	0
α2 (-10° ≤ α2 ≤ + 10°)	0
β1 (-5° ≤ β1 ≤ + 5°)	-1
β2 (-5° ≤ β2 ≤ + 5°)	0
γ	-1
θ	0
z=A tan γ (≤0.125 inches)	0.0153
w=A tan θ (≤0.03125 inches)	0
D1 (3/16 inch ≤ D1 ≤ 3/8 inch)	0.375
A	0.875
A/2D1 (1.05 ≤ PA/D1 ≤ 1.5)	1.17



Notes

Pitot Coefficient

Coefficient of 0.84 Assigned? YES

Inspection Personnel DLS

Notes

Form ACTPC PI-2

Type S Pitot Tube Inspection
Air Control Techniques, P.C.

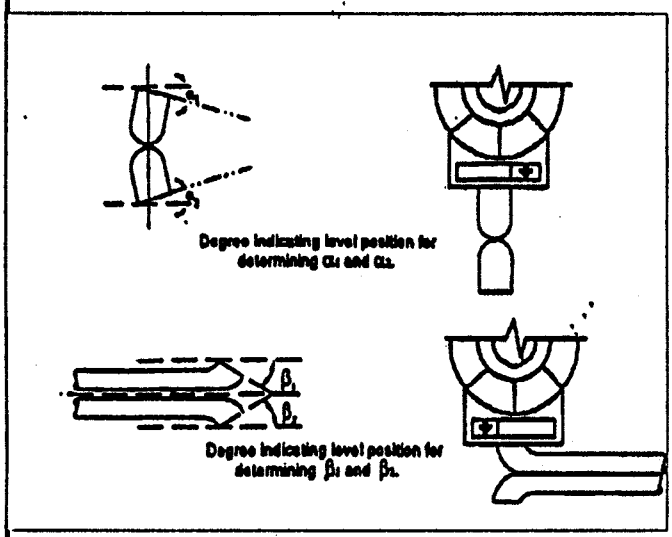
Date 5-06-02

Identification Information

Client	IN HOUSE	Job	NA
Plant Name	NA	Process	NA
City	CARY	State	NC

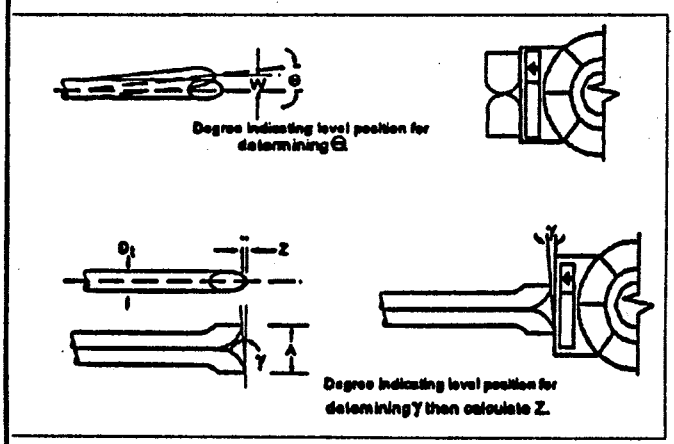
Pitot ID 3B

Inspection Results



Inspection Data

Level and Perpendicular?	YES
Obstruction?	NO
Damaged?	NO
α1 (-10° ≤ α1 ≤ + 10°)	0
α2 (-10° ≤ α2 ≤ + 10°)	0
β1 (-5° ≤ β1 ≤ + 5°)	-1
β2 (-5° ≤ β2 ≤ + 5°)	0
γ	-1
θ	0
z=A tan γ (≤0.125 inches)	0.0153
w=A tan θ (≤0.03125 inches)	0
D1 (3/16 inch ≤ D1 ≤ 3/8 inch)	0.375
A	0.875
A/2D1 (1.05 ≤ PA/D1 ≤ 1.5)	1.17



Notes

Pitot Coefficient

Coefficient of 0.84 Assigned? YES

Inspection Personnel DLS

Notes

Form ACTPC PI-2

APPENDIX E2

S.T. WOOTEN CENTRAL MIX &

CHANDLER CONCRETE TRUCK MIX

EQUIPMENT CALIBRATION DATA

TEOM Verification/Audit Procedures

Plant Name: St Wooten / Chandler Concrete Client: NRMCA

Job No.: 877 City/State: Cary, NC Personnel : TB

Date 3/1/04 Time 17:30 Sampler Serial Number 24147 (Array Outlet)

Calibration Constant _____ Instrument Type AB

Constant A 3.00 Constant B 1.030

Audit Parameter	Reference Measurement	TEOM Measurement	Difference	Tolerances Allowed	Meets Tolerances √
Main Flow Leak Check	N/A	0.07	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.06	N/A	Less Than 0.60 L/min	✓
Ambient Temperature	19.4 °C	19.7 °C	0.3 °C	± 2 °C	✓
Ambient Temperature[1]	292.4 °K	N/A	N/A	N/A	N/A
Ambient Pressure	763.3 mm Hg	757.7 mm Hg	5.6 mm Hg	± 10 mm Hg	✓
Ambient Pressure[1]	1.004 atm	N/A	N/A	N/A	N/A
Total Flow Rate, Audit Qact	16.83 L/min	16.72 L/min	0.11 L/min	16.67 ± 1.0 L/min	✓
Main Flow Rate, Audit Qact [2]	3.012 L/min	3.00 L/min	0.012 L/min	3.0 ± 0.2 L/min	✓
Main Flow Leak Check	N/A	0.06	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.10	N/A	Less Than 0.60 L/min	✓

[1] Ambient temperature (°K) and pressure (atm) used for flow audit calculations.
[2]The end of the flow splitter must be capped to perform the main flow audit.

- °C = 5/9 * (°F – 32)
- °K = °C + 273
- To convert from atmospheres to mm Hg, multiply by 760.
- To convert from inches Hg to mm Hg, multiply by 25.4

$$Qact = \left[m * \left(\sqrt{(\Delta P)(Tamb) / (Pamb)} \right) + b \right.$$

Total Flow m= 0.3916 b= -0.4733

Main Flow m= 0.0864 b= -0.2383

m and b are unit less and dependant on the calibration device units:

Qact = liters/minute
ΔP = inches W.C.
Tamb = °K
Pamb = atm

Rupprecht & Patashnick Co.
25 Corporate Circle
Albany, NY 12203 USA
Phone: (518) 452-0065
Fax: (518) 452-0067
Email: Support@RPCO.Com

Unit Serial Number: 140AB 341470206

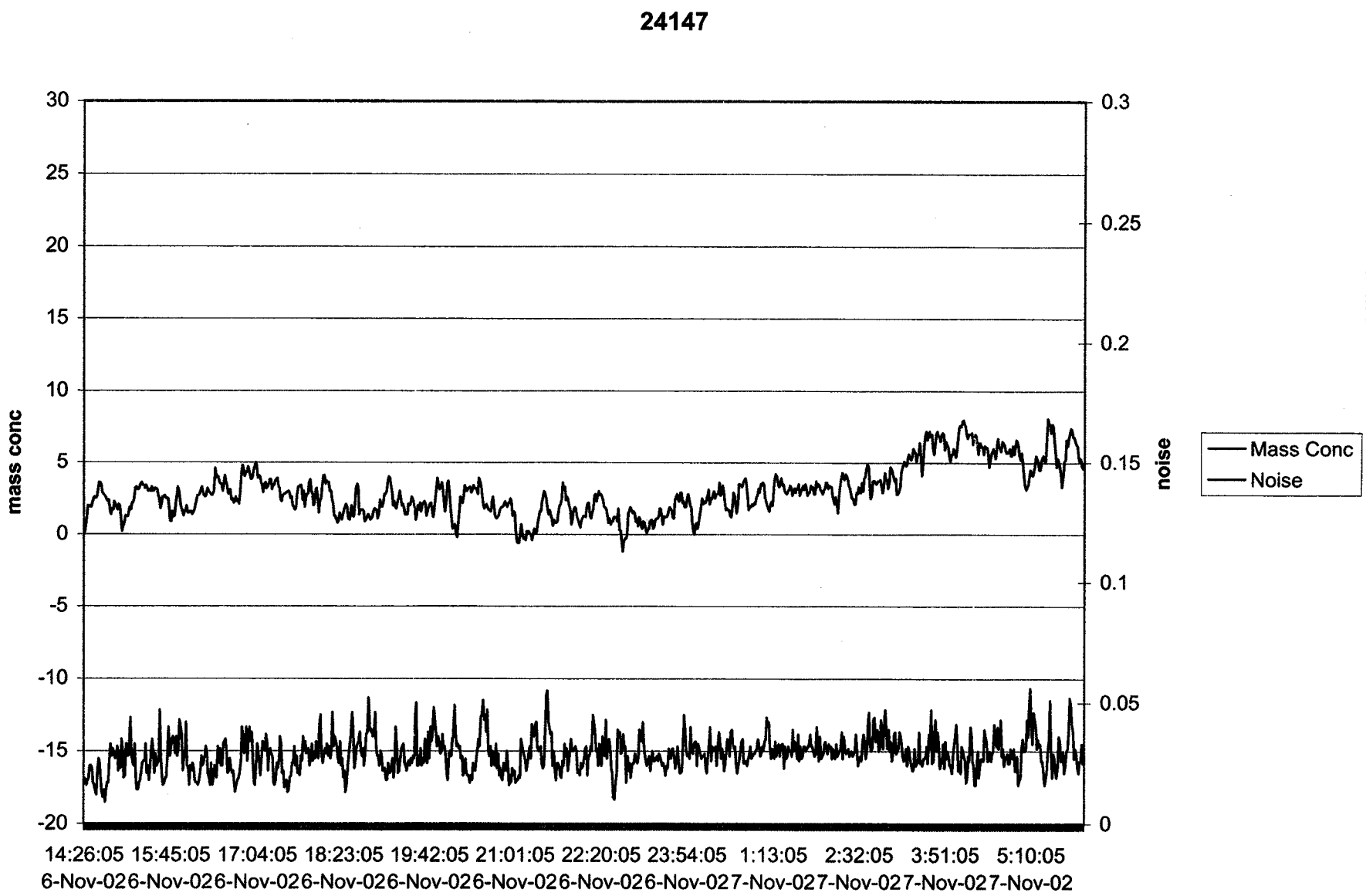
Part Number	Description	Qty	Ship
/57-003269-0120	Control unit w/ 10m interconnect cable	1	✓
/57-002816	Sensor Unit 140AB	1	✓
/59-003333	Accessory Package 140AB	1	✓
/59-003537	In-line filter System Package	1	✓
/07-000593	Power cord (120V only)	1	✓
* /36-000447	Tripod snow shoes	1	—
* /10-000441	Support Tripod	1	—
/36-000733-0001	Sample Tube extension 1m	2	✓
/57-001667	Flow Splitter assembly	1	✓
/10-001404	Pump, Piston 240VAC	1	—
/10-001403	Pump, Piston 120VAC	1	✓

* Denotes optional items as per request by Marketing
Breakdown of Packages:

/59-003333 Accessory Package 140AB

/07-000587	Cable RS232 M/F 9Pin 10 Ft	1 ✓
/06-000590-0015	Connector 'D' 15 Pin male	2 ✓
/06-000592-0015	Shell, connector 'D' 15 pin	2 ✓
/51-001079	Cable adapter, serial 9 to 25	1 ✓
/51-002814	Cable Assy, Null modem 9 to 25	1 ✓
/38-003304	Brackets, Rack Mount	2 ✓
/59-003349	Manual Package 1400AB	1 ✓
/30-002924	Hex Key Set 7 Piece	1 ✓
/24-000483	Tubing, 3/8 OD Nylon Green	3Ft ✓
/24-000483-0005	Tubing, 3/8 OD x 5m	1 ✓
/57-007225-0020	Filters, TX40, Box of 20 TEOM	1 ✓
/55-002013-0001	Filter Tool (Black Grip)	1 ✓
/57-001243	Flow Audit Adapter Kit	1 ✓
/21-000834-0006	Screw, SS. #10-32 x 3/8 Slot	6 ✓
/20-003352	Box, Shpng 15 1/8 x 11 1/8 x 4	1 ✓
/59-003524	Software Packet, Series 1400AB	1 ✓

476


24147
mass conc
noise
30
25
20
15
10
5
0
-5
-10
-15
-20
0.3
0.25
0.2
0.15
0.1
0.05
0
Mass Conc
Noise
14:26:05 6-Nov-02
15:45:05 6-Nov-02
17:04:05 6-Nov-02
18:23:05 6-Nov-02
19:42:05 6-Nov-02
21:01:05 6-Nov-02
22:20:05 6-Nov-02
23:54:05 6-Nov-02
1:13:05 7-Nov-02
2:32:05 7-Nov-02
3:51:05 7-Nov-02
5:10:05 7-Nov-02

SERVICE REPORT 140AB TYPE CONTROL UNITS

Customer Name: R&I Inc RN#: Demo

Complete description of items received and the conditions in which they were received.

Get photos if necessary. Sensor unit - 10 m. cable 2 Air - Air temp. probe control unit - accessory package - Flow splitter - power cord 1 meter extensions - PM-10 inlet - 120 volt pump 140AB 24147 0206

Print a copy of the current view screen from the customer's unit. This will be used to record the customer's operating parameters.

Give a full description of any and all parts replaced or installed and why. Uploaded version 3.018 operating software - updated valve configuration on Flow controller calibrated analog board - amb - temp - amb - pressure - Flow controller Ran 48 hours audited to # tested good Sent to customer for review

Verify and make necessary adjustments to the following:

Check that the corcom and voltage select switches are set for proper line voltage.

Measure the voltage at TP ACIN: 25.40

Interface board measure and adjust the following testpoints:

+15VDC: 15.08 -15VDC: -15.04

+10VDC: 10.00 +5VDC: 4.98

24VAC: 25.40 ACCU 24VAC: 26.16

Test ACCU Relays for proper operation.

Analog Outputs:		Analog Inputs:	
D/A0:	9v	A/D0:	90
D/A1:	9v	A/D1:	90
D/A2:	9v	A/D2:	90
D/A3:	9v	A/D3:	90
D/A4:	9v	A/D4:	90
D/A5:	9v	A/D5:	90
		A/D6:	90
		A/D7:	90
		A/D8:	90
		A/D9:	90
		A/D10:	90
		A/D11:	90
		A/D12:	90
		A/D13:	90
		A/D14:	90
		A/D15:	90

Ambient Temperature Sensor: Room Temp: 26.2 C

Probe reading adjust A/D8: 26.2 C

Ambient Pressure Sensor: Room Pressure: .994 atm

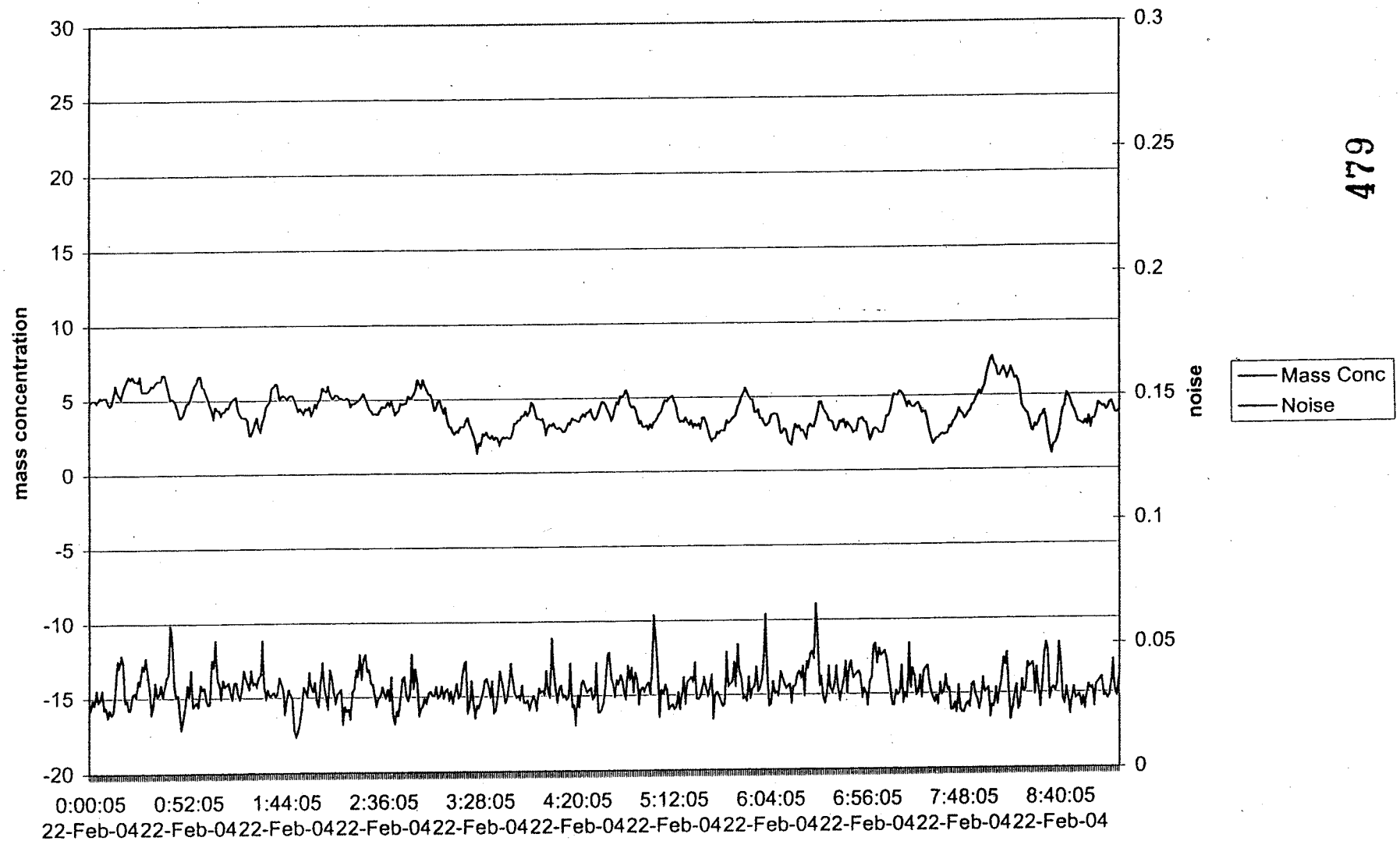
Sensor reading adjust R503: .994 atm

Flow Controllers: Main Flow: 0.50LPM: .5020 1.0LPM: 1.021

4.50LPM: 4.50 2.0LPM: 2.006

Offset: .08 3.0LPM: 2.99

24147


mass concentration
30
25
20
15
10
5
0
-5
-10
-15
-20
noise
0.3
0.25
0.2
0.15
0.1
0.05
0
Mass Conc
Noise
0:00:05 22-Feb-04
0:52:05 22-Feb-04
1:44:05 22-Feb-04
2:36:05 22-Feb-04
3:28:05 22-Feb-04
4:20:05 22-Feb-04
5:12:05 22-Feb-04
6:04:05 22-Feb-04
6:56:05 22-Feb-04
7:48:05 22-Feb-04
8:40:05 22-Feb-04

479

TEOM Verification/Audit Procedures

Plant Name: St. Wooten /Chandler Concrete Client: NRMCA

Job No.: 877 City/State: Cary, NC Personnel : TTB

Date 2/27/04 Time 1459 Sampler Serial Number 23749 (Baghouse Outlet)

Calibration Constant 1281D Instrument Type AB

Constant A 3.00 Constant B 1.030

Audit Parameter	Reference Measurement	TEOM Measurement	Difference	Tolerances Allowed	Meets Tolerances √
Main Flow Leak Check	N/A	0.03	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.24	N/A	Less Than 0.60 L/min	✓
Ambient Temperature	20 °C	20.5 °C	0.5 °C	± 2 °C	✓
Ambient Temperature[1]	293 °K	N/A	N/A	N/A	N/A
Ambient Pressure	756.2 mm Hg	750.9 mm Hg	5.3 mm Hg	± 10 mm Hg	✓
Ambient Pressure[1]	0.995 atm	N/A	N/A	N/A	N/A
Total Flow Rate, Audit Qact	16.31 L/min	16.67 L/min	0.36 L/min	16.67 ± 1.0 L/min	✓
Main Flow Rate, Audit Qact[2]	2.97 L/min	3.00 L/min	0.03 L/min	3.0 ± 0.2 L/min	✓
Main Flow Leak Check	N/A	0.12	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.23	N/A	Less Than 0.60 L/min	✓

[1] Ambient temperature (°K) and pressure (atm) used for flow audit calculations.
[2]The end of the flow splitter must be capped to perform the main flow audit.

- °C = 5/9 * (°F – 32)
- °K = °C + 273
- To convert from atmospheres to mm Hg, multiply by 760.
- To convert from inches Hg to mm Hg, multiply by 25.4

$$Qact = \left[m * \left(\sqrt{(\Delta P)(Tamb) / (Pamb)} \right) + b \right.$$

Total Flow m= 0.3916 b= -0.4733

Main Flow m= 0.0864 b= -0.2383

m and b are unit less and dependant on the calibration device units:

Qact = liters/minute
ΔP = inches W.C.
Tamb = °K
Pamb = atm

SERVICE REPORT 140AB TYPE CONTROL UNITS

Customer Name: R&P Inc RN#: Perio

Complete description of items received and the conditions in which they were received.
Get photos if necessary. Sensor unit 10 m. 2 mk cable - air temp probe - control unit accessory package flow splitter power cord 1 meter extensions fm-10 inlet 120 volt pump
140AB23749 0109

Print a copy of the current view screen from the customer's unit. This will be used to record the customer's operating parameters.

Give a full description of any and all parts replaced or installed and why. uploaded version 3.018 software - calibrated analog boards - ambient temp - ambient pressure flow controller ran 48 hours audited K0# tested good sent to customer for rental

Verify and make necessary adjustments to the following:

Check that the corcom and voltage select switches are set for proper line voltage.

Measure the voltage at TP ACIN: 25.19

Interface board measure and adjust the following testpoints:

+15VDC: 14.95 -15VDC: -15.02
+10VDC: 10.00 +5VDC: 5.00
24VAC: 26.09 ACCU 24VAC: 26.09

Test ACCU Relays for proper operation.

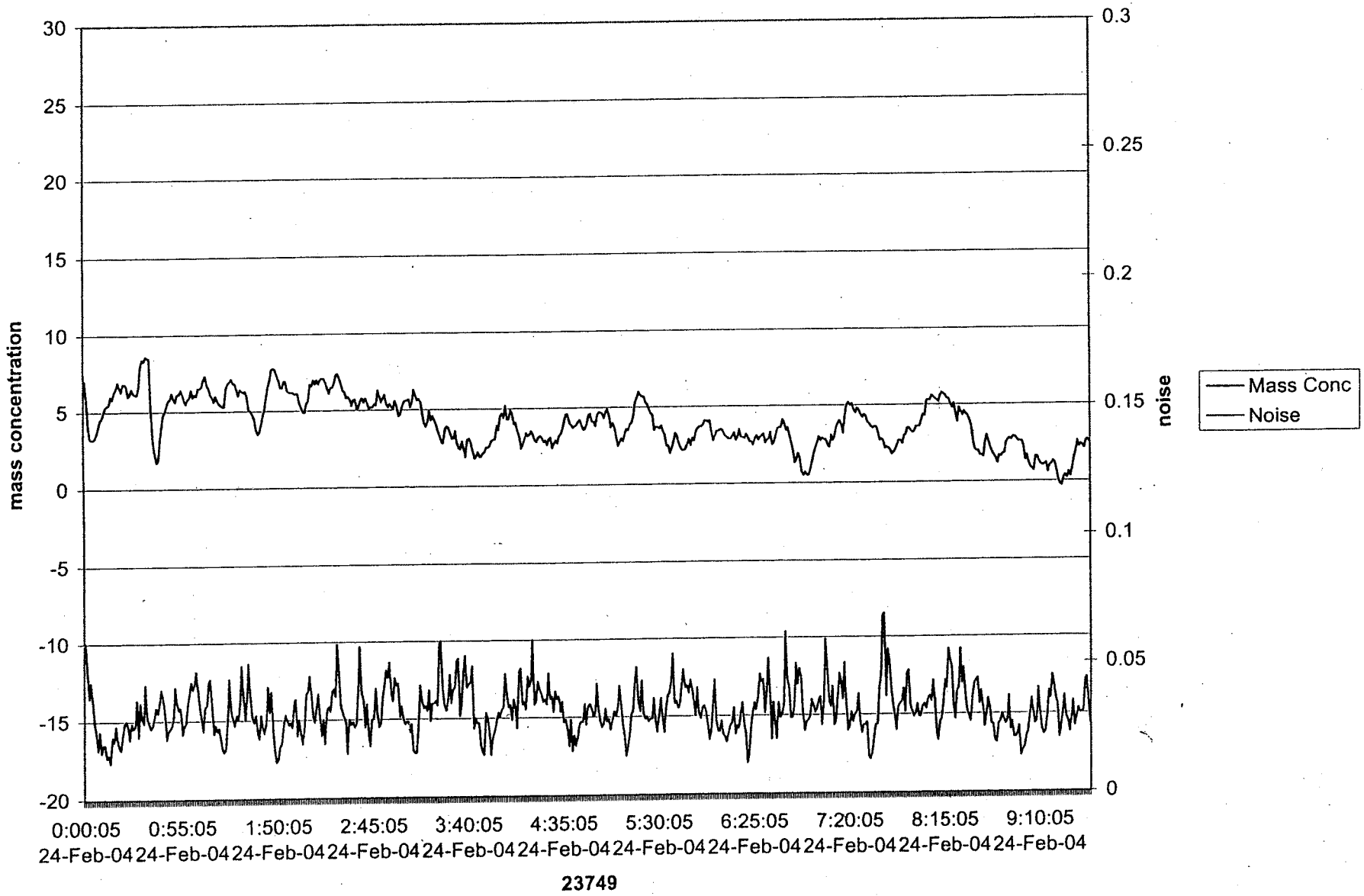
Analog Outputs:
D/A0: 9v
D/A1: 9v
D/A2: 9v
D/A3: 9v
D/A4: 9v
D/A5: 9v

Analog Inputs:
A/D0: 90
A/D1: 90
A/D2: 90
A/D3: 90
A/D4: 90
A/D5: 90
A/D6: 90
A/D7: 90
A/D8: 90
A/D9: 90
A/D10: 90
A/D11: 90
A/D12: 90
A/D13: 90
A/D14: 90
A/D15: 90

Ambient Temperature Sensor: Room Temp: 24.5 C
Probe reading adjust A/D8: 24.5 C

Ambient Pressure Sensor: Room Pressure: .994 atm
Sensor reading adjust R503: .994 atm

Flow Controllers: Main Flow: 0.50LPM: .503 1.0LPM: 1.027
4.50LPM: 4.502 2.0LPM: 2.017
Offset: .07 3.0LPM: 3.009


mass concentration
30
25
20
15
10
5
0
-5
-10
-15
-20
noise
0.3
0.25
0.2
0.15
0.1
0.05
0
Mass Conc
Noise
0:00:05 24-Feb-04
0:55:05 24-Feb-04
1:50:05 24-Feb-04
2:45:05 24-Feb-04
3:40:05 24-Feb-04
4:35:05 24-Feb-04
5:30:05 24-Feb-04
6:25:05 24-Feb-04
7:20:05 24-Feb-04
8:15:05 24-Feb-04
9:10:05 24-Feb-04
23749

482

Rupprecht Patashnick Co.

Calibration Constant

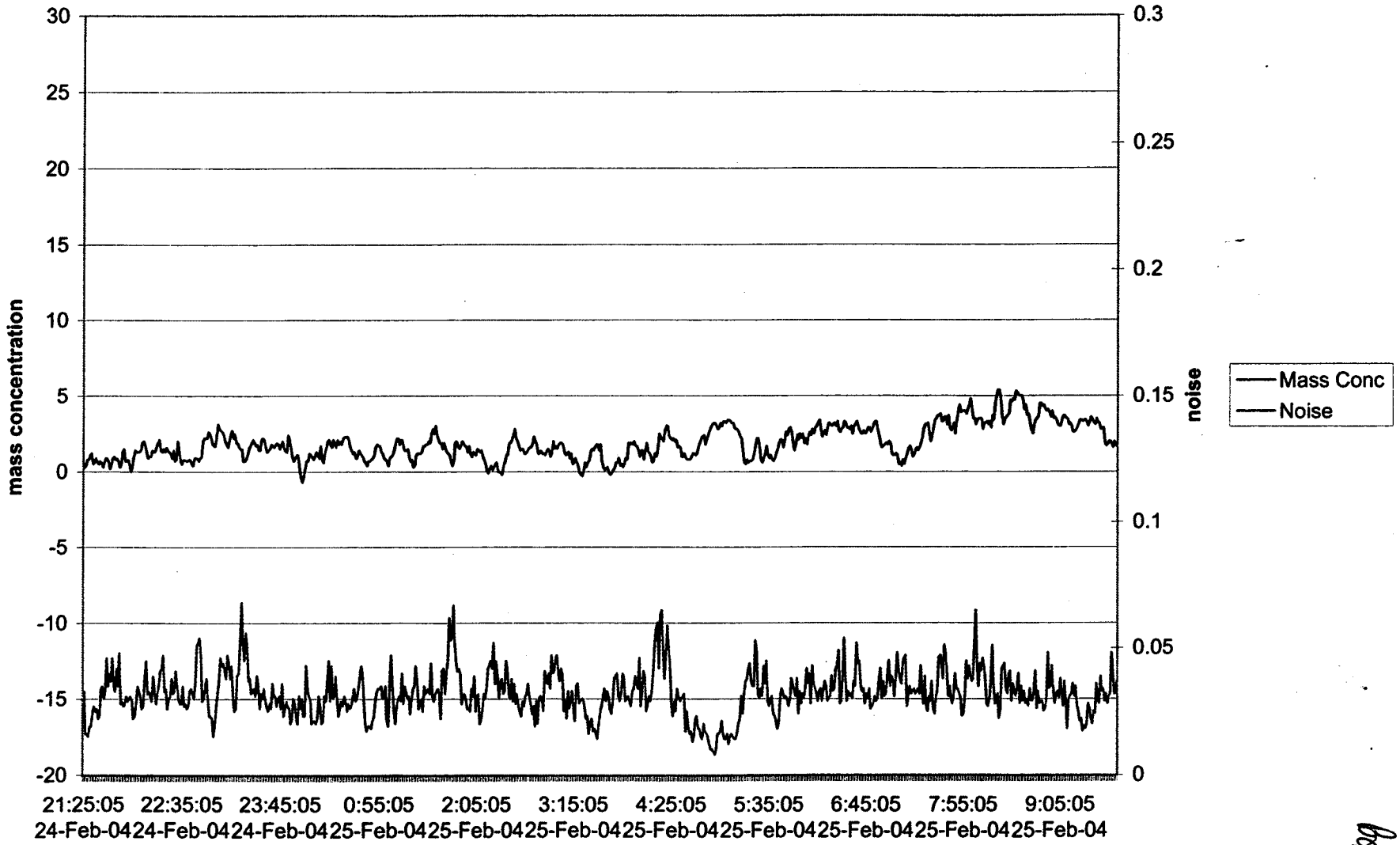
Mass Transducer
Serial number: 1200C164030107

	Mass (mg):	F0:	F1:	K0:
1	114.11	325.80545	233.3601	12760.5
2	114.28	325.80648	233.68762	12853.4
3	115.76	325.80715	232.9625	12854.7
4	114.21	325.80722	233.46324	12794.8
5	113.6	325.80834	233.73138	12786.6

Average K0:	12810
Sample Std. Dev.:	42.2
Coefficient of variation	0.33

Note: Array Monitor
ST & TV

23749



STATIV

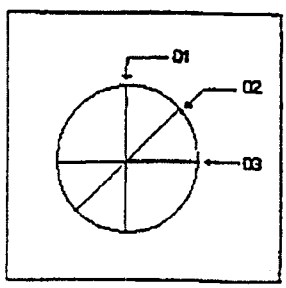
ENVIRONMENTAL
INSTRUMENT
SPECIALISTS, LLC

Nozzle Calibration Spreadsheet

Date:	5/13/2003
	Cyclone Set 1071
Unit:	Dial Calipers

Nozzle I.D.	D1 (in.)	D2 (in.)	D3 (in.)	ΔD (in.)	Within ±0.004 in. ?	ΔDavg. (in.)	Calibrated by	Date
1071-0	0.123	0.123	0.123	0.000	TRUE	0.1230	—	5/13/2003
1071-1	0.131	0.131	0.132	0.001	TRUE	0.1313		5/13/2003
1071-2	0.145	0.147	0.146	0.002	TRUE	0.1460		5/13/2003
1071-3	0.163	0.163	0.163	0.000	TRUE	0.1630		5/13/2003
1071-4	0.176	0.175	0.176	0.001	TRUE	0.1757		5/13/2003
1071-5	0.195	0.195	0.195	0.000	TRUE	0.1950		5/13/2003
1071-6	0.214	0.214	0.213	0.001	TRUE	0.2137		5/13/2003
1071-7	0.231	0.231	0.232	0.001	TRUE	0.2313		5/13/2003
1071-8	0.259	0.259	0.259	0.000	TRUE	0.2590		5/13/2003
1071-9	0.299	0.300	0.298	0.002	TRUE	0.2990		5/13/2003
1071-10	0.341	0.340	0.341	0.001	TRUE	0.3407		5/13/2003
1071-11	0.388	0.387	0.388	0.001	TRUE	0.3877		5/13/2003

Certified Signature Matt Ames
Quality Control



Nomenclature

D1, D2, D3	Three Nozzle Diameter Measurements
ΔD	Maximum Difference Between Any Two Diameters. (ΔD Cannot Exceed 0.004 in.)
ΔDavg	Average of D1, D2, and D3

427 MAIN STREET • CLAYTON, NC 27520 • PHONE: 919-550-3866 • 1-800-730-1193 • FAX: 919-550-3966
WWW.ENVINSTR.COM

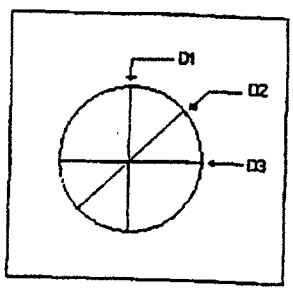
ENVIRONMENTAL
INSTRUMENT
SPECIALISTS, LLC

Nozzle Calibration Spreadsheet

Date:	5/13/2003
	Cyclone Set 1072
Unit:	Dial Calipers

Nozzle I.D.	D1 (in.)	D2 (in.)	D3 (in.)	ΔD (in.)	Within ±0.004 in. ?	ΔDavg. (in.)	Calibrated by	Date
1072-0	0.123	0.123	0.124	0.001	TRUE	0.1233		5/13/2003
1072-1	0.131	0.131	0.131	0.000	TRUE	0.1310		5/13/2003
1072-2	0.145	0.145	0.146	0.001	TRUE	0.1453		5/13/2003
1072-3	0.163	0.161	0.162	0.002	TRUE	0.1620		5/13/2003
1072-4	0.179	0.178	0.179	0.001	TRUE	0.1787		5/13/2003
1072-5	0.195	0.196	0.194	0.002	TRUE	0.1950		5/13/2003
1072-6	0.213	0.217	0.216	0.004	TRUE	0.2153		5/13/2003
1072-7	0.231	0.232	0.232	0.001	TRUE	0.2317		5/13/2003
1072-8	0.259	0.259	0.258	0.001	TRUE	0.2587		5/13/2003
1072-9	0.290	0.290	0.290	0.000	TRUE	0.2900		5/13/2003
1072-10	0.340	0.340	0.339	0.001	TRUE	0.3397		5/13/2003
1072-11	0.388	0.389	0.388	0.001	TRUE	0.3883		5/13/2003

Certified Signature _____
Quality Control



Nomenclature

D1, D2, D3	Three Nozzle Diameter Measurements
ΔD	Maximum Difference Between Any Two Diameters. (ΔD Cannot Exceed 0.004 in.)
ΔDavg	Average of D1, D2, and D3

427 MAIN STREET • CLAYTON, NC 27520 • PHONE: 919-550-3866 • 1-800-730-1193 • FAX: 919-550-3966
WWW.ENVINSTR.COM

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	11077
DGM Model Number	522
DGM Serial Number	

Calibration Conditions			
Date	Time	5/25/04	
Barometric Pressure		29.8	in Hg
Theoretical Critical Vacuum[1]		14.1	in Hg
Calibration Technician		DLS	

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
9.0	1.15	409.002	414.434	75	76	FO 55	0.4650	74	74	22
9.0	1.15	414.434	419.887	76	77	FO 55	0.4650	74	74	22
9.0	1.15	419.887	425.342	77	78	FO 55	0.4650	74	74	22

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	
5.350	0.594	5.397	0.600	1.009	0.001	0.600	1.778	0.003
5.360	0.596	5.397	0.600	1.007	-0.001	0.600	1.775	0.000
5.352	0.595	5.397	0.600	1.008	0.000	0.600	1.771	-0.003
				1.008	ΔY Average		1.775	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 [signature] Date 5-25-04

APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	802012
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	02/04/04	
Barometric Pressure		30.0	in Hg
Theoretical Critical Vacuum[1]		14.2	in Hg
Calibration Technician		DLS	

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, $(ft^3 \cdot {}^oR^{1/2})/(in.Hg \cdot min)$.

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_{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
16.0	0.26	477.200	482.250	72	72	FO 40	0.2410	66	66	23
11.0	0.58	482.348	487.445	72	72	FO 48	0.3533	66	66	22
8.5	1.05	487.650	492.862	72	72	FO 55	0.4650	66	66	21
7.0	1.75	493.050	498.563	72	72	FO 63	0.5986	66	66	19
6.0	3.30	498.870	505.376	72	73	FO 73	0.8240	66	66	16.5

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	
5.029	0.314	5.044	0.315	1.003	0.006	0.315	1.468	-0.096
5.079	0.462	5.084	0.462	1.001	0.004	0.462	1.526	-0.038
5.200	0.612	5.170	0.608	0.994	-0.003	0.608	1.598	0.034
5.510	0.787	5.481	0.783	0.995	-0.002	0.783	1.613	0.049
6.521	1.087	6.467	1.078	0.992	-0.005	1.078	1.616	0.052
				0.997	ΔY Average		1.564	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 [signature] Date 2-04-04

488

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	802012
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	05/28/04	
Barometric Pressure		29.4	in Hg
Theoretical Critical Vacuum[1]		13.9	in Hg
Calibration Technician		DLS	

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, $(ft^3 \cdot {}^oR^{1/2})/(in.Hg \cdot min)$.

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_{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
16.0	0.26	385.670	390.840	80	80	FO 40	0.2410	76	76	23.00
16.0	0.26	390.840	396.018	80	80	FO 40	0.2410	76	76	23.00
16.0	0.26	396.018	401.177	80	80	FO 40	0.2410	76	76	23.00

Results

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Critical Orifice		Calibration Factor		Flowrate	ΔH @	
				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	
4.970	0.311	4.897	0.306	0.985	0.000	0.306	1.503	0.000
4.978	0.311	4.897	0.306	0.984	-0.002	0.306	1.503	0.000
4.960	0.310	4.897	0.306	0.987	0.002	0.306	1.503	0.000
Pretest Gamma	0.997	% Deviation	1.2	0.985	Y Average		1.503	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 Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

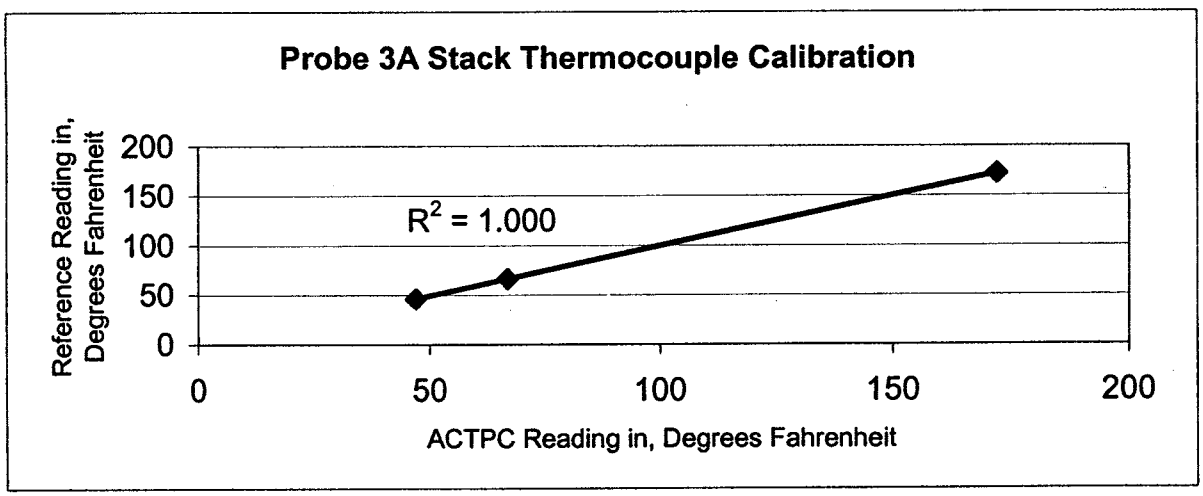
Signature [signature] Date 5-28-04

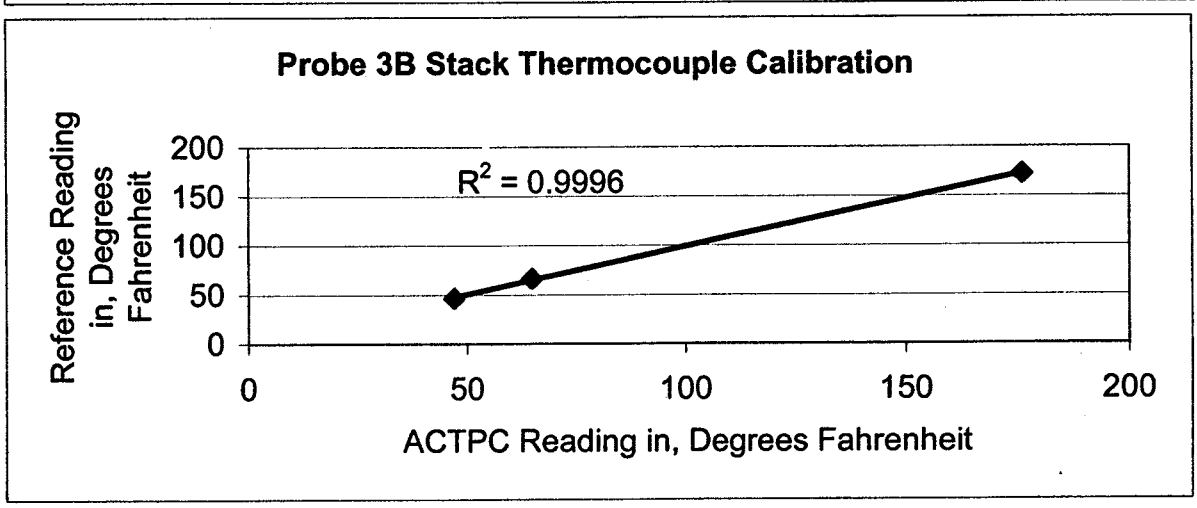
Air Control Techniques, P.C.
Probe Stack Thermocouple Calibrations

Date:	12/6/2004
Performed by:	TTB
Signature	

Thermocouple I.D.	ACT, P.C. *	Reference *
Stack 3A	47	46
Stack 3A	67	66
Stack 3A	172	172
Stack 3A	47	46
Stack 3A	65	66
Stack 3A	176	172

* = Degrees Fahreheit





Type S Pitot Tube Inspection
Air Control Techniques, P.C.

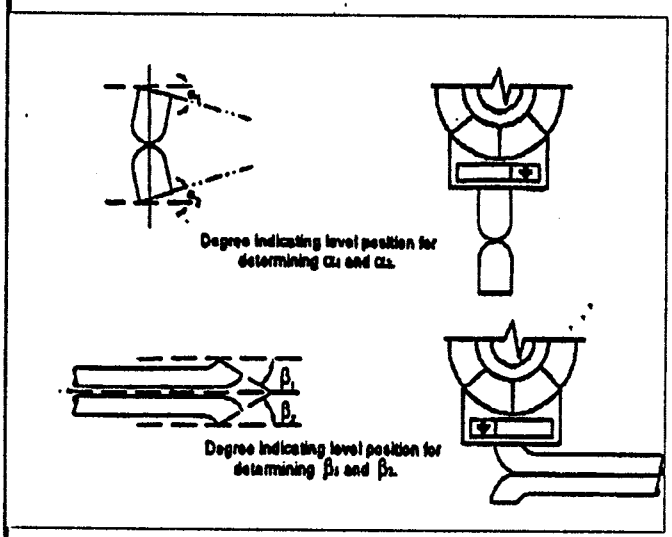
Date 4-08-02

Identification Information

Client	IN HOUSE	Job	NA
Plant Name	NA	Process	NA
City	CARY	State	NC

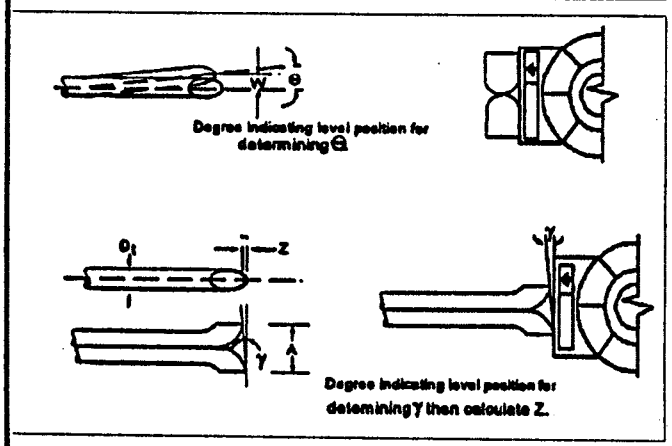
Pitot ID PT 2

Inspection Results



Inspection Data

Level and Perpendicular?	YES
Obstruction?	NO
Damaged?	NO
α1 (-10° ≤ α1 ≤ + 10°)	1.4
α2 (-10° ≤ α2 ≤ + 10°)	0.4
β1 (-5° ≤ β1 ≤ + 5°)	1.9
β2 (-5° ≤ β2 ≤ + 5°)	1.2
γ	2.9
θ	0.2
z=A tan γ (≤0.125 inches)	0.049
w=A tan θ (≤0.03125 inches)	0.003
D1 (3/16 inch ≤ D1 ≤ 3/8 inch)	0.375
A	0.9375
A/2D1 (1.05 ≤ PA/D1 ≤ 1.5)	1.29



Notes

Pitot Coefficient

Coefficient of 0.84 Assigned? YES

Inspection Personnel DLS

Notes

Form ACTPC PI-2

APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	11077
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	02/03/04	
Barometric Pressure		29.6	in Hg
Theoretical Critical Vacuum[1]		14.0	in Hg
Calibration Technician		DLS	

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, $(ft^3 \cdot {}^oR^{1/2})/(in.Hg \cdot min)$.

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_{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
16.5	0.27	12.900	18.036	67	68	FO 40	0.2410	67	67	23.0
11.0	0.62	18.300	23.316	68	68	FO 48	0.3533	67	67	22.0
8.5	1.15	24.700	29.817	69	69	FO 55	0.4650	67	67	21.0
7.5	1.90	29.950	35.768	69	69	FO 63	0.5986	67	67	20
5.5	3.50	36.800	42.651	69	70	FO 73	0.8240	67	67	17.0

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	
5.089	0.308	5.127	0.311	1.007	0.002	0.311	1.561	-0.151
4.970	0.452	5.011	0.456	1.008	0.003	0.456	1.669	-0.043
5.067	0.596	5.096	0.600	1.006	0.000	0.600	1.788	0.076
5.772	0.770	5.789	0.772	1.003	-0.003	0.772	1.790	0.078
5.822	1.059	5.844	1.062	1.004	-0.002	1.062	1.752	0.040
				1.006	ΔY Average		1.712	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 [signature] Date 2-03-04

APPENDIX E3

CONCRETE SUPPLY TRUCK MIX &

RMC CENTRAL MIX

EQUIPMENT CALIBRATION DATA

TEOM Verification/Audit Procedures

Plant Name: Concrete Supply Client: NRMCA

Job No.: 877 City/State: Rock Hill, SC Personnel : TB

Date 5/11/04 Time 13:56 Sampler Serial Number 23761 Baghouse

Calibration Constant 13685 Instrument Type AB

Constant A 3.000 Constant B 1.030

Audit Parameter	Reference Measurement	TEOM Measurement	Difference	Tolerances Allowed	Meets Tolerances √
Main Flow Leak Check	N/A	0.10	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.29	N/A	Less Than 0.60 L/min	✓
Ambient Temperature	28.7 °C	28.3 °C	0.4 °C	± 2 °C	✓
Ambient Temperature[1]	301.7 °K	N/A	N/A	N/A	N/A
Ambient Pressure	754.4 mm Hg	752.4 mm Hg	1.98 mm Hg	± 10 mm Hg	✓
Ambient Pressure[1]	0.993 atm	N/A	N/A	N/A	N/A
Total Flow Rate, Audit Qact	16.66 ~~16.59~~ L/min	16.64 L/min	0.044 L/min	16.67 ± 1.0 L/min	✓
Main Flow Rate, Audit Qact[2]	3.009 L/min	2.99 L/min	0.019 L/min	3.0 ± 0.2 L/min	✓
Main Flow Leak Check	N/A	0.10	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.30	N/A	Less Than 0.60 L/min	✓

ΔPs 6.3

4.65

[1] Ambient temperature (°K) and pressure (atm) used for flow audit calculations.
[2]The end of the flow splitter must be capped to perform the main flow audit.

- °C = 5/9 * (°F – 32)
- °K = °C + 273
- To convert from atmospheres to mm Hg, multiply by 760.
- To convert from inches Hg to mm Hg, multiply by 25.4

$$Qact = \left[m * \left(\sqrt{(\Delta P)(Tamb) / (Pamb)} \right) + b \right.$$

Total Flow m= 0.3916 b= -0.4733

Main Flow m= 0.0864 b= -0.2383

m and b are unit less and dependant on the calibration device units:

Qact = liters/minute
ΔP = inches W.C.
Tamb = °K
Pamb = atm

TEOM Verification/Audit Procedures

Plant Name: Concrete Supply Client: NRMCA

Job No.: 877 City/State: Rock Hill, SC Personnel: TTB

Date 5/11/04 Time 1352 Sampler Serial Number 23744 Arrays

Calibration Constant 13521 Instrument Type AB

Constant A 3.000 Constant B 1.030

Audit Parameter	Reference Measurement	TEOM Measurement	Difference	Tolerances Allowed	Meets Tolerances √
Main Flow Leak Check	N/A	0.08	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.02	N/A	Less Than 0.60 L/min	✓
Ambient Temperature	29.0 °C	28.5 °C	0.5 °C	± 2 °C	✓
Ambient Temperature[1]	302 °K	N/A	N/A	N/A	N/A
Ambient Pressure	754.4 mm Hg	752.4 mm Hg	1.98 mm Hg	± 10 mm Hg	✓
Ambient Pressure[1]	0.993 atm	N/A	N/A	N/A	N/A
Total Flow Rate, Audit Qact	16.28 L/min	16.66 L/min	0.3773 L/min	16.67 ± 1.0 L/min	✓
Main Flow Rate, Audit Qact[2]	3.01 L/min	3.00 L/min	0.01 L/min	3.0 ± 0.2 L/min	✓
Main Flow Leak Check	N/A	0.08	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.00	N/A	Less Than 0.60 L/min	✓

ΔPs 6.02

4.65

[1] Ambient temperature (°K) and pressure (atm) used for flow audit calculations.
[2] The end of the flow splitter must be capped to perform the main flow audit.

- °C = 5/9 * (°F – 32)
- °K = °C + 273
- To convert from atmospheres to mm Hg, multiply by 760.
- To convert from inches Hg to mm Hg, multiply by 25.4

$$Qact = \left[m * \left(\sqrt{(\Delta P)(Tamb) / (Pamb)} \right) + b \right.$$

Total Flow m= 0.3916 b= -0.4733

Main Flow m= 0.0864 b= -0.2383

m and b are unit less and dependant on the calibration device units:

Qact = liters/minute
ΔP = inches W.C.
Tamb = °K
Pamb = atm

SERVICE REPORT 140AB TYPE CONTROL UNITS

Customer Name: R+P RN#: /

Complete description of items received and the conditions in which they were received.
Get photos if necessary. Received - Controll unit + Sensor + Air, Elect cables
- Amb temp probe

Print a copy of the current view screen from the customer's unit. This will be used to record the customer's operating parameters.
Give a full description of any and all parts replaced or installed and why. -upgraded flow controller

Verify and make necessary adjustments to the following:

Check that the corcom and voltage select switches are set for proper line voltage.
Measure the voltage at TP ACIN: -25.29
Interface board measure and adjust the following testpoints:

+15VDC: 15.04 -15VDC: -15.02
+10VDC: 10.02 +5VDC: 5.00
24VAC: 24.95 ACCU 24VAC: 24.95

Test ACCU Relays for proper operation.

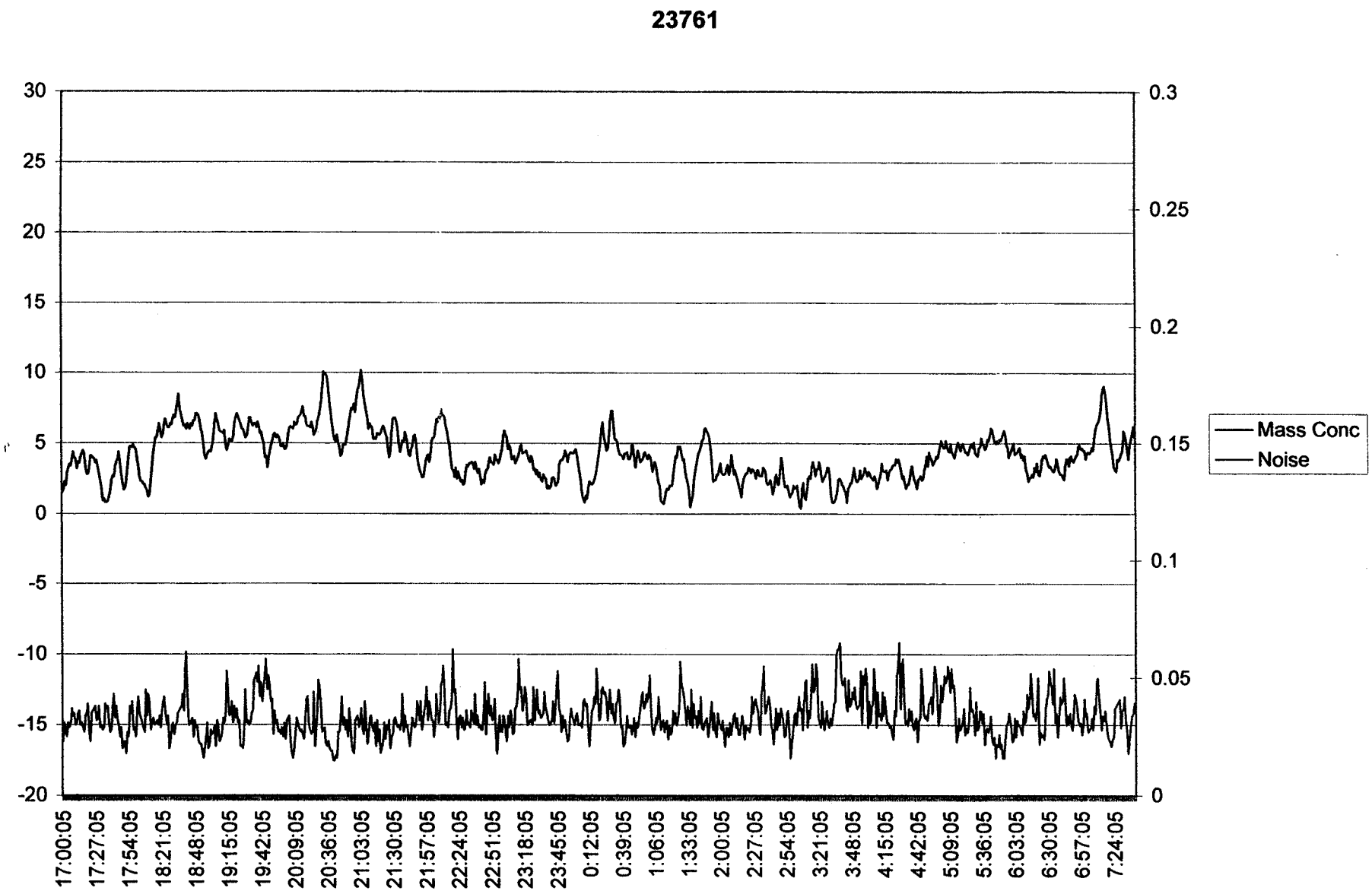
Analog Outputs:
D/A0: 9
D/A1: 9
D/A2: 9
D/A3: 9
D/A4: 9
D/A5: 9

Analog Inputs:
A/D0: 90
A/D1: 90
A/D2: 90
A/D3: 90
A/D4: 90
A/D5: 90
A/D6: 90
A/D7: 90
A/D8: 90
A/D9: 90
A/D10: 90
A/D11: 90
A/D12: 90
A/D13: 90
A/D14: 90
A/D15: 90

Ambient Temperature Sensor: Room Temp: 24.2C
Probe reading adjust A/D8: 24.2 C

Ambient Pressure Sensor: Room Pressure: .988 atm
Sensor reading adjust R503: .988 atm

Flow Controllers: Main Flow:
0.50LPM: .48 1.0LPM: 1.00
4.50LPM: 4.53 2.0LPM: 2.00
Offset: .10 3.0LPM: 3.00


23761
30
25
20
15
10
5
0
-5
-10
-15
-20
0.3
0.25
0.2
0.15
0.1
0.05
0
17:00:05
17:27:05
17:54:05
18:21:05
18:48:05
19:15:05
19:42:05
20:09:05
20:36:05
21:03:05
21:30:05
21:57:05
22:24:05
22:51:05
23:18:05
23:45:05
0:12:05
0:39:05
1:06:05
1:33:05
2:00:05
2:27:05
2:54:05
3:21:05
3:48:05
4:15:05
4:42:05
5:09:05
5:36:05
6:03:05
6:30:05
6:57:05
7:24:05
Mass Conc
Noise

TEOM Verification/Audit Procedures

Plant Name: RMC Durant Client: NRMCA

Job No.: 877 City/State: Raleigh, NC Personnel : TTB

Date 5/18/04 Time 1434 Sampler Serial Number 23761 Baghouse

Calibration Constant 13685 Instrument Type AB

Constant A 3.000 Constant B 1.030

Audit Parameter	Reference Measurement	TEOM Measurement	Difference	Tolerances Allowed	Meets Tolerances √
Main Flow Leak Check	N/A	0.11	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	031	N/A	Less Than 0.60 L/min	✓
Ambient Temperature	30.0 °C	30.4 °C	0.4 °C	± 2 °C	✓
Ambient Temperature[1]	303 °K	N/A	N/A	N/A	N/A
Ambient Pressure	760.2 mm Hg	761.52 mm Hg	0.48 mm Hg	± 10 mm Hg	✓
Ambient Pressure[1]	1.00026 atm	N/A	N/A	N/A	N/A
6.6 Total Flow Rate, Audit Qact	17.01 L/min	16.65 L/min	0.3666 L/min	16.67 ± 1.0 L/min	✓
4.64 Main Flow Rate, Audit Qact [2]	2.997 L/min	2.99 L/min	0.007 L/min	3.0 ± 0.2 L/min	✓
Main Flow Leak Check	N/A	0.11	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.29	N/A	Less Than 0.60 L/min	✓

[1] Ambient temperature (°K) and pressure (atm) used for flow audit calculations.
[2]The end of the flow splitter must be capped to perform the main flow audit.

- °C = 5/9 * (°F – 32)
- °K = °C + 273
- To convert from atmospheres to mm Hg, multiply by 760.
- To convert from inches Hg to mm Hg, multiply by 25.4

$$Qact = \left[m * \left(\sqrt{(\Delta P)(Tamb) / (Pamb)} \right) + b \right.$$

Total Flow m= 0.3916 b= -0.4733

Main Flow m= 0.0864 b= -0.2383

m and b are unit less and dependant on the calibration device units:

Qact = liters/minute
ΔP = inches W.C.
Tamb = °K
Pamb = atm

TEOM Verification/Audit Procedures

Plant Name: RMC Durant Client: NRMCA

Job No.: 877 City/State: Raleigh, NC Personnel : TTB

Date 5/18/04 Time 1433 Sampler Serial Number ~~AB~~ 23744 (Array)

Calibration Constant 13521 Instrument Type AB

Constant A 3.00 Constant B 1.030

Audit Parameter	Reference Measurement	TEOM Measurement	Difference	Tolerances Allowed	Meets Tolerances √
Main Flow Leak Check	N/A	0.08	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.02	N/A	Less Than 0.60 L/min	✓
Ambient Temperature	30 °C	29.6 °C	0.4 °C	± 2 °C	✓
Ambient Temperature[1]	303 °K	N/A	N/A	N/A	N/A
Ambient Pressure	762.0 mm Hg	761.52 mm Hg	0.48 mm Hg	± 10 mm Hg	✓
Ambient Pressure[1]	1.0026 atm	N/A	N/A	N/A	N/A
6.06 Total Flow Rate, Audit Qact	16.28 L/min	16.66 L/min	0.37 L/min	16.67 ± 1.0 L/min	✓
4.59 Main Flow Rate, Audit Qact [2]	2.97 L/min	3.00 L/min	0.03 L/min	3.0 ± 0.2 L/min	✓
Main Flow Leak Check	N/A	0.08	N/A	Less Than 0.15 L/min	✓
Auxiliary Flow Leak Check	N/A	0.01	N/A	Less Than 0.60 L/min	✓

[1] Ambient temperature (°K) and pressure (atm) used for flow audit calculations.
[2]The end of the flow splitter must be capped to perform the main flow audit.

- °C = 5/9 * (°F – 32)
- °K = °C + 273
- To convert from atmospheres to mm Hg, multiply by 760.
- To convert from inches Hg to mm Hg, multiply by 25.4

$$Qact = \left[m * \left(\sqrt{(\Delta P)(Tamb) / (Pamb)} \right) + b \right.$$

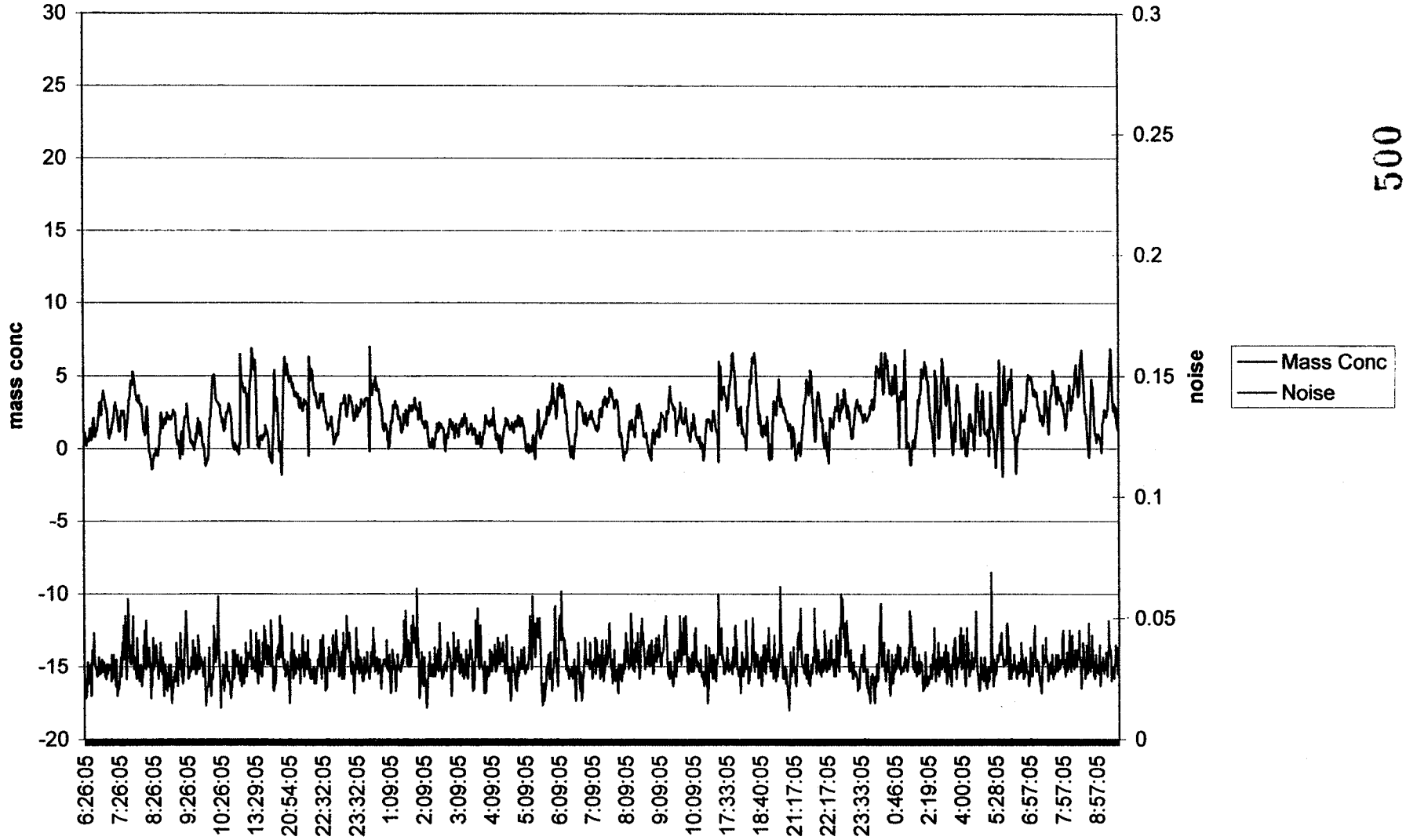
Total Flow m= 0.3916 b= -0.4733

Main Flow m= 0.0864 b= -0.2383

m and b are unit less and dependant on the calibration device units:

Qact = liters/minute
ΔP = inches W.C.
Tamb = °K
Pamb = atm

23744


mass conc
noise
30
25
20
15
10
5
0
-5
-10
-15
-20
0.3
0.25
0.2
0.15
0.1
0.05
0
6:26:05
7:26:05
8:26:05
9:26:05
10:26:05
13:29:05
20:54:05
22:32:05
23:32:05
1:09:05
2:09:05
3:09:05
4:09:05
5:09:05
6:09:05
7:09:05
8:09:05
9:09:05
10:09:05
17:33:05
18:40:05
21:17:05
22:17:05
23:33:05
0:46:05
2:19:05
4:00:05
5:28:05
6:57:05
7:57:05
8:57:05
Mass Conc
Noise

500

SERVICE REPORT 140AB TYPE CONTROL UNITS

Customer Name: R+P RN#: Demo

Complete description of items received and the conditions in which they were received.
Get photos if necessary. S/N 140AB23744010 9

Print a copy of the current view screen from the customer's unit. This will be used to record the customer's operating parameters.
Give a full description of any and all parts replaced or installed and why.

Verify and make necessary adjustments to the following:

Check that the corcom and voltage select switches are set for proper line voltage.
Measure the voltage at TP ACIN: -25.

Interface board measure and adjust the following testpoints:

+15VDC: 15.000 -15VDC: -15.001
+10VDC: 10.009 +5VDC: 5.017
24VAC: 25.2 ACCU 24VAC: -25.66

Test ACCU Relays for proper operation.

Analog Outputs:
D/A0: 9.000
D/A1: 9.000
D/A2: 9.000
D/A3: 9.000
D/A4: 9.000
D/A5: 9.000

Analog Inputs:
A/D0: 90.0
A/D1: 90.0
A/D2: 90.0
A/D3: 90.0
A/D4: 90.0
A/D5: 90.0
A/D6: 90.0
A/D7: 90.0
A/D8: 90.0
A/D9: 90.0
A/D10: 90.0
A/D11: 90.0
A/D12: 90.0
A/D13: 90.0
A/D14: 90.0
A/D15: 90.0

Ambient Temperature Sensor: Room Temp: 23.8 C
Probe reading adjust A/D8: 23.8 C

Ambient Pressure Sensor: Room Pressure: .9968 atm
Sensor reading adjust R503: .997 atm

Flow Controllers: Main Flow:
0.50LPM: 0.521 1.0LPM: 1.02
4.50LPM: 4.53 2.0LPM: 2.005
Offset: 0.05 3.0LPM: 2.998

501

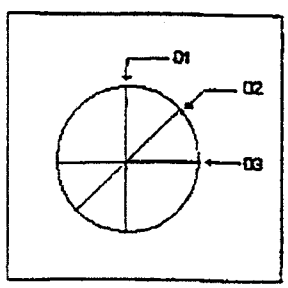
ENVIRONMENTAL
INSTRUMENT
SPECIALISTS, LLC

Nozzle Calibration Spreadsheet

Date:	5/13/2003
	Cyclone Set 1071
Unit:	Dial Calipers

Nozzle I.D.	D1 (in.)	D2 (in.)	D3 (in.)	ΔD (in.)	Within ±0.004 in. ?	ΔDavg. (in.)	Calibrated by	Date
1071-0	0.123	0.123	0.123	0.000	TRUE	0.1230		5/13/2003
1071-1	0.131	0.131	0.132	0.001	TRUE	0.1313		5/13/2003
1071-2	0.145	0.147	0.146	0.002	TRUE	0.1460		5/13/2003
1071-3	0.163	0.163	0.163	0.000	TRUE	0.1630		5/13/2003
1071-4	0.176	0.175	0.176	0.001	TRUE	0.1757		5/13/2003
1071-5	0.195	0.195	0.195	0.000	TRUE	0.1950		5/13/2003
1071-6	0.214	0.214	0.213	0.001	TRUE	0.2137		5/13/2003
1071-7	0.231	0.231	0.232	0.001	TRUE	0.2313		5/13/2003
1071-8	0.259	0.259	0.259	0.000	TRUE	0.2590		5/13/2003
1071-9	0.299	0.300	0.298	0.002	TRUE	0.2990		5/13/2003
1071-10	0.341	0.340	0.341	0.001	TRUE	0.3407		5/13/2003
1071-11	0.388	0.387	0.388	0.001	TRUE	0.3877		5/13/2003

Certified Signature Matt Osnes
Quality Control



Nomenclature

D1, D2, D3	Three Nozzle Diameter Measurements
ΔD	Maximum Difference Between Any Two Diameters. (ΔD Cannot Exceed 0.004 in.)
ΔDavg	Average of D1, D2, and D3

427 MAIN STREET • CLAYTON, NC 27520 • PHONE: 919-550-3866 • 1-800-730-1193 • FAX: 919-550-3966
WWW.ENVINSTR.COM

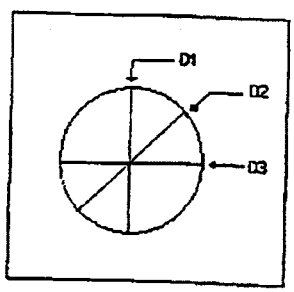
ENVIRONMENTAL
INSTRUMENT
SPECIALISTS, LLC

Nozzle Calibration Spreadsheet

Date: 5/13/2003
Cyclone Set 1072
Unit: Dial Calipers

Nozzle I.D.	D1 (in.)	D2 (in.)	D3 (in.)	ΔD (in.)	Within ±0.004 in. ?	ΔDavg. (in.)	Calibrated by	Date
1072-0	0.123	0.123	0.124	0.001	TRUE	0.1233		5/13/2003
1072-1	0.131	0.131	0.131	0.000	TRUE	0.1310		5/13/2003
1072-2	0.145	0.145	0.146	0.001	TRUE	0.1453		5/13/2003
1072-3	0.163	0.161	0.162	0.002	TRUE	0.1620		5/13/2003
1072-4	0.179	0.178	0.179	0.001	TRUE	0.1787		5/13/2003
1072-5	0.195	0.196	0.194	0.002	TRUE	0.1950		5/13/2003
1072-6	0.213	0.217	0.216	0.004	TRUE	0.2153		5/13/2003
1072-7	0.231	0.232	0.232	0.001	TRUE	0.2317		5/13/2003
1072-8	0.259	0.259	0.258	0.001	TRUE	0.2587		5/13/2003
1072-9	0.290	0.290	0.290	0.000	TRUE	0.2900		5/13/2003
1072-10	0.340	0.340	0.339	0.001	TRUE	0.3397		5/13/2003
1072-11	0.388	0.389	0.388	0.001	TRUE	0.3883		5/13/2003

Certified Signature
Quality Control



Nomenclature

D1, D2, D3	Three Nozzle Diameter Measurements
ΔD	Maximum Difference Between Any Two Diameters. (ΔD Cannot Exceed 0.004 in.)
ΔDavg	Average of D1, D2, and D3

427 MAIN STREET • CLAYTON, NC 27520 • PHONE: 919-550-3866 • 1-800-730-1193 • FAX: 919-550-3966
WWW.ENVINSTR.COM

APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	11077
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	02/03/04	
Barometric Pressure		29.6	in Hg
Theoretical Critical Vacuum[1]		14.0	in Hg
Calibration Technician		DLS	

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, $(ft^3 \cdot {}^oR^{1/2})/(in.Hg \cdot min)$.

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_{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
16.5	0.27	12.900	18.036	67	68	FO 40	0.2410	67	67	23.0
11.0	0.62	18.300	23.316	68	68	FO 48	0.3533	67	67	22.0
8.5	1.15	24.700	29.817	69	69	FO 55	0.4650	67	67	21.0
7.5	1.90	29.950	35.768	69	69	FO 63	0.5986	67	67	20
5.5	3.50	36.800	42.651	69	70	FO 73	0.8240	67	67	17.0

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	
5.089	0.308	5.127	0.311	1.007	0.002	0.311	1.561	-0.151
4.970	0.452	5.011	0.456	1.008	0.003	0.456	1.669	-0.043
5.067	0.596	5.096	0.600	1.006	0.000	0.600	1.788	0.076
5.772	0.770	5.789	0.772	1.003	-0.003	0.772	1.790	0.078
5.822	1.059	5.844	1.062	1.004	-0.002	1.062	1.752	0.040
				1.006	ΔY Average		1.712	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 [signature] Date 2-03-04

504

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	11077
DGM Model Number	522
DGM Serial Number	

Calibration Conditions			
Date	Time	5/25/04	
Barometric Pressure		29.8	in Hg
Theoretical Critical Vacuum[1]		14.1	in Hg
Calibration Technician		DLS	

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, $(ft^3 \cdot {}^oR^{1/2})/(in.Hg \cdot min)$.

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_{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
9.0	1.15	409.002	414.434	75	76	FO 55	0.4650	74	74	22
9.0	1.15	414.434	419.887	76	77	FO 55	0.4650	74	74	22
9.0	1.15	419.887	425.342	77	78	FO 55	0.4650	74	74	22

Results

Standardized Data				Dry Gas Meter				
Dry Gas Meter		Critical Orifice		Calibration Factor		Flowrate	ΔH @	
				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	
5.350	0.594	5.397	0.600	1.009	0.001	0.600	1.778	0.003
5.360	0.596	5.397	0.600	1.007	-0.001	0.600	1.775	0.000
5.352	0.595	5.397	0.600	1.008	0.000	0.600	1.771	-0.003
				1.008	ΔY Average		1.775	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 [signature] Date 5-25-04

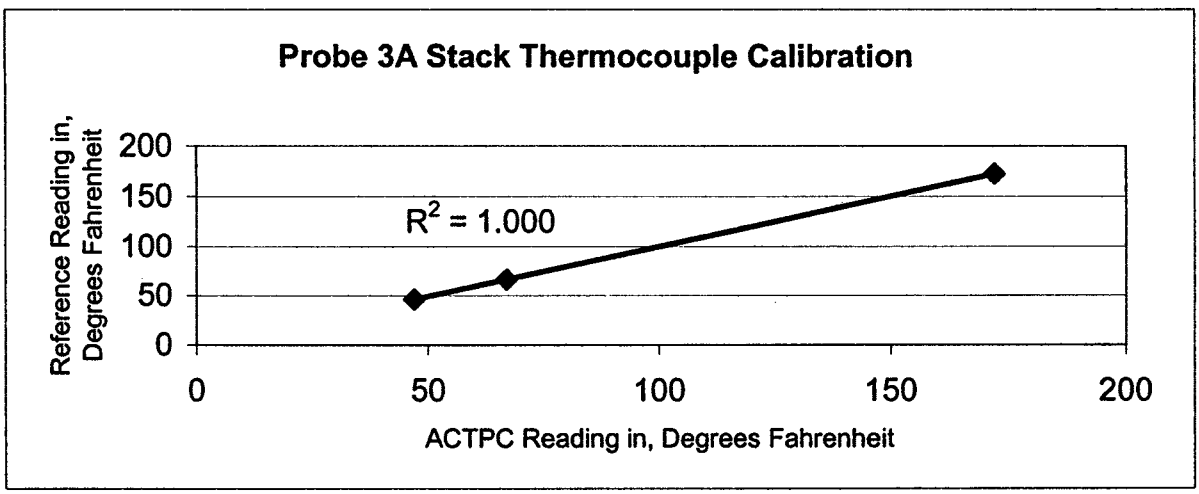
505

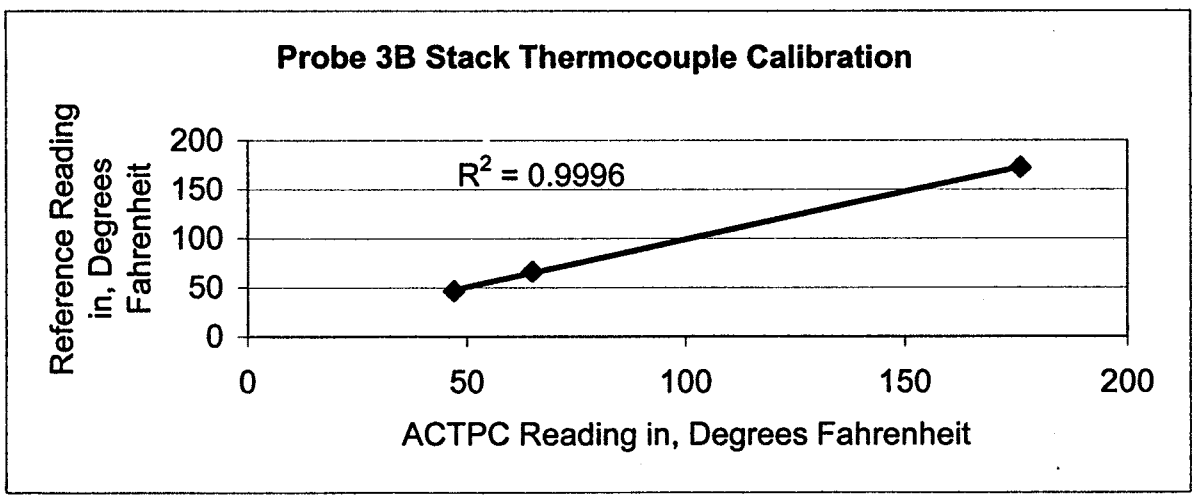
Air Control Techniques, P.C.
Probe Stack Thermocouple Calibrations

Date:	12/6/2004
Performed by:	TTB
Signature	

Thermocouple I.D.	ACT, P.C. *	Reference *
Stack 3A	47	46
Stack 3A	67	66
Stack 3A	172	172
Stack 3A	47	46
Stack 3A	65	66
Stack 3A	176	172

* = Degrees Fahreheit





Type S Pitot Tube Inspection
Air Control Techniques, P.C.

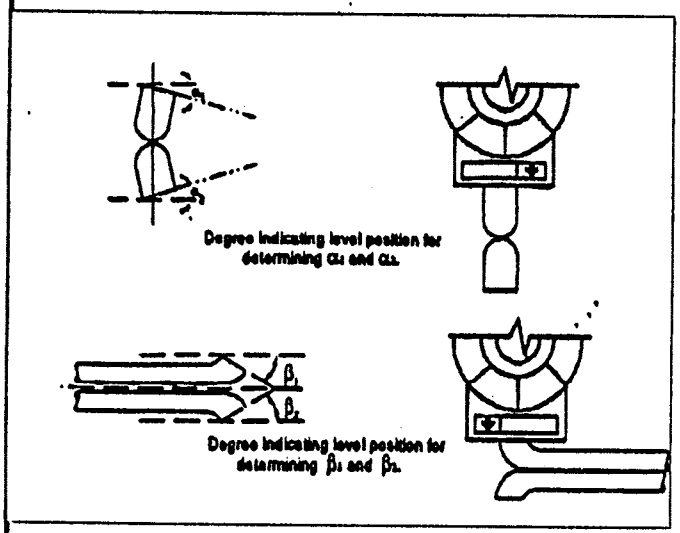
Date 4-08-02

Identification Information

Client	IN HOUSE	Job	NA
Plant Name	NA	Process	NA
City	CARY	State	NC

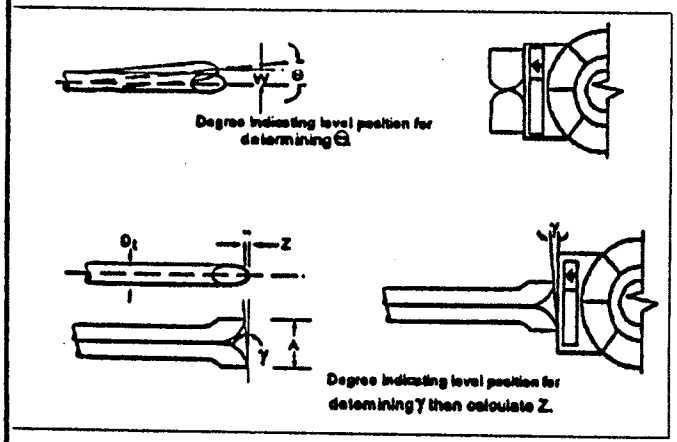
Pitot ID PT 2

Inspection Results



Inspection Data

Level and Perpendicular?	YES
Obstruction?	NO
Damaged?	NO
α1 (-10° ≤ α1 ≤ + 10°)	1.4
α2 (-10° ≤ α2 ≤ + 10°)	0.4
β1 (-5° ≤ β1 ≤ + 5°)	1.9
β2 (-5° ≤ β2 ≤ + 5°)	1.2
γ	2.9
θ	0.2
z=A tan γ (≤0.125 inches)	0.049
w=A tan θ (≤0.03125 inches)	0.003
D1 (3/16 inch ≤ D1 ≤ 3/8 inch)	0.375
A	0.9375
A/2D1 (1.05 ≤ PA/D1 ≤ 1.5)	1.29



Notes

Pitot Coefficient

Coefficient of 0.84 Assigned? YES

Inspection Personnel DLS

Notes

Form ACTPC PI-2

APPENDIX F

ELEMENT ONE, INC.

ARSENIC AND PARTICULATE MATTER TEST REPORT

APPENDIX F1

ELEMENT ONE, INC.

ARSENIC AND PARTICULATE MATTER

TEST REPORT FOR

RMCC TRUCK MIX &

RMCC CENTRAL MIX

Air Control Techniques

301 E. Durham Rd
Cary, NC 27513

Project ID: 877

Arsenic and
Particulate Matter

EPA Methods 201A & 29

Analytical Report
2609

Element One, Inc.
5022-C Wrightsville Av., Wilmington, NC 28403
910-793-0128 FAX:910-792-6853 e1lab@hotmail.com

I have reviewed the following data for completeness, accuracy, adherence to method protocol, and compliance with quality assurance guidelines.

Quality assurance review by Bruce Hawks

Bruce Hawks 1/6/04

el1

SUMMARY OF RESULTS

el1

Summary of Analysis (continued)

Summary of Particle Sizing and Arsenic Analysis

Fraction	WF-C-IN-4-1 Catch, mg	WF-C-IN-4-2 Catch, mg	WF-C-IN-4-2 Catch, mg	WF-C-IN-4-3 Catch, mg
Filter	5.5	6.2	6.2	6.0
< 2.5	0.6	1.6	1.6	0.9
>2.5<10	14.6	50.0	50.0	40.3
>10	48.0	92.4	92.4	78.9

Element	WF-C-IN-4-1 Total µg	WF-C-IN-4-2 Total µg	WF-C-IN-4-2 Total µg	WF-C-IN-4-3 Total µg
<10 Arsenic	0.94	2.94	3.03	2.42
>10 Arsenic	1.18	2.06	2.09	1.38

Summary of Particle Sizing and Arsenic Analysis

Fraction	WF-C-OUT-4-1 Catch, mg	WF-C-OUT-4-2 Catch, mg	WF-C-OUT-4-2 Catch, mg	WF-C-OUT-4-3 Catch, mg
Filter	0.2	0.0	0.0	0.6
< 2.5	1.0	0.0	0.0	0.3
>2.5<10	0.7	0.9	0.9	0.4
>10	0.0	0.5	0.5	1.0

Element	WF-C-OUT-4-1 Total µg	WF-C-OUT-4-2 Total µg	WF-C-OUT-4-2 Total µg	WF-C-OUT-4-3 Total µg
<10 Arsenic	< 0.1	< 0.1	< 0.1	< 0.1
>10 Arsenic	< 0.1	< 0.1	< 0.1	< 0.1

Summary of Analysis

Summary of Particle Sizing and Arsenic Analysis

Fraction	WF-T-IN-4-1 Catch, mg	WF-T-IN-4-2 Catch, mg	WF-T-IN-4-2 Catch, mg	WF-T-IN-4-3 Catch, mg
Filter	9.6	6.8	6.8	142.6
< 2.5	1.6	1.8	1.8	10.2
>2.5<10	79.4	81.4	81.4	864.1
>10	201.2	257.7	257.7	1751.3

Element	WF-T-IN-4-1 Total µg	WF-T-IN-4-2 Total µg	WF-T-IN-4-2 Total µg	WF-T-IN-4-3 Total µg
<10 Arsenic	6.23	6.56	6.60	117
>10 Arsenic	4.93	5.00	5.05	67.7

Summary of Particle Sizing and Arsenic Analysis

Fraction	WF-T-OUT-4-1 Catch, mg	WF-T-OUT-4-2 Catch, mg	WF-T-OUT-4-2 Catch, mg	WF-T-OUT-4-3 Catch, mg
Filter	0.0	0.0	0.0	0.0
< 2.5	0.0	0.1	0.1	0.5
>2.5<10	1.5	0.2	0.2	1.0
>10	0.0	0.7	0.7	0.0

Element	WF-T-OUT-4-1 Total µg	WF-T-OUT-4-2 Total µg	WF-T-OUT-4-2 Total µg	WF-T-OUT-4-3 Total µg
<10 Arsenic	< 0.1	< 0.1	< 0.1	< 0.1
>10 Arsenic	< 0.1	< 0.1	< 0.1	< 0.1

Summary of Analysis (continued)

Summary of Particle Sizing and Arsenic Analysis

Fraction	Field Blank Catch, mg
Filter	0.2
< 2.5	0.1
>2.5<10	1.0
>10	1.6

Element	Field Blank Total µg
<10 Arsenic	< 0.1
>10 Arsenic	< 0.1

Summary of Particle Sizing and Arsenic Analysis

Element	Stone mg/Kg	Fly ash mg/Kg	Cement mg/Kg	Sand mg/Kg
Arsenic	< 0.2	29.8	7.95	0.181

ANALYTICAL NARRATIVE

el1

Element One Analytical Narrative

Client	Air Control Techniques	Element One #:	2609
Client ID:	877	Analyst:	KMS, DBW
Date Received	12/12/03	Method:	PS & M29
Analytes	Particulate and As	Dates Analyzed	12/15 - 22/03

Summary of Analysis

Particle sizing samples were measured following Method 201A guidelines.

Following the particulate catch measurements, the < 10 µm samples for each run were combined into a single sample. The samples were digested, prepared, and analyzed according to Method 29 protocol. Arsenic was analyzed on a PerkinElmer ELAN 6100 ICP-MS.

Detection Limits

ICP-MS instrument reporting limit was 1 µg/L for arsenic.

Analysis QA/QC

Duplicate analyses relative percent difference (RPD), spike sample recovery, and second source calibration verification data are summarized on the following pages. All QA/QC data was within the criteria of the method.

Additional Comments

The reported results have not been corrected for any blank or spike recovery values. Nothing unusual was noticed with any of the analyses.

Arsenic Duplicate Analysis RPD

Element	WF-T-IN-4-2	WF-T-OUT-4-2	WF-C-IN-4-2	WF-C-OUT-4-2
<10 Arsenic	0.6%	NA	3.1%	NA
>10 Arsenic	1.0%	NA	1.5%	NA

Arsenic Spike Recoveries

Element	WF-T-IN-4-3	WF-T-OUT-4-3	WF-C-IN-4-3	WF-C-OUT-4-3
<10 Arsenic	107%	108%	115%	100%
>10 Arsenic	99%	81%	109%	98%

Second Source Calibration Check Recoveries

Element	0.25 ppb	1 ppb	10 ppb	50 ppb	500 ppb
Arsenic	84%	96%	98%	113%	102%

SAMPLE CUSTODY

el1

Air
Control Techniques, P.C.
AIR POLLUTION CONTROL SYSTEMS ENGINEERING
301 East Durham Road
Cary, North Carolina 27513
(919) 460-7811

Chain of Custody

JOB / PO#: 877

TO: Bruce Hawks
ELEMENT ONE
5022 C WRIGHTSVILLE AVE.
Wilmington, NC 28403

Samples recovered by: Todd T. Brozell **Date** 12/8-11/03

SAMPLE NUMBER	COMPONENT	ANALYSIS
WF Stone Sample	Stone	Arsenic
WF Flyash Sample	Flyash	Arsenic
WF Cement Sample	Cement	Arsenic
WF Sand Sample	Sand	Arsenic
WF-T-OUT-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-T-OUT-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-T-OUT-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.

SAMPLE NUMBER	COMPONENT	ANALYSIS
WF-C-OUT-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-C-OUT-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-C-OUT-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-T-IN-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-T-IN-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-T-IN-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-C-IN-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-C-IN-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
WF-C-IN-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.

Chain of Custody
Page 3 of 3

SAMPLE NUMBER	COMPONENT	ANALYSIS
Field Blank	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 1,2, & 3 Arsenic less than 10 microns.
Acetone Blank	Acetone Blank	Gravimetric and Arsenic

Relinquished by: Todd T. Brozell Date 12/12/03

Relinquished by: Date

Received by: Date 12/12/03

Comments 2604

ANALYTICAL DATA

el1

elementOne **AIR TESTING SAMPLE SUBMISSION FORM** Lab ID # **e2609**

Client ID/PO#: 877		Date Received: 12/12/03	Page: 1 of 2
Customer: ACT		Results Requested: 12/29/03	Time Rec: 1200
Address: 301 E Durham Road		Contact: Todd Brozell	Rec by: BGH
Cary, NC 27513		Email:actpc@aircontroltechniques.com	Via: Pickup
		Phone: 919-460-7811	Fax: 919-460-7897
HNO_3 Lot:	HF Lot:	HCl Lot:	
Volume Marked Y / N	Volume Loss Y / N / ?	pH < 2.0 Y / N	Ref. **Special**

	Sample Identification		Sample Identification
1	WF-T-IN-PRE4-1	6	WF-T-OUT-PRE4-1
2	WF-T-IN-PRE4-2	7	WF-T-OUT-PRE4-2
3	WF-T-IN-PRE4-2 Duplicate	8	WF-T-OUT-PRE4-2 Duplicate
4	WF-T-IN-PRE4-3	9	WF-T-OUT-PRE4-3
5	WF-T-IN-PRE4-3 Spike	10	WF-T-OUT-PRE4-3 Spike

Elements to Analyze: Particulate on each fraction. Then As on >10 and combined filter, <2.5, & >2.5<10.

	Front Half		Back Half			HNO_3 (A)		$KMnO_4$ (B)		HCl (C)	
SAMPLE	BV, ml	FV, ml	BV, ml	Used	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml
1											
2/3											
4/5											
6											
7/8											
9/10											

Comments:

Element One, Inc. Form 118 - Revision 6.0

elementOne **AIR TESTING SAMPLE SUBMISSION FORM** Lab ID # **e2609**

Client ID/PO#: 877		Date Received: 12/12/03	Page: 2 of 2
Customer: ACT		Results Requested: 12/29/03	Time Rec: 1200
Address: 301 E Durham Road		Contact: Todd Brozell	Rec by: BGH
Cary, NC 27513		Email:actpc@aircontroltechniques.com	Via: Pickup
		Phone: 919-460-7811	Fax: 919-460-7897
HNO_3 Lot:	HF Lot:	HCl Lot:	
Volume Marked Y / N	Volume Loss Y / N / ?	pH < 2.0 Y / N	Ref. **Special**

	Sample Identification		Sample Identification
11	WF-C-IN-PRE4-1	19	WF-C-OUT-PRE4-3
12	WF-C-IN-PRE4-2	20	WF-C-OUT-PRE4-3 Spike
13	WF-C-IN-PRE4-2 Duplicate	21	Field Blank
14	WF-C-IN-PRE4-3	22	Acetone Blank
15	WF-C-IN-PRE4-3 Spike	23	Stone
16	WF-C-OUT-PRE4-1	24	Flyash
17	WF-C-OUT-PRE4-2	25	Cement
18	WF-C-OUT-PRE4-2 Duplicate	26	Sand

Elements to Analyze: For #11 – 22. Particulate on each Fraction. Then As on >10 and combined filter, <2.5, & >2.5<10. For 23-26 As mg/Kg.

	Front Half		Back Half			HNO_3 (A)		$KMnO_4$ (B)		HCl (C)	
SAMPLE	BV, ml	FV, ml	BV, ml	Used	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml
11											
12/13											
14/15											
16											
17/18											
19/20											
21											
22											
23											
24											
25											
26											

Comments:

Element One, Inc. Form 118 - Revision 6.0

elementOne **ICP-MS RUN SHEET** **2609**

Kms 12-22-03

Analyst: __KMS____ Date: 12-22-03 **Solid Samples** ☐ / *Liquid Samples*

AVS Loc	Batch # for sample sets	Sample Lab ID	Sample Description	Type Sample QC Spike QC Dup QC Reg Blank	Spike concentratio	Prep Volume (ml)	~~Aliquot (ml)~~ wt g	Diluted to Volume (ml)	Units
			2609-23			100	.6058		
			-24			100	.6611		
			25			100	Kms ~~.6125~~	.9822	
			26			100	2.1751		

Spikes are post at 0.02ml of 25ppm spiking solutions lot 021403-ABC or F in a final volume of 10ml.

Dataset Report

er Name: ksmith
Computer Name: ICPMS1
Dataset File Path: c:\elandata\dataset\122203-1\
Report Date/Time: Monday, December 22, 2003 19:48:54

Ken Smith 12-22-03

Autosampler Position: 7

The Dataset

Time	Sample ID	Batch ID	Read Type	Description	Init. Quant	Prep. Vol.	Aliquot. Vol.	Diluted V
17:13:51 Mon 22-Dec-03	Blank		Blank					
17:15:24 Mon 22-Dec-03	Standard 1		Standard #1					
17:16:57 Mon 22-Dec-03	Standard 2		Standard #2					
17:18:31 Mon 22-Dec-03	Standard 3		Standard #3					
17:20:06 Mon 22-Dec-03	QC Std 1		QC Std #1					
17:21:39 Mon 22-Dec-03	QC Std 2		QC Std #2					
17:23:11 Mon 22-Dec-03	QC Std 3		QC Std #3					
17:24:44 Mon 22-Dec-03	QC Std 4		QC Std #4					
17:26:16 Mon 22-Dec-03	QC Std 5		QC Std #5					
17:27:50 Mon 22-Dec-03	QC Std 6		QC Std #6					
17:29:24 Mon 22-Dec-03	QC Std 7		QC Std #7					
17:30:59 Mon 22-Dec-03	QC Std 8		QC Std #8					
17:32:33 Mon 22-Dec-03	LRB		Sample	ACT				
17:34:08 Mon 22-Dec-03	LRB		Spike - 1	ACT				
17:35:42 Mon 22-Dec-03	2609-1		Sample	ACT				
17:37:14 Mon 22-Dec-03	2609-1+		Sample	ACT				
17:38:47 Mon 22-Dec-03	2609-2		Sample	ACT				
17:40:19 Mon 22-Dec-03	2609-2		QC Duplicate	ACT				
17:41:52 Mon 22-Dec-03	2609-2+		Sample	ACT				
17:43:25 Mon 22-Dec-03	2609-2+		QC Duplicate	ACT				
17:44:58 Mon 22-Dec-03	2609-4		Sample	ACT				
17:46:31 Mon 22-Dec-03	2609-4		Spike - 1	ACT				
17:48:04 Mon 22-Dec-03	QC Std 3		QC Std #3					
17:49:37 Mon 22-Dec-03	QC Std 4		QC Std #4					
17:51:10 Mon 22-Dec-03	2609-4+		Sample	ACT				
17:52:44 Mon 22-Dec-03	2609-4+		Spike - 1	ACT				
17:54:19 Mon 22-Dec-03	2609-6		Sample	ACT				
17:55:54 Mon 22-Dec-03	2609-6+		Sample	ACT				
17:57:28 Mon 22-Dec-03	2609-7		Sample	ACT				
17:59:00 Mon 22-Dec-03	2609-7		QC Duplicate	ACT				
18:00:33 Mon 22-Dec-03	2609-7+		Sample	ACT				
18:02:06 Mon 22-Dec-03	2609-7+		QC Duplicate	ACT				
18:03:39 Mon 22-Dec-03	2609-9		Sample	ACT				
18:05:11 Mon 22-Dec-03	2609-9		Spike - 1	ACT				
18:06:44 Mon 22-Dec-03	QC Std 3		QC Std #3					
18:08:17 Mon 22-Dec-03	QC Std 4		QC Std #4					
18:09:50 Mon 22-Dec-03	2609-9+		Sample	ACT				
18:11:24 Mon 22-Dec-03	2609-9+		Spike - 1	ACT				
18:12:58 Mon 22-Dec-03	2609-11		Sample	ACT				
18:14:32 Mon 22-Dec-03	2609-11+		Sample	ACT				
18:16:07 Mon 22-Dec-03	2609-12		Sample	ACT				
18:17:42 Mon 22-Dec-03	2609-12		QC Duplicate	ACT				
18:19:16 Mon 22-Dec-03	2609-12+		Sample	ACT				

18:20:49 Mon 22-Dec-03	2609-12+	QC Duplicate	ACT
18:22:22 Mon 22-Dec-03	2609-14	Sample	ACT
18:23:56 Mon 22-Dec-03	2609-14	Spike - 1	ACT
:25:28 Mon 22-Dec-03	QC Std 3	QC Std #3	
18:27:01 Mon 22-Dec-03	QC Std 4	QC Std #4	
18:28:34 Mon 22-Dec-03	2609-14+	Sample	ACT
18:30:07 Mon 22-Dec-03	2609-14+	Spike - 1	ACT
18:31:40 Mon 22-Dec-03	2609-16	Sample	ACT
18:33:14 Mon 22-Dec-03	2609-16+	Sample	ACT
18:34:48 Mon 22-Dec-03	2609-17	Sample	ACT
18:36:22 Mon 22-Dec-03	2609-17	QC Duplicate	ACT
18:37:56 Mon 22-Dec-03	2609-17+	Sample	ACT
18:39:31 Mon 22-Dec-03	2609-17+	QC Duplicate	ACT
18:41:06 Mon 22-Dec-03	2609-19	Sample	ACT
18:42:39 Mon 22-Dec-03	2609-19	Spike - 1	ACT
18:44:12 Mon 22-Dec-03	QC Std 3	QC Std #3	
18:45:44 Mon 22-Dec-03	QC Std 4	QC Std #4	
18:47:18 Mon 22-Dec-03	2609-19+	Sample	ACT
18:48:52 Mon 22-Dec-03	2609-19+	Spike - 1	ACT
18:50:25 Mon 22-Dec-03	2609-21	Sample	ACT
18:51:59 Mon 22-Dec-03	2609-21+	Sample	ACT
18:53:32 Mon 22-Dec-03	2609-22	Sample	ACT
18:55:06 Mon 22-Dec-03	2609-4	Sample	ACT
18:56:40 Mon 22-Dec-03	2609-4	Spike - 1	ACT
18:58:14 Mon 22-Dec-03	2609-4+	Sample	ACT
18:59:49 Mon 22-Dec-03	2609-4+	Spike - 1	ACT
19:01:24 Mon 22-Dec-03	2609-23	Sample	ACT
'9:02:57 Mon 22-Dec-03	QC Std 3	QC Std #3	
:04:29 Mon 22-Dec-03	QC Std 4	QC Std #4	
19:06:03 Mon 22-Dec-03	2609-24	Sample	ACT
19:07:37 Mon 22-Dec-03	2609-25	Sample	ACT
19:09:11 Mon 22-Dec-03	2609-26	Sample	ACT
[redacted]			
19:13:52 Mon 22-Dec-03	QC Std 3	QC Std #3	
19:15:24 Mon 22-Dec-03	QC Std 4	QC Std #4	

Sample/Batch Report

er Name: ksmith
Computer Name: ICPMS1
Sample File: C:\elandata\Sample\xxx.sam
Report Date/Time: Monday, December 22, 2003 19:49:56

Ken Smith 12-22-03

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Init. Quant.	Prep. Vol.	Aliquot Vol.	Diluted Vol.	Solids Ratio
12		LRB	ACT						
13		LRB	ACT	Spike - 1					
14		2609-1	ACT						
15		2609-1+	ACT						
16		2609-2	ACT						
17		2609-2	ACT	QC Duplicate					
18		2609-2+	ACT						
19		2609-2+	ACT	QC Duplicate					
20		2609-4	ACT						
21		2609-4	ACT	Spike - 1					
22		2609-4+	ACT						
23		2609-4+	ACT	Spike - 1					
24		2609-6	ACT						
25		2609-6+	ACT						
26		2609-7	ACT						
27		2609-7	ACT	QC Duplicate					
28		2609-7+	ACT						
29		2609-7+	ACT	QC Duplicate					
30		2609-9	ACT						
31		2609-9	ACT	Spike - 1					
32		2609-9+	ACT						
33		2609-9+	ACT	Spike - 1					
34		2609-11	ACT						
35		2609-11+	ACT						
36		2609-12	ACT						
37		2609-12	ACT	QC Duplicate					
38		2609-12+	ACT						
39		2609-12+	ACT	QC Duplicate					
40		2609-14	ACT						
41		2609-14	ACT	Spike - 1					
42		2609-14+	ACT						
43		2609-14+	ACT	Spike - 1					
44		2609-16	ACT						
45		2609-16+	ACT						
46		2609-17	ACT						
47		2609-17	ACT	QC Duplicate					
48		2609-17+	ACT						
49		2609-17+	ACT	QC Duplicate					
50		2609-19	ACT						
51		2609-19	ACT	Spike - 1					
52		2609-19+	ACT						
53		2609-19+	ACT	Spike - 1					
54		2609-21	ACT						
55		2609-21+	ACT						
56		2609-22	ACT						
57		2609-4	ACT						
58		2609-4	ACT	Spike - 1					
59		2609-4+	ACT						
60		2609-4+	ACT	Spike - 1					

61	2609-23	ACT
62	2609-24	ACT
63	2609-25	ACT
64	2609-26	ACT

elementOne **ICP-MS RUN SHEET** 2609

Analyst: __KMS____ Date: 12-22-03 **Solid Samples** ☐ / *Liquid Samples*

A/S Loc	Batch # for sample sets	Sample Lab ID	Sample Description	Type Sample QC Spike QC Dup QC Reg Blank	Spike concentratio	Prep Volume (ml)	Aliquot (ml)	Diluted to Volume (ml)	Units
+ is for > 10 samples									
12			LRB	S		100			
13			LRB	SS	Table #1	100			
14			2609-1	S		100			
15			2609-1+	S		100			
16			2609-2	S		100			
17			2609-2	SD		100			
18			2609-2+	S		100			
19			2609-2+	SD		100			
20			2609-4	S		100			
21			2609-4	SS	Table #1	100			
22			2609-4+	S		100			
23			2609-4+	SS	Table #1	100			
24			2609-6	S		100			
25			2609-6+	S		100			
26			2609-7	S		100			
27			2609-7	SD		100			
28			2609-7+	S		100			
29			2609-7+	SD		100			
30			2609-9	S		100			
31			2609-9	SS	Table #1	100			
32			2609-9+	S		100			

33			2609-9+	SS	Table #1	100			
34			2609-11	S		100			
[illegible]			2609-11+	S		100			
36			2609-12	S		100			
37			2609-12	SD		100			
38			2609-12+	S		100			
39			2609-12+	SD		100			
40			2609-14	S		100			
41			2609-14	SS	Table #1	100			
42			2609-14+	S		100			
43			2609-14+	SS	Table #1	100			
44			2609-16	S		100			
45			2609-16+	S		100			
46			2609-17	S		100			
[illegible]			2609-17	SD		100			
48			2609-17+	S		100			
49			2609-17+	SD		100			
50			2609-19	S		100			
51			2609-19	SS	Table #1	100			
52			2609-19+	S		100			
53			2609-19+	SS	Table #1	100			
54			2609-21	S		100			
55			2609-21+	S		100			
56			2609-22	S		100			
Dilutions & Totals									
57			2609-4	S		100	1.0	10	
[illegible]			2609-4	SS	Table #1	100	1.0	10	
59			2609-4+	S		100	2.0	10	

60			2609-4+	SS	Table #1	100	2.0	10	
61			2609-23	S		100/.6058g			
			2609-24	S		100/.6611g			
63			2609-25	S		100/.9822g			
64			2609-26	S		100/2.1751g			
Spikes are post at 0.02ml of 25ppm spiking solutions lot 021403-ABC or F in a final volume of 10ml.									

Element One, Inc. Form 126 - Revision 0.0

elementOne

Particle Sizing Particulate

Lab # e 2609

Client ACT

Balance checks Date: 12/15/03 100 g = 99.9976
Date: 12/16/03
Date: 12/17/03

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1001	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-1		732	3.67841	9:20	3.8017	8:40	3.8018			0.1137	9.6
1 <2.5	27	605	4.08123	9:00	4.0828	9:15	4.0833				1.6
1 mid	97	692	3.66008	8:53	3.7394	9:25	3.7400	9:50	3.73981		79.4
1 >10	94	925	3.81670	8:55	4.0179	9:20	4.0184				201.2

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1003	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-2/3		696	3.77463	9:15	3.8959	8:45	3.8960			0.1144	6.8
2/3 <2.5	22	607	4.05021	9:00	4.0520	9:15	4.0525				1.8
2/3 mid	64	1213	3.58400	9:00	3.6654	9:20	3.6659				81.4
2/3 >10	68	746	3.99317	8:45	4.2508	9:30	4.2512				257.7

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1005	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-4/5		744	3.52575	9:10	3.7868	8:50	3.7886	9:50	3.78824	0.1185	142.6
4/5 <2.5	16	600	4.17619	9:03	4.1864	9:15	4.1874	9:45	4.18697		10.2
4/5 mid	100	408	3.59558	8:45	4.4597	9:30	4.4602				864.1
4/5 >10	73	737	3.64909	8:50	5.4004	9:25	5.4011	9:45	5.40084		1751.3

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1002	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-6	1002	406	3.67232	9:10	3.7904	9:05	3.7907			0.1186	0.0
6 <2.5	8	922	3.67644	9:00	3.6763	9:15	3.6768				0.0
6 mid	31	770	3.82305	8:50	3.8246	9:25	3.8246				1.5
6 >10	34	606	3.98024	9:00	3.9800	9:20	3.9805				0.0

elementOne

Particle Sizing Particulate

Lab # e **2609**

Client ACT

Balance checks Date: 12/15/03 100 g = 99.9976
Date: 12/16/03
Date: 12/17/03

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1004	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-7/8	1004	410	3.69193	9:20	3.8065	8:40	3.8067			0.1156	0.0
7 <2.5	13	412	3.68061	8:57	3.6807	9:20	3.6808				0.1
7 mid	43	921	3.86603	8:50	3.8662	9:25	3.8664				0.2
7 >10	53	138	3.57465	10:00	3.5757	10:00	3.5754				0.7

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1006	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-9/10	1006	407	3.61108	9:15	3.7254	8:45	3.7260	9:55	3.72568	0.1143	0.0
9 <2.5	30	2347	3.74526	9:40	3.7460	9:35	3.7458				0.5
9 mid	74	2380	3.40492	10:15	3.4059	9:50	3.4059				1.0
9 >10	31	2350	3.62588	9:55	3.6259	10:05	3.6258				0.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1007	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-11	1007	603	4.13859	9:10	4.2565	9:10	4.2565			0.1124	5.5
11 <2.5	19	2412	3.80742	10:05	3.8083	9:50	3.8080				0.6
11 mid	65	2355	3.79492	10:10	3.8095	9:40	3.8098				14.6
11 >10	62	2376	3.80791	9:55	3.8560	9:55	3.8560				48.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1009	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-12/13	1009	2399	3.64920	9:05	3.7758	9:10	3.7762			0.1204	6.2
12 <2.5	27	2362	3.89150	10:10	3.8931	10:05	3.8932				1.6
12 mid	89	2398	3.65853	9:45	3.7086	10:10	3.7086				50.0
12 >10	56	2404	3.55819	10:00	3.6506	10:05	3.6509				92.4

elementOne

Particle Sizing Particulate

Lab # e 2609

Client ACT

Balance checks Date: 12/15/03 100 g = 99.9976
Date: 12/16/03
Date: 12/17/03

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1011	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-14/15	1011	2360	3.59160	9:25	3.7086	8:30	3.7090			0.111	6.0
14 <2.5	31	2342	3.51834	9:50	3.5194	10:10	3.5193				0.9
14 mid	99	2349	3.11781	9:50	3.1581	9:15	3.1583				40.3
14 >10	82	2386	3.64421	10:05	3.7231	9:55	3.7232				78.9

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1008	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-16	1008	2403	3.68650	9:10	3.8000	9:05	3.8006	9:50	3.80006	0.1133	0.2
16 <2.5	44	2343	4.04859	10:00	4.0496	10:10	4.0501				1.0
16 mid	58	2351	3.94467	10:15	3.9456	10:00	3.9453				0.7
16 >10	18	2339	3.90955	9:45	3.9097	10:05	3.9094				0.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1010	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-17/18	1010	2388	3.84729	9:15	3.9586	9:05	3.9584			0.1117	0.0
17 <2.5	14	2340	3.72361	9:55	3.7235	10:05	3.7238				0.0
17 mid	48	2334	3.80720	9:40	3.8083	9:30	3.8081				0.9
17 >10	35	2387	3.59101	9:50	3.5917	10:00	3.5916				0.5

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1012	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-19/20	1012	2335	3.98241	9:35	4.0967	9:30	4.0966			0.1136	0.6
19 <2.5	12	2359	3.85419	10:15	3.8545	9:55	3.8547				0.3
19 mid	36	2381	3.66028	10:05	3.6611	10:10	3.6607				0.4
19 >10	34	2337	3.62967	10:10	3.6307	9:50	3.6307				1.0

elementOne

Particle Sizing Particulate

Lab # e 2609

Client ACT

Balance checks Date: 12/15/03 100 g = 99.9976
Date: 12/16/03
Date: 12/17/03

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date 12/18/03 Initals DBW		Filter ID 1013	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2609-21	1013	2375	3.65599	9:30	3.7704	9:30	3.7708			0.1142	0.2
21 <2.5	53	2410	3.41215	9:40	3.4124	9:35	3.4122				0.1
21 mid	31	2357	3.90122	9:35	3.9022	9:35	3.9024				1.0
21 >10	39	2369	4.09369	9:35	4.0955	9:45	4.0953				1.6

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 12/16/03 Initals DBW		Date 12/17/03 Initals DBW		Date Initals			
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
											0.0
2609-22	100	2382	3.80279	9:35	3.8042	9:45	3.8043				1.4
											0.0
											0.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date Initals		Date Initals		Date Initals			
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
											0.0
											0.0
											0.0
											0.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date Initals		Date Initals		Date Initals		Filter ID	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
											0.0
											0.0
											0.0
											0.0

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Monday, December 22, 2003 17:13:51
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	398655.9		ppb
|-	Sc	45	457769.4		ppb
|	As	75	265.8		ppb
|>	Rh	103	889785.4		ppb
	Ho	165	1666730		ppb
	Kr	83	275.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Monday, December 22, 2003 17:15:24
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	379748.4		ppb
|-	Sc	45	449674.3		ppb
|	As	75	38040.7	10.13913	ppb
|>	Rh	103	846728.9		ppb
	Ho	165	1637198.3		ppb
	Kr	83	271		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Monday, December 22, 2003 17:16:57
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	370548.5		ppb
|-	Sc	45	445318		ppb
|	As	75	76873.5	20.75713	ppb
|>	Rh	103	838734		ppb
	Ho	165	1625649.8		ppb
	Kr	83	276.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Monday, December 22, 2003 17:18:31
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	354270.8		ppb
|-	Sc	45	440192.1		ppb
|	As	75	362077.3	99.83466	ppb
|>	Rh	103	823455.5		ppb
	Ho	165	1625179.5		ppb
	Kr	83	267.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Monday, December 22, 2003 17:20:06
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	361913.5		ppb
|-	Sc	45	449712.9		ppb
|	As	75	36290.9	9.80284	ppb
|>	Rh	103	835346.4		ppb
	Ho	165	1621367		ppb
	Kr	83	232.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Monday, December 22, 2003 17:21:39
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	363806.4		ppb
|-	Sc	45	447032.7		ppb
|	As	75	3848.1	0.95742	ppb
|>	Rh	103	853078.9		ppb
	Ho	165	1665784.3		ppb
	Kr	83	253		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Monday, December 22, 2003 17:23:11
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	363642.9		ppb
|-	Sc	45	440418.3		ppb
|	As	75	158.5	-0.02517	ppb
|>	Rh	103	845199.1		ppb
	Ho	165	1659141.9		ppb
	Kr	83	237.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Monday, December 22, 2003 17:24:44
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	362671		ppb
|-	Sc	45	456427.5		ppb
|	As	75	207874.5	56.50431	ppb
|>	Rh	103	834842.4		ppb
	Ho	165	1644207.1		ppb
	Kr	83	241.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Monday, December 22, 2003 17:26:16
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	358107.4		ppb
|-	Sc	45	451655.1		ppb
|	As	75	1716902.1	508.03229	ppb
|>	Rh	103	767719.7		ppb
	Ho	165	1568918.6		ppb
	Kr	83	278.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Monday, December 22, 2003 17:27:50
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	504742.7		ppb
|-	Sc	45	500551.1		ppb
|	As	75	1777.3	0.45091	ppb
|>	Rh	103	778464		ppb
	Ho	165	1630275.9		ppb
	Kr	83	476.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Monday, December 22, 2003 17:29:24
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	541437.7		ppb
|-	Sc	45	504840.5		ppb
|	As	75	34802	10.09185	ppb
|>	Rh	103	778325.6		ppb
	Ho	165	1622302.7		ppb
	Kr	83	496		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Monday, December 22, 2003 17:30:59
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	567008.5		ppb
|-	Sc	45	573110.4		ppb
|	As	75	1158.2	0.20875	ppb
|>	Rh	103	951764.5		ppb
	Ho	165	1868423.2		ppb
	Kr	83	224		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Monday, December 22, 2003 17:32:33
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	484448.7		ppb
|-	Sc	45	504799.3		ppb
|	As	75	105.6	-0.03849	ppb
|>	Rh	103	821110.2		ppb
	Ho	165	1629741.4		ppb
	Kr	83	234.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Monday, December 22, 2003 17:34:08
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	470181.4		ppb
|-	Sc	45	489419.4		ppb
|	As	75	187797.4	53.28221	ppb
|>	Rh	103	799911		ppb
	Ho	165	1595798		ppb
	Kr	83	205.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-1
Sample Date/Time: Monday, December 22, 2003 17:35:42
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	405860.3		ppb
|-	Sc	45	876577.4		ppb
|	As	75	185705.6	62.34349	ppb
|>	Rh	103	676069		ppb
	Ho	165	1570367.8		ppb
	Kr	83	777.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-1+
Sample Date/Time: Monday, December 22, 2003 17:37:14
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	413593.2		ppb
|-	Sc	45	1005488.9		ppb
|	As	75	147122.5	49.31422	ppb
|>	Rh	103	676869.2		ppb
	Ho	165	1527007.2		ppb
	Kr	83	2068.2		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-2
Sample Date/Time: Monday, December 22, 2003 17:38:47
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	413568.4		ppb
|-	Sc	45	895322.6		ppb
|	As	75	205322.9	65.59964	ppb
|>	Rh	103	710380.2		ppb
	Ho	165	1655197.4		ppb
	Kr	83	800.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-2
Sample Date/Time: Monday, December 22, 2003 17:40:19
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	399910		ppb
|-	Sc	45	879181.5		ppb
|	As	75	203568.4	65.96822	ppb
|>	Rh	103	700416.7		ppb
	Ho	165	1642311.5		ppb
	Kr	83	804		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-2+
Sample Date/Time: Monday, December 22, 2003 17:41:52
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	364410.7		ppb
|-	Sc	45	1067575.7		ppb
|	As	75	127030.2	49.99366	ppb
|>	Rh	103	576534.6		ppb
	Ho	165	1492765.3		ppb
	Kr	83	1911.9		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-2+
Sample Date/Time: Monday, December 22, 2003 17:43:25
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	346799		ppb
|-	Sc	45	1054526.6		ppb
|	As	75	126838.4	50.49472	ppb
|>	Rh	103	569974.4		ppb
	Ho	165	1493133.4		ppb
	Kr	83	2001.6		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4
Sample Date/Time: Monday, December 22, 2003 17:44:58
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	187062.2		ppb
|-	Sc	45	1450214.4		ppb
|	As	75	2089513.9	996.5717	ppb
|>	Rh	103	476328.9		ppb
	Ho	165	1955175.4		ppb
	Kr	83	4276		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4
Sample Date/Time: Monday, December 22, 2003 17:46:31
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	190565.1		ppb
|-	Sc	45	1419450.4		ppb
|	As	75	2108070.4	988.1089	ppb
|>	Rh	103	484682.4		ppb
	Ho	165	1956630.3		ppb
	Kr	83	4318		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Monday, December 22, 2003 17:48:04
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	341945.9		ppb
|-	Sc	45	421645.2		ppb
|	As	75	2948.1	0.72699	ppb
|>	Rh	103	844256.9		ppb
	Ho	165	1534616.4		ppb
	Kr	83	243.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Monday, December 22, 2003 17:49:37
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	342720.8		ppb
|-	Sc	45	436767.6		ppb
|	As	75	204316.1	56.22163	ppb
|>	Rh	103	824657		ppb
	Ho	165	1655858.2		ppb
	Kr	83	231.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4+
Sample Date/Time: Monday, December 22, 2003 17:51:10
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	170742.9		ppb
|-	Sc	45	2303829.1		ppb
|	As	75	845879.6	590.97524	ppb
|>	Rh	103	325180.5		ppb
	Ho	165	2021592.9		ppb
	Kr	83	9069.2		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4+
Sample Date/Time: Monday, December 22, 2003 17:52:44
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	170974.7		ppb
|-	Sc	45	2314577.2		ppb
|	As	75	913206.4	632.387	ppb
|>	Rh	103	328052.1		ppb
	Ho	165	2025148		ppb
	Kr	83	9350.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-6
Sample Date/Time: Monday, December 22, 2003 17:54:19
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	311528.6		ppb
|-	Sc	45	165089.8		ppb
|	As	75	2691.9	0.5919	ppb
|>	Rh	103	927428.2		ppb
	Ho	165	923280.9		ppb
	Kr	83	225.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-6+
Sample Date/Time: Monday, December 22, 2003 17:55:54
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	298967.1		ppb
|-	Sc	45	434698.8		ppb
|	As	75	1041.6	0.22549	ppb
|>	Rh	103	807992.9		ppb
	Ho	165	1658311.7		ppb
	Kr	83	214		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-7
Sample Date/Time: Monday, December 22, 2003 17:57:28
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	290359.2		ppb
|-	Sc	45	407205.9		ppb
|	As	75	794.3	0.1552	ppb
|>	Rh	103	809213.3		ppb
	Ho	165	1612569.1		ppb
	Kr	83	224.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-7
Sample Date/Time: Monday, December 22, 2003 17:59:00
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	296046		ppb
|-	Sc	45	412189.5		ppb
|	As	75	660.2	0.11499	ppb
|>	Rh	103	820377		ppb
	Ho	165	1632620.2		ppb
	Kr	83	225		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-7+
Sample Date/Time: Monday, December 22, 2003 18:00:33
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	288427		ppb
|-	Sc	45	404984.8		ppb
|	As	75	382.6	0.03802	ppb
|>	Rh	103	821072.5		ppb
	Ho	165	1619713.1		ppb
	Kr	83	205.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-7+
Sample Date/Time: Monday, December 22, 2003 18:02:06
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	295502.1		ppb
|-	Sc	45	408536.2		ppb
|	As	75	363	0.03092	ppb
|>	Rh	103	837303.6		ppb
	Ho	165	1654084.1		ppb
	Kr	83	219		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-9
Sample Date/Time: Monday, December 22, 2003 18:03:39
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	279714		ppb
|-	Sc	45	374059.2		ppb
|	As	75	565.3	0.09418	ppb
|>	Rh	103	793336.4		ppb
	Ho	165	1589869.5		ppb
	Kr	83	216.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-9
Sample Date/Time: Monday, December 22, 2003 18:05:11
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	285019.5		ppb
|-	Sc	45	384239.7		ppb
|	As	75	192429.4	53.95626	ppb
|>	Rh	103	809332.1		ppb
	Ho	165	1643483.3		ppb
	Kr	83	194		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Monday, December 22, 2003 18:06:44
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	276552		ppb
|-	Sc	45	342424.8		ppb
|	As	75	167.4	-0.01894	ppb
|>	Rh	103	782109.1		ppb
	Ho	165	1577205.9		ppb
	Kr	83	205.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Monday, December 22, 2003 18:08:17
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	267678.5		ppb
|-	Sc	45	354839.9		ppb
|	As	75	177456.6	52.79214	ppb
|>	Rh	103	762731.8		ppb
	Ho	165	1584777.5		ppb
	Kr	83	201		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-9+
Sample Date/Time: Monday, December 22, 2003 18:09:50
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	274420.9		ppb
|-	Sc	45	398829.2		ppb
|	As	75	363.4	0.04183	ppb
|>	Rh	103	753947		ppb
	Ho	165	1532116.1		ppb
	Kr	83	195		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-9+
Sample Date/Time: Monday, December 22, 2003 18:11:24
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	345860.8		ppb
|-	Sc	45	466881.6		ppb
|	As	75	164551.1	40.25472	ppb
|>	Rh	103	927219.5		ppb
	Ho	165	1870249.9		ppb
	Kr	83	186.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-11
Sample Date/Time: Monday, December 22, 2003 18:12:58
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	276008.9		ppb
|-	Sc	45	438357.5		ppb
|	As	75	29314.4	9.41514	ppb
|>	Rh	103	702347		ppb
	Ho	165	1564918.8		ppb
	Kr	83	297		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-11+
Sample Date/Time: Monday, December 22, 2003 18:14:32
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	277231.7		ppb
|-	Sc	45	494200.3		ppb
|	As	75	35835.5	11.75184	ppb
|>	Rh	103	688807.4		ppb
	Ho	165	1582876.1		ppb
	Kr	83	385.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-12
Sample Date/Time: Monday, December 22, 2003 18:16:07
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	296631.3		ppb
|-	Sc	45	589207.2		ppb
|	As	75	93194.1	29.36716	ppb
|>	Rh	103	719287.1		ppb
	Ho	165	1637016.3		ppb
	Kr	83	607.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-12
Sample Date/Time: Monday, December 22, 2003 18:17:42
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	293398.9		ppb
|-	Sc	45	590164.6		ppb
|	As	75	94654.5	30.28088	ppb
|>	Rh	103	708609.3		ppb
	Ho	165	1609467.9		ppb
	Kr	83	596.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-12+
Sample Date/Time: Monday, December 22, 2003 18:19:16
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	284589.4		ppb
|-	Sc	45	563879.6		ppb
|	As	75	59282.4	20.63692	ppb
|>	Rh	103	650507.5		ppb
	Ho	165	1559312.5		ppb
	Kr	83	654.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-12+
Sample Date/Time: Monday, December 22, 2003 18:20:49
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	277898.1		ppb
|-	Sc	45	560141.2		ppb
|	As	75	58816.3	20.94489	ppb
|>	Rh	103	636003.3		ppb
	Ho	165	1537106.8		ppb
	Kr	83	677.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-14
Sample Date/Time: Monday, December 22, 2003 18:22:22
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	276267.7		ppb
|-	Sc	45	501549.6		ppb
|	As	75	72725.4	24.1708	ppb
|>	Rh	103	681665.5		ppb
	Ho	165	1552886.8		ppb
	Kr	83	392.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-14
Sample Date/Time: Monday, December 22, 2003 18:23:56
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	269884.9		ppb
|-	Sc	45	488313.7		ppb
|	As	75	238042.3	81.56132	ppb
|>	Rh	103	662525		ppb
	Ho	165	1541611.1		ppb
	Kr	83	376.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Monday, December 22, 2003 18:25:28
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	267993.9		ppb
|-	Sc	45	338657.4		ppb
|	As	75	276.5	0.01785	ppb
|>	Rh	103	733789.3		ppb
	Ho	165	1507591		ppb
	Kr	83	186.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Monday, December 22, 2003 18:27:01
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	255820.4		ppb
|-	Sc	45	330512.5		ppb
|	As	75	165743.4	52.52092	ppb
|>	Rh	103	716160.2		ppb
	Ho	165	1511835.9		ppb
	Kr	83	199.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-14+
Sample Date/Time: Monday, December 22, 2003 18:28:34
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	270528.8		ppb
|-	Sc	45	508290.2		ppb
|	As	75	37254.7	13.83915	ppb
|>	Rh	103	608598.2		ppb
	Ho	165	1486901.7		ppb
	Kr	83	535		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-14+
Sample Date/Time: Monday, December 22, 2003 18:30:07
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	259189		ppb
|-	Sc	45	494849.2		ppb
|	As	75	171317.6	68.45531	ppb
|>	Rh	103	568019.6		ppb
	Ho	165	1387272.1		ppb
	Kr	83	519.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-16
Sample Date/Time: Monday, December 22, 2003 18:31:40
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	266110.5		ppb
|-	Sc	45	291793.6		ppb
|	As	75	883.8	0.20313	ppb
|>	Rh	103	741122.8		ppb
	Ho	165	1522439.3		ppb
	Kr	83	194		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-16+
Sample Date/Time: Monday, December 22, 2003 18:33:14
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	278298.9		ppb
|-	Sc	45	390617.4		ppb
|	As	75	240.2	0.00794	ppb
|>	Rh	103	714869.3		ppb
	Ho	165	1454683		ppb
	Kr	83	187.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-17
Sample Date/Time: Monday, December 22, 2003 18:34:48
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	263600.2		ppb
|-	Sc	45	242205.5		ppb
|	As	75	465.2	0.07568	ppb
|>	Rh	103	733966.1		ppb
	Ho	165	1467155.8		ppb
	Kr	83	184.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-17
Sample Date/Time: Monday, December 22, 2003 18:36:22
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	260724.4		ppb
|-	Sc	45	288090.4		ppb
|	As	75	401.3	0.054	ppb
|>	Rh	103	748442.8		ppb
	Ho	165	1520063		ppb
	Kr	83	195.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-17+
Sample Date/Time: Monday, December 22, 2003 18:37:56
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	254193.2		ppb
|-	Sc	45	369729.7		ppb
|	As	75	35.1	-0.05645	ppb
|>	Rh	103	699927.5		ppb
	Ho	165	1473728.9		ppb
	Kr	83	185.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-17+
Sample Date/Time: Monday, December 22, 2003 18:39:31
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	253092.7		ppb
|-	Sc	45	339511.9		ppb
|	As	75	100.6	-0.03527	ppb
|>	Rh	103	702734.8		ppb
	Ho	165	1474905.4		ppb
	Kr	83	204.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-19
Sample Date/Time: Monday, December 22, 2003 18:41:06
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	249724.5		ppb
|-	Sc	45	329776		ppb
|	As	75	214.5	0.00193	ppb
|>	Rh	103	698314.6		ppb
	Ho	165	1471883.7		ppb
	Kr	83	187		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-19
Sample Date/Time: Monday, December 22, 2003 18:42:39
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	244073.3		ppb
|-	Sc	45	330922.7		ppb
|	As	75	151990.5	49.8839	ppb
|>	Rh	103	691325.2		ppb
	Ho	165	1447047.3		ppb
	Kr	83	195		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Monday, December 22, 2003 18:44:12
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	239829.5		ppb
|-	Sc	45	271313		ppb
|	As	75	197.7	-0.00378	ppb
|>	Rh	103	701345.7		ppb
	Ho	165	1471566.9		ppb
	Kr	83	197		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Monday, December 22, 2003 18:45:44
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	233983		ppb
|-	Sc	45	297679.9		ppb
|	As	75	154274.2	51.3146	ppb
|>	Rh	103	682189		ppb
	Ho	165	1462588.5		ppb
	Kr	83	186		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-19+
Sample Date/Time: Monday, December 22, 2003 18:47:18
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	260052		ppb
|-	Sc	45	363329.6		ppb
|	As	75	321.5	0.03807	ppb
|>	Rh	103	692931.6		ppb
	Ho	165	1467501.5		ppb
	Kr	83	168.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-19+
Sample Date/Time: Monday, December 22, 2003 18:48:52
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	268147.5		ppb
|-	Sc	45	352659.4		ppb
|	As	75	150718.2	49.02271	ppb
|>	Rh	103	697605.5		ppb
	Ho	165	1468198		ppb
	Kr	83	176.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-21
Sample Date/Time: Monday, December 22, 2003 18:50:25
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	243706.8		ppb
|-	Sc	45	289550.9		ppb
|	As	75	410.6	0.06767	ppb
|>	Rh	103	688197.3		ppb
	Ho	165	1443181.4		ppb
	Kr	83	183.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-21+
Sample Date/Time: Monday, December 22, 2003 18:51:59
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	237015.6		ppb
|-	Sc	45	283348		ppb
|	As	75	46.5	-0.05258	ppb
|>	Rh	103	709241.1		ppb
	Ho	165	1468176.6		ppb
	Kr	83	176		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-22
Sample Date/Time: Monday, December 22, 2003 18:53:32
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	300008.9		ppb
|-	Sc	45	430319.3		ppb
|	As	75	452.4	0.07524	ppb
|>	Rh	103	716113.1		ppb
	Ho	165	1468709.6		ppb
	Kr	83	177		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4
Sample Date/Time: Monday, December 22, 2003 18:55:06
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	236017.5		ppb
|-	Sc	45	453552.5		ppb
|	As	75	321216.7	116.83874	ppb
|>	Rh	103	624288.3		ppb
	Ho	165	1481378.8		ppb
	Kr	83	524		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4
Sample Date/Time: Monday, December 22, 2003 18:56:40
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	231580.8		ppb
|-	Sc	45	464384.1		ppb
|	As	75	457740	170.14598	ppb
|>	Rh	103	611019.8		ppb
	Ho	165	1412429.8		ppb
	Kr	83	553.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4+
Sample Date/Time: Monday, December 22, 2003 18:58:14
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	202295.1		ppb
|-	Sc	45	802362.6		ppb
|	As	75	284079.2	135.47649	ppb
|>	Rh	103	476160.8		ppb
	Ho	165	1516769.1		ppb
	Kr	83	1388.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-4+
Sample Date/Time: Monday, December 22, 2003 18:59:49
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	198722.7		ppb
|-	Sc	45	792896.6		ppb
|	As	75	386438	184.72917	ppb
|>	Rh	103	475118.3		ppb
	Ho	165	1513554.2		ppb
	Kr	83	1368.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-23
Sample Date/Time: Monday, December 22, 2003 19:01:24
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	211492.5		ppb
|-	Sc	45	367352.7		ppb
|	As	75	1343.1	0.50033	ppb
|>	Rh	103	537188		ppb
	Ho	165	682214		ppb
	Kr	83	412		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Monday, December 22, 2003 19:02:57
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	239235.4		ppb
|-	Sc	45	273895.1		ppb
|	As	75	183.2	-0.00892	ppb
|>	Rh	103	706833.6		ppb
	Ho	165	1392389.8		ppb
	Kr	83	182.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Monday, December 22, 2003 19:04:29
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	232336.1		ppb
|-	Sc	45	307757.8		ppb
|	As	75	160770.9	52.38091	ppb
|>	Rh	103	696470.8		ppb
	Ho	165	1465695.8		ppb
	Kr	83	198.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-24
Sample Date/Time: Monday, December 22, 2003 19:06:03
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	174032.4		ppb
|-	Sc	45	745339.2		ppb
|	As	75	423607.7	196.83796	ppb
|>	Rh	103	488764		ppb
	Ho	165	537511.6		ppb
	Kr	83	714.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-25
Sample Date/Time: Monday, December 22, 2003 19:07:37
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	205881.5		ppb
|-	Sc	45	2202612.9		ppb
|	As	75	91711.6	78.07154	ppb
|>	Rh	103	266677.7		ppb
	Ho	165	915496.7		ppb
	Kr	83	5413.9		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2609-26
Sample Date/Time: Monday, December 22, 2003 19:09:11
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	204241.6		ppb
|-	Sc	45	337239.2		ppb
|	As	75	9907.5	3.93503	ppb
|>	Rh	103	562331.3		ppb
	Ho	165	579814.6		ppb
	Kr	83	293.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Monday, December 22, 2003 19:13:52
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	379314.3		ppb
|-	Sc	45	336014.8		ppb
|	As	75	465.9	0.07444	ppb
|>	Rh	103	743779.6		ppb
	Ho	165	1402954.4		ppb
	Kr	83	217.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Monday, December 22, 2003 19:15:24
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	336285.1		ppb
|-	Sc	45	380585.7		ppb
|	As	75	177468.1	56.0595	ppb
|>	Rh	103	718477.4		ppb
	Ho	165	1446284.6		ppb
	Kr	83	202.3		ppb

APPENDIX F2

ELEMENT ONE, INC.

ARSENIC AND PARTICULATE MATTER

TEST REPORT FOR

S.T. WOOTEN CENTRAL MIX &

CHANDLER CONCRETE TRUCK MIX

Air Control Techniques

301 E. Durham Rd
Cary, NC 27513

Project ID: 877

Arsenic and
Particulate Matter

EPA Methods 201A & 29

Analytical Report
2990

Element One, Inc.
5022-C Wrightsville Av., Wilmington, NC 28403
910-793-0128 FAX:910-792-6853 e1lab@hotmail.com

I have reviewed the following data for completeness, accuracy, adherence to method protocol, and compliance with quality assurance guidelines.

Quality assurance review by Bruce Hawks

el1

SUMMARY OF RESULTS

el1

Summary of Analysis

Summary of ST-C-IN-PRE4 Particle Sizing and Arsenic Analysis

Element	PRE4-1 Catch, mg	PRE4-2 Catch, mg	PRE4-2 Catch, mg	PRE4-3 Catch, mg	ST-Field Blank Catch, mg
Filter	8.4	9.6	9.6	13.9	0.0
< 2.5	5.6	0.8	0.8	2.4	0.5
>2.5<10	147.2	112.9	112.9	263.6	0.0
>10	511.8	595.1	595.1	346.0	0.1

	PRE4-1 Total µg	PRE4-2 Total µg	PRE4-2 Total µg	PRE4-3 Total µg	ST-Field Blank Total µg
<10 Arsenic	9.45	8.83	8.89	32.0	0.13
>10 Arsenic	11.4	19.7	20.2	21.6	< 0.1
<10 µg As/mg	0.059	0.072	0.072	0.114	
>10 µg As/mg	0.022	0.033	0.034	0.063	

Summary of ST Materials Arsenic Analysis

Element	ST Stone mg/Kg	St Flyash mg/Kg	ST Cement mg/Kg	ST Sand mg/Kg
Arsenic	< 0.1	24.1	6.60	0.10

Summary of Analysis (continued)

Summary of TV-T-IN-PRE4 Particle Sizing and Arsenic Analysis

Element	PRE4-1 Catch, mg	PRE4-2 Catch, mg	PRE4-2 Catch, mg	PRE4-3 Catch, mg	TV-Field Blank Catch, mg
Filter	3.8	3.5	3.5	9.2	0.0
< 2.5	7.7	0.0	0.0	1.6	0.3
>2.5<10	43.8	31.9	31.9	77.6	0.0
>10	58.9	39.6	39.6	152.1	0.4

	PRE4-1 Total µg	PRE4-2 Total µg	PRE4-2 Total µg	PRE4-3 Total µg	TV-Field Blank Total µg
<10 Arsenic	6.79	4.04	4.05	6.98	< 0.1
>10 Arsenic	3.52	2.38	2.36	4.42	0.17
<10 µg As/mg	0.123	0.114	0.114	0.079	
>10 µg As/mg	0.060	0.060	0.060	0.029	

Summary of TV Materials Arsenic Analysis

Element	TV Stone mg/Kg	TV Flyash mg/Kg	TV Cement mg/Kg	TV Sand mg/Kg
Arsenic	0.71	8.48	5.18	0.11

ANALYTICAL NARRATIVE

el1

Element One Analytical Narrative

Client	Air Control Techniques	Element One #:	2990
Client ID:	877	Analyst:	KMS, IJJ
Date Received	3/22/04	Method:	PS & M29
Analytes	Particulate and As	Dates Analyzed	3/24 – 26/04

Summary of Analysis

Particle sizing samples were measured following Method 201A guidelines.

Following the particulate catch measurements, the < 10 µm samples for each run were combined into a single sample. The samples were digested, prepared, and analyzed according to Method 29 protocol. Arsenic was analyzed on a PerkinElmer ELAN 6100 ICP-MS.

Detection Limits

ICP-MS instrument reporting limit was 1 µg/L for arsenic.

Analysis QA/QC

Duplicate analyses relative percent difference (RPD), spike sample recovery, and second source calibration verification data are summarized on the following pages. All QA/QC data was within the criteria of the method.

Additional Comments

The reported results have not been corrected for any blank or spike recovery values. Nothing unusual was noticed with any of the analyses.

Arsenic Duplicate Analysis RPD

Element	ST-C-IN-PRE4-2	TV-T-IN-PRE4-2
<10 Arsenic	0.7%	0.4%
>10 Arsenic	2.4%	0.9%

Arsenic Spike Recoveries

Element	ST-C-IN-PRE4-3	TV-T-IN-PRE4-3
<10 Arsenic	99%	95%
>10 Arsenic	110%	106%

Second Source Calibration Check Recoveries

Element	0.25 ppb	1 ppb	10 ppb	50 ppb	500 ppb
Arsenic	98%	92%	102%	113%	109%

SAMPLE CUSTODY

el1

Air
Control Techniques, P.C.
AIR POLLUTION CONTROL SYSTEMS ENGINEERING
301 East Durham Road
Cary, North Carolina 27513
(919) 460-7811

Chain of Custody

JOB / PO#: **877**

TO: **Bruce Hawks**
ELEMENT ONE
5022 C WRIGHTSVILLE AVE.
Wilmington, NC 28403

Samples recovered by: **Todd T. Brozell** **Date** ~~**12/8-11/03**~~ 3/19/04

SAMPLE NUMBER	COMPONENT	ANALYSIS
ST Stone Sample	Stone	Arsenic
ST Flyash Sample	Flyash	Arsenic
ST Cement Sample	Cement	Arsenic
ST Sand Sample	Sand	Arsenic
ST-C-IN-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
ST-C-IN-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
ST-C-IN-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3 & 4 Arsenic less than 10 microns.

u2990

Air
Control Techniques, P.C.
AIR POLLUTION CONTROL SYSTEMS ENGINEERING
301 East Durham Road
Cary, North Carolina 27513
(919) 460-7811

Chain of Custody

JOB / PO#: **877**

TO: **Bruce Hawks**
ELEMENT ONE
5022 C WRIGHTSVILLE AVE.
Wilmington, NC 28403

Samples recovered by: **Todd T. Brozell** **Date** ~~**12/8-11/03**~~ 3/19/04

SAMPLE NUMBER	COMPONENT	ANALYSIS
ST Stone Sample	Stone	Arsenic
ST Flyash Sample	Flyash	Arsenic
ST Cement Sample	Cement	Arsenic
ST Sand Sample	Sand	Arsenic
ST-C-IN-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
ST-C-IN-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
ST-C-IN-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM≤10≥2.5 microns 3. Cyclone rinse with acetone, PM≤2.5 microns 4. Filter, PM≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3 & 4 Arsenic less than 10 microns.

u 2990

ANALYTICAL DATA

el1

elementOne **AIR TESTING SAMPLE SUBMISSION FORM** Lab ID # **e2990**

Client ID/PO#: 877		Date Received: 3/22/04	Page: 1 of 2
Customer: ACT		Results Requested: 3/30/04	Time Rec:
Address: 301 E Durham Road		Contact: Todd Brozell	Rec by: BGH
Cary, NC 27513		Email:actpc@aircontroltechniques.com	Via: Pickup
		Phone: 919-460-7811	Fax: 919-460-7897
HNO_3 Lot: 1103050	HF Lot: 5101124	HCl Lot: N/A	
Volume Marked (Y) / N	Volume Loss Y / (N) / ?	pH < 2.0 Y / N	Ref. **Special**

	Sample Identification		Sample Identification
1	ST-C-IN-PRE4-1	8	TV-T-IN-PRE4-1
2	ST-C-IN-PRE4-2	9	TV-T-IN-PRE4-2
3	ST-C-IN-PRE4-2 Duplicate	10	TV-T-IN-PRE4-2 Duplicate
4	ST-C-IN-PRE4-3	11	TV-T-IN-PRE4-3
5	ST-C-IN-PRE4-3 Spike	12	TV-T-IN-PRE4-3 Spike
6	Field Blank ST	13	Field Blank TV
7	Acetone Blank ST	14	Acetone Blank TV

Elements to Analyze: Particulate on each Fraction. Then As on >10 and As on combined filter, <2.5, & >2.5<10.

	Front Half		Back Half			HNO_3 (A)		$KMnO_4$ (B)		HCl (C)	
SAMPLE	BV, ml	FV, ml	BV, ml	Used	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml
1											
2/3											
4/5											
6											
7											
8											
9/10											
11/12											
13											
14											

Comments: * All samples # 1 - 14 are F.V. = 100ml

Element One, Inc. Form 118 - Revision 6.0

BLK - F.V. = 100ml

BLK - SPK - F.V. = 100ml SPK @ 5ug

SPK - lot: 07H0411 - 14

elementOne **AIR TESTING SAMPLE SUBMISSION FORM** Lab ID # **e2990**

Client ID/PO#: 877		Date Received: 3/22/04	Page: 2 of 2
Customer: ACT		Results Requested: 3/30/04	Time Rec:
Address: 301 E Durham Road		Contact: Todd Brozell	Rec by: BGH
Cary, NC 27513		Email:actpc@aircontroltechniques.com	Via: Pickup
		Phone: 919-460-7811	Fax: 919-460-7897
HNO_3 Lot:	HF Lot:	HCl Lot:	
Volume Marked Y / N	Volume Loss Y / N / ?	pH < 2.0 Y / N	Ref. **Special**

	Sample Identification		Sample Identification
15	ST Stone		
16	ST Flyash		
17	ST Cement		
18	ST Sand		
19	TV Stone		
20	TV Flyash		
21	TV Cement		
22	TV Sand		

Elements to Analyze: As mg/Kg.

	Front Half		Back Half			HNO_3 (A)		$KMnO_4$ (B)		HCl (C)	
SAMPLE	BV, ml	FV, ml	BV, ml	Used	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml
15											
16											
17											
18											
19											
20											
21											
22											

Comments:

Element One, Inc. Form 118 - Revision 6.0

elementOne **SOLID SAMPLE WEIGHT WORKSHEET** Lab ID # e 2990

Date Started: 3·25·04 Finished: 3·25·04 Balance check: 2.0000g = 1.9999 by: JJ

Reference Method: Special HNO_3 Lot #: 1103050 HCl Lot#: N/A Analyst: JJ

Spiking Solutions Lot# A: 021404·A(.2ml) B: _____ C: _____ D: _____

E: _____ Other: _____ Data File: _____ QA checked: _____

SAMPLE ID	WEIGHT, g	SPIKE, µg	FINAL VOL., ml	DILUTION	SPIKE µg/L	ELEMENTS
Blank			100ml			3·25·04 JJ ~~Hg~~ As
Blank, spike		5µg			50	
2990-15	1.0467					
15·SPK	1.0013	5µg			50	
16	1.0709					
16·SPK	1.0496	5µg			50	
17	1.1397					
17·SPK	1.0665	5µg			50	
18	1.5027					
18·SPK	1.4381	5µg			50	
19	1.2044					
19·SPK	1.1188	5µg			50	
20	1.1576					
20·SPK	1.0664	5µg			50	
21	1.1498					
21·SPK	1.0442	5µg			50	
22	2.0186					
22·SPK	2.1704	5µg			50	

NOTES:

Element One, Inc. Form 100 - Revision 1.0

Dataset Report

ser Name: ksmith
Computer Name: ICPMS1
Dataset File Path: c:\elandata\dataset\032604-1\
Report Date/Time: Friday, March 26, 2004 12:11:16

Ken Smith 3-26-04

Autosampler Position: 7

The Dataset

Time	Sample ID	Batch ID	Read Type	Description	Init. Quant	Prep. Vol.	Aliquot. Vol.	Diluted V
10:16:57 Fri 26-Mar-04	Blank		Blank					
10:18:30 Fri 26-Mar-04	Standard 1		Standard #1					
10:20:03 Fri 26-Mar-04	Standard 2		Standard #2					
10:21:37 Fri 26-Mar-04	Standard 3		Standard #3					
10:23:12 Fri 26-Mar-04	QC Std 1		QC Std #1					
10:24:45 Fri 26-Mar-04	QC Std 2		QC Std #2					
10:26:17 Fri 26-Mar-04	QC Std 3		QC Std #3					
10:27:50 Fri 26-Mar-04	QC Std 4		QC Std #4					
10:29:23 Fri 26-Mar-04	QC Std 5		QC Std #5					
10:30:56 Fri 26-Mar-04	QC Std 6		QC Std #6					
10:32:30 Fri 26-Mar-04	QC Std 7		QC Std #7					
10:34:05 Fri 26-Mar-04	QC Std 8		QC Std #8					
10:35:39 Fri 26-Mar-04	LRB		Sample	ACT				
10:37:14 Fri 26-Mar-04	LRB		Spike - 1	ACT				
10:38:48 Fri 26-Mar-04	2990-1	>	Sample	ACT				
.0:40:20 Fri 26-Mar-04	2990-2	>	Sample	ACT				
10:41:53 Fri 26-Mar-04	2990-2	>	QC Duplicate	ACT				
10:43:25 Fri 26-Mar-04	2990-4	>	Sample	ACT				
10:44:58 Fri 26-Mar-04	2990-4	>	Spike - 1	ACT				
10:46:30 Fri 26-Mar-04	2990-6	>	Sample	ACT				
10:48:03 Fri 26-Mar-04	2990-7	>	Sample	ACT				
10:49:37 Fri 26-Mar-04	2990-8	>	Sample	ACT				
10:51:10 Fri 26-Mar-04	QC Std 3		QC Std #3					
10:52:42 Fri 26-Mar-04	QC Std 4		QC Std #4					
10:54:15 Fri 26-Mar-04	2990-9	>	Sample	ACT				
10:55:50 Fri 26-Mar-04	2990-9	>	QC Duplicate	ACT				
10:57:24 Fri 26-Mar-04	2990-11	>	Sample	ACT				
10:58:59 Fri 26-Mar-04	2990-11	>	Spike - 1	ACT				
11:00:33 Fri 26-Mar-04	2990-13	>	Sample	ACT				
11:02:06 Fri 26-Mar-04	2990-14	>	Sample	ACT				
11:03:39 Fri 26-Mar-04	2990-1	<	Sample	ACT				
11:05:11 Fri 26-Mar-04	2990-2	<	Sample	ACT				
11:06:44 Fri 26-Mar-04	2990-2	<	QC Duplicate	ACT				
11:08:17 Fri 26-Mar-04	2990-4	<	Sample	ACT				
11:09:50 Fri 26-Mar-04	2990-4	<	Spike - 1	ACT				
11:11:23 Fri 26-Mar-04	QC Std 3		QC Std #3					
11:12:55 Fri 26-Mar-04	QC Std 4		QC Std #4					
11:14:28 Fri 26-Mar-04	2990-6	<	Sample	ACT				
11:16:02 Fri 26-Mar-04	2990-8	<	Sample	ACT				
11:17:36 Fri 26-Mar-04	2990-9	<	Sample	ACT				
.1:19:11 Fri 26-Mar-04	2990-9	<	QC Duplicate	ACT				
11:20:46 Fri 26-Mar-04	2990-11	<	Sample	ACT				
11:22:20 Fri 26-Mar-04	2990-11	<	Spike - 1	ACT				

11:23:53 Fri 26-Mar-04	2990-13	<	Sample	ACT
11:25:26 Fri 26-Mar-04	QC Std 3		QC Std #3	
11:26:58 Fri 26-Mar-04	QC Std 4		QC Std #4	

Sample/Batch Report

ser Name: ksmith
Computer Name: ICPMS1
Sample File: C:\elandata\Sample\MMTL.sam
Report Date/Time: Friday, March 26, 2004 12:11:20

Ken Smith 3-26-04

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Init. Quant.	Prep. Vol.	Aliquot Vol.	Diluted Vol.	Solids Ratio
12		LRB	ACT						
13		LRB	ACT	Spike - 1					
14	>	2990-1	ACT						
15	>	2990-2	ACT						
16	>	2990-2	ACT	QC Duplicate					
17	>	2990-4	ACT						
18	>	2990-4	ACT	Spike - 1					
19	>	2990-6	ACT						
20	>	2990-7	ACT						
21	>	2990-8	ACT						
22	>	2990-9	ACT						
23	>	2990-9	ACT	QC Duplicate					
24	>	2990-11	ACT						
25	>	2990-11	ACT	Spike - 1					
26	>	2990-13	ACT						
27	>	2990-14	ACT						
28	<	2990-1	ACT						
29	<	2990-2	ACT						
30	<	2990-2	ACT	QC Duplicate					
31	<	2990-4	ACT						
32	<	2990-4	ACT	Spike - 1					
33	<	2990-6	ACT						
34	<	2990-8	ACT						
35	<	2990-9	ACT						
36	<	2990-9	ACT	QC Duplicate					
37	<	2990-11	ACT						
38	<	2990-11	ACT	Spike - 1					
39	<	2990-13	ACT						

elementOne **ICP-MS RUN SHEET** **2990** Ken Smith 3-26-04

Analyst: __KMS____ Date: 03-26-04 **Solid Samples** ☐ / *Liquid Samples*

A/S Loc	Batch # for sample sets	Sample Lab ID	Sample Description	Type Sample QC Spike QC Dup QC Reg Blank	Spike concentratio	Prep Volume (ml)	Aliquot (ml)	Diluted to Volume (ml)	Units
12			LRB	S		100			
13			LRB	SS	Table #1	100			
14			2990-1>10	S		100			
15			2990-2>10	S		100			
16			2990-2>10	SD		100			
17			2990-4>10	S		100			
18			2990-4>10	SS	Table #1	100			
19			2990-6>10	S		100			
20			2990-7>10	S		100			
21			2990-8>10	S		100			
22			0990-9>10	S		100			
23			2990-9>10	SD		100			
24			2990-11>10	S		100			
25			2990-11>10	SS	Table #1	100			
26			2990-13>10	S		100			
27			2990-14>10	S		100			
28			2990-1<10	S		100			
29			2990-2<10	S		100			
30			2990-2<10	SD		100			
31			2990-4<10	S		100			
32			2990-4<10	SS	Table #1	100			
33			2990-6<10	S		100			

34			2990-8<10	S		100			
35			0990-9<10	S		100			
36			2990-9<10	SD		100			
37			2990-11<10	S		100			
38			2990-11<10	SS	Table #1	100			
39			2990-13<10	S		100			

Spikes are post at 0.02ml of 25ppm spiking solutions lot 021403-ABC or F in a final volume of 10ml.

Element One, Inc. Form 126 - Revision 0.0

ELAN Edit/Reprocess Session - [Quantitative Analysis Method - [Untitled]]

File Edit Analysis Options Window Help

Timing | Processing | Equation | Calibration | Sampling | Devices... | QC...

	Analyte	Mass (amu)	Spike Table 1 (Conc.)	Spike Table 1 Det. Limit (Conc.)	Spike Table 2 (Conc.)	Spike Table 2 Det. Limit (Conc.)	Spike Table 3 (Conc.)	Spike Table 3 Det. Limit (Conc.)	Spike Table 4 (Conc.)	D
1	Li	6.0151								
2	Sc	44.9559	50	1	25	1	100	1		
3	As	74.9216	50	1	25	1	100	1		
4	Ho	164.93								
5	Kr	82.9141	50	1	25	1	100	1		

Report | Notes

575

QC Stds | QC Measurement Frequency | QC Std Int Stds | Calibration Stds | Sample Int Stds | Sample | Spike | Dilution | Duplicate | Spike Tables | QC

NUM

Start | Manager | ELAN Instrument Control S... | ELAN Edit/R... | 12:12 PM

Dataset Report

ser Name: ksmith
Computer Name: ICPMS1
Dataset File Path: C:\elandata\Dataset\032604-2\
Report Date/Time: Friday, March 26, 2004 14:00:16

Ken Smith 3.26.04

Autosampler Position: 7

The Dataset

Time	Sample ID	Batch ID	Read Type	Description	Init. Quant	Prep. Vol.	Aliquot. Vol.	Diluted V
12:43:45 Fri 26-Mar-04	Blank		Blank					
12:45:17 Fri 26-Mar-04	Standard 1		Standard #1					
12:46:51 Fri 26-Mar-04	Standard 2		Standard #2					
12:48:25 Fri 26-Mar-04	Standard 3		Standard #3					
12:49:59 Fri 26-Mar-04	QC Std 1		QC Std #1					
12:51:33 Fri 26-Mar-04	QC Std 2		QC Std #2					
12:53:05 Fri 26-Mar-04	QC Std 3		QC Std #3					
12:54:37 Fri 26-Mar-04	QC Std 4		QC Std #4					
12:56:10 Fri 26-Mar-04	QC Std 5		QC Std #5					
12:57:44 Fri 26-Mar-04	QC Std 6		QC Std #6					
12:59:18 Fri 26-Mar-04	QC Std 7		QC Std #7					
13:00:52 Fri 26-Mar-04	QC Std 8		QC Std #8					
13:02:27 Fri 26-Mar-04	LRB		Sample	ACT				
13:04:02 Fri 26-Mar-04	LRB		Spike - 1	ACT				
13:05:36 Fri 26-Mar-04	2990-15		Sample	ACT				
13:07:08 Fri 26-Mar-04	2990-15		Spike - 1	ACT				
13:08:40 Fri 26-Mar-04	2990-16		Sample	ACT				
13:10:13 Fri 26-Mar-04	2990-16		Spike - 1	ACT				
13:11:45 Fri 26-Mar-04	2990-17		Sample	ACT				
13:13:18 Fri 26-Mar-04	2990-17		Spike - 1	ACT				
13:14:51 Fri 26-Mar-04	2990-18		Sample	ACT				
13:16:25 Fri 26-Mar-04	2990-18		Spike - 1	ACT				
13:17:57 Fri 26-Mar-04	QC Std 3		QC Std #3					
13:19:30 Fri 26-Mar-04	QC Std 4		QC Std #4					
13:21:03 Fri 26-Mar-04	2990-19		Sample	ACT				
13:22:37 Fri 26-Mar-04	2990-19		Spike - 1	ACT				
13:24:12 Fri 26-Mar-04	2990-20		Sample	ACT				
13:25:47 Fri 26-Mar-04	2990-20		Spike - 1	ACT				
13:27:21 Fri 26-Mar-04	2990-21		Sample	ACT				
13:28:53 Fri 26-Mar-04	2990-21		Spike - 1	ACT				
13:30:26 Fri 26-Mar-04	2990-22		Sample	ACT				
13:31:59 Fri 26-Mar-04	2990-22		Spike - 1	ACT				
13:33:31 Fri 26-Mar-04	QC Std 3		QC Std #3					
13:35:04 Fri 26-Mar-04	QC Std 4		QC Std #4					
13:41:41 Fri 26-Mar-04	2990-18		Sample	ACT				
13:43:14 Fri 26-Mar-04	2990-18		Spike - 1	ACT				
13:44:47 Fri 26-Mar-04	2990-19		Sample	ACT				
13:46:21 Fri 26-Mar-04	2990-19		Spike - 1	ACT				
13:47:54 Fri 26-Mar-04	2990-20	x5	Sample	ACT				
13:49:29 Fri 26-Mar-04	2990-20	x5	Spike - 1	ACT				
13:51:03 Fri 26-Mar-04	2990-21		Sample	ACT				
13:52:38 Fri 26-Mar-04	2990-21		Spike - 1	ACT				
13:54:12 Fri 26-Mar-04	2990-22		Sample	ACT				

Weights Not input with Run.

13:55:46 Fri 26-Mar-04	2990-22	Spike - 1	ACT
13:57:18 Fri 26-Mar-04	QC Std 3	QC Std #3	
13:58:51 Fri 26-Mar-04	QC Std 4	QC Std #4	

Sample/Batch Report

3-26-04

ser Name: ksmith
Computer Name: ICPMS1
Sample File: C:\elandata\Sample\MMTL.sam
Report Date/Time: Friday, March 26, 2004 14:00:20

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Init. Quant.	Prep. Vol.	Aliquot Vol.	Diluted Vol.	Solids Ratio
12		LRB	ACT						
13		LRB	ACT	Spike - 1					
14		2990-15	ACT						
15		2990-15	ACT	Spike - 1					
16		2990-16	ACT						
17		2990-16	ACT	Spike - 1					
18		2990-17	ACT						
19		2990-17	ACT	Spike - 1					
20		2990-18	ACT						
21		2990-18	ACT	Spike - 1					
22		2990-19	ACT						
23		2990-19	ACT	Spike - 1					
24		2990-20	ACT						
25		2990-20	ACT	Spike - 1					
26		2990-21	ACT						
27		2990-21	ACT	Spike - 1					
28		2990-22	ACT						
29		2990-22	ACT	Spike - 1					
30		2990-18	ACT						
31		2990-18	ACT	Spike - 1					
32		2990-19	ACT						
33		2990-19	ACT	Spike - 1					
34	x5	2990-20	ACT						
35	x5	2990-20	ACT	Spike - 1					
36		2990-21	ACT						
37		2990-21	ACT	Spike - 1					
38		2990-22	ACT						
39		2990-22	ACT	Spike - 1					

578

elementOne **ICP-MS RUN SHEET** **2990** Ken Smith 3-26-04

Analyst: __KMS____ Date: 03-26-04 **Solid Samples** ☐ / *Liquid Samples*

AS Loc	Batch # for sample sets	Sample Lab ID	Sample Description	Type Sample QC Spike QC Dup QC Reg Blank	Spike concentratio	Prep Volume (ml)	Weight (g)	Aliquot (ml)	Diluted to Volume (ml)
12			LRB	S		100			
13			LRB	SS	Table #1	100			
14			2990-15	S		100	1.0467		
15			2990-15	SS	Table #1	100	1.0013		
16			2990-16	S		100	1.0709		
17			2990-16	SS	Table #1	100	1.0496		
18			2990-17	S		100	1.1397		
19			2990-17	SS	Table #1	100	1.0665		
20			2990-18	S		100	1.5027		
21			2990-18	SS	Table #1	100	1.4381		
22			2990-19	S		100	1.2044		
23			2990-19	SS	Table #1	100	1.1188		
24			2990-20	S		100	1.1576		
25			2990-20	SS	Table #1	100	1.0664		
26			2990-21	S		100	1.1498		
27			2990-21	SS	Table #1	100	1.0442		
28			2990-22	S		100	2.0186		
29			2990-22	SS	Table #1	100	2.1704		
		KMS							

Spikes are ~~post at 0.02ml~~ of 25ppm spiking solutions lot 021403-ABC or F in a final volume of ~~10~~ 100ml. See work sheet

POST Spikes & Dilutions									
30			2990-18	S		100	1.5027		
31			2990-18	SS	Table #1	100	1.4381		
32			2990-19	S		100	1.2044		
33			2990-19	SS	Table #1	100	1.1188		
34			2990-20	S		100	1.1576		
35			2990-20	SS	Table #1	100	1.0664		
36			2990-21	S		100	1.1498		
37			2990-21	SS	Table #1	100	1.0442		
38			2990-22	S		100	2.0186		
39			2990-22	SS	Table #1	100	2.1704		
Spikes are post at 0.02ml of 25ppm spiking solutions lot 021403-ABC or F in a final volume of 10ml.									

Element One, Inc. Form 126 - Revision 0.0

ELAN Edit/R... ...ess Session - [Quantitative Analysis Method - [Untitled]]

File Edit Ar... ...is Options Window Help

Timing | Processing | Equation | Calibration | Sampling | Devices... | QC...

	Analyte	Mass (amu)	Spike Table 1 (Conc.)	Spike Table 1 Det. Limit (Conc.)	Spike Table 2 (Conc.)	Spike Table 2 Det. Limit (Conc.)	Spike Table 3 (Conc.)	Spike Table 3 Det. Limit (Conc.)	Spike Table 4 (Conc.)	D
1	Li	6.0151								
2	Sc	44.9559	50	1	25	1	100	1		
3	As	74.9216	50	1	25	1	100	1		
4	Ho	164.93								
5	Kr	82.9141	50	1	25	1	100	1		

Report | Notes

...requency | QC Std Int Stds | Calibration Stds | Sample Int Stds | Sample | Spike | Dilution | Duplicate | Spike Tables | QC Action Controls | Autosampler

For help, Press F1

NUM

Start | GpibManager | ELAN Instrument Control ... | ELAN Edit/Reproce... | Microsoft Word - ICPMS ... | 71° | 2:03 PM

581

elementOne

Particle Sizing Particulate

Lab # e 2990

Client ACT

Balance checks Date: 3/24/04 2 g = 1.9999
Date:
Date:

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1014	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-FIL.-1		2377	3.6481	8:30	3.7760	14:30	3.7759			0.1194	8.4
1 <2.5	32	602	4.1131	8:00	4.1187	14:00	4.1188				5.6
1<10 >2.5	138	2351	3.9526	8:00	4.1000	14:00	4.0998				147.2
2990-1>10	92	605	4.0810	8:00	4.5928	14:00	4.5928				511.8

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date 12/18/03 Initals DBW		Filter ID 1015	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-2/3-FIL.		2382	3.8039	8:30	3.9300	14:30	3.9301			0.1165	9.6
2/3<2.5	44	2367	3.8768	8:00	3.8776	14:00	3.8776				0.8
2/3<10 >2.5	132	2362	3.8930	8:00	4.0060	14:00	4.0059				112.9
2990-2/3>10	88	2386	3.6501	8:00	4.2452	14:00	4.2454				595.1

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1016	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-4/5-FIL		921	3.8655	8:30	3.9953	14:30	3.9948			0.1154	13.9
4/5 <2.5	38	2355	3.7971	8:00	3.7999	14:00	3.7995				2.4
4/5<10 >2.5	120	919	3.8025	8:00	4.0661	14:00	4.0663				263.6
2990-4/5>10	106	2388	3.8481	8:00	4.1941	14:00	4.1942				346.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1017	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-6-FIL		2342	3.5192	8:30	3.6323	14:30	3.6326			0.1136	0.0
6<2.5	16	2357	3.9023	8:00	3.9028	14:00	3.9028				0.5
6<10 >2.5	66	2339	3.9128	8:00	3.9129	14:00	3.9124				0.0
2990-6>10	40	2403	3.6880	8:00	3.6881	14:00	3.6883				0.1

elementOne

Particle Sizing Particulate

Lab # e 2990

Client ACT

Balance checks Date: 3/24/04 2 g = 1.9999
Date:
Date:

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1014	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-7<2.5	92	607	4.0540	8:00	4.0536	14:00	4.0535				0.0
											0.0
											0.0
											0.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date 12/18/03 Initals DBW		Filter ID 1018	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-8-FIL		2398	3.6607	8:30	3.7740	14:30	3.7741			0.1095	3.8
8<2.5	46	770	3.8234	8:00	3.8316	14:00	3.8311				7.7
8<10 >2.5	154	2340	3.7300	8:00	3.7738	14:00	3.7743				43.8
8>10	106	601	3.9194	8:00	3.9785	14:00	3.9783				58.9

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1019	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-9/10-FIL		2381	3.6603	8:30	3.7777	14:30	3.7776			0.1138	3.5
9/10<2.5	26	2343	4.0511	8:00	4.0508	14:00	4.0503				0.0
9/10<10 >2.5	122	732	3.6805	8:00	3.7124	14:00	3.7125				31.9
9/10>10	114	603	4.1400	8:00	4.1799	14:00	4.1796				39.6

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1021	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
990-11/12-FIL		2337	3.6300	8:30	3.7525	14:30	3.7530			0.1133	9.2
11/12<2.5	68	2333	3.6875	8:00	3.6891	14:00	3.6896				1.6
11/12<10 >2.5	76	925	3.8170	8:00	3.8951	14:00	3.8946				77.6
11/12>10	60	2375	3.6565	8:00	3.8086	14:00	3.8089				152.1

elementOne

Particle Sizing Particulate

Lab # e 2990

Client ACT

Balance checks Date: 3/24/04 2 g = 1.9999
Date:
Date:

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1022	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-13-FIL		2359	3.8540	8:30	3.9707	14:30	3.9702			0.1167	0.0
13<2.5	30	2349	3.1172	8:00	3.1175	14:00	3.1175				0.3
13<10 >2.5	75	2369	4.1003	8:00	4.1002	14:00	4.0998				0.0
13>10	50	2335	3.9839	8:00	3.9843	14:00	3.9848				0.4

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date 12/18/03 Initals DBW		Filter ID	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
2990-14>10	100	746	3.9963	8:00	3.9964	14:00	3.9965				0.1

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1019	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 3/24/04 Initals IJJ		Date 3/24/04 Initals IJJ		Date Initals		Filter ID 1021	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Friday, March 26, 2004 10:16:57
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	219199.4		ppb
|-	Sc	45	232827.4		ppb
|	As	75	18.4		ppb
|>	Rh	103	458075.8		ppb
	Ho	165	975982.1		ppb
	Kr	83	127.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Friday, March 26, 2004 10:18:30
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	220939.5		ppb
|-	Sc	45	238750.4		ppb
|	As	75	20550.5	10.15048	ppb
|>	Rh	103	452119		ppb
	Ho	165	973770.2		ppb
	Kr	83	119		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Friday, March 26, 2004 10:20:03
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	214757.5		ppb
|-	Sc	45	240495.2		ppb
|	As	75	40597.8	20.17167	ppb
|>	Rh	103	449683.7		ppb
	Ho	165	962015.2		ppb
	Kr	83	114.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Friday, March 26, 2004 10:21:37
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	208957.8		ppb
|-	Sc	45	238718.3		ppb
|	As	75	195288.4	99.95062	ppb
|>	Rh	103	436678.3		ppb
	Ho	165	943797.9		ppb
	Kr	83	110		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Friday, March 26, 2004 10:23:12
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	213443.2		ppb
|-	Sc	45	237700.9		ppb
|	As	75	20042	10.16766	ppb
|>	Rh	103	440163.5		ppb
	Ho	165	954277.4		ppb
	Kr	83	100		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Friday, March 26, 2004 10:24:45
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	240930.4		ppb
|-	Sc	45	266558.7		ppb
|	As	75	2113.6	0.91985	ppb
|>	Rh	103	508768.5		ppb
	Ho	165	1085049.5		ppb
	Kr	83	110.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 10:26:17
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	219810.7		ppb
|-	Sc	45	242858.6		ppb
|	As	75	-3	-0.01059	ppb
|>	Rh	103	462962.5		ppb
	Ho	165	992767.4		ppb
	Kr	83	109		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 10:27:50
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	217286.4		ppb
|-	Sc	45	244305		ppb
|	As	75	114255.3	56.29488	ppb
|>	Rh	103	453563.8		ppb
	Ho	165	982196.7		ppb
	Kr	83	133.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Friday, March 26, 2004 10:29:23
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	200674.1		ppb
|-	Sc	45	231244.9		ppb
|	As	75	1010307.4	543.79089	ppb
|>	Rh	103	415284.5		ppb
	Ho	165	919724		ppb
	Kr	83	133.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Friday, March 26, 2004 10:30:56
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	218463.7		ppb
|-	Sc	45	256539.5		ppb
|	As	75	1282.7	0.66969	ppb
|>	Rh	103	422559		ppb
	Ho	165	932342.9		ppb
	Kr	83	230		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Friday, March 26, 2004 10:32:30
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	218427.7		ppb
|-	Sc	45	259469.9		ppb
|	As	75	20124.6	10.59814	ppb
|>	Rh	103	424108.7		ppb
	Ho	165	922313.5		ppb
	Kr	83	228.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Friday, March 26, 2004 10:34:05
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	233390.1		ppb
|-	Sc	45	281622		ppb
|	As	75	568.3	0.24473	ppb
|>	Rh	103	501022.9		ppb
	Ho	165	1028949.9		ppb
	Kr	83	118.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Friday, March 26, 2004 10:35:39
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	243134.8		ppb
|-	Sc	45	314588.5		ppb
|	As	75	192.3	0.07443	ppb
|>	Rh	103	515769.6		ppb
	Ho	165	1055355.1		ppb
	Kr	83	99.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Friday, March 26, 2004 10:37:14
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	241741		ppb
|-	Sc	45	301444.6		ppb
|	As	75	115517.1	50.7321	ppb
|>	Rh	103	508897.5		ppb
	Ho	165	1049079.4		ppb
	Kr	83	89.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-1
Sample Date/Time: Friday, March 26, 2004 10:38:48
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	203871		ppb
|-	Sc	45	607523.6		ppb
|	As	75	192792.6	114.41395	ppb
|>	Rh	103	376691.3		ppb
	Ho	165	885597.9		ppb
	Kr	83	1137.8		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-2
Sample Date/Time: Friday, March 26, 2004 10:40:20
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	201708.3		ppb
|-	Sc	45	1171995.6		ppb
|	As	75	339082.1	197.1165	ppb
|>	Rh	103	384492.5		ppb
	Ho	165	1185177.2		ppb
	Kr	83	1743.2		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-2
Sample Date/Time: Friday, March 26, 2004 10:41:53
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	188757.8		ppb
|-	Sc	45	1156271.9		ppb
|	As	75	333046.1	201.96867	ppb
|>	Rh	103	368583.3		ppb
	Ho	165	1173427.7		ppb
	Kr	83	2009.9		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-4
Sample Date/Time: Friday, March 26, 2004 10:43:25
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	191483.8		ppb
|-	Sc	45	1301315		ppb
|	As	75	391309.8	216.31722	ppb
|>	Rh	103	404342.1		ppb
	Ho	165	1194814.1		ppb
	Kr	83	1428.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-4
Sample Date/Time: Friday, March 26, 2004 10:44:58
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	184342.8		ppb
|-	Sc	45	1254588.7		ppb
|	As	75	475844	271.29841	ppb
|>	Rh	103	392038.2		ppb
	Ho	165	1183114.4		ppb
	Kr	83	1313.8		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-6
Sample Date/Time: Friday, March 26, 2004 10:46:30
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	221667.2		ppb
|-	Sc	45	317581		ppb
|	As	75	1473.5	0.58386	ppb
|>	Rh	103	555683.5		ppb
	Ho	165	1127887		ppb
	Kr	83	92.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-7
Sample Date/Time: Friday, March 26, 2004 10:48:03
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	314735.2		ppb
|-	Sc	45	421764.9		ppb
|	As	75	330.2	0.09167	ppb
|>	Rh	103	731506.9		ppb
	Ho	165	1474745.6		ppb
	Kr	83	95		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-8
Sample Date/Time: Friday, March 26, 2004 10:49:37
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	189581.2		ppb
|-	Sc	45	442196.6		ppb
|	As	75	74610.6	35.168	ppb
|>	Rh	103	474155.6		ppb
	Ho	165	1112022.5		ppb
	Kr	83	314		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 10:51:10
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	183582.7		ppb
|-	Sc	45	266018.4		ppb
|	As	75	65	0.01897	ppb
|>	Rh	103	522948.5		ppb
	Ho	165	1075868.1		ppb
	Kr	83	128.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 10:52:42
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	184024.6		ppb
|-	Sc	45	272436		ppb
|	As	75	129602	55.95156	ppb
|>	Rh	103	517649.1		ppb
	Ho	165	1071624		ppb
	Kr	83	124		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-9
Sample Date/Time: Friday, March 26, 2004 10:54:15
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	202928.8		ppb
|-	Sc	45	462424.1		ppb
|	As	75	52400	23.78795	ppb
|>	Rh	103	492158.9		ppb
	Ho	165	1116846.9		ppb
	Kr	83	282		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-9
Sample Date/Time: Friday, March 26, 2004 10:55:50
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	203464.2		ppb
|-	Sc	45	464686.8		ppb
|	As	75	52832.2	23.57272	ppb
|>	Rh	103	500781.4		ppb
	Ho	165	1123689		ppb
	Kr	83	266.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-11
Sample Date/Time: Friday, March 26, 2004 10:57:24
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	214564.6		ppb
|-	Sc	45	880567.3		ppb
|	As	75	89465	44.17675	ppb
|>	Rh	103	452516.8		ppb
	Ho	165	1052436.8		ppb
	Kr	83	1254.8		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-11
Sample Date/Time: Friday, March 26, 2004 10:58:59
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	212466		ppb
|-	Sc	45	866832.1		ppb
|	As	75	191957.9	96.91209	ppb
|>	Rh	103	442725.9		ppb
	Ho	165	1038243.1		ppb
	Kr	83	1181.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-13
Sample Date/Time: Friday, March 26, 2004 11:00:33
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	251207.7		ppb
|-	Sc	45	365020.9		ppb
|	As	75	4232.1	1.6507	ppb
|>	Rh	103	569399.2		ppb
	Ho	165	1156792.2		ppb
	Kr	83	102.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-14
Sample Date/Time: Friday, March 26, 2004 11:02:06
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	259739.9		ppb
|-	Sc	45	344592.9		ppb
|	As	75	1656.5	0.65003	ppb
|>	Rh	103	561853.3		ppb
	Ho	165	1133612.8		ppb
	Kr	83	110.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-1
Sample Date/Time: Friday, March 26, 2004 11:03:39
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	258619		ppb
|-	Sc	45	1086362.1		ppb
|	As	75	176801.4	94.45933	ppb
|>	Rh	103	418342.1		ppb
	Ho	165	954695.4		ppb
	Kr	83	2155.6		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-2
Sample Date/Time: Friday, March 26, 2004 11:05:11
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	240789.4		ppb
|-	Sc	45	892822.6		ppb
|	As	75	175005.7	88.28797	ppb
|>	Rh	103	443005.9		ppb
	Ho	165	1059199.6		ppb
	Kr	83	1778.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-2
Sample Date/Time: Friday, March 26, 2004 11:06:44
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	226887.5		ppb
|-	Sc	45	862886.7		ppb
|	As	75	171503	88.93877	ppb
|>	Rh	103	430986.9		ppb
	Ho	165	1037688.3		ppb
	Kr	83	1564.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-4
Sample Date/Time: Friday, March 26, 2004 11:08:17
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	207306.9		ppb
|-	Sc	45	995791.2		ppb
|	As	75	584280.3	319.66767	ppb
|>	Rh	103	408572.9		ppb
	Ho	165	1124705.2		ppb
	Kr	83	2374.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-4
Sample Date/Time: Friday, March 26, 2004 11:09:50
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	199540.7		ppb
|-	Sc	45	995596.1		ppb
|	As	75	658752.3	368.98397	ppb
|>	Rh	103	399032.7		ppb
	Ho	165	1122139.4		ppb
	Kr	83	2523.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 11:11:23
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	206173.1		ppb
|-	Sc	45	249795.3		ppb
|	As	75	759.6	0.33123	ppb
|>	Rh	103	499909.7		ppb
	Ho	165	1086233.7		ppb
	Kr	83	125.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 11:12:55
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	201912.5		ppb
|-	Sc	45	250267.8		ppb
|	As	75	117430	54.03232	ppb
|>	Rh	103	485714.9		ppb
	Ho	165	1068949.5		ppb
	Kr	83	120		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-6
Sample Date/Time: Friday, March 26, 2004 11:14:28
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	247773		ppb
|-	Sc	45	627779.8		ppb
|	As	75	2854.1	1.25883	ppb
|>	Rh	103	502516.8		ppb
	Ho	165	1129520.9		ppb
	Kr	83	420		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-8
Sample Date/Time: Friday, March 26, 2004 11:16:02
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	213012.7		ppb
|-	Sc	45	634241.9		ppb
|	As	75	136825.4	67.9375	ppb
|>	Rh	103	450115.5		ppb
	Ho	165	1095542.3		ppb
	Kr	83	721		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-9
Sample Date/Time: Friday, March 26, 2004 11:17:36
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	202368.4		ppb
|-	Sc	45	607585.6		ppb
|	As	75	78731.7	40.35845	ppb
|>	Rh	103	435936.1		ppb
	Ho	165	1079984.5		ppb
	Kr	83	833.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-9
Sample Date/Time: Friday, March 26, 2004 11:19:11
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	202097.3		ppb
|-	Sc	45	581300.3		ppb
|	As	75	77900.3	40.50749	ppb
|>	Rh	103	429717.2		ppb
	Ho	165	1067872.3		ppb
	Kr	83	775.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-11
Sample Date/Time: Friday, March 26, 2004 11:20:46
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	194453.9		ppb
|-	Sc	45	761426.7		ppb
|	As	75	122172.3	69.84792	ppb
|>	Rh	103	390901.3		ppb
	Ho	165	996942.1		ppb
	Kr	83	1122.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-11
Sample Date/Time: Friday, March 26, 2004 11:22:20
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	191777.4		ppb
|-	Sc	45	740780.2		ppb
|	As	75	200090.4	117.27014	ppb
|>	Rh	103	381355.2		ppb
	Ho	165	974417.2		ppb
	Kr	83	1104.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-13
Sample Date/Time: Friday, March 26, 2004 11:23:53
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	187248.6		ppb
|-	Sc	45	282014.6		ppb
|	As	75	1549.4	0.77143	ppb
|>	Rh	103	443657.5		ppb
	Ho	165	1013239.6		ppb
	Kr	83	196.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 11:25:26
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	180746		ppb
|-	Sc	45	197020.9		ppb
|	As	75	216.8	0.09799	ppb
|>	Rh	103	453673.1		ppb
	Ho	165	1006616.5		ppb
	Kr	83	101.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 11:26:58
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	176862.3		ppb
|-	Sc	45	204229.4		ppb
|	As	75	101773	51.50397	ppb
|>	Rh	103	441624.1		ppb
	Ho	165	997534.8		ppb
	Kr	83	122		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Friday, March 26, 2004 12:43:45
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	157944.1		ppb
|-	Sc	45	175154.4		ppb
|	As	75	-16.9		ppb
|>	Rh	103	430343.4		ppb
	Ho	165	958220.4		ppb
	Kr	83	108.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Friday, March 26, 2004 12:45:17
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	154925.9		ppb
|-	Sc	45	181829.6		ppb
|	As	75	18079	10.05331	ppb
|>	Rh	103	429050.4		ppb
	Ho	165	950700.9		ppb
	Kr	83	102		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Friday, March 26, 2004 12:46:51
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	155461.2		ppb
|-	Sc	45	181469.3		ppb
|	As	75	35399.9	19.93792	ppb
|>	Rh	103	423274.4		ppb
	Ho	165	935791.2		ppb
	Kr	83	105.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Friday, March 26, 2004 12:48:25
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	152087.5		ppb
|-	Sc	45	181050.2		ppb
|	As	75	171959.8	100.00709	ppb
|>	Rh	103	409771.6		ppb
	Ho	165	922414.2		ppb
	Kr	83	107.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Friday, March 26, 2004 12:49:59
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	151835.9		ppb
|-	Sc	45	178969.5		ppb
|	As	75	17413.9	10.0258	ppb
|>	Rh	103	414336.3		ppb
	Ho	165	917254.6		ppb
	Kr	83	88.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Friday, March 26, 2004 12:51:33
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	173333.7		ppb
|-	Sc	45	196986.7		ppb
|	As	75	1732.8	0.88989	ppb
|>	Rh	103	468973.1		ppb
	Ho	165	1046408.3		ppb
	Kr	83	98.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 12:53:05
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	157223.5		ppb
|-	Sc	45	183432.4		ppb
|	As	75	-21.1	-0.00227	ppb
|>	Rh	103	433186.1		ppb
	Ho	165	962558		ppb
	Kr	83	94.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 12:54:37
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	156183.9		ppb
|-	Sc	45	186346.8		ppb
|	As	75	98394.2	55.40872	ppb
|>	Rh	103	423254		ppb
	Ho	165	946414.8		ppb
	Kr	83	103.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Friday, March 26, 2004 12:56:10
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	148020.6		ppb
|-	Sc	45	180091.8		ppb
|	As	75	874307.5	538.76043	ppb
|>	Rh	103	386704.4		ppb
	Ho	165	883460.7		ppb
	Kr	83	124.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Friday, March 26, 2004 12:57:44
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	147093.5		ppb
|-	Sc	45	185174.4		ppb
|	As	75	981.9	0.64301	ppb
|>	Rh	103	369562.7		ppb
	Ho	165	891977.5		ppb
	Kr	83	195.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Friday, March 26, 2004 12:59:18
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	145748.1		ppb
|-	Sc	45	178037		ppb
|	As	75	15654.8	10.39678	ppb
|>	Rh	103	359128.3		ppb
	Ho	165	867521		ppb
	Kr	83	193.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Friday, March 26, 2004 13:00:52
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	144948.8		ppb
|-	Sc	45	179885.5		ppb
|	As	75	397.6	0.23523	ppb
|>	Rh	103	419459.6		ppb
	Ho	165	927152.8		ppb
	Kr	83	94		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Friday, March 26, 2004 13:02:27
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	157136.1		ppb
|-	Sc	45	194587		ppb
|	As	75	-58.9	-0.02337	ppb
|>	Rh	103	428911.9		ppb
	Ho	165	963509.7		ppb
	Kr	83	68.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Friday, March 26, 2004 13:04:02
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	151599.8		ppb
|-	Sc	45	188771.5		ppb
|	As	75	87695.8	50.51299	ppb
|>	Rh	103	413762.8		ppb
	Ho	165	943226.2		ppb
	Kr	83	67.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-15
Sample Date/Time: Friday, March 26, 2004 13:05:36
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	159506.4		ppb
|-	Sc	45	208214.9		ppb
|	As	75	982	0.54705	ppb
|>	Rh	103	435131.2		ppb
	Ho	165	1017256.9		ppb
	Kr	83	114		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-15
Sample Date/Time: Friday, March 26, 2004 13:07:08
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	150837.8		ppb
|-	Sc	45	207904.4		ppb
|	As	75	83172.8	46.76705	ppb
|>	Rh	103	423852.1		ppb
	Ho	165	980607.5		ppb
	Kr	83	113		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-16
Sample Date/Time: Friday, March 26, 2004 13:08:40
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	157786.3		ppb
|-	Sc	45	310378.7		ppb
|	As	75	455848	258.45293	ppb
|>	Rh	103	420287.3		ppb
	Ho	165	1038323.4		ppb
	Kr	83	287.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-16
Sample Date/Time: Friday, March 26, 2004 13:10:13
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	157322.3		ppb
|-	Sc	45	303973.7		ppb
|	As	75	534989.2	303.60508	ppb
|>	Rh	103	419934.2		ppb
	Ho	165	1038619.6		ppb
	Kr	83	279.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-17
Sample Date/Time: Friday, March 26, 2004 13:11:45
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	102481.9		ppb
|-	Sc	45	415284.6		ppb
|	As	75	48799.4	75.1958	ppb
|>	Rh	103	154654.7		ppb
	Ho	165	307735.4		ppb
	Kr	83	3950.9		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-17
Sample Date/Time: Friday, March 26, 2004 13:13:18
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	99798.6		ppb
|-	Sc	45	355404.1		ppb
|	As	75	75223.9	116.28225	ppb
|>	Rh	103	154155.7		ppb
	Ho	165	315824.8		ppb
	Kr	83	3446		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-18
Sample Date/Time: Friday, March 26, 2004 13:14:51
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	127250.6		ppb
|-	Sc	45	110914.7		ppb
|	As	75	1885.4	1.60661	ppb
|>	Rh	103	281360.1		ppb
	Ho	165	699588.9		ppb
	Kr	83	78		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-18
Sample Date/Time: Friday, March 26, 2004 13:16:25
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	130595.7		ppb
|-	Sc	45	110694.9		ppb
|	As	75	33952.2	27.2771	ppb
|>	Rh	103	296711.8		ppb
	Ho	165	724493.8		ppb
	Kr	83	62		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 13:17:57
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	124712.7		ppb
|-	Sc	45	96159.3		ppb
|	As	75	79.2	0.07416	ppb
|>	Rh	103	290582.5		ppb
	Ho	165	702299.3		ppb
	Kr	83	68.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 13:19:30
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	122971.9		ppb
|-	Sc	45	97669.3		ppb
|	As	75	60682.4	49.80952	ppb
|>	Rh	103	290328.7		ppb
	Ho	165	701175.1		ppb
	Kr	83	64		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-19
Sample Date/Time: Friday, March 26, 2004 13:21:03
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	119647.3		ppb
|-	Sc	45	90135		ppb
|	As	75	5129.6	9.07769	ppb
|>	Rh	103	134718.5		ppb
	Ho	165	319463.5		ppb
	Kr	83	170.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-19
Sample Date/Time: Friday, March 26, 2004 13:22:37
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	117560		ppb
|-	Sc	45	93726		ppb
|	As	75	25486.6	45.61156	ppb
|>	Rh	103	133164.6		ppb
	Ho	165	315397		ppb
	Kr	83	196		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-20
Sample Date/Time: Friday, March 26, 2004 13:24:12
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	119927.5		ppb
|-	Sc	45	183565.1		ppb
|	As	75	424155.6	479.91356	ppb
|>	Rh	103	210545.1		ppb
	Ho	165	638314.9		ppb
	Kr	83	273		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-20
Sample Date/Time: Friday, March 26, 2004 13:25:47
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	119331.2		ppb
|-	Sc	45	203314.6		ppb
|	As	75	459717.8	477.76184	ppb
|>	Rh	103	229229.8		ppb
	Ho	165	701534.1		ppb
	Kr	83	283		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-21
Sample Date/Time: Friday, March 26, 2004 13:27:21
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	96151.5		ppb
|-	Sc	45	231878.2		ppb
|	As	75	32057.6	61.07076	ppb
|>	Rh	103	125120		ppb
	Ho	165	305947.8		ppb
	Kr	83	1739.2		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-21
Sample Date/Time: Friday, March 26, 2004 13:28:53
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	99837		ppb
|-	Sc	45	282542.4		ppb
|	As	75	52372.3	95.33179	ppb
|>	Rh	103	130915.7		ppb
	Ho	165	316986.5		ppb
	Kr	83	2020.2		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-22
Sample Date/Time: Friday, March 26, 2004 13:30:26
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	120088.2		ppb
|-	Sc	45	89863		ppb
|	As	75	2159.3	2.28205	ppb
|>	Rh	103	226400.4		ppb
	Ho	165	589430.5		ppb
	Kr	83	45.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-22
Sample Date/Time: Friday, March 26, 2004 13:31:59
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	114362.4		ppb
|-	Sc	45	87500.1		ppb
|	As	75	21620	24.06045	ppb
|>	Rh	103	214192		ppb
	Ho	165	571912.5		ppb
	Kr	83	45		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 13:33:31
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	126681.6		ppb
|-	Sc	45	76494		ppb
|	As	75	57.7	0.06678	ppb
|>	Rh	103	238147.9		ppb
	Ho	165	566611.4		ppb
	Kr	83	46.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 13:35:04
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	122383.8		ppb
|-	Sc	45	75059.7		ppb
|	As	75	45771	47.47828	ppb
|>	Rh	103	229768		ppb
	Ho	165	556211.3		ppb
	Kr	83	57		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-18
Sample Date/Time: Friday, March 26, 2004 13:41:41
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	127099.6		ppb
|-	Sc	45	90605.3		ppb
|	As	75	1381.2	1.43857	ppb
|>	Rh	103	230412.3		ppb
	Ho	165	581231.3		ppb
	Kr	83	71.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-18
Sample Date/Time: Friday, March 26, 2004 13:43:14
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	125438.2		ppb
|-	Sc	45	91503		ppb
|	As	75	42327.7	43.38773	ppb
|>	Rh	103	232594		ppb
	Ho	165	587408.9		ppb
	Kr	83	57.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-19
Sample Date/Time: Friday, March 26, 2004 13:44:47
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	118580.4		ppb
|-	Sc	45	79075.9		ppb
|	As	75	4279.6	8.53596	ppb
|>	Rh	103	119453.9		ppb
	Ho	165	285445.7		ppb
	Kr	83	205		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-19
Sample Date/Time: Friday, March 26, 2004 13:46:21
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	113300.8		ppb
|-	Sc	45	74653.7		ppb
|	As	75	24969.8	53.60754	ppb
|>	Rh	103	111011.5		ppb
	Ho	165	275070		ppb
	Kr	83	233		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-20
Sample Date/Time: Friday, March 26, 2004 13:47:54
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	116426.9		ppb
|-	Sc	45	81235.5		ppb
|	As	75	72624.4	98.13276	ppb
|>	Rh	103	176350.9		ppb
	Ho	165	483621		ppb
	Kr	83	68		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-20
Sample Date/Time: Friday, March 26, 2004 13:49:29
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	110278.1		ppb
|-	Sc	45	82156.4		ppb
|	As	75	107021.5	141.61771	ppb
|>	Rh	103	180088.4		ppb
	Ho	165	498507.1		ppb
	Kr	83	69		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-21
Sample Date/Time: Friday, March 26, 2004 13:51:03
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	96426.7		ppb
|-	Sc	45	204305.6		ppb
|	As	75	27556.7	59.60537	ppb
|>	Rh	103	110159.6		ppb
	Ho	165	283486.3		ppb
	Kr	83	1572.2		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-21
Sample Date/Time: Friday, March 26, 2004 13:52:38
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	93222.3		ppb
|-	Sc	45	212769.6		ppb
|	As	75	50909.6	113.94992	ppb
|>	Rh	103	106455.1		ppb
	Ho	165	276580.2		ppb
	Kr	83	1731.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-22
Sample Date/Time: Friday, March 26, 2004 13:54:12
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	104817.5		ppb
|-	Sc	45	73844.4		ppb
|	As	75	1610.5	2.12544	ppb
|>	Rh	103	181372.1		ppb
	Ho	165	505047.6		ppb
	Kr	83	36.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2990-22
Sample Date/Time: Friday, March 26, 2004 13:55:46
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	99198.7		ppb
|-	Sc	45	70500.7		ppb
|	As	75	29176.6	40.05609	ppb
|>	Rh	103	173642.6		ppb
	Ho	165	481002.3		ppb
	Kr	83	35.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 13:57:18
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	115262.2		ppb
|-	Sc	45	65998.8		ppb
|	As	75	42.4	0.06079	ppb
|>	Rh	103	198548.3		ppb
	Ho	165	493415.9		ppb
	Kr	83	47.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 13:58:51
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	111524.6		ppb
|-	Sc	45	63774.2		ppb
|	As	75	36490.6	45.35136	ppb
|>	Rh	103	191781.2		ppb
	Ho	165	487044.4		ppb
	Kr	83	41.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Friday, March 26, 2004 14:10:06
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	119398.9		ppb
|-	Sc	45	64808.6		ppb
|	As	75	3.9		ppb
|>	Rh	103	200066.8		ppb
	Ho	165	481986		ppb
	Kr	83	38.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Friday, March 26, 2004 14:11:38
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	116375.8		ppb
|-	Sc	45	64332.2		ppb
|	As	75	6694	10	ppb
|>	Rh	103	193297.4		ppb
	Ho	165	476774.1		ppb
	Kr	83	43.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Friday, March 26, 2004 14:13:12
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	114380		ppb
|-	Sc	45	63331.2		ppb
|	As	75	13095	19.98342	ppb
|>	Rh	103	189959.4		ppb
	Ho	165	472427		ppb
	Kr	83	39.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Friday, March 26, 2004 14:14:46
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	108758.2		ppb
|-	Sc	45	61168.7		ppb
|	As	75	61496.5	99.97811	ppb
|>	Rh	103	179081.3		ppb
	Ho	165	447780.2		ppb
	Kr	83	39.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Friday, March 26, 2004 14:16:20
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	109244.6		ppb
|-	Sc	45	60585.2		ppb
|	As	75	6320.1	10.15485	ppb
|>	Rh	103	181127.1		ppb
	Ho	165	455802.9		ppb
	Kr	83	32		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Friday, March 26, 2004 14:17:54
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	125371.7		ppb
|-	Sc	45	68709.1		ppb
|	As	75	669	0.92969	ppb
|>	Rh	103	208386.3		ppb
	Ho	165	509773.1		ppb
	Kr	83	35		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 14:19:26
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	116263.9		ppb
|-	Sc	45	62552.2		ppb
|	As	75	-23.4	-0.04237	ppb
|>	Rh	103	188526.1		ppb
	Ho	165	466332		ppb
	Kr	83	44		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 14:20:58
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	113528.4		ppb
|-	Sc	45	61515.4		ppb
|	As	75	34790.3	55.27099	ppb
|>	Rh	103	183265.7		ppb
	Ho	165	467307.3		ppb
	Kr	83	46.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Friday, March 26, 2004 14:22:31
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	101241.9		ppb
|-	Sc	45	60654.3		ppb
|	As	75	324651.7	547.03632	ppb
|>	Rh	103	172786.1		ppb
	Ho	165	450481		ppb
	Kr	83	47.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Friday, March 26, 2004 14:24:05
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	111848.9		ppb
|-	Sc	45	66055.8		ppb
|	As	75	393.7	0.60422	ppb
|>	Rh	103	188361.7		ppb
	Ho	165	508014		ppb
	Kr	83	32		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Friday, March 26, 2004 14:25:39
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	134192.8		ppb
|-	Sc	45	83309.7		ppb
|	As	75	-451.3	-0.55716	ppb
|>	Rh	103	239442.3		ppb
	Ho	165	588048.5		ppb
	Kr	83	34.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Friday, March 26, 2004 14:27:13
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	138969.9		ppb
|-	Sc	45	87859.4		ppb
|	As	75	48508.1	57.99637	ppb
|>	Rh	103	243516.7		ppb
	Ho	165	611036.4		ppb
	Kr	83	40.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Friday, March 26, 2004 14:10:06
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	119398.9		ppb
|-	Sc	45	64808.6		ppb
|	As	75	3.9		ppb
|>	Rh	103	200066.8		ppb
	Ho	165	481986		ppb
	Kr	83	38.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Friday, March 26, 2004 14:11:38
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	116375.8		ppb
|-	Sc	45	64332.2		ppb
|	As	75	6694	8.26066	ppb
|>	Rh	103	193297.4		ppb
	Ho	165	476774.1		ppb
	Kr	83	43.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Friday, March 26, 2004 14:13:12
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	114380		ppb
|-	Sc	45	63331.2		ppb
|	As	75	13095	16.56407	ppb
|>	Rh	103	189959.4		ppb
	Ho	165	472427		ppb
	Kr	83	39.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Friday, March 26, 2004 14:14:46
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	108758.2		ppb
|-	Sc	45	61168.7		ppb
|	As	75	61496.5	99.97811	ppb
|>	Rh	103	179081.3		ppb
	Ho	165	447780.2		ppb
	Kr	83	39.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Friday, March 26, 2004 14:16:20
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	109244.6		ppb
|-	Sc	45	60585.2		ppb
|	As	75	6320.1	10.15485	ppb
|>	Rh	103	181127.1		ppb
	Ho	165	455802.9		ppb
	Kr	83	32		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Friday, March 26, 2004 14:17:54
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	125371.7		ppb
|-	Sc	45	68709.1		ppb
|	As	75	669	0.92969	ppb
|>	Rh	103	208386.3		ppb
	Ho	165	509773.1		ppb
	Kr	83	35		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Friday, March 26, 2004 14:19:26
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	116263.9		ppb
|-	Sc	45	62552.2		ppb
|	As	75	-23.4	-0.04237	ppb
|>	Rh	103	188526.1		ppb
	Ho	165	466332		ppb
	Kr	83	44		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Friday, March 26, 2004 14:20:58
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	113528.4		ppb
|-	Sc	45	61515.4		ppb
|	As	75	34790.3	55.27099	ppb
|>	Rh	103	183265.7		ppb
	Ho	165	467307.3		ppb
	Kr	83	46.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Friday, March 26, 2004 14:22:31
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	101241.9		ppb
|-	Sc	45	60654.3		ppb
|	As	75	324651.7	547.03632	ppb
|>	Rh	103	172786.1		ppb
	Ho	165	450481		ppb
	Kr	83	47.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Friday, March 26, 2004 14:24:05
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	111848.9		ppb
|-	Sc	45	66055.8		ppb
|	As	75	393.7	0.60422	ppb
|>	Rh	103	188361.7		ppb
	Ho	165	508014		ppb
	Kr	83	32		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Friday, March 26, 2004 14:25:39
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	134192.8		ppb
|-	Sc	45	83309.7		ppb
|	As	75	-451.3	-0.55716	ppb
|>	Rh	103	239442.3		ppb
	Ho	165	588048.5		ppb
	Kr	83	34.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Friday, March 26, 2004 14:27:13
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	138969.9		ppb
|-	Sc	45	87859.4		ppb
|	As	75	48508.1	57.99637	ppb
|>	Rh	103	243516.7		ppb
	Ho	165	611036.4		ppb
	Kr	83	40.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 2999-1
Sample Date/Time: Friday, March 26, 2004 14:28:48
Sample Description: TBL
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	125922.2		ppb
|-	Sc	45	90776.1		ppb
|	As	75	1082.1	1.50956	ppb
|>	Rh	103	207583.6		ppb
	Ho	165	572026.6		ppb
	Kr	83	80.7		ppb

APPENDIX F2

ELEMENT ONE, INC.

ARSENIC AND PARTICULATE MATTER

TEST REPORT FOR

CONCRETE SUPPLY TRUCK MIX &

RMC CENTRAL MIX

Air Control Techniques

301 E. Durham Rd
Cary, NC 27513

Project ID: 877

Arsenic and
Particulate Matter

EPA Methods 201A & 29

Analytical Report
3299

Element One, Inc.
5022-C Wrightsville Av., Wilmington, NC 28403
910-793-0128 FAX:910-792-6853 e1lab@hotmail.com

I have reviewed the following data for completeness, accuracy, adherence to method protocol, and compliance with quality assurance guidelines.

Quality assurance review by Bruce Hawks

Bruce Hawks 6/8/04

el1

SUMMARY OF RESULTS

el1

Summary of Analysis

Summary of RMC-C-IN-PRE4 Particle Sizing and Arsenic Analysis

Element	PRE4-1 Catch, mg	PRE4-2 Catch, mg	PRE4-2 Catch, mg	PRE4-3 Catch, mg	RMC-FB Catch, mg
Filter	4.0	11.4	11.4	7.1	0.0
< 2.5	2.0	0.5	0.5	2.5	0.4
>2.5<10	78.7	53.7	53.7	88.9	0.0
>10	247.3	187.7	187.7	351.3	0.6

	PRE4-1 Total µg	PRE4-2 Total µg	PRE4-2 Total µg	PRE4-3 Total µg	RMC-FB Total µg
<10 Arsenic	6.66	2.39	2.22	5.33	0.11
>10 Arsenic	7.01	4.61	4.66	8.78	< 0.1
<10 µg As/mg	0.079	0.036	0.034	0.054	
>10 µg As/mg	0.028	0.025	0.025	0.025	

Summary of RMC Materials Arsenic Analysis

Element	RMC Stone mg/Kg	RMC Flyash mg/Kg	RMC Cement mg/Kg	RMC Sand mg/Kg
Arsenic	< 0.1	67.4	27.0	0.360

Summary of Analysis (continued)

Summary of CS-T-IN-PRE4 Particle Sizing and Arsenic Analysis

Element	PRE4-1 Catch, mg	PRE4-2 Catch, mg	PRE4-2 Catch, mg	PRE4-3 Catch, mg	CS-FB Catch, mg
Filter	9.2	16.5	16.5	12.9	0.0
< 2.5	9.8	6.5	6.5	3.6	0.2
>2.5<10	109.0	249.6	249.6	221.2	0.8
>10	538.6	731.3	731.3	1585.7	2.5

	PRE4-1 Total µg	PRE4-2 Total µg	PRE4-2 Total µg	PRE4-3 Total µg	CS-FB Total µg
<10 Arsenic	2.40	10.8	10.9	9.82	< 0.1
>10 Arsenic	6.91	15.7	15.5	41.1	< 0.1
<10 µg As/mg	0.019	0.039	0.040	0.041	
>10 µg As/mg	0.013	0.021	0.021	0.026	

Summary of CS Materials Arsenic Analysis

Element	CS Stone mg/Kg	CS Flyash mg/Kg	CS Cement mg/Kg	CS Sand mg/Kg
Arsenic	< 0.1	80.0	9.87	0.658

ANALYTICAL NARRATIVE

el1

Summary of Quality Control Data

Arsenic Duplicate Analysis RPD

Element	RMC-C-IN-PRE4-2	CS-T-IN-PRE4-2
<10 Arsenic	7.4%	1.1%
>10 Arsenic	1.0%	0.8%

Arsenic Spike Recoveries

Element	RMC-C-IN-PRE4-3	CS-T-IN-PRE4-3
<10 Arsenic	76%	75%
>10 Arsenic	99%	124%

Second Source Calibration Check Recoveries

Element	1 ppb	10 ppb	50 ppb	500 ppb
	QC Std 2	QC Std 1	QC Std 4	QC Std 5
Arsenic	102%	102%	110%	108%

QUALITY CONTROL SUMMARY

el1

Element One Analytical Narrative

Client	Air Control Techniques	Element One #:	3299
Client ID:	877	Analyst:	DBW, IJJ
Date Received	5/25/04	Method:	201A & M29
Analytes	Particulate and As	Dates Analyzed	5/28 – 6/8/04

Summary of Analysis

Particle sizing samples were measured following Method 201A guidelines.

Following the particulate catch measurements, the < 10 µm samples for each run were combined into a single sample. The samples were digested, prepared, and analyzed according to Method 29 protocol. Arsenic was analyzed on a PerkinElmer ELAN 6100 ICP-MS.

Detection Limits

ICP-MS instrument reporting limit was 1 µg/L for arsenic.

Analysis QA/QC

Duplicate analyses relative percent difference (RPD), spike sample recovery, and second source calibration verification data are summarized on the following pages. All QA/QC data was within the criteria of the method.

Additional Comments

The reported results have not been corrected for any blank or spike recovery values. Nothing unusual was noticed with any of the analyses.

SAMPLE CUSTODY

el1

Air
Control Techniques, P.C.
AIR POLLUTION CONTROL SYSTEMS ENGINEERING
301 East Durham Road
Cary, North Carolina 27513
(919) 460-7811

Chain of Custody

JOB / PO#: 877

TO: Bruce Hawks
ELEMENT ONE
5022 C WRIGHTSVILLE AVE.
Wilmington, NC 28403

Samples recovered by: Todd T. Brozell **Date** 5/25/04

SAMPLE NUMBER	COMPONENT	ANALYSIS
RMC Stone Sample	Stone	Arsenic
RMC Flyash Sample	Flyash	Arsenic
RMC Cement Sample	Cement	Arsenic
RMC Sand Sample	Sand	Arsenic
RMC-C-IN-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
RMC-C-IN-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
RMC-C-IN-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3 & 4 Arsenic less than 10 microns.

Chain of Custody
Page 2 of 2

SAMPLE NUMBER	COMPONENT	ANALYSIS
CS Stone Sample	Stone	Arsenic
CS Flyash Sample	Flyash	Arsenic
CS Cement Sample	Cement	Arsenic
CS Sand Sample	Sand	Arsenic
CS-T-IN-PRE4-1	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
CS-T-IN-PRE4-2	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
CS-T-IN-PRE4-3	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
Field Blank RMC	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
Field Blank CS	1. Cyclone rinse with acetone, PM>10 microns 2. Cyclone rinse with acetone, PM ≤10 ≥2.5 microns 3. Cyclone rinse with acetone, PM ≤2.5 microns 4. Filter, PM ≤2.5 microns	A. Gravimetric on 1,2,3 & 4. B. Arsenic on 1 greater than 10 microns. C. Combine 2, 3, & 4 Arsenic less than 10 microns.
Acetone Blank RMC	Acetone Blank	Gravimetric and Arsenic
Acetone Blank CS	Acetone Blank	Gravimetric and Arsenic

Relinquished by: Todd T. Brozell Date 5/25/04

Relinquished by: _____ Date _____

Received by: _____ Date 5/25/04

Comments e 3299

ANALYTICAL DATA

el1

X

elementOne **AIR TERMCING SAMPLE SUBMISSION FORM** Lab ID # **e3299**

Client ID/PO#: 877		Date Received: 5/25/04	Page: 1 of 2
CuRMComer: ACT		Results RequeRMCed: 6/9/04	Time Rec:
Address: 301 E Durham Road		Contact: Todd Brozell	Rec by: BGH
Cary, NC 27513		Email:actpc@aircontroltechniques.com	Via: Pickup
		Phone: 919-460-7811	Fax: 919-460-7897
HNO_3 Lot:	HF Lot:	HCl Lot:	
Volume Marked Y / N	Volume Loss Y / N / ?	pH < 2.0 Y / N	Ref. **Special**

	Sample Identification		Sample Identification
1	RMC-C-IN-PRE4-1	8	CS-T-IN-PRE4-1
2	RMC-C-IN-PRE4-2	9	CS-T-IN-PRE4-2
3	RMC-C-IN-PRE4-2 Duplicate	10	CS-T-IN-PRE4-2 Duplicate
4	RMC-C-IN-PRE4-3	11	CS-T-IN-PRE4-3
5	RMC-C-IN-PRE4-3 Spike	12	CS-T-IN-PRE4-3 Spike
6	Field Blank RMC	13	Field Blank CS
7	Acetone Blank RMC	14	Acetone Blank CS

Elements to Analyze: Particulate on each Fraction. Then As on >10 and As on combined filter, <2.5, & >2.5<10.

	Front Half		Back Half			HNO_3 (A)		$KMnO_4$ (B)		HCl (C)	
SAMPLE	BV, ml	FV, ml	BV, ml	Used	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml
1											
2/3											
4/5											
6											
7											
8											
9/10											
11/12											
13											
14											

Comments: BLK-F.V. = 100ml spk @ 5cc
Spk- lot: 021404-A
6/4/04 JJS

Element One, Inc. Form 118 - Revision 6.0

elementOne **AIR TERMCING SAMPLE SUBMISSION FORM** Lab ID # **e3299**

Client ID/PO#: 877		Date Received: 5/25/04	Page: 2 of 2
CuRMComer: ACT		Results RequeRMCed: 6/9/04	Time Rec:
Address: 301 E Durham Road		Contact: Todd Brozell	Rec by: BGH
Cary, NC 27513		Email:actpc@aircontroltechniques.com	Via: Pickup
		Phone: 919-460-7811	Fax: 919-460-7897
HNO_3 Lot:	HF Lot:	HCl Lot:	
Volume Marked Y / N	Volume Loss Y / N / ?	pH < 2.0 Y / N	Ref. **Special**

	Sample Identification		Sample Identification
15	RMC Stone		
16	RMC Flyash		
17	RMC Cement		
18	RMC Sand		
19	CS Stone		
20	CS Flyash		
21	CS Cement		
22	CS Sand		

Elements to Analyze: As mg/Kg.

	Front Half		Back Half			HNO_3 (A)		$KMnO_4$ (B)		HCl (C)	
SAMPLE	BV, ml	FV, ml	BV, ml	Used	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml	BV, ml	FV, ml
15											
16											
17											
18											
19											
20											
21											
22											

Comments:

elementOne

Method 29 Weight Worksheet

Lab ID # e3299

Client: ACT

Date Digested: 6/4/04 Initials: JJ Worksheet Prepared by: JJ

Sample Lab ID	Sample Description	Sample Weight (g)	Weight Digested (g)	Spike	Prep Volume (ml)	Dilution Volume (ml)	Units
3299-1	M-5 FH Filter	N/A	Full	N/A	100 ml		µg/L
2/3	↓	↓	↓	↓	↓		↓
4/5							
6							
7							
8							
9/10							
11/12							
13							
14	↓	↓	↓	↓	↓		↓

elementOne **SOLID SAMPLE WEIGHT WORKSHEET** Lab ID # e 3299

Date Started: 6-7-04 Finished: _____ Balance check: 2.0000g = 2.0002 by: JB

Reference Method: _____ HNO_3 Lot #: 1103080 HCl Lot#: 4103070 Analyst: DW

Spiking Solutions Lot# A: 021404-A B: _____ C: _____ D: _____

E: _____ Other: _____ Data File: _____ QA checked: _____

SAMPLE ID	WEIGHT, g	SPIKE, µg	FINAL VOL., ml	DILUTION	SPIKE µg/L	ELEMENTS
Blank			100			
Blank, spike		5				
3299-15	0.9852					
-15 Dup	0.9986					
-16	1.0039					
-17	1.0102					
-17 spk	1.0032	5				
-18	0.9971					
-19	0.9987					
-19 Dup	1.0201					
-20	1.0093					
-21	1.0102					
-21 spk	1.0083	5				
-22	1.0076					
			LRB	F.V. 100	✓	
			LRB spk	F.V. 100	w/ 0.2 mL of spiking sol'n 021404-A 6-7-04 DW	

NOTES:

Element One, Inc. Form 100 - Revision 1.0

Dataset Report

,er Name: dwoodman
Computer Name: ICPMS1
Dataset File Path: c:\elandata\dataset\060804-1\
Report Date/Time: Tuesday, June 08, 2004 14:39:20

Daphne Woodman
6-8-04

Autosampler Position: 75

The Dataset

Time	Sample ID	Batch ID	Read Type	Description	Init. Quant	Prep. Vol.	Aliquot. Vol.	Diluted V
10:18:43 Tue 08-Jun-04	Blank		Blank					
10:20:16 Tue 08-Jun-04	Standard 1		Standard #1					
10:21:49 Tue 08-Jun-04	Standard 2		Standard #2					
10:23:23 Tue 08-Jun-04	Standard 3		Standard #3					
10:24:58 Tue 08-Jun-04	QC Std 1		QC Std #1					
10:26:31 Tue 08-Jun-04	QC Std 2		QC Std #2					
10:28:03 Tue 08-Jun-04	QC Std 3		QC Std #3					
10:29:36 Tue 08-Jun-04	QC Std 4		QC Std #4					
10:31:09 Tue 08-Jun-04	QC Std 5		QC Std #5					
10:32:43 Tue 08-Jun-04	QC Std 6		QC Std #6					
10:34:17 Tue 08-Jun-04	QC Std 7		QC Std #7					
10:35:51 Tue 08-Jun-04	QC Std 8		QC Std #8					
10:37:26 Tue 08-Jun-04	LRB		Sample	ACT				
10:39:01 Tue 08-Jun-04	LRB		Spike - 1	ACT				
10:40:35 Tue 08-Jun-04	3299-1 great 10		Sample	ACT				
J:42:07 Tue 08-Jun-04	3299-2 great 10		Sample	ACT				
10:43:39 Tue 08-Jun-04	3299-2 great 10		QC Duplicate	ACT				
10:45:12 Tue 08-Jun-04	3299-4		Sample	ACT				
10:46:44 Tue 08-Jun-04	3299-4		Spike - 1	ACT				
10:48:17 Tue 08-Jun-04	3299-6		Sample	ACT				
10:49:50 Tue 08-Jun-04	3299-7		Sample	ACT				
10:51:24 Tue 08-Jun-04	3299-8		Sample	ACT				
10:52:56 Tue 08-Jun-04	QC Std 3		QC Std #3					
10:54:29 Tue 08-Jun-04	QC Std 4		QC Std #4					
10:56:02 Tue 08-Jun-04	3299-9		Sample	ACT				
10:57:37 Tue 08-Jun-04	3299-9		QC Duplicate	ACT				
10:59:11 Tue 08-Jun-04	3299-11		Sample	ACT				
11:00:46 Tue 08-Jun-04	3299-11		Spike - 1	ACT				
11:02:20 Tue 08-Jun-04	3299-13		Sample	ACT				
11:03:53 Tue 08-Jun-04	3299-14		Sample	ACT				
11:05:26 Tue 08-Jun-04	3299-1 less 10		Sample	ACT				
11:06:58 Tue 08-Jun-04	3299-2 less 10		Sample	ACT				
11:08:31 Tue 08-Jun-04	3299-2 less 10		QC Duplicate	ACT				
11:10:04 Tue 08-Jun-04	3299-4		Sample	ACT				
11:11:37 Tue 08-Jun-04	3299-4		Spike - 1	ACT				
11:13:10 Tue 08-Jun-04	QC Std 3		QC Std #3					
11:14:42 Tue 08-Jun-04	QC Std 4		QC Std #4					
11:16:15 Tue 08-Jun-04	3299-6		Sample	ACT				
11:17:49 Tue 08-Jun-04	3299-8		Sample	ACT				
11:19:23 Tue 08-Jun-04	3299-9		Sample	ACT				
1:20:58 Tue 08-Jun-04	3299-9		QC Duplicate	ACT				
11:22:33 Tue 08-Jun-04	3299-11		Sample	ACT				
11:24:07 Tue 08-Jun-04	3299-11		Spike - 1	ACT				

spiked wl only 2.5 ug. see below

matrix problem

11:25:40 Tue 08-Jun-04	3299-13		Sample	ACT
11:27:14 Tue 08-Jun-04	LRB 15 - 22		Sample	ACT
11:28:47 Tue 08-Jun-04	LRB 15 - 22		Spike - 1	ACT
1:30:20 Tue 08-Jun-04	3299-15		Sample	ACT
11:31:54 Tue 08-Jun-04	3299-15		QC Duplicate	ACT
11:33:26 Tue 08-Jun-04	QC Std 3		QC Std #3	
11:34:59 Tue 08-Jun-04	QC Std 4		QC Std #4	
11:36:32 Tue 08-Jun-04	3299-16		Sample	ACT
11:38:05 Tue 08-Jun-04	3299-17		Sample	ACT
11:39:39 Tue 08-Jun-04	3299-17		Spike - 1	ACT
11:41:13 Tue 08-Jun-04	3299-18		Sample	ACT
11:42:48 Tue 08-Jun-04	3299-19		Sample	ACT
11:44:23 Tue 08-Jun-04	3299-19		QC Duplicate	ACT
11:45:58 Tue 08-Jun-04	3299-20		Sample	ACT
11:47:31 Tue 08-Jun-04	3299-21		Sample	ACT
11:49:05 Tue 08-Jun-04	3299-21		Spike - 1	ACT
11:50:38 Tue 08-Jun-04	3299-22		Sample	ACT
11:52:11 Tue 08-Jun-04	QC Std 3		QC Std #3	
11:53:44 Tue 08-Jun-04	QC Std 4		QC Std #4	
12:02:19 Tue 08-Jun-04	Blank		Blank	
12:03:51 Tue 08-Jun-04	Standard 1		Standard #1	
12:05:25 Tue 08-Jun-04	Standard 2		Standard #2	
12:06:59 Tue 08-Jun-04	Standard 3		Standard #3	
12:08:33 Tue 08-Jun-04	QC Std 1		QC Std #1	
12:10:07 Tue 08-Jun-04	QC Std 2		QC Std #2	
12:11:39 Tue 08-Jun-04	QC Std 3		QC Std #3	
12:13:12 Tue 08-Jun-04	QC Std 4		QC Std #4	
12:14:44 Tue 08-Jun-04	QC Std 5		QC Std #5	
2:16:18 Tue 08-Jun-04	QC Std 6		QC Std #6	
12:17:52 Tue 08-Jun-04	QC Std 7		QC Std #7	
12:19:26 Tue 08-Jun-04	QC Std 8		QC Std #8	
12:21:00 Tue 08-Jun-04	LRB		Sample	ACT
12:22:34 Tue 08-Jun-04	LRB		Spike - 1	ACT
12:24:08 Tue 08-Jun-04	3299-11 great10		Sample	ACT
12:25:41 Tue 08-Jun-04	3299-11 great10		Spike - 1	ACT
12:27:15 Tue 08-Jun-04	3299-16		Sample	ACT
12:28:48 Tue 08-Jun-04	3299-17		Sample	ACT
12:30:22 Tue 08-Jun-04	3299-17		Spike - 1	ACT
12:31:56 Tue 08-Jun-04	3299-18		Sample	ACT
12:33:31 Tue 08-Jun-04	3299-19		Sample	ACT
12:35:06 Tue 08-Jun-04	3299-19		QC Duplicate	ACT
12:36:40 Tue 08-Jun-04	QC Std 3		QC Std #3	
12:38:12 Tue 08-Jun-04	QC Std 4		QC Std #4	
12:39:45 Tue 08-Jun-04	3299-20	x5	Sample	ACT
12:41:20 Tue 08-Jun-04	3299-21	x2	Sample	ACT
12:42:54 Tue 08-Jun-04	3299-21	x2	Spike - 2	ACT
12:44:28 Tue 08-Jun-04	3299-22		Sample	ACT
12:46:01 Tue 08-Jun-04	QC Std 3		QC Std #3	
12:47:33 Tue 08-Jun-04	QC Std 4		QC Std #4	
12:55:58 Tue 08-Jun-04	Blank		Blank	
12:57:30 Tue 08-Jun-04	Standard 1		Standard #1	
12:59:03 Tue 08-Jun-04	Standard 2		Standard #2	
13:00:37 Tue 08-Jun-04	Standard 3		Standard #3	
3:02:12 Tue 08-Jun-04	QC Std 1		QC Std #1	
13:03:46 Tue 08-Jun-04	QC Std 2		QC Std #2	
13:05:18 Tue 08-Jun-04	QC Std 3		QC Std #3	

QC failed ∴ all data invalid

matrix problem

matrix problem

QC failed ∴ data invalid

13:06:50 Tue 08-Jun-04	QC Std 4		QC Std #4		
13:08:23 Tue 08-Jun-04	QC Std 5		QC Std #5		
13:09:57 Tue 08-Jun-04	QC Std 6		QC Std #6		
3:11:31 Tue 08-Jun-04	QC Std 7		QC Std #7		
13:13:05 Tue 08-Jun-04	QC Std 8		QC Std #8		
13:14:40 Tue 08-Jun-04	3299-11 great	10x5	Sample	ACT	matrix problems
13:16:14 Tue 08-Jun-04	3299-11 great	10x5	Spike - 1	ACT	
13:17:48 Tue 08-Jun-04	3299-16	x5	Sample	ACT	
13:19:22 Tue 08-Jun-04	3299-17	x5	Sample	ACT	
13:20:56 Tue 08-Jun-04	3299-17	x5	Spike - 1	ACT	
13:22:30 Tue 08-Jun-04	3299-19	x2	Sample	ACT	
13:24:04 Tue 08-Jun-04	3299-19	x2	QC Duplicate	ACT	
13:25:38 Tue 08-Jun-04	3299-20	x5	Sample	ACT	
13:27:12 Tue 08-Jun-04	3299-21	x5	Sample	ACT	matrix problems
13:28:46 Tue 08-Jun-04	3299-21	x5	Spike - 1	ACT	
13:30:19 Tue 08-Jun-04	QC Std 3		QC Std #3		
13:31:51 Tue 08-Jun-04	QC Std 4		QC Std #4		
13:33:25 Tue 08-Jun-04	3299-22	x2	Sample	ACT	– IS is high
13:34:58 Tue 08-Jun-04	QC Std 3		QC Std #3		
13:36:30 Tue 08-Jun-04	QC Std 4		QC Std #4		
13:51:28 Tue 08-Jun-04	3299-11 great	10x10	Sample	ACT	
13:53:03 Tue 08-Jun-04	3299-11 great	10x10	Spike - 1	ACT	
13:54:38 Tue 08-Jun-04	3299-9 less 10	x10	Sample	ACT	
13:56:12 Tue 08-Jun-04	3299-9 less 10	x10	QC Duplicate	ACT	
13:57:47 Tue 08-Jun-04	3299-17	x10	Sample	ACT	bad spike
13:59:21 Tue 08-Jun-04	3299-17	x10	Spike - 1	ACT	
14:00:55 Tue 08-Jun-04	3299-18	x10	Sample	ACT	
14:05:38 Tue 08-Jun-04	3299-21	x10	Sample	ACT	
.4:07:12 Tue 08-Jun-04	3299-21	x10	Spike - 1	ACT	
14:08:45 Tue 08-Jun-04	QC Std 3		QC Std #3		
14:10:18 Tue 08-Jun-04	QC Std 4		QC Std #4		
14:11:51 Tue 08-Jun-04	3299-22	x5	Sample	ACT	
14:13:24 Tue 08-Jun-04	QC Std 3		QC Std #3		
14:14:57 Tue 08-Jun-04	QC Std 4		QC Std #4		
14:16:53 Tue 08-Jun-04	3299-17	x20	Sample	ACT	bad spike
14:18:27 Tue 08-Jun-04	3299-17	x20	Spike - 1	ACT	
14:20:01 Tue 08-Jun-04	QC Std 3		QC Std #3		
14:21:33 Tue 08-Jun-04	QC Std 4		QC Std #4		
14:27:45 Tue 08-Jun-04	3299-17	x50	Sample	ACT	
14:29:20 Tue 08-Jun-04	3299-17	x50	Spike - 1	ACT	
14:30:53 Tue 08-Jun-04	QC Std 3		QC Std #3		
14:32:26 Tue 08-Jun-04	QC Std 4		QC Std #4		

elementOne **ICP-MS RUN SHEET** **3299**

Daphne Washington 6-8-04

\nalyst: __DBW____ Date: 06-08-04 **Solid Samples** ☐ / *Liquid Samples*

~/S Loc	Batch # for sample sets	Sample Lab ID	Sample Description	Type Sample QC Spike QC Dup QC Reg Blank	Spike concentratio	Prep Volume (ml)	Weight (g)	Aliquot (ml)	Diluted to Volume (ml)
12			LRB	S		100			
13			LRB	SS	Table #1	100			
14			3299-1 >10	S		100			
15			3299-2 >10	S		100			
16			3299-2 >10	SD		100			
17			3299-4 >10	S		100			
18			3299-4 >10	SS	Table #1	100			
19			3299-6 >10	S		100			
20			3299-7	S		100			
21			3299-8 >10	S		100			
22			3299-9 >10	S		100			
23			3299-9 >10	SD		100			
24			3299-11 >10	S		100			
25			3299-11 >10	SS	Table #1	100			
26			3299-13 >10	S		100			
27			3299-14	S		100			
28			3299-1 <10	S		100			
29			3299-2 <10	S		100			
30			3299-2 <10	SD		100			
31			3299-4 <10	S		100			
32			3299-4 <10	SS	Table #1	100			
33			3299-6 <10	S		100			

34			3299-8 <10	S		100			
35			3299-9 <10	S		100			
[illegible]			3299-9 <10	SD		100			
37			3299-11 <10	S		100			
38			3299-11 <10	SS	Table #1	100			
39			3299-13 <10	S		100			
40			LRB 15-22	S		100			
41			LRB 15-22	SS	Table #1	100			
42			3299-15	S		100	0.9852		
43			3299-15	SD		100	0.9986		
44			3299-16	S		100	1.0039		
45			3299-17	S		100	1.0102		
46			3299-17	SS	Table #1	100	1.0032		
47			3299-18	S		100	0.9971		
[illegible]			3299-19	S		100	0.9987		
49			3299-19	SD		100	1.0201		
50			3299-20	S		100	1.0093		
51			3299-21	S		100	1.0102		
52			3299-21	SS	Table #1	100	1.0083		
53			3299-22	S		100	1.0076		
Dilutions and reruns									
54			LRB	S		100			
55			LRB	SS	Table #1	100			
56			3299-11 >10	S		100			
57			3299-11 >10	SS	Table #1	100			
44			3299-16	S		100	1.0039		
[illegible]			3299-17	S		100	1.0102		
46			3299-17	SS	Table #1	100	1.0032		

47			3299-18	S		100	0.9971		
48			3299-19	S		100	0.9987		
[illegible]			3299-19	SD		100	1.0201		
58			3299-20	S		100	1.0093	2.0	10
59			3299-21	S		100	1.0102	5.0	10
60			3299-21	SS	Table #2	100	1.0083	5.0	10
53			3299-22	S		100	1.0076		
61			3299-11 >10	S		100		2.0	10
62			3299-11 >10	SS	Table #1	100		2.0	10
63			3299-16	S		100	1.0039	2.0	10
64			3299-17	S		100	1.0102	2.0	10
65			3299-17	SS	Table #1	100	1.0102	2.0	10
66			3299-19	S		100	0.9987	5.0	10
67			3299-19	SD		100	1.0201	5.0	10
68			3299-21	S		100	1.0102	2.0	10
69			3299-21	SS	Table #1	100	1.0102	2.0	10
70			3299-22	S		100	1.0076	5.0	10
71			3299-11 >10	S		100		1.0	10
72			3299-11 >10	SS	Table #1	100		1.0	10
73			3299-9 <10	S		100		1.0	10
74			3299-9 <10	SD		100		1.0	10
75			3299-17	S		100	1.0102	1.0	10
76			3299-17	SS	Table #1	100	1.0102	1.0	10
77			3299-18	S		100	0.9971	1.0	10
80			3299-21	S		100	1.0102	1.0	10
81			3299-21	SS	Table #1	100	1.0102	1.0	10
82			3299-22	S		100	1.0076	2.0	10
83			3299-17	S		100	1.0102	0.5	10

84			3299-17	SS	Table #1	100	1.0102	0.5	10
85			3299-17	S		100	1.0102	0.2	10
.5			3299-17	SS	Table #1	100	1.0102	0.2	10

Spikes are post at 0.02ml of 25ppm spiking solution lot 021404-A in a final volume of 10ml.

Element One, Inc. Form 126 - Revision 0.0

Sample/Batch Report

ser Name: dwoodman
Computer Name: ICPMS1
Sample File: C:\elandata\Sample\x.sam
Report Date/Time: Tuesday, June 08, 2004 14:35:35

Daphne Woodman
6-8-04

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Init. Quant.	Prep. Vol.	Aliquot Vol.	Diluted Vol.	Solids Ratio
12		LRB	ACT						
13		LRB	ACT	Spike - 1					
14		3299-1 great	ACT						
15		3299-2 great	ACT						
16		3299-2 great	ACT	QC Duplicate					
17		3299-4	ACT						
18		3299-4	ACT	Spike - 1					
19		3299-6	ACT						
20		3299-7	ACT						
21		3299-8	ACT						
22		3299-9	ACT						
23		3299-9	ACT	QC Duplicate					
24		3299-11	ACT						
25		3299-11	ACT	Spike - 1					
26		3299-13	ACT						
27		3299-14	ACT						
28		3299-1 less 1	ACT						
29		3299-2 less 1	ACT						
30		3299-2 less 1	ACT	QC Duplicate					
31		3299-4	ACT						
32		3299-4	ACT	Spike - 1					
33		3299-6	ACT						
34		3299-8	ACT						
35		3299-9	ACT						
36		3299-9	ACT	QC Duplicate					
37		3299-11	ACT						
38		3299-11	ACT	Spike - 1					
39		3299-13	ACT						
40		LRB 15 - 22	ACT						
41		LRB 15 - 22	ACT	Spike - 1					
42		3299-15	ACT						
43		3299-15	ACT	QC Duplicate					
44		3299-16	ACT						
45		3299-17	ACT						
46		3299-17	ACT	Spike - 1					
47		3299-18	ACT						
48		3299-19	ACT						
49		3299-19	ACT	QC Duplicate					
50		3299-20	ACT						
51		3299-21	ACT						
52		3299-21	ACT	Spike - 1					
53		3299-22	ACT						
54		LRB	ACT						
55		LRB	ACT	Spike - 1					
56		3299-11 great	ACT						
57		3299-11 great	ACT	Spike - 1					
44		3299-16	ACT						
45		3299-17	ACT						
46		3299-17	ACT	Spike - 1					

47		3299-18	ACT	
48		3299-19	ACT	
49		3299-19	ACT	QC Duplicate
58	x5	3299-20	ACT	
59	x2	3299-21	ACT	
60	x2	3299-21	ACT	Spike - 2
53		3299-22	ACT	
61	x5	3299-11 great	ACT	
62	x5	3299-11 great	ACT	Spike - 1
63	x5	3299-16	ACT	
64	x5	3299-17	ACT	
65	x5	3299-17	ACT	Spike - 1
66	x2	3299-19	ACT	
67	x2	3299-19	ACT	QC Duplicate
58	x5	3299-20	ACT	
68	x5	3299-21	ACT	
69	x5	3299-21	ACT	Spike - 1
70	x2	3299-22	ACT	
71	x10	3299-11 great	ACT	
72	x10	3299-11 great	ACT	Spike - 1
73	x10	3299-9 less 1	ACT	
74	x10	3299-9 less 1	ACT	QC Duplicate
75	x10	3299-17	ACT	
76	x10	3299-17	ACT	Spike - 1
77	x10	3299-18	ACT	
80	x10	3299-21	ACT	
81	x10	3299-21	ACT	Spike - 1
82	x5	3299-22	ACT	
83	x20	3299-17	ACT	
84	x20	3299-17	ACT	Spike - 1

File Edit Analysis Options Window Help

Timing | Processing | Equation | Calibration | Sampling | Devices... | QC...

	Analyte	Mass (amu)	Spike Table 1 (Conc.)	Spike Table 1 Det. Limit (Conc.)	Spike Table 2 (Conc.)	Spike Table 2 Det. Limit (Conc.)	Spike Table 3 (Conc.)	Spike Table 3 Det. Limit (Conc.)	Spike Table 4 (Conc.)	D
1	Li	6.0151								
2	Sc	44.9559	50	1	25	1	100	1		
3	As	74.9216	50	1	25	1	100	1		
4	Ho	164.93								
5	Kr	82.9141	50	1	25	1	100	1		

Report | Notes

Frequency | QC Std Int Stds | Calibration Stds | Sample Int Stds | Sample | Spike | Dilution | Duplicate | Spike Tables | QC Action Controls | Autosampler

help, Press F1 NUM LOG

Start | GpibManager | ELAN Instrument Co... | ELAN Edit/Repr... | Microsoft Word - ICP... 2:39 PM

elementOne

Particle Sizing Particulate

Lab # e 3299

Client ACT

Balance checks Date: 6/1/04 2g= 1.9999
Date: 6/2/04 2g= 2.0000
Date:

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/04 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1029	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
3299-FIL.-1		736	3.5841	7:50	3.7010	7:15	3.7010			0.1129	4.0
1<2.5	42	2369	4.0979	7:30	4.0999						2.0
1<10>2.5	142	2362	3.8927	7:30	3.9714						78.7
1>10	134	602	4.1108	7:30	4.3581						247.3

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/03 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1030	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
FIL.-2/3		2353	3.3837	7:50	3.5096	7:15	3.5091			0.1140	11.4
2/3<2.5	38	2375	3.6574	7:30	3.6579						0.5
2/3<10>2.5	120	2386	3.6451	7:30	3.6988						53.7
2/3>10	102	2388	3.8492	7:30	4.0369						187.7

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/04 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1031	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
FIL.-4/5		2368	3.2839	7:50	3.4043	7:15	3.4042			0.1132	7.1
4/5<2.5	64	2349	3.1181	7:30	3.1206						2.5
4/5<10>2.5	140	770	3.8243	7:30	3.9132						88.9
4/5>10	130	732	3.6796	7:30	4.0309						351.3

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/04 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1028	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
FIL.-6		2400	3.7154	7:50	3.8296	7:15	3.8296			0.1145	0.0
6<2.5	52	2335	3.9854	7:30	3.9858						0.4
6<10>2.5	64	2355	3.7978	7:30	3.7977						0.0
6>10	46	2416	3.7936	7:30	3.7942						0.6

elementOne

Particle Sizing Particulate

Lab # e 3299

Client ACT

Balance checks Date: 6/1/04 2g= 1.9999
Date: 6/2/04 2g= 2.0000
Date:

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
3299-7	68	2382	3.8057	7:30	3.8060	15:15	3.8057				0.0
											0.0
											0.0
											0.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/04 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1025	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
FIL.-8		2341	3.4809	7:50	3.6063	7:15	3.6061			0.1160	9.2
8<2.5	40	2378	3.6455	7:30	3.6553	15:15	3.6553				9.8
8<10>2.5	126	2337	3.6301	7:30	3.7391	15:15	3.7391				109.0
8>10	96	603	4.1406	7:30	4.6797	15:15	4.6792				538.6

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/04 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1026	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
FIL.-9/10		2354	3.5790	7:50	3.7075	7:15	3.7072			0.1117	16.5
9/10<2.5	38	921	3.8660	7:30	3.8725	15:15	3.8729				6.5
9/10<10>2.5	90	2340	3.7273	7:30	3.9772	15:15	3.9769				249.6
9/10>10	88	2351	3.9476	7:30	4.6794	15:15	4.6789				731.3

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/04 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1027	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
FIL.-11/12		2344	3.5171	7:50	3.6449	7:15	3.6444			0.1144	12.9
11/12<2.5	130	2357	3.9035	7:30	3.9071	15:15	3.9076				3.6
1/12<10>2.5	120	2345	3.3538	7:30	3.5750	15:15	3.5755				221.2
11/12>10	112	2406	3.9553	7:30	5.5410	15:15	5.5415				1585.7

elementOne

Particle Sizing Particulate

Lab # e 3299

Client ACT

Balance checks Date: 6/1/04 2g= 1.9999
Date: 6/2/04 2g= 2.0000
Date:

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/1/04 / 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID 1032	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
FIL.-13		2363	3.8395	7:50	3.9494	7:15	3.9489			0.1109	0.0
13<2.5	26	2379	3.6363	7:30	3.6366	15:15	3.6365				0.2
13<10>2.5	70	2402	3.9783	7:30	3.9791	15:15	3.9796				0.8
13>10	72	2371	3.8142	7:30	3.8167	15:15	3.8168				2.5

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
3299-14	130	2366	3.9246	7:30	3.9251	15:15	3.9256				0.5
											0.0
											0.0
											0.0

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date 6/2/04 Initals IJJ		Date 6/2/04 Initals IJJ		Date Initals		Filter ID	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg
E1-BLANK	100	2396	3.66240	7:30	3.6619	15:15	3.6624				

Sample ID #	Acetone Volume, ml	Bag ID	Bag Tare, g	Date Initals		Date Initals		Date Initals		Filter ID	
				Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Time	Bag & Filter Weight, g	Filter Tare Weight, g	PM Catch Weight, mg

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Tuesday, June 08, 2004 10:18:43
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	256864.8		ppb
|-	Sc	45	420215.9		ppb
|	As	75	-1034.7		ppb
|>	Rh	103	902867.7		ppb
	Ho	165	1457675.5		ppb
	Kr	83	210		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Tuesday, June 08, 2004 10:20:16
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	253317.8		ppb
|-	Sc	45	428245.7		ppb
|	As	75	41467.6	14.11088	ppb
|>	Rh	103	885951.2		ppb
	Ho	165	1436391.1		ppb
	Kr	83	198.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Tuesday, June 08, 2004 10:21:49
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	249395		ppb
|-	Sc	45	423874		ppb
|	As	75	82173.1	27.83322	ppb
|>	Rh	103	866931.6		ppb
	Ho	165	1401252.4		ppb
	Kr	83	224.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Tuesday, June 08, 2004 10:23:23
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	242902.3		ppb
|-	Sc	45	429911.6		ppb
|	As	75	395083.4	99.81035	ppb
|>	Rh	103	858875.4		ppb
	Ho	165	1400992		ppb
	Kr	83	184		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Tuesday, June 08, 2004 10:24:58
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	243282.2		ppb
|-	Sc	45	415606.3		ppb
|	As	75	39229.3	10.15016	ppb
|>	Rh	103	857421.5		ppb
	Ho	165	1379391.6		ppb
	Kr	83	185.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Tuesday, June 08, 2004 10:26:31
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	258349.3		ppb
|-	Sc	45	429842.5		ppb
|	As	75	3185.7	1.02274	ppb
|>	Rh	103	889527.4		ppb
	Ho	165	1451272.6		ppb
	Kr	83	207.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 10:28:03
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	256905.7		ppb
|-	Sc	45	432947.2		ppb
|	As	75	-1106.7	-0.0189	ppb
|>	Rh	103	897690.6		ppb
	Ho	165	1450124.6		ppb
	Kr	83	216.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 10:29:36
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	254931.8		ppb
|-	Sc	45	436044.4		ppb
|	As	75	221513.6	55.18716	ppb
|>	Rh	103	872550.5		ppb
	Ho	165	1423521.7		ppb
	Kr	83	201.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Tuesday, June 08, 2004 10:31:09
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	241407.5		ppb
|-	Sc	45	417704.6		ppb
|	As	75	1959539.5	540.75612	ppb
|>	Rh	103	784697.5		ppb
	Ho	165	1311307.5		ppb
	Kr	83	242.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Tuesday, June 08, 2004 10:32:43
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	336435.1		ppb
|-	Sc	45	484580.6		ppb
|	As	75	4604.3	1.45356	ppb
|>	Rh	103	825926.5		ppb
	Ho	165	1436980.4		ppb
	Kr	83	342.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Tuesday, June 08, 2004 10:34:17
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	338479.3		ppb
|-	Sc	45	471052.1		ppb
|	As	75	36957.6	10.40912	ppb
|>	Rh	103	787038.5		ppb
	Ho	165	1383066.9		ppb
	Kr	83	362.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Tuesday, June 08, 2004 10:35:51
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	334046.1		ppb
|-	Sc	45	499104.7		ppb
|	As	75	460.7	0.36076	ppb
|>	Rh	103	885117.7		ppb
	Ho	165	1495125.4		ppb
	Kr	83	155		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Tuesday, June 08, 2004 10:37:26
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	326154.6		ppb
|-	Sc	45	566828.2		ppb
|	As	75	3177.9	1.04345	ppb
|>	Rh	103	865102.1		ppb
	Ho	165	1399705.3		ppb
	Kr	83	156.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Tuesday, June 08, 2004 10:39:01
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	293940.7		ppb
|-	Sc	45	513270.3		ppb
|	As	75	108548.3	27.08103	ppb
|>	Rh	103	875489.6		ppb
	Ho	165	1412963.2		ppb
	Kr	83	162.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-1 great 10
Sample Date/Time: Tuesday, June 08, 2004 10:40:35
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	313699.5		ppb
|-	Sc	45	1266740.1		ppb
|	As	75	206595.5	70.07014	ppb
|>	Rh	103	640328		ppb
	Ho	165	1305865.1		ppb
	Kr	83	1075.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-2 great 10
Sample Date/Time: Tuesday, June 08, 2004 10:42:07
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	328424.5		ppb
|-	Sc	45	951901.9		ppb
|	As	75	139561.1	46.07818	ppb
|>	Rh	103	659027.2		ppb
	Ho	165	1326551.4		ppb
	Kr	83	1079.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-2 great 10
Sample Date/Time: Tuesday, June 08, 2004 10:43:39
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	320006.3		ppb
|-	Sc	45	917317.9		ppb
|	As	75	135636.1	46.5523	ppb
|>	Rh	103	633902		ppb
	Ho	165	1295042.2		ppb
	Kr	83	881.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-4
Sample Date/Time: Tuesday, June 08, 2004 10:45:12
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	288302.6		ppb
|-	Sc	45	1826402.8		ppb
|	As	75	253044.2	87.8351	ppb
|>	Rh	103	625172.2		ppb
	Ho	165	1249379.9		ppb
	Kr	83	1176.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-4
Sample Date/Time: Tuesday, June 08, 2004 10:46:44
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	256895.1		ppb
|-	Sc	45	1805146.9		ppb
|	As	75	410094.4	137.13334	ppb
|>	Rh	103	648505.1		ppb
	Ho	165	1259309.3		ppb
	Kr	83	1292.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-6
Sample Date/Time: Tuesday, June 08, 2004 10:48:17
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	270122.1		ppb
|-	Sc	45	451658.9		ppb
|	As	75	1156.1	0.5651	ppb
|>	Rh	103	788705.6		ppb
	Ho	165	1473065.8		ppb
	Kr	83	156.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-7
Sample Date/Time: Tuesday, June 08, 2004 10:49:50
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	261465.7		ppb
|-	Sc	45	456398.2		ppb
|	As	75	-14.9	0.24369	ppb
|>	Rh	103	804816.1		ppb
	Ho	165	1498571.8		ppb
	Kr	83	156.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-8
Sample Date/Time: Tuesday, June 08, 2004 10:51:24
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	226745.2		ppb
|-	Sc	45	1376387.6		ppb
|	As	75	211108.4	69.06673	ppb
|>	Rh	103	663920.5		ppb
	Ho	165	1246856.1		ppb
	Kr	83	1619.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 10:52:56
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	232353.5		ppb
|-	Sc	45	328976.2		ppb
|	As	75	-732.8	0.04776	ppb
|>	Rh	103	791411.5		ppb
	Ho	165	1309433.2		ppb
	Kr	83	167.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 10:54:29
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	225947.1		ppb
|-	Sc	45	370004.3		ppb
|	As	75	186928.1	52.03761	ppb
|>	Rh	103	781088.3		ppb
	Ho	165	1439975.8		ppb
	Kr	83	184		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-9
Sample Date/Time: Tuesday, June 08, 2004 10:56:02
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	192180.7		ppb
|-	Sc	45	1376455		ppb
|	As	75	459533.8	156.62114	ppb
|>	Rh	103	636099.2		ppb
	Ho	165	1172214.5		ppb
	Kr	83	2671.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-9
Sample Date/Time: Tuesday, June 08, 2004 10:57:37
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	178154.9		ppb
|-	Sc	45	1341626.2		ppb
|	As	75	443286.5	155.32305	ppb
|>	Rh	103	618644.1		ppb
	Ho	165	1168810.5		ppb
	Kr	83	2794.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11
Sample Date/Time: Tuesday, June 08, 2004 10:59:11
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	85512.2		ppb
|-	Sc	45	831912.3		ppb
|	As	75	201584	260.46169	ppb
|>	Rh	103	167729.5		ppb
	Ho	165	932833.7		ppb
	Kr	83	2720.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11
Sample Date/Time: Tuesday, June 08, 2004 11:00:46
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	67510.2		ppb
|-	Sc	45	844865.2		ppb
|	As	75	214751.3	404.02784	ppb
|>	Rh	103	115122.3		ppb
	Ho	165	724327.3		ppb
	Kr	83	2803.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-13
Sample Date/Time: Tuesday, June 08, 2004 11:02:20
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	175633		ppb
|-	Sc	45	317082.4		ppb
|	As	75	2675.7	0.83621	ppb
|>	Rh	103	984309.4		ppb
	Ho	165	1567903.6		ppb
	Kr	83	208.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-14
Sample Date/Time: Tuesday, June 08, 2004 11:03:53
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	179276		ppb
|-	Sc	45	317558.2		ppb
|	As	75	-184.4	0.20836	ppb
|>	Rh	103	1006618		ppb
	Ho	165	1560109.1		ppb
	Kr	83	196.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-1 less 10
Sample Date/Time: Tuesday, June 08, 2004 11:05:26
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	215008.4		ppb
|-	Sc	45	2404781.4		ppb
|	As	75	238720.8	66.61035	ppb
|>	Rh	103	778448.8		ppb
	Ho	165	1303991.4		ppb
	Kr	83	1704.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-2 less 10
Sample Date/Time: Tuesday, June 08, 2004 11:06:58
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	186242.2		ppb
|-	Sc	45	1443663.1		ppb
|	As	75	84782.3	23.89274	ppb
|>	Rh	103	775966.8		ppb
	Ho	165	1333147.4		ppb
	Kr	83	1306.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-2 less 10
Sample Date/Time: Tuesday, June 08, 2004 11:08:31
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	168741.1		ppb
|-	Sc	45	1278564.1		ppb
|	As	75	77547.6	22.18408	ppb
|>	Rh	103	765047.6		ppb
	Ho	165	1387318.9		ppb
	Kr	83	1223.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-4
Sample Date/Time: Tuesday, June 08, 2004 11:10:04
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	157727.7		ppb
|-	Sc	45	1496621.9		ppb
|	As	75	172974.5	53.32509	ppb
|>	Rh	103	705241		ppb
	Ho	165	1345360.1		ppb
	Kr	83	1439.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-4
Sample Date/Time: Tuesday, June 08, 2004 11:11:37
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	148393.7		ppb
|-	Sc	45	1489501.8		ppb
|	As	75	280547.4	91.45435	ppb
|>	Rh	103	665668.7		ppb
	Ho	165	1305568		ppb
	Kr	83	1316.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 11:13:10
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	138686.7		ppb
|-	Sc	45	199569.1		ppb
|	As	75	-102.4	0.21988	ppb
|>	Rh	103	790146.3		ppb
	Ho	165	1276422.3		ppb
	Kr	83	142.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 11:14:42
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	135936.5		ppb
|-	Sc	45	226449.1		ppb
|	As	75	153981.5	42.89158	ppb
|>	Rh	103	781517		ppb
	Ho	165	1446199.2		ppb
	Kr	83	158		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-6
Sample Date/Time: Tuesday, June 08, 2004 11:16:15
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	184629.8		ppb
|-	Sc	45	1200471.1		ppb
|	As	75	3115.4	1.10235	ppb
|>	Rh	103	788908.5		ppb
	Ho	165	1441829.7		ppb
	Kr	83	941.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-8
Sample Date/Time: Tuesday, June 08, 2004 11:17:49
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	156392.4		ppb
|-	Sc	45	1190012.1		ppb
|	As	75	73543.6	24.04998	ppb
|>	Rh	103	668744.6		ppb
	Ho	165	1355690.8		ppb
	Kr	83	1141.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-9
Sample Date/Time: Tuesday, June 08, 2004 11:19:23
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	140480.1		ppb
|-	Sc	45	1454826.7		ppb
|	As	75	300716.8	107.51721	ppb
|>	Rh	103	606716		ppb
	Ho	165	1298813.8		ppb
	Kr	83	1683.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-9
Sample Date/Time: Tuesday, June 08, 2004 11:20:58
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	134236.7		ppb
|-	Sc	45	1470163.8		ppb
|	As	75	289573.8	108.68208	ppb
|>	Rh	103	577922.2		ppb
	Ho	165	1264523.3		ppb
	Kr	83	1378.5		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11
Sample Date/Time: Tuesday, June 08, 2004 11:22:33
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	137893.5		ppb
|-	Sc	45	1358358.8		ppb
|	As	75	274388.2	98.21949	ppb
|>	Rh	103	606125.4		ppb
	Ho	165	1314962.7		ppb
	Kr	83	1363.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11
Sample Date/Time: Tuesday, June 08, 2004 11:24:07
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	133052.6		ppb
|-	Sc	45	1409118		ppb
|	As	75	366590.2	135.6482	ppb
|>	Rh	103	585960.9		ppb
	Ho	165	1283966.7		ppb
	Kr	83	1227.8		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-13
Sample Date/Time: Tuesday, June 08, 2004 11:25:40
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	155894.2		ppb
|-	Sc	45	1030870.3		ppb
|	As	75	2450.1	0.98162	ppb
|>	Rh	103	723019.8		ppb
	Ho	165	1421546.6		ppb
	Kr	83	781.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB 15 - 22
Sample Date/Time: Tuesday, June 08, 2004 11:27:14
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	139518.9		ppb
|-	Sc	45	204167.4		ppb
|	As	75	-2005.9	-0.32603	ppb
|>	Rh	103	755070.7		ppb
	Ho	165	1421894.4		ppb
	Kr	83	135.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB 15 - 22
Sample Date/Time: Tuesday, June 08, 2004 11:28:47
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	140828.3		ppb
|-	Sc	45	225610.6		ppb
|	As	75	143872.1	42.57925	ppb
|>	Rh	103	735514.1		ppb
	Ho	165	1391905.7		ppb
	Kr	83	133		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-15
Sample Date/Time: Tuesday, June 08, 2004 11:30:20
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	141688.2		ppb
|-	Sc	45	310207		ppb
|	As	75	-3118.6	-0.67402	ppb
|>	Rh	103	731138.4		ppb
	Ho	165	1538462.1		ppb
	Kr	83	445.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-15
Sample Date/Time: Tuesday, June 08, 2004 11:31:54
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	138438.4		ppb
|-	Sc	45	305039.2		ppb
|	As	75	-3729.7	-0.87897	ppb
|>	Rh	103	715540		ppb
	Ho	165	1497750.5		ppb
	Kr	83	523.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 11:33:26
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	134251.9		ppb
|-	Sc	45	207511.4		ppb
|	As	75	-695	0.05004	ppb
|>	Rh	103	759034.6		ppb
	Ho	165	1354825.4		ppb
	Kr	83	139.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 11:34:59
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	134624.7		ppb
|-	Sc	45	216373.7		ppb
|	As	75	146426	43.09626	ppb
|>	Rh	103	739652.3		ppb
	Ho	165	1438048.1		ppb
	Kr	83	148		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Tuesday, June 08, 2004 12:02:19
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	109093.1		ppb
|-	Sc	45	98320.3		ppb
|	As	75	-383.2		ppb
|>	Rh	103	429873.6		ppb
	Ho	165	1454955.3		ppb
	Kr	83	81		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Tuesday, June 08, 2004 12:03:51
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	106606.3		ppb
|-	Sc	45	101025		ppb
|	As	75	12705.1	6.81185	ppb
|>	Rh	103	416881.1		ppb
	Ho	165	1449364.6		ppb
	Kr	83	74.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Tuesday, June 08, 2004 12:05:25
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	103450.2		ppb
|-	Sc	45	101024.3		ppb
|	As	75	25706.3	13.94905	ppb
|>	Rh	103	411563.6		ppb
	Ho	165	1414532		ppb
	Kr	83	71		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Tuesday, June 08, 2004 12:06:59
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	101376.7		ppb
|-	Sc	45	101696.1		ppb
|	As	75	122485.3	99.89591	ppb
|>	Rh	103	397061.6		ppb
	Ho	165	1411573.8		ppb
	Kr	83	67.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Tuesday, June 08, 2004 12:08:33
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	102941.5		ppb
|-	Sc	45	96862.7		ppb
|	As	75	12201.4	10.13445	ppb
|>	Rh	103	400015		ppb
	Ho	165	1371867.5		ppb
	Kr	83	69.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Tuesday, June 08, 2004 12:10:07
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	106381.1		ppb
|-	Sc	45	98493.6		ppb
|	As	75	1024	1.10102	ppb
|>	Rh	103	407234		ppb
	Ho	165	1441017		ppb
	Kr	83	73		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 12:11:39
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	105861		ppb
|-	Sc	45	98705.6		ppb
|	As	75	-353.9	0.00572	ppb
|>	Rh	103	406408.2		ppb
	Ho	165	1412205.8		ppb
	Kr	83	72		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 12:13:12
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	104135.1		ppb
|-	Sc	45	100286.5		ppb
|	As	75	66179.4	54.19548	ppb
|>	Rh	103	396300.5		ppb
	Ho	165	1421483		ppb
	Kr	83	82.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Tuesday, June 08, 2004 12:14:44
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	93234.8		ppb
|-	Sc	45	98055		ppb
|	As	75	626663.7	534.48182	ppb
|>	Rh	103	378736		ppb
	Ho	165	1303415.8		ppb
	Kr	83	90		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Tuesday, June 08, 2004 12:16:18
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	113586		ppb
|-	Sc	45	131560.6		ppb
|	As	75	1607.8	1.41777	ppb
|>	Rh	103	460472.6		ppb
	Ho	165	1507486.6		ppb
	Kr	83	185		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Tuesday, June 08, 2004 12:17:52
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	111009.1		ppb
|-	Sc	45	133610.1		ppb
|	As	75	14956.7	10.52752	ppb
|>	Rh	103	471489		ppb
	Ho	165	1461281.4		ppb
	Kr	83	186.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Tuesday, June 08, 2004 12:19:26
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	108871.1		ppb
|-	Sc	45	118098.2		ppb
|	As	75	161	0.38867	ppb
|>	Rh	103	523177		ppb
	Ho	165	1480566.5		ppb
	Kr	83	80.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Tuesday, June 08, 2004 12:21:00
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	142345.6		ppb
|-	Sc	45	255139.6		ppb
|	As	75	1840.5	1.02124	ppb
|>	Rh	103	811354.2		ppb
	Ho	165	1328854.2		ppb
	Kr	83	134.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Date/Time: Tuesday, June 08, 2004 12:22:34
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	136715.2		ppb
|-	Sc	45	195828		ppb
|	As	75	123013.4	52.7269	ppb
|>	Rh	103	757321.3		ppb
	Ho	165	1382411.6		ppb
	Kr	83	118.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11 great10
Sample Date/Time: Tuesday, June 08, 2004 12:24:08
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	79793.5		ppb
|-	Sc	45	659860.1		ppb
|	As	75	157105.3	515.62013	ppb
|>	Rh	103	98412.2		ppb
	Ho	165	295637.9		ppb
	Kr	83	3296.6		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11 great10
Sample Date/Time: Tuesday, June 08, 2004 12:25:41
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	81345.8		ppb
|-	Sc	45	699621.3		ppb
|	As	75	177795.7	587.2088	ppb
|>	Rh	103	97788.5		ppb
	Ho	165	280580.2		ppb
	Kr	83	3548.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-16
Sample Date/Time: Tuesday, June 08, 2004 12:27:15
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	99547.7		ppb
|-	Sc	45	313605.6		ppb
|	As	75	769224.8	541.10359	ppb
|>	Rh	103	459182.6		ppb
	Ho	165	1585766.3		ppb
	Kr	83	802.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 12:28:48
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	74986.8		ppb
|-	Sc	45	299961.7		ppb
|	As	75	59992.3	222.27302	ppb
|>	Rh	103	87046		ppb
	Ho	165	196930.5		ppb
	Kr	83	2442.4		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 12:30:22
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	74983.6		ppb
|-	Sc	45	309447.3		ppb
|	As	75	82340	301.61719	ppb
|>	Rh	103	88184.3		ppb
	Ho	165	201837.4		ppb
	Kr	83	2409		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-18
Sample Date/Time: Tuesday, June 08, 2004 12:31:56
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	102567.1		ppb
|-	Sc	45	167749.6		ppb
|	As	75	5789.5	3.59369	ppb
|>	Rh	103	565113.5		ppb
	Ho	165	1411134.5		ppb
	Kr	83	137		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-19
Sample Date/Time: Tuesday, June 08, 2004 12:33:31
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	97187.4		ppb
|-	Sc	45	191351.7		ppb
|	As	75	-4821.5	-2.96254	ppb
|>	Rh	103	478626.2		ppb
	Ho	165	1299336.7		ppb
	Kr	83	239.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-19
Sample Date/Time: Tuesday, June 08, 2004 12:35:06
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	93378.9		ppb
|-	Sc	45	194803.1		ppb
|	As	75	-3602.2	-2.21825	ppb
|>	Rh	103	464019.1		ppb
	Ho	165	1237918.4		ppb
	Kr	83	255		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 12:36:40
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	91381.4		ppb
|-	Sc	45	96930.5		ppb
|	As	75	-343.1	0.01015	ppb
|>	Rh	103	400117.5		ppb
	Ho	165	1211111.8		ppb
	Kr	83	76.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 12:38:12
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	91623.2		ppb
|-	Sc	45	96464.8		ppb
|	As	75	65953.1	56.14465	ppb
|>	Rh	103	381186.1		ppb
	Ho	165	1269081.1		ppb
	Kr	83	75.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Date/Time: Tuesday, June 08, 2004 12:55:58
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	100859.6		ppb
|-	Sc	45	74642.4		ppb
|	As	75	-350.3		ppb
|>	Rh	103	271076.6		ppb
	Ho	165	1064766.3		ppb
	Kr	83	51.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Date/Time: Tuesday, June 08, 2004 12:57:30
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	98522.7		ppb
|-	Sc	45	77972.9		ppb
|	As	75	9037.8	11.19698	ppb
|>	Rh	103	270404		ppb
	Ho	165	1068558.3		ppb
	Kr	83	62.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Date/Time: Tuesday, June 08, 2004 12:59:03
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	95458.6		ppb
|-	Sc	45	77047.1		ppb
|	As	75	18627.2	22.71825	ppb
|>	Rh	103	268092.6		ppb
	Ho	165	1055987.5		ppb
	Kr	83	50.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Date/Time: Tuesday, June 08, 2004 13:00:37
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	95573.6		ppb
|-	Sc	45	78850.9		ppb
|	As	75	88295.9	99.79439	ppb
|>	Rh	103	262294.2		ppb
	Ho	165	1028590.8		ppb
	Kr	83	49		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Date/Time: Tuesday, June 08, 2004 13:02:12
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	95128.6		ppb
|-	Sc	45	75561.6		ppb
|	As	75	8692.6	10.24166	ppb
|>	Rh	103	260448.5		ppb
	Ho	165	1025280.2		ppb
	Kr	83	48		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Date/Time: Tuesday, June 08, 2004 13:03:46
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	100027.2		ppb
|-	Sc	45	77751.6		ppb
|	As	75	660.6	1.10655	ppb
|>	Rh	103	269328.1		ppb
	Ho	165	1068970.1		ppb
	Kr	83	52		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 13:05:18
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	98394.1		ppb
|-	Sc	45	77562.4		ppb
|	As	75	-326	0.02663	ppb
|>	Rh	103	271479.4		ppb
	Ho	165	1060261.9		ppb
	Kr	83	53.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 13:06:50
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	97378.5		ppb
|-	Sc	45	78180.4		ppb
|	As	75	49834.3	55.34175	ppb
|>	Rh	103	267812.7		ppb
	Ho	165	1065764.9		ppb
	Kr	83	53.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 5
Sample Date/Time: Tuesday, June 08, 2004 13:08:23
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	86049.3		ppb
|-	Sc	45	77704.2		ppb
|	As	75	469595	541.92841	ppb
|>	Rh	103	256147.6		ppb
	Ho	165	993109.6		ppb
	Kr	83	65.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 6
Sample Date/Time: Tuesday, June 08, 2004 13:09:57
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	98556.1		ppb
|-	Sc	45	94613.3		ppb
|	As	75	1010	1.38709	ppb
|>	Rh	103	296864.8		ppb
	Ho	165	1176417.3		ppb
	Kr	83	125.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 7
Sample Date/Time: Tuesday, June 08, 2004 13:11:31
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	94874		ppb
|-	Sc	45	97690.9		ppb
|	As	75	10380	10.29549	ppb
|>	Rh	103	309222.2		ppb
	Ho	165	1189845.7		ppb
	Kr	83	139		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 8
Sample Date/Time: Tuesday, June 08, 2004 13:13:05
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	97163.5		ppb
|-	Sc	45	91425.9		ppb
|	As	75	108.2	0.47296	ppb
|>	Rh	103	350218.2		ppb
	Ho	165	1257679.6		ppb
	Kr	83	51		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11 great10
Sample Date/Time: Tuesday, June 08, 2004 13:14:40
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	64636.9		ppb
|-	Sc	45	227814.7		ppb
|	As	75	53432.1	113.59335	ppb
|>	Rh	103	139435.4		ppb
	Ho	165	552791.4		ppb
	Kr	83	878.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11 great10
Sample Date/Time: Tuesday, June 08, 2004 13:16:14
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	87402.2		ppb
|-	Sc	45	238762.3		ppb
|	As	75	96247.7	146.81233	ppb
|>	Rh	103	194123.1		ppb
	Ho	165	755703.5		ppb
	Kr	83	925.1		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-16
Sample Date/Time: Tuesday, June 08, 2004 13:17:48
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	73600.5		ppb
|-	Sc	45	109377.4		ppb
|	As	75	128426.5	135.3929	ppb
|>	Rh	103	280955.6		ppb
	Ho	165	1039978.5		ppb
	Kr	83	156.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 13:19:22
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	68557.5		ppb
|-	Sc	45	117772.2		ppb
|	As	75	35324.8	76.70489	ppb
|>	Rh	103	136696.4		ppb
	Ho	165	445205.3		ppb
	Kr	83	314.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 13:20:56
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	76465.5		ppb
|-	Sc	45	120917.4		ppb
|	As	75	72249.8	142.17202	ppb
|>	Rh	103	150492		ppb
	Ho	165	482037.7		ppb
	Kr	83	315.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-19
Sample Date/Time: Tuesday, June 08, 2004 13:22:30
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	91182		ppb
|-	Sc	45	128667.5		ppb
|	As	75	-1075.5	-0.46481	ppb
|>	Rh	103	374581.7		ppb
	Ho	165	1228620.4		ppb
	Kr	83	115.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-19
Sample Date/Time: Tuesday, June 08, 2004 13:24:04
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	86639.2		ppb
|-	Sc	45	131717.4		ppb
|	As	75	-1600.4	-0.88515	ppb
|>	Rh	103	373364.7		ppb
	Ho	165	1201696.7		ppb
	Kr	83	123		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-20
Sample Date/Time: Tuesday, June 08, 2004 13:25:38
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	88144.9		ppb
|-	Sc	45	138267.6		ppb
|	As	75	179236.5	161.52908	ppb
|>	Rh	103	328581.1		ppb
	Ho	165	1196651.3		ppb
	Kr	83	217.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-21
Sample Date/Time: Tuesday, June 08, 2004 13:27:12
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	80611.9		ppb
|-	Sc	45	129946.8		ppb
|	As	75	11054.7	19.84262	ppb
|>	Rh	103	167711.3		ppb
	Ho	165	537873.6		ppb
	Kr	83	296		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-21
Sample Date/Time: Tuesday, June 08, 2004 13:28:46
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	82892.9		ppb
|-	Sc	45	131621.8		ppb
|	As	75	49159.3	84.17783	ppb
|>	Rh	103	173258.5		ppb
	Ho	165	557419.7		ppb
	Kr	83	287.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 13:30:19
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	93662.1		ppb
|-	Sc	45	75452.4		ppb
|	As	75	-100.1	0.27141	ppb
|>	Rh	103	270349.9		ppb
	Ho	165	941631.5		ppb
	Kr	83	51.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 13:31:51
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	92963.2		ppb
|-	Sc	45	75337.5		ppb
|	As	75	47824.8	54.4424	ppb
|>	Rh	103	261328.7		ppb
	Ho	165	953679.4		ppb
	Kr	83	59		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-22
Sample Date/Time: Tuesday, June 08, 2004 13:33:25
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	88876.5		ppb
|-	Sc	45	109125.1		ppb
|	As	75	2822.4	2.67182	ppb
|>	Rh	103	363670		ppb
	Ho	165	1230231.6		ppb
	Kr	83	118		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 13:34:58
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	91873.7		ppb
|-	Sc	45	74337.6		ppb
|	As	75	-397.8	-0.06987	ppb
|>	Rh	103	260773.4		ppb
	Ho	165	925178.3		ppb
	Kr	83	59.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 13:36:30
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	91217.7		ppb
|-	Sc	45	73988		ppb
|	As	75	46564.7	55.58029	ppb
|>	Rh	103	249157		ppb
	Ho	165	928508.4		ppb
	Kr	83	49		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11 great10
Sample Date/Time: Tuesday, June 08, 2004 13:51:28
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	87381.7		ppb
|-	Sc	45	161379.9		ppb
|	As	75	29211.5	41.09499	ppb
|>	Rh	103	211954.2		ppb
	Ho	165	810053.4		ppb
	Kr	83	387.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-11 great10
Sample Date/Time: Tuesday, June 08, 2004 13:53:03
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	85633.6		ppb
|-	Sc	45	157052.9		ppb
|	As	75	76128.7	102.83114	ppb
|>	Rh	103	219489		ppb
	Ho	165	841335.1		ppb
	Kr	83	415.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-9 less 10
Sample Date/Time: Tuesday, June 08, 2004 13:54:38
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	98031.5		ppb
|-	Sc	45	211839.5		ppb
|	As	75	19254	15.43738	ppb
|>	Rh	103	378090.3		ppb
	Ho	165	1298313.3		ppb
	Kr	83	358.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-9 less 10
Sample Date/Time: Tuesday, June 08, 2004 13:56:12
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	102513.8		ppb
|-	Sc	45	220118.4		ppb
|	As	75	20511.4	14.89022	ppb
|>	Rh	103	417698.4		ppb
	Ho	165	1354159.3		ppb
	Kr	83	357.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 13:57:47
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	90803.4		ppb
|-	Sc	45	112745.8		ppb
|	As	75	21145.4	29.02355	ppb
|>	Rh	103	218020.3		ppb
	Ho	165	795412.7		ppb
	Kr	83	164.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 13:59:21
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	89374.8		ppb
|-	Sc	45	105199.2		ppb
|	As	75	62516.6	92.607	ppb
|>	Rh	103	200210.6		ppb
	Ho	165	698099.7		ppb
	Kr	83	150.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-18
Sample Date/Time: Tuesday, June 08, 2004 14:00:55
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	87736.5		ppb
|-	Sc	45	76982.1		ppb
|	As	75	150	0.54363	ppb
|>	Rh	103	271015.1		ppb
	Ho	165	968695.1		ppb
	Kr	83	60		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-21
Sample Date/Time: Tuesday, June 08, 2004 14:05:38
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	89138.3		ppb
|-	Sc	45	107584		ppb
|	As	75	6681	10.06602	ppb
|>	Rh	103	203701		ppb
	Ho	165	696314.8		ppb
	Kr	83	159		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-21
Sample Date/Time: Tuesday, June 08, 2004 14:07:12
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	86881.7		ppb
|-	Sc	45	106648.7		ppb
|	As	75	49142.5	72.22471	ppb
|>	Rh	103	202011.2		ppb
	Ho	165	694162.8		ppb
	Kr	83	154.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 14:08:45
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	94487.8		ppb
|-	Sc	45	73627.7		ppb
|	As	75	-74.5	0.29834	ppb
|>	Rh	103	261384.3		ppb
	Ho	165	918105.2		ppb
	Kr	83	45.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 14:10:18
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	92845.1		ppb
|-	Sc	45	74018		ppb
|	As	75	48235.2	56.20453	ppb
|>	Rh	103	255389		ppb
	Ho	165	931028.2		ppb
	Kr	83	52.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-22
Sample Date/Time: Tuesday, June 08, 2004 14:11:51
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	84538.3		ppb
|-	Sc	45	80820.1		ppb
|	As	75	873.1	1.32663	ppb
|>	Rh	103	273654.4		ppb
	Ho	165	984525.5		ppb
	Kr	83	69.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 14:13:24
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	93173.2		ppb
|-	Sc	45	72728.3		ppb
|	As	75	-254	0.08881	ppb
|>	Rh	103	256618.7		ppb
	Ho	165	914478.4		ppb
	Kr	83	36.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 14:14:57
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	92825.5		ppb
|-	Sc	45	74420.2		ppb
|	As	75	47166.8	55.46625	ppb
|>	Rh	103	253011.2		ppb
	Ho	165	918333		ppb
	Kr	83	51.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 14:16:53
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	94530.7		ppb
|-	Sc	45	89970		ppb
|	As	75	10258.5	14.17131	ppb
|>	Rh	103	219671.5		ppb
	Ho	165	775294.9		ppb
	Kr	83	89		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 14:18:27
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	74479.3		ppb
|-	Sc	45	77261.6		ppb
|	As	75	55153.5	92.80466	ppb
|>	Rh	103	176279.8		ppb
	Ho	165	620295.7		ppb
	Kr	83	92.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 14:20:01
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	94251.9		ppb
|-	Sc	45	71722		ppb
|	As	75	-96.8	0.26689	ppb
|>	Rh	103	250640.3		ppb
	Ho	165	869815		ppb
	Kr	83	47		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 14:21:33
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	93817.2		ppb
|-	Sc	45	72380.8		ppb
|	As	75	45788	55.15232	ppb
|>	Rh	103	246879.7		ppb
	Ho	165	881909.5		ppb
	Kr	83	52.3		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 14:27:45
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	97465.2		ppb
|-	Sc	45	79334.3		ppb
|	As	75	4007.2	5.44957	ppb
|>	Rh	103	233523.2		ppb
	Ho	165	841393.7		ppb
	Kr	83	55.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: 3299-17
Sample Date/Time: Tuesday, June 08, 2004 14:29:20
Sample Description: ACT
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	94989.4		ppb
|-	Sc	45	78627		ppb
|	As	75	49183.1	63.68741	ppb
|>	Rh	103	229483.1		ppb
	Ho	165	823296.9		ppb
	Kr	83	67		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 3
Sample Date/Time: Tuesday, June 08, 2004 14:30:53
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	96105.5		ppb
|-	Sc	45	70898.1		ppb
|	As	75	-219.6	0.11642	ppb
|>	Rh	103	244718.8		ppb
	Ho	165	859031.6		ppb
	Kr	83	56.7		ppb

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Date/Time: Tuesday, June 08, 2004 14:32:26
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Conc. Mean	Report Unit
	Li	6	93910.4		ppb
|-	Sc	45	72384.2		ppb
|	As	75	46059.3	56.38433	ppb
|>	Rh	103	243006.8		ppb
	Ho	165	882722.5		ppb
	Kr	83	43		ppb

APPENDIX G

RESEARCH TRIANGLE INSTITUTE

BAGHOUSE OUTLET PARTICLE SIZE

TEST REPORT FOR

CONCRETE SUPPLY TRUCK MIX &

RMC CENTRAL MIX

TECHNICAL REPORT

Client: **Air Control Techniques, P. C.**

Purchase Order No.:

RTI Project No.: **08224.010.003**

Date: **May 27, 2004**

Submitted by:

J. Todd Ennis
Research Triangle Institute
Post Office Box 12194
3040 Cornwallis Road
Research Triangle Park, NC 27709
(919) 541-7226

Submitted to:

Todd T. Brozell, P.E.
Air Control Techniques, P.C.
301 East Durham Road
Cary, NC 27513

INTRODUCTION

Six Mixed Cellulose Ester (MCE) filter samples from Air Control Techniques, P.C. were delivered to RTI on May 25, 2004. RTI was requested to perform a particle size characterization by polarized light microscopy (PLM).

METHOD OF ANALYSIS

PLM

One quarter portion of each filter was excised and mounted on a glass slide and cleared with acetone vapor for analysis of particle sizes. Each slide was viewed at varying magnifications for estimation of particle classification. The particle size measurements were performed using 500X magnification with a calibrated reticle and were based on calibrated visual estimates.

RESULTS OF ANALYSIS

PLM

Sample ID	Size Distribution of Particles	Estimated Area Percentage of Each Particulate Type
RMC-1	<2.5μ =25% 2.5 - 4μ =27% 4 - 8μ =25% 8 - 10μ =15% 10 - 20μ = 5% >20μ = 3%	Mineral = 95% Opaque = 2% Flyash = 3%
RMC-2	<2.5μ =45% 2.5 - 4μ =37% 4 - 8μ =12% 8 - 10μ =4% 10 - 20μ = 2% >20μ = <1%	Mineral = 93% Opaque = 2% Flyash = 5%

RMC-3	<2.5μ =20% 2.5 - 4μ =36% 4 - 8μ =31% 8 - 10μ =10% 10 - 20μ = 2% >20μ = 1%	Mineral = 98% Opaque = 1% Flyash = 1%
CS-1	<2.5μ =35% 2.5 - 4μ =48% 4 - 8μ =10% 8 - 10μ =2% 10 - 20μ = 2% >20μ = 3%	Mineral = 100% Opaque = <1% Flyash = <1%
CS-2	<2.5μ =21% 2.5 - 4μ =24% 4 - 8μ =20% 8 - 10μ =15% 10 - 20μ = 11% >20μ = 9%	Mineral = 100% Opaque = <<1% Flyash = <1%
CS-3	<2.5μ =70% 2.5 - 4μ =28% 4 - 8μ =2% 8 - 10μ = <1% 10 - 20μ = N/D >20μ = N/D	Mineral = 87% Opaque = 5% Flyash = 8%

DISCUSSION

The PLM analysis of the six filter samples revealed similarities between the two sample sets and differences within sample set CS. The filters comprising the RMC sample set were all extremely lightly loaded, with slight differences in size classifications among the three filters.

Among the CS sample set the first two filters, CS-1 and CS-2 were heavily loaded with mineral agglomerations, and filter CS-2 had the heaviest loading with agglomerations observed up to 80μ maximum width. Conversely, sample CS-3 was moderately loaded with uniformly small particles, of which, a somewhat elevated percentage was identified as flyash and opaque combustion byproduct. Among all six filters flyash particles ranged in size from 2-10μ and opaque particles generally ranged from 5-15μ with a few particles measured up to 75μ in sample CS-2. Individual mineral particles ranged between <2.5μ and 30μ. Please do not hesitate to call me for any further explanation of my observations, you can reach me at (919)541-7226.

RTI INTERNATIONAL | **Memorandum**

May 27, 2004

Mr. Todd Brozell
Air Control Techniques, P.C.
301 East Durham Road
Cary, NC 27513

Dear Mr. Brozell:

The six filter samples delivered to RTI on May 25, 2004 have been analyzed and the report of analysis is attached.

If you have any questions, please call me at (919) 541-7226. We appreciate the opportunity to provide these services.

Sincerely,

J. Todd Ennis
Research Geologist

JTE/lbs

turning knowledge into practice

APPENDIX H

SAMPLE

EMISSION FACTOR

CALCULATIONS

Examples from Wake Forest, NC, RMCC, Central Mix and Rock Hill, SC Concrete Supply, Truck Mix

Calculations for the PM_{10} Emission Factor for Wake Forest, NC, RMCC, Central Mix Run # 3

Measured Factors used for Emission Factor Calculations		
Description of Factor	Units	Run # 3 Measurement
Area of arrays	Square feet	140
Wind speed thru arrays	Feet per minute	220
Average array PM_{10} concentration measured with TEOM	Micrograms per cubic meter	57.9
Fabric filter inlet PM_{10} concentration measured with EPA Preliminary Method 4	Pounds per hour	0.49866
Fabric filter outlet PM_{10} concentration measured with EPA Preliminary Method 4	Pounds per hour	0.01480
Fabric filter inlet TSP concentration measured with EPA Preliminary Method 4	Pounds per hour	1.33222
Fabric filter outlet TSP concentration measured with EPA Preliminary Method 4	Pounds per hour	0.02619
Average plant concrete production during test	Tons per hour	55.1

$$\text{Gas flow rate thru arrays} = \frac{220\text{ feet}}{\text{minute}} * 140\text{ feet}^2 * \frac{\text{meters}^3}{35.31\text{ feet}^3} = \frac{872\text{ meters}^3}{\text{minute}}$$

$$\text{Measured } PM_{10} \text{ emissions thru array} = \frac{872\text{ meters}^3}{\text{minute}} * \frac{57.9\text{ micrograms}}{\text{meter}^3} * \frac{60\text{ minutes}}{\text{hour}} * \frac{1\text{ pound}}{453{,}600{,}000\text{ micrograms}} = \frac{0.0067\text{ pounds}}{\text{hour}}$$

$$\text{Total } PM_{10} \text{ fugitive emissions} = \frac{0.0067\text{ pounds}}{\text{hour}} \text{ thru array} + \frac{0.0148\text{ pounds}}{\text{hour}} \text{ emitted from fabric filter} = \frac{0.0215\text{ pounds}}{\text{hour}}$$

Calculations for the PM_{10} Emission Factor for Wake Forest, NC, RMCC, Central Mix Run # 3, continued

$$PM_{10}\text{ Emission factor} = \frac{\frac{0.0215\text{ pounds}}{\text{hour}}}{\frac{55.1\text{ tons}}{\text{hour}}} = \frac{0.00039\text{ pounds }PM_{10}}{\text{ton of concrete}}$$

$$\text{Fabric filter control efficiency} = \left(\frac{0.49866\text{ ff inlet} - 0.0148\text{ ff outlet}}{0.49866\text{ ff inlet}}\right)\text{pounds}/\text{hour} * 100 = 97.03\%$$

$$\text{Truck hood }PM_{10}\text{ control efficiency} = \left(\frac{0.4987\text{ ff inlet}}{0.4987\text{ ff inlet} + 0.0067\text{ array}}\right)\text{pounds}/\text{hour} * 100 = 98.67\%$$

Calculations for the PM_{10} Emission Factor for Rock Hill, SC Concrete Supply, Truck Mix Run # 3

Measured Factors used for Emission Factor Calculations		
Description of Factor	Units	Run # 3 Measurement
Area of arrays	Square feet	140
Wind speed thru arrays	Feet per minute	136.7
Average array PM_{10} concentration measured with TEOM	Micrograms per cubic meter	527.0
Fabric filter inlet PM_{10} concentration measured with EPA Preliminary Method 4	Pounds per hour	5.66843
Fabric filter outlet PM_{10} concentration measured with TEOM	Pounds per hour	0.025
Fabric filter inlet TSP concentration measured with EPA Preliminary Method 4	Pounds per hour	43.48263
Fabric filter outlet TSP concentration. Calculated by multiplying the ratio of TSP/PM_{10} from the inlet fabric filter Preliminary Method 4 data to the measured fabric filter outlet TEOM PM_{10} data.	Pounds per hour	0.192
Average plant concrete production during test	Tons per hour	84.4

$$\text{Gas flow rate thru arrays} = \frac{136.7\text{ feet}}{\text{minute}} * 140\text{ feet}^2 * \frac{\text{meters}^3}{35.31\text{ feet}^3} = \frac{542\text{ meters}^3}{\text{minute}}$$

$$\text{Measured } PM_{10} \text{ emissions thru array} = \frac{542\text{ meters}^3}{\text{minute}} * \frac{527.0\text{ micrograms}}{\text{meter}^3} * \frac{60\text{ minutes}}{\text{hour}} * \frac{1\text{ pound}}{453{,}600{,}000\text{ micrograms}} = \frac{0.0378\text{ pounds}}{\text{hour}}$$

$$\text{Total } PM_{10} \text{ fugitive emissions} = \frac{0.0378\text{ pounds}}{\text{hour}} \text{ thru array} + \frac{0.025\text{ pounds}}{\text{hour}} \text{ emitted from fabric filter} = \frac{0.0628\text{ pounds}}{\text{hour}}$$

Calculations for the PM_{10} Emission Factor for Rock Hill, SC Concrete Supply, Truck Mix Run # 3

$$PM_{10}\text{ Emission factor} = \frac{\dfrac{0.0628\text{ pounds}}{\text{hour}}}{\dfrac{84.4\text{ tons}}{\text{hour}}} = \frac{0.00074\text{ pounds }PM_{10}}{\text{ton of concrete}}$$

$$\text{Fabric filter control efficiency} = \left(\frac{43.483\text{ ff inlet} - 0.192\text{ ff outlet}}{43.483\text{ ff inlet}}\right)\text{pounds}/\text{hour} * 100 = 99.56\%$$

$$\text{Truck hood }PM_{10}\text{ control efficiency} = \left(\frac{5.668\text{ ff inlet}}{5.668\text{ ff inlet} + 0.0378\text{ array}}\right)\text{pounds}/\text{hour} * 100 = 99.34\%$$