Clark County Wind Tunnel Study

Section III

Estimation of PM_{10} vacant land emissions factors for Unstable, Stable and Stabilized lands using data from 1995 and 1998-1999 UNLV wind tunnel studies of vacant and dust-suppressant treated lands

January 16, 2001 – Second Final Report

Estimation of PM-10 vacant land emissions factors for Unstable, Stable and Stabilized lands using data from 1995 and 1998-1999 UNLV wind tunnel studies of vacant and dust-suppressant treated lands

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Second Final Report

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January 16, 2001

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Acknowledgments

Many individuals have contributed to the development of the information that is contained in this report.

At Clark County Comprehensive Planning, Carrie MacDougall, Will Cates, Rodney Langston, Majed Khater and Rick Matar all provided valuable inputs and data for this project. The contributions of Carrie MacDougall in developing the ideas for computation of the stabilized lands emissions factors, and Majed Khater, in providing megabytes of image data for earlier reports in this series, were especially helpful. Will Cates is also thanked for his project management oversight, and thanks to Rodney Langston for keeping us abreast of developments in the proposed PM-10 rules and ordinances.

The Clark County Health District, Air Quality Division, provided the impetus and the funding for the first wind tunnel field study in 1995, and also funded the 1998-1999 wind tunnel study of the effectiveness of dust suppressants. The Health District also provided 1999 wind field data and 1999 dust permit data that greatly facilitated computation of the valley-wide estimates. The contributions of Michael Naylor, Cheryl McDonnell-Canan, Lew Wallenmyer, Mike Sword, Femi Durosimini, Mickey Palmer, Monte Symons, and Cyndy Mikes are especially appreciated.

At UNLV, many undergraduate and graduate students have made invaluable contributions to this project. Most are listed as co-authors on this report. The contributions of graduate students Joe A. Haun, who built the UNLV wind tunnel, Tina Gingras, who ran the 1998-1999 field crew, and Jon Becker, who rebuilt and recalibrated the tunnel in 1998, and computed all the spike corrections for the 1998-1999 dust suppressant data, are especially appreciated. The industry and skills of undergraduate students Andrea Fulton in 1995, and Gina Venglass in 1998 and Johann Pulgarin, in 1999 through 2000, were especially valuable in the field and in the laboratory. Alan Sampson, civil engineering laboratory and shop technician, provided key assistance in the construction and repair of the tunnel.

Colleagues from around the world have also helped with the development of thinking and methods on this project. Duane Ono of the Great Basin Unified Air Pollution Control District very kindly lent us his time and services on several occasions as we developed our own wind tunnel in 1995, based on the one he designed and built. Jack Gilles of DRI suggested the flap sealing system for our tunnel, without which we could not have operated on hard soil surfaces, and made key suggestions about references available in the open literature. Larry Hagen of the US Agricultural Research Service, Manhattan, Kansas, has been an early and consistent supporter and resource.

Any errors or omissions in this report are the sole responsibility of the principal author, David James.

Introduction

This report:

1. Explains the methodology and uncertainties behind calculation of fluxes of wind-eroded PM-10 (emission factors) using wind tunnel measurements carried out by UNLV in 1995 and 1998-1999, and

2. Contains emission factor data developed by UNLV for unstable (disturbed or weak covering), stable (undisturbed or strong covering) and stabilized (treated with dust suppressants) vacant lands. The emission factors presented here were used earlier in UNLV's computations of Valley-wide PM-10 vacant land emissions.

In this report, the wind tunnel volumetric flow rates, PM-10 initiation velocities, erosion velocities and TSI PM-10 concentrations are converted to PM-10 fluxes (emission factors) in tons/acre/hour, and PM-10 initiation and erosion velocities extrapolated to z = 10 meters. The 1995 wind tunnel field study sampling locations and sampling methods are described. Methods used in the 1998-99 wind tunnel dust suppressant study are described and compared to the 1995 wind tunnel study.

This is the second final report developed for this Clark County Comprehensive Planning-funded project and the fourth report created for this project. The report dates and titles are:

January 16, 2001	Estimation of PM-10 vacant land emissions factors for Unstable, Stable and Stabilized lands using data from 1995 and 1998-1999 UNLV wind tunnel studies of vacant and dust-suppressant treated lands. *Second final report.*
September 13, 2000	Estimation of Valley-Wide PM-10 emissions using UNLV 1995 wind tunnel-derived emission factors, 1998-1999 emission factors, revised vacant land classifications, and GIS-based mapping of vacant lands. *Final Report*
March 28, 2000	Estimation of Valley-Wide PM-10 Emissions using UNLV 1995 wind tunnel measurements, revised vacant land classifications, and GIS-based mapping of vacant lands. *Supplemental Task: Estimation of stabilized land PM-10 emissions using data from 1998-1999 UNLV wind tunnel study of PM-10 emissions from different dust suppressants*
February 22, 2000	Estimation of Valley-Wide PM-10 Emissions using UNLV 1995 wind tunnel measurements, revised vacant land classifications, and GIS-based mapping of vacant lands

This report is divided into 10 sections that, taken together, provide a road map through the wind tunnel data, from the PM-10 and flow measurements in the field to the statistical summaries of the emission factor data, classified by wind speed category and major soil group.

Section 1 provides information about the locations and stability classifications of the 1995 wind tunnel sampling sites, 1995 wind tunnel field test methods, and mass balances. It also provides a comparison of the 1995 test methods to the 1998-1999 test methods, an uncertainty analysis, the 1995 repeatability study, and flow rate corrections.

Section 2 tabulates the soil group and stability classifications, 10 meter velocities, TSI measured PM-10 concentrations, and tunnel volumetric flow rates for each 1995 wind tunnel test run. TSI concentrations and tunnel volumetric flow rates were used to compute individual, non-spike corrected fluxes in $mg/m^2/min$ and ton/acre/hour. The equations for computing fluxes are presented.

Section 3 tabulates 1995 wind tunnel individual and cumulative spike-corrected fluxes. The method for correcting PM-10 fluxes for the effects of the initial loose PM-10 "spike" is presented. Equations for computing cumulative fluxes and example calculations are presented. Non-corrected individual flux data from Section 2 are used to compute spike-corrected individual and cumulative flux data in Section 3.

Section 4 presents the methods for computing individual and cumulative spike masses from the 1995 study, and tabulates the resulting data. Spike areas presented in Section 3 are used with TSI concentrations and wind tunnel volumetric flow rates from Section 2 to compute results shown in Section 4.

Section 5 tabulates 10 meter erosion velocities from Section 2, cumulative flux data from Section 3 and the cumulative spike data from Section 4 by major soil group and stability classification. These data are used in Section C to compute emission factors classified by soil group and wind speed range.

Section A tabulates 10 meter erosion velocities from Section 2, cumulative flux data from Section 3 and the cumulative spike data from Section 4 by wind speed category for *unstable* lands, all soil groups, and presents the calculations of $\log_{10}$means and $\log_{10}$standard deviations for each wind speed range for which data are available.

Section B tabulates 10 meter erosion velocities from Section 2, cumulative flux data from Section 3 and the cumulative spike data from Section 4 by wind speed category for *stable* lands, all soil groups, and presents the calculations of $\log_{10}$means and $\log_{10}$standard deviations for each wind speed range for which data are available.

Section C presents summaries of the geometric mean emission factors and spike masses for unstable and stable lands, classified by wind speed range and major soil group. Data presented in these tables and figures constitute the emission factors that were employed to compute 1999 Valley-wide PM-10 emission estimates from vacant lands. Data from Section 5 were used in the computation of these results.

Section D presents statistical summaries of the aerodynamic roughness heights and PM-10 initiation velocities for each major soil group.

Section E presents comprehensive data the 1998-1999 wind tunnel emission factors from stabilized (treated with dust suppressant), surfaces. Data for each dust suppressant and test phase (Phase I, August - December, 1998; and Phase II, February - June, 1999), are presented. Computations of the weighted average fluxes (from 5 and 10 minute runs) and statistical summaries of the emission factors, averaged over all dust suppressants and classified by wind speed range, are presented. Plots of emission factor data are presented, some of which are plotted to the same scale as for stable and unstable lands, so that the relative magnitudes of the emission factors can be visually compared for different stability classifications.

Section 1 - Wind Tunnel Description, Field Methods and Uncertainty Analyses

1-A. Site selection (Table 1 and Figure 1-1)

Wind tunnel sites for the 1995 study were selected to provide uniform coverage in the urban core of Las Vegas. The approximate distribution of sites across the Valley is shown relative to major cross streets in Figure 1-1. The 1998-1999 dust suppressant study was conducted in the long-abandoned sludge beds at the City of Las Vegas Water Pollution Control Facility, located at the east end of Vegas Valley Drive next to Las Vegas Wash.

In the 1995 study, major cross streets and compass direction relative to the nearest intersection (i.e. North-east corner of Mountain Vista and Gold Dust) were recorded, and uncorrected global positioning system (GPS) coordinates were determined by a Magellan hand-held Global Positioning System unit, generally accurate to +/- 2 seconds of latitude and longitude (+/- 3 hundredths of a minute, approximately +/- 50 meters). When near the intersections of major north-south and east-west streets, the compass location relative to the intersection (example, north-east corner of Sahara and Walnut for WT006) was usually recorded. To determine major soil group, site GPS coordinates were manually mapped onto an enlarged version of the major soil group map from the 1985 Speck and McKay US Agricultural Research Service soil survey.

Photographs of the site were taken, including an area photograph (nearest landmarks) and a close-up of the soil surface under the working section of the tunnel. Two digit numeric site codes were assigned to each tested location. A total of 85 sites were tested in a three-month period from May 31, 1995 until September 1, 1995.

1-B. Methods for determination of site stability

In 1995, site stability was determined by presence or absence of intact crust, by proportion of vegetation present (using an average from two 50-foot transects, counting vegetation every foot), and by evidence of human disturbance (tire tracks, trash, litter, evidence of recent earthmoving). Additionally, a surface soil sample was collected and subjected to conventional ASTM sieve analysis. Vegetation coverage and ASTM soil particle size distributions are available, but are not provided in this report.

Since the 1995 study was completed, new procedures for determination of stability of vacant lands have been proposed and adopted by ordinances or rules in Maricopa County, Arizona and by Clark County, Nevada. In late 1999, Clark County requested that the stability of the 1995 wind tunnel sites be re-evaluated using 1995 close up (generally from a distance of 2 feet) site photographs (most of which showed sheltering elements, rocks and cobbles) and the proposed Maricopa/Clark County rules. The 1995 site photos were evaluated by the 1999 UNLV field crew (which had been performing field stability classifications under the proposed Maricopa County rules) as to whether or not they would pass ball drop and threshold friction velocity (TFV) tests. The result of this re-estimation using the Maricopa/Clark County rules converted three 1995 "unstable" site designations to "stable," at Wind tunnel sites, WT058, WT059 and WT060. All other 1995 site stability designations were unchanged.

Table 1 contains 1995 test date, site cross street and compass corner locations, GPS coordinates, stability classification and major soil group information, sorted by Wind tunnel site designation. Stability designations are shown as a 1 (unstable) or 0 (stable) in Table 1.

1-C. Spatial and temporal variability field studies (Table 1A)
Several locations tested early in the summer season were visited later in the season in an attempt to determine temporal and small scale spatial variability. During the late season visit, the wind tunnel was operated at a location adjacent to the early season site visit (excavation of earth for sealing the tunnel flaps to the soil surface made it difficult to re-position the tunnel at exactly the same location. Because the tunnel was not run in exactly the same location, the late-season site revisits were given a new two-digit designation. One unstable site, WT031, was tested over a 6-day period at eight different locations (WT031-A through WT031-H) on a small lot on the east site of the Las Vegas Valley in an attempt to determine small-scale spatial variability. A concordance of early and late season site visits is shown in Table 1A.

1-D. Description of Wind Tunnel (Figures 1-2 and 1-3)

The UNLV-CCHD wind tunnel used in the 1995 field study and the 1998-99 dust suppressant study is a modification of the draw-through design developed by Duane Ono at Great Basin Unified Air Pollution Control District, Bishop, California. Modifications in the UNLV tunnel include a 6 inch diameter working section instead of 4 inch section, addition of a TSI Dust-Trak(r) PM-10 monitor in the riser section, use of heavy gauge plastic flaps and soil or draft tubes to seal the tunnel to the surface instead of sharp metal runners, and use of a rear air bypass to control averaging flow instead of a venturi and an electronic motor speed controller. Major components of the tunnel are shown schematically in Figure 1-2. Wind tunnel processes are diagrammed in Figure 1-3.

The working section of the tunnel is 6.00 inches wide x 6.00 inches high x 60 inches long. Additionally, not shown in the figure, there is a 60-inch long flow-conditioning section installed ahead of the working section of tunnel with a honeycomb flow diffuser at the front end, giving incoming air 10 diameters to develop a turbulent profile before it passes into the tunnel working section.

The working section is sealed to the soil surface with 3-inch wide heavy gauge flexible PVC flaps. In 1995, the flaps were sealed to the surface with soil and rock excavated from the site being tested. In 1998-1999, to allow measurement of much lower fluxes on stabilized surfaces treated with dust suppressants, the flaps were sealed to the surface with closed cell foam and 2-inch diameter 6 foot long cloth draft tubes filled with sand.

A Dwyer 90-degree pitot tube (labeled "profiling pitot tube" in Figure 1-2) is located in the working section, attached to a height adjusting system that allows the tube to be set at a logarithmic series of elevations above the soil surface. The pitot tube is connected in parallel to two Magnehelic(r) pressure gauges, one reading from 0.00 to 0.20 inches of water, and the other reading from 0.00 to 1.00 inches of water.

As air passes through the working section of the tunnel, it entrains particulates from the soil surface (Figure 1-3), and the particulates are conveyed in the air flow through the working section to the divergence section. The expansion section contains a front bypass air inlet, located on the top of the section. The size of the front bypass opening is controlled by a sliding damper. The purpose of this front bypass air inlet is to control the volumetric flow rate of air in the working section, and thus control the erosion velocity. Air flow rate in the working section is lowest when the damper is wide open, and highest when the damper is closed. In field work the damper is adjusted to give a specified centerline pitot tube reading for a particular erosion run.

The expansion section is connected to a rectangular metallic box called the elutriation chamber (Figure 1-2). As air flow enters the elutriation chamber and slows down, the chamber captures particles with diameters greater than 70 microns physical diameter (Figure 1-3). A door at the back of the elutriation chamber allows it to be cleaned after each wind tunnel run.

Air flow leaves the elutriation chamber through a 6-inch diameter PVC pipe section, called the riser (Figure 1-2). Air velocity in the riser is generally sufficient to suspend soil particles with physical diameters less than 70 microns (Figure 1-3).

As air proceeds up the riser, a small sample is pulled off by the TSI Dust-Trak PM-10 monitor. The Dust-Trak(r) measures PM-10 concentrations in the range 0.000 to 19.99 mg/m^3. The instrument uses attenuation of a laser diode light beam to estimate PM-10 concentration. Air is drawn into the unit at a fixed rate of 1.70 liters per minute by a positive displacement pump, and passes through a built-in cyclonic separator (50% aerodynamic cut size, 10 microns) before proceeding into a chamber where the suspended particle stream breaks the light beam. The units are factory calibrated against a standard dust suspension. The manufacturer (TSI) recommends annual servicing and recalibration. UNLV's first unit (Unit A) was acquired in the Spring of 1995, and was used during the summer 1995 study with its original factory calibration. Prior to the start of the 1998-1999 wind tunnel study, Unit A was shipped to the factory for calibration. A second TSI Dust-Trak(r), Unit B, acquired in 1999, was employed at the end of the 1998-1999 study, when Unit A was returned to the factory for calibration.

After passing the TSI sampling port, particle-laden air in the riser makes a 90-degree turn and passes by the sampling orifice of the cyclone, filter, venturi and fan system (Figure 1-2). The venturi, fan motor and filter housing, from a standard General Metal Works PM-10 atmospheric sampler, is equipped with a venturi orifice designed to choke air flow through sonic velocity, and thus make air flow independent of temperature and pressure. Design flow rate is 40 cubic feet per minute. The cyclone was built by UNLV to have a 50% physical cut size of 6.5 microns for approximately spherical particulates of density approximately 2.5 $grams/cm^3$. This physical diameter corresponds to an aerodynamic diameter of 10 microns for particles of density 1.0 gram/cm^3 for particles settling in Stokesian flow. After passing through the cyclone, air is drawn through a glass fiber filter for particle trapping before exhaust to the atmosphere (Figure 1-3).

After passing the cyclone orifice, the remaining flow proceeds through a reducing coupling into a 4-inch diameter flexible tube, and then enters the velocity box (Figure 1-2). The velocity box is a 6-foot long 4-inch diameter PVC pipe that is used for measurement of the total volumetric flow rate in the wind tunnel. A Dwyer averaging pitot tube is located 40 inches (10 diameters) downstream of the entrance to the velocity box. Pressure drop across this pitot tube is measured by a Dwyer solid-state pressure logger with a range of 0.00-9.99 inches of water, a resolution of 0.01 inches of water, and an accuracy of 2%.

After passing the averaging pitot tube, flow enters the rear-bypass air inlet (Figures 1-2 and 1-3) . The rear by-pass air inlet is adjusted to give a specified pressure drop in the averaging pitot tube, so that the flow sampling at the TSI and the cyclone is nearly isokinetic. Typical pressure drop values were usually in the range of 3.00-3.30 inches of water.

After leaving the rear bypass, air is drawn into the fan section and exhausted from the system (Figures 1-2 and 1-3). The Dayton 10 5/8" diameter fan is powered by a 1 horsepower Dayton electric motor, turning approximately 3000 rpm. At field sites, the electric motor is powered by a 5 horsepower portable AC generator.

1-E. Wind Tunnel Air flow balance (Figures 1-4 and 1-5)

Intakes and withdrawals of air in the wind tunnel are graphically depicted in Figure 1-4. Air is drawn into the wind tunnel at front end of the working section and at the front bypass air inlet. The combined flow proceeds through the riser, where a small subsample is withdrawn at 1.7 liters/minute by the TSI Dust-Trak(r). A 40 cfm sample is then withdrawn from riser by the sampling tube connected to the cyclone, filter, venturi and filter fan subsystem. The flow then proceeds down the flexible PVC tube to the velocity box, where it is measured by the averaging pitot tube, and then blended with air from the rear bypass air inlet before entering the fan and being exhausted from the system.

Assuming negligible air density changes in the tunnel, air mass flow rate balances can be converted into air volumetric flow rate balances. The corresponding volumetric air flow balance equations are shown in Figure 1-5. The key result is equation g, which shows that the sum of two unknown flow rates, Qdil + Qwork, is equal to the sum of two known or measured flows, Qavg +Qcyc,

(Equation 1-5g) $\quad$ Qdil + Qwork = Qavg + Qcyc

where:

Qdil	is the flow rate entering at the front bypass air inlet
Qwork	is the flow rate entering through the working section of the tunnel
Qavg	is the flow rate measured by the averaging pitot tube in the velocity box
Qcyc	is the known flow rate passing through the venturi in the cyclone-filter set.

This relationship will be used in section F to estimate flux rates from the soil surface.

1-F. Wind tunnel PM-10 mass balance and PM-10 flux calculation

Intakes and withdrawals of particulates are graphically depicted in Figure 1-6. The corresponding mass balance equations are shown in Figure 1-7. The term "mdot" in Figures 1-6 and 1-7 corresponds to a particulate mass flow rate in the system.

The purpose of Figure 1-7 is to lead the reader through the mathematics of the derivation of the PM-10 mass flow rate (shown as mdotsoil) from the soil surface in the tunnel working section. PM-10 mass balances and air flow balances from Figure 1-5 are used to develop am equation that estimates PM-10 flux rate from the soil surface in terms of known or measured quantities.

Figure 1-7, equation p shows the key relationship that is derived from the mass balance:

(Equation 1-7p) fluxsoil = [(Qavg + Qcyc) x (Crise - Cbak)] / [Tunnel floor area]

where:

fluxsoil is mass rate per unit area of PM-10 eroded from the soil surface in units of mass/area/time, generally milligrams per square meter per minute and tons per acre per hour.

Qavg is the flow rate measured by the averaging pitot tube in the velocity box

Qcyc is the known flow rate passing through the venturi in the cyclone-filter set

Crise is the PM-10 concentration measured by the TSI Dust-Trak(r) in the tunnel riser

Cbak is the PM-10 atmospheric background concentration, typically assumed to be 20 or 30 $\mu g/m^3$

Tunnel floor area is the exposed area under the working section of the tunnel, 2.5 ft^2

Measured, known or assumed quantities from each wind tunnel run are substituted into 1-7p to compute the wind tunnel flux. An example calculation of the flux is shown in Figure 1-8.

Fluxes computed using this methodology are tabulated in Section 2 of this report. These fluxes are not corrected for the initial "spike" of loose PM-10 that was recorded by the TSI Dust Trak(r) in many of the wind tunnel field study runs.

Spike corrections are computed and explained in Section 3 of this report.

1-G. Wind Tunnel Test procedure - 1995 field study

The wind tunnel was transported disassembled in the back of a medium size (Dodge Dakota) pick-up truck, and assembled at each site. A flat area at least 15 feet long x 5 feet wide was needed for assembly of four rigidly-connected units, the tunnel flow conditioning section, tunnel working section, elutriation chamber, and support stand for the cyclone-filter combination. Other components, attached with flexible PVC, could be arranged in a variety of locations behind the rigidly connected units. Soil was excavated from locations outside of the tunnel working section with hand trowels and shovels and deposited in a 2-3 inch thick layer on the flexible plastic flaps to form a seal to the surface.

After assembly, the ambient barometric pressure, atmospheric temperature and relative humidity were recorded, and the pressure gauges were zeroed. The rear bypass air inlet was set to measure a pressure drop of 3.20 inches of water to give a riser section flow velocity that was nearly isokinetic with the flow velocities of the cyclone and TSI Dust-Trak(r) sampling ports.

The TSI Dust-Trak(r) was turned on and set to measure instantaneous PM-10 concentration, with no logging of data to memory. The tunnel fans were turned on and the damper on the front bypass air inlet was closed until a "spike" of PM-10 exceeding 1 mg/m^3 was observed on the TSI display. Damper position was fixed at this point, and the velocity profile over the soil surface was determined by the profiling pitot tube. The tunnel fans were then turned off and the front bypass air inlet was opened all the way.

Barometric pressure, air temperature, and profiling pitot pressure drop data were entered into a Quick-BASIC(r) computer program on a laptop computer to determine the aerodynamic roughness and a corresponding set of pitot tube centerline pressure drops that would correspond to a range of three or four 10-meter erosion velocities.

For the first wind tunnel run, the TSI Dust-Trak(r) was then set to datalogging mode, the tunnel fans were turned on, and the bypass damper was closed until the indicated pressure drop from the pitot tube reached the first designated 10-meter erosion velocity. At this point, the Dust-Trak was set to begin recording one PM-10 concentration each second for 10 minutes.

The TSI display would blank at the end of the 10-minute period, and the tunnel fans were turned off. Dust captured in the elutriation chamber and cyclone was brushed into new, preweighed zip-lock plastic bags, and the glass fiber filter was changed. The tunnel was reassembled, and the sampling repeated in exactly the same location, at a higher indicated wind speed. For the first 49 wind tunnel sites (WT001 through WT049), the goal was to conduct three sampling runs per location at progressively higher wind-speeds. For sites WT050 through WT078, this was changed to four runs per location. at the request of Clark County Health District.

Samples collected in the elutriation chamber were brushed into clean, plastic bags at the end of each run and returned to the laboratory for weighing. Weight changes were determined in a Sargent-Welch electronic analytical balance with resolution of +/- 0.1 milligram (mg). These data are available, and were reported in the UNLV M.S. thesis by Joe Alvin Haun, but are not reported in this study.

Samples collected in the cyclone were brushed into clean, plastic bags at the end of each run and returned to the laboratory for weighing. Weight changes were determined in a Sargent-Welch electronic analytical balance with resolution of +/- 0.1 milligram (mg). These data are available, and were reported in the UNLV M.S. thesis by Joe Alvin Haun, but are not reported in this study.

Glass fiber filters were pre-conditioned in a constant relative humidity chamber, weighed, sealed flat in large plastic ziplock bags, handled with latex gloves when installed and removed from the PM-10 filter mount in the field. After sampling, they were returned to the lab and reconditioned to the same relative humidity and temperature, and then reweighed. Filter weights were determined to +/- 0.1 milligram in a Sargent-Welch electronic balance. Experience in both the 1995 and 1998-99 wind tunnel studies showed that, unless an unusually high PM-10 concentration was eroded from the soil surface, 10 minute wind tunnel sampling runs were of insufficient duration to obtain a detectable weight change on the glass fiber filters. For this reason, TSI Dust-Trak PM-10 data are the only values reported in this study. PM-10 filter data are available, and were reported in the UNLV M.S. thesis by Joe Alvin Haun.

1-H. Variations in wind tunnel field test methods and flux calculations for the 1998-1999 dust suppressant study

Changes in sampling techniques developed for the 1998-1999 dust suppressant study are described in this subsection.

1) Surface seals

In the 1995 study, soil was excavated from locations outside of the tunnel working section with hand trowels and shovels and deposited in a 2-3 inch thick layer on the flexible plastic flaps to form a seal to the surface. In the 1998-1999 study, this approach was not found to work on the dust-suppressant-treated surfaces, as good surface seals could not be made with some of the crusted suppressant material, and cleaner sampling techniques were required. Instead, the tunnel flaps were placed on pad of flexible closed cell foam, and weighed down with 6-foot long, 3-inch diameter cloth tubes filled with sand.

2) Determination of aerodynamic roughness and velocity profile
During the 1995 study, PM-10 eroded in during first three minutes of low-velocity operation of the tunnel, was assumed to be small relative to the reservoir on the surface, and other than observing the first exceedance over 1 mg/m3, was not recorded by the TSI Dust-Trak(r). During the 1998-1999 dust suppressant study, it became apparent that the PM-10 reservoir on dust suppressant-treated surfaces was very limited, and the first three minutes operation during velocity profile determination was significantly depleting the reservoir. A revised sampling procedure was developed as a result of this realization.

The TSI Dust-Trak(r) was set to record PM-10 concentrations for a fixed period of five (5) minutes during the velocity profile determination. The tunnel was set to operate at a fixed centerline profiling pitot pressure drop during this initial 5-minute run. During this initial run, the velocity profile was measured and the fans and TSI were shut off exactly 5 minutes after they were started.

The aerodynamic roughness and corresponding wind velocity at 10 meters were then calculated with the Quick-BASIC(r) computer program. Then tunnel fans were then restarted, and tunnel was operated at exactly the same damper opening as in the 5 minute run, while the TSI logged PM-10 for 10 minutes. At the conclusion of the 10 minute run, the elutriation chamber and cyclone contents were swept into plastic bags, and the glass fiber filter was changed.

Fluxes obtained during the 1998-1999 sampling were then computed as a weighted average of the 5 minute (weight 1/3)and 10 minute (weight 2/3) runs.

3) Flux (emission factor) calculations

As discussed above, the wind tunnel was operated only one time in each place during the 1998-1999 dust suppressant testing study. In contrast, during the 1995 wind tunnel field study, the wind tunnel was operated for three or four times in each place at progressively increasing wind speeds, and cumulative fluxes were computed (see Sections 3 and 4 of this report for the computational methodology.

As a result, the flux values from Stabilized surfaces treated with dust suppressants are not cumulative, and the 1995 flux values from Unstable and Stable surfaces are reported as cumulative results.

There should be little effect of this difference in data processing at lower wind speeds (< 30 mph), where most of the 1995 fluxes are reported for run 1, and are, not cumulative.

4) Site sampling protocols
Since the dust suppressant-treated surfaces generally had very low reservoirs of PM-10, it was found after a few tests that multiple runs in one location at progressively higher wind speeds did not produce additional PM-10. The first 15 minutes of operation (5 minute run + 10 minute run) significantly depleted the treated surfaces of PM-10. As result, the

tunnel was operated for only one run (a "run" being the 5 minute velocity profile determination followed by the 10 minute erosion experiment) in each location. The tunnel was moved to a different location for a subsequent run.

In Phase I, to assess effects of weathering, the tunnel was moved from one treated surfaced to another after one run on each surface. With a set of 10 treatments, and a productivity of 2-3 runs per day, each surface was revisited generally about once every 7-10 days. See Section E, Tables E12 through E.22 for Phase I sampling dates for each suppressant.

In Phase II, to assess spatial variability of PM-10 on each surface as the surface weathered, the tunnel was moved from one location to another on the same treated surface until a set of about 5 runs had been completed, and then moved to the next surface. Each treated surface was visited about three times during Phase II. See Section E, Tables E.2 through E.11, for Phase II sampling dates for each suppressant.

Wind tunnel testing during each 1998-1999 dust suppressant testing Phase took place over a four to five month period, with many visits to the same locations. During the 1995 field study, wind tunnel testing took place over a three month period, with very few visits to the same locations.

The following table summarizes differences between the 1995 field study and the 1998-1999 dust suppressant study

Feature	**1995 field study**	**1998-1999 study**
Surface seals	Site soil directly on flaps	open cell foam under flaps sand filled tubes over flaps
Aero roughness Velocity profile	3 minute, not logged by TSI	5 minutes, logged by TSI used in flux calculations
PM-10 spike velocity	damper closed until spike observed	too little PM-10 not performed
Repeat runs in one place	Yes, three or four	No, only one per test location
Emission factors	Computed directly from 10 minute runs	Weighted average of 5 and 10 minute runs
Emission factors	Cumulative at higher wind speeds, accounting for earlier runs in same place. Many runs > 30 mph	Not cumulative Few runs > 30 mph

1-I. Uncertainty analysis of wind tunnel measurements

A complete uncertainty analysis of wind tunnel measurements was developed for this report. Uncertainties for derived quantities were determined as the square root of the sum of the squares of uncertainties of directly measured values, using the following formula.

For a quantity, X, that is a function of parameters A, B, C . . .

I.a) $wX = \{ [(\delta X/\delta A)wA]^2 + [(\delta X/\delta B)wB)]^2 + [(\delta X/\delta C)wC)]^2 + \ldots \}^{1/2}$

where $\delta X/\delta A$, $\delta X/\delta B$, $\delta X/\delta C$, etc. represent the partial derivatives of X with respect to A, B, C, etc. respectively, and

*w*A, *w*B, *w*C, etc., represent the experimental uncertainties of the parameters A, B, C, etc. respectively

The partial derivatives represent the rate of change of the quantity X with respect to each parameter, and can be thought of as "weights" on the uncertainties.

For example, for computation of gas density, $\rho = [P\ MW] / [R\ T]$

I.b) $w\rho = \{ [(\delta\rho/\delta P)wP]^2 + [(\delta\rho/\delta MW)wMW)]^2 + [(\delta\rho/\delta R)wR)]^2 + [(\delta\rho/\delta T)wT)]^2 \}^{1/2}$

When the partial derivatives are symbolically determined and substituted into the equation, and the result is divided by the formula for ρ, the following symbolic relationship for relative uncertainty is obtained:

I.c) $w\rho/\rho = \{ [wP / P]^2 + [wMW / MW]^2 + [-wR/R]^2 + [-wT/T)]^2 \}^{1/2}$

Values of P, MW, R and T, and values of the uncertainties wP, wMW, wR, and wT, may be substituted into equation I.c to compute the relative uncertainty of gas density. For example, for

P = 0.920 atm	uncertainty, wP = 0.00167 atm
(from P = 27.53 inches Hg,	uncertainty, wP = 0.05 in Hg)
MW = 28.9 g/gmole	uncertainty, wMW = 0.2 g/gmole
R = 0.08206 atm-L/mole/°K	uncertainty, wR = 0.0001 atm-L/mole/°K
T = 294 °K	uncertainty, wT = 0.55 °K

$$w\rho/\rho = \{ [0.00167 / .920]^2 + [0.2 /28.9]^2 + [-.0001/.08206]^2 + [-.55/294)]^2 \}^{1/2}$$
$$w\rho/\rho = \{ 5.62\times10^{-5} \}^{1/2} = 7.50\times10^{-3}$$

and $\rho = [(0.92)\ (28.9)] / [\ (0.08206)\ (294)\ ] = 1.100\ kg/m^3$,

giving $w\rho = 7.50 \times 10^{-3} \times 1.100\ kg/m^3 = 0.008\ kg/m^3$.

In this study, uncertainties were computed for gas density, centerline velocity, 10-meter velocity, averaging pitot velocity and tunnel volumetric flow rate, and PM-10 flux.

Tables 1B through 1E present uncertainty results for quantities used in determination of the PM-10 emission factors

Table	**Parameter**	**Estimated relative uncertainty**	
		Worst case	**Best case**
1B	air density	no data	0.75%
1C	centerline velocity	13%	4%
1C	10 meter velocity	17%	12%
1D	tunnel volumetric flow rate	6%	4%
1E	tunnel floor area	no data	0.50%
1E	others	see Table 1E and Tables 1F and 1G	
1F	PM-10 flux - low riser flow uncert	71%	7%
1G	PM-10 flux - high riser flow uncert	71%	10%

Tables 1F and 1G present uncertainty results for PM-10 emission factors (flux in ton/acre/hr) for several combinations of riser flow uncertainty and PM-10 concentration.

When the relative uncertainty of riser flow rate is low (4%), and with PM-10 background uncertainty of 10 $\mu g/m^3$, the following emission factor uncertainty results are obtained. Corresponding combinations displayed in Table 1F are underlined. * = not physically real.

Riser PM-10 concentration	**40**	**200**	**1000**
Riser PM-10 uncertainty	**$\mu g/m^3$**	**$\mu g/m^3$**	**$\mu g/m^3$**
2 $\mu g/m^3$	51%	7%	4%
6 $\mu g/m^3$	58%	8%	4%
10 $\mu g/m^3$	71%	9%	4%
20 $\mu g/m^3$	112%	13%	5%
50 $\mu g/m^3$	*	29%	7%
100 $\mu g/m^3$	*	56%	11%
200 $\mu g/m^3$	*	*	21%

When the relative uncertainty of riser flow rate is high (9%), with a PM-10 background uncertainty of 10 $\mu g/m^3$, the following emission factor uncertainty results are obtained. Corresponding combinations displayed in Table 1G are underlined. * = not physically real.

Riser PM-10 concentration	**40**	**200**	**1000**
Riser PM-10 uncertainty	**$\mu g/m^3$**	**$\mu g/m^3$**	**$\mu g/m^3$**
2 $\mu g/m^3$	52%	11%	9%
6 $\mu g/m^3$	59%	11%	9%
10 $\mu g/m^3$	71%	12%	9%
20 $\mu g/m^3$	112%	15%	9%
50 $\mu g/m^3$	*	30%	10%
100 $\mu g/m^3$	*	57%	14%
200 $\mu g/m^3$	*	*	22%

The above tables show that flux (emission factor) relative uncertainties tend to plateau at the riser flow rate uncertainty for conditions where the relative uncertainty in PM-10 riser concentration is small (low fluctuations and a high average PM-10 concentration). This corresponds to physical conditions where the stochastic fluctuations in the TSI-measured PM-10 signal are small.

Relative uncertainties in flux estimates are highest for conditions where the riser PM-10 concentration is low and uncertainties in riser and background PM-10 concentrations are high. Physically, this corresponds to occasions when the tunnel is measuring fluxes from stabilized surfaces that generate low amounts of PM-10.

1-J. 1995 repeatability study

In late 1995, a repeatability study was conducted with the portable wind tunnel in an effort to estimate the inherent variability of its particulate measurements.

About cubic feet of soil were collected in five 5-gallon plastic buckets from WT078, an unstable site with one of the highest measured PM-10 production rates, located on the east side of the Las Vegas Valley near the intersection of Mountain Vista and Gold Dust. Bucket contents were thoroughly mixed prior to application.

A one-inch thick, one foot wide, eight foot long, uniform layer of soil was placed on a level concrete pad in the utility yard of the UNLV College of Engineering, a site partially shielded from the wind by a 10-foot high wall. The top surface was smoothed with flat cardboard, and then indented with about 1/8" of surface relief with corrugated cardboard. The cardboard was removed and the portable wind tunnel was placed on the soil, with the flaps sealed to the surface with more soil from the site. The wind tunnel was operated at a fixed flow rate, and PM-10 filter, cyclone, saltation, and TSI measurements were obtained.

Eight controlled runs were conducted at the same tunnel flow rate, with each run conducted on a new batch of soil. (Soil from the previous run was swept up before new soil was applied to the concrete pad). Results of these eight controlled are shown in Table 1H.

The average TSI PM-10 mass collected was 46.2 ug, with a standard deviation of 21.0 ug, giving a coefficient of variation (CV) of 21.0/46.2 = 0.45, or 45%, for an average riser concentration of 2.72 mg/m^3 (2,720 μg/m^3). This CV was lower than for the other collected size fractions, but higher than the theoretical uncertainty estimated for single measurements of high riser PM-10 concentrations in Tables 1F and 1G.

1-K. Flow calculation error in original 1995 data

Average wind tunnel flows for each 1995 run were re-computed in late 1999 for this study. This occurred because a flow calculation error was uncovered in the summer of 1998 during a refit of the portable wind tunnel for the 1998-1999 dust suppressant study. The source of the calculation error was incorrect interpretation by UNLV of units for a pitot tube constant in a manufacturer-supplied guidance document for use of the averaging pitot tube. The averaging pitot tube was used to calculate average volumetric flow through the wind tunnel, and average volumetric flow is used to calculate PM-10 fluxes from the tested soil surfaces.

Use of corrected units for the pitot tube constant reduced computed flow rates by a factor of about 3, and correspondingly reduced computed fluxes by a factor of about 3. Upon discovery of the calculation error, all 1995 fluxes were recalculated in late 1999 and early 2000.

Only the correct, recalculated average tunnel flows and recalculated fluxes are reported in this document. Flux rates reported by UNLV to Clark County in 1996, and used in the Clark County 1996 PM-10 SIP, were too high by a factor of about two to three. Data in this report reflect the use of the correct, recalculated average flow rate, and emission factors in this report supersede emission factors reported by UNLV in 1996.

Table 1 - 1995 Wind tunnel field study sampling locations

Date	Site #	Cross streets	Intersection corner	GPS West Longitude deg and hundredths of minutes +/- .03'	GPS North Latitude deg and hundredths of minutes +/- .03'	Unstable (y=1, n=0)	Major soil group
5/31/95	WT001	Schuster & Frias	NW	115°11.54'	36°00.22'	0	3
6/01/95	WT002	Lake Mead Drive & Van Wagenan	SE	114°59.86'	36°02.08'	0	6
6/01/95	WT003	Boulder Highway & Snap	SW	114°59.94'	36°03.15'	0	6
6/07/95	WT004	Lake Mead & McDaniel	NW	115°07.30'	36°11.92'	0	8
6/08/95	WT005	Mitchell & Walnut	NW	115°05.62'	36°14.69'	1	8
6/08/95	WT006	Sahara & Walnut	NE	115°05.22'	36°08.72'	0	8
6/09/95	WT007	Craig & Losee	NW	115°06.93'	36°14.42'	0	5
6/09/95	WT008	Craig & Lamb	SW	115°04.90'	36°14.39'	0	8
6/09/95	WT009	Craig & Lamont	SE	115°03.96'	36°14.28'	0	8
6/19/95	WT010	Hollywood & Nellis Air Force Base	NE	115°01.46'	36°13.49'	0	8
6/19/95	WT011	Alto & Mt Hood	NE	115°02.16'	36°12.64'	0	6
6/20/95	WT012	Alto & Lamb		115°05.87'	36°12.69'	0	2
6/20/95	WT013	Christy & Carey	NE	115°03.27'	36°12.32'	1	8
6/21/95	WT014	LV Blvd & Belmont		115°06.28'	36°12.59'	0	8
6/21/95	WT015	Carey & Revere	NW	115°09.11'	36°12.27'	0	2
6/21/95	WT016	Harmon & Cameron	SW	115°12.15'	36°16.48'	1	2
6/22/95	WT017	Alexander & 5th		115°08.00'	36°13.96'	0	2
6/22/95	WT018	Clayton & Alexander		115°10.19'	36°13.92'	1	2
6/26/95	WT019	Valley View & Alexander	NE	115°11.81'	36°13.89'	1	2
6/26/95	WT020	Simmons & Carey	NW	115°10.74'	36°12.20'	1	8
6/27/95	WT021	Maverick & Alexander	SE	115°13.77'	36°13.86'	1	2
6/27/95	WT022	Decatur & Rancho	SW	115°12.17'	36°12.39'	1	2
6/27/95	WT023	Smoke Ranch & Steinke (US-95)		115°14.36'	36°12.15'	0	5
6/28/95	WT024	Martin Luther King & Alta	NW	115°09.75'	36°10.01'	1	9
6/28/95	WT025	Charleston & Torrey Pines	SW	115°14.20'	36°09.49'	0	2
6/29/95	WT026	Lake Mead Drive & Gibson	SE	115°01.75'	36°01.84'	0	6
6/29/95	WT027	Gibson & Boulder Highway		115°01.45'	36°04.56'	0	6
6/30/95	WT028	Racetrack & Powerline				0	6
6/30/95	WT029	Equestrian & Foothills		114°55.50'	36°00.74'	1	3
6/30/95	WT030	Racetrack & Drake		115°56.91'	36°02.39'	0	6

Table 1 - 1995 Wind tunnel field study sampling locations

Date	Site #	Cross streets	Intersection corner	GPS West Longitude deg and hundredths of minutes +/- .05'	GPS North Latitude deg and hundredths of minutes +/- .05'	Unstable (y=1,n=0)	Major soil group
7/05/95	WT031-A	Washington & Bledsoe	NW	115°03.31'	36°10.92'	1	8
7/05/95	WT031-B	Washington & Bledsoe	NW	115°03.31'	36°10.92'	1	8
7/05/95	WT031-C	Washington & Bledsoe	NW	115°03.31'	36°10.92'	1	8
7/06/95	WT031-D	Washington & Bledsoe	NW	115°03.31'	36°10.92'	1	8
7/07/95	WT031-E	Washington & Bledsoe	NW	115°03.31'	36°10.98'	1	8
7/10/95	WT031-F	Washington & Bledsoe	NW	115°03.30'	36°10.89'	1	8
7/10/95	WT031-G	Washington & Bledsoe	NW	115°03.30'	36°10.89'	1	8
7/10/95	WT031-H	Washington & Bledsoe	NW	115°03.26'	36°10.92'	1	8
7/06/95	WT032	Alta & Valley View		115°11.49'	36°10.01'	1	2
7/07/95	WT033	Hollywood & Bonanza	NW	115°02.03'	36°10.69'	0	5
7/12/95	WT034	Rainbow & Raven	NW	115°14.72'	36°01.36'	0	2
7/12/95	WT035	Gary & Seeliger		115°17.84'	36°00.72'	0	2
7/13/95	WT036	Blue Diamond & Warbonnet	SW	115°15.95'	36°00.98'	0	2
7/13/95	WT037	Rainbow & Windmill	NW	115°14.99'	36°02.58'	0	2
7/14/95	WT038	Windmill & Ft Apache	NE	115°17.76'	36°02.47'	0	2
7/14/95	WT039	Buffalo & Robindale	NW	115°15.64'	36°03.01'	0	2
7/14/95	WT040	Buffalo & Sunset	NW	115°15.86'	36°04.22'	0	2
7/18/95	WT041	Sunset & Durango	NE	115°16.75'	36°04.34'	0	2
7/18/95	WT042	Sunset & Ft Apache	NE	115°17.90'	36°04.29'	0	2
7/18/95	WT043	Cameron & Oquendo	SW	115°12.31'	36°04.51'	1	2
7/19/95	WT044	Patrick & Torrey Pines	SW	115°14.15'	36°04.49'	0	2
7/19/95	WT045	Decatur & Agate	SE	115°12.39'	36°01.49'	0	2
7/20/95	WT046	Arville & Robindale	NW	115°11.95'	36°03.03'	0	3
7/20/95	WT047	Spencer & Sunset	SE	115°07.54'	36°04.23'	0	7
7/24/95	WT048	Carey & Revere	NW	115°09.23'	36°12.68'	0	2
7/24/95	WT049	Carey & Revere	NW	115°09.22'	36°12.31'	0	2
7/26/95	WT050	Carey & Revere	NW	115°09.23'	36°12.33'	1	2
7/25/95	WT051	Carey & Simmons	NW	115°10.74'	36°12.22'	0	8
7/25/95	WT052	Carey & Simmons	NW	115°10.79'	36°12.27'	0	8
7/26/95	WT053	Carey & Simmons	NW	115°10.79'	36°12.27'	1	8

Table 1 - 1995 Wind tunnel field study sampling locations

Date	Site #	Cross streets	Intersection corner	GPS West Longitude [illegible]	GPS North Latitude [illegible]	Unstable (y=1,n=0)	Major soil group
7/27/95	WT054	Cameron & Harmon	SE	115°12.16'	36°06.48'	1	2
7/27/95	WT055	Cameron & Harmon	SE	115°12.17'	36°06.51'	1	2
7/28/95	WT056	Post Office		115°07.31'	36°11.90'	1	8
7/28/95	WT057	Post Office		115°07.34'	36°11.89'	1	8
7/31/95	WT058	Martin Luther King & Alta	NW	115°09.77'	36°10.00'	0	9
8/01/95	WT059	Martin Luther King & Alta	NW	115°09.75'	36°10.01'	0	9
8/01/95	WT060	Martin Luther King & Alta	NW	115°09.70'	36°10.01'	0	9
8/02/95	WT061	Craig & Losee	NE	115°06.87'	36°14.44'	1	5
8/02/95	WT062	Craig & Losee	NE	115°06.90'	36°14.38'	0	5
8/02/95	WT063	Craig & Losee	NE	115°06.93'	36°14.40'	0	5
8/04/95	WT064	Hollywood & Bonanza	NW	115°02.01'	36°10.66'	0	5
8/03/95	WT065	Hollywood & Bonanza	NW	115°01.98'	36°10.71'	0	5
8/03/95	WT066	Racetrack & Powerline		114°57.01'	36°01.33'	0	6
8/03/95	WT067	Racetrack & Powerline		114°56.99'	36°10.33'	0	6
8/08/95	WT068	Sahara & Summerlin	NW	115°19.66'	36°08.65'	0	2
8/08/95	WT069	Charleston & Rampart	NW	115°19.88'	36°09.84'	0	5
8/09/95	WT070	Hualapai & Anasazi	SW	115°19.65'	36°10.47'	0	5
8/14/95	WT071	Summerlin dirt road		115°20.03'	36°10.18'	1	5
8/14/95	WT072	Paradise & Sur Este	SE	115°08.38'	36°03.18'	0	7
8/15/95	WT073	Las Vegas Blvd & Warm Springs	NW	115°10.46'	36°03.48'	0	7
8/18/95	WT074	Las Vegas Blvd & Blue Diamond	SW	115°10.46'	36°03.48'	0	7
8/18/95	WT075	Patrick & Sandhill	SE			0	9
8/30/95	WT076	Jimmy Durante & Stephanie	SE			0	9
8/30/95	WT077	Mtn Vista & Gold Dust	SE			0	9
9/01/95	WT078	Mtn Vista & Gold Dust	SE			1	9

Table 1A - Index of repeat sites - 1995 wind tunnel field study

Cross street location	Early season date & site # (before 7/15/95)		Late season date & site # (after 7/15/95)	
Cameron & Harmon	6/21/95	WT016	7/27/95	WT054
			7/27/95	WT055
Carey & Revere	6/21/95	WT015	7/24/95	WT048
			7/24/95	WT049
Carey & Simmons - unstable	6/26/95	WT020	7/26/95	WT053
Carey & Simmons - stable			7/25/95	WT051
			7/25/95	WT052
Craig & Losee	6/9/95	WT007	8/2/95	WT061
			8/2/95	WT062
			8/2/95	WT063
Hollywood & Bonanza	7/7/95	WT033	8/4/95	WT064
			8/3/95	WT065
Martin Luther King & Alta	6/28/95	WT024	7/31/95	WT058
			8/1/95	WT059
			8/1/95	WT060
North Las Vegas Post Office			7/28/95	WT056
			7/28/95	WT057
Racetrack & Powerline	6/30/95	WT028	8/3/95	WT066
			8/3/95	WT067
Washington & Bledsoe	7/5/95	WT-031A		
	7/5/95	WT-031B		
	7/5/95	WT-031C		
	7/6/95	WT-031D		
	7/7/95	WT-031E		
	7/10/95	WT-031F		
	7/10/95	WT-031G		
	7/10/95	WT-031H		

Table 1B - Uncertainty analysis of air density calculations

Scenario	1	2	Cause of Uncertainty
	Low temp, Low press	High temp, high press	
Formula	$\rho = m/V = P\ MW / RT$	$\rho = m/V = P\ MW / RT$	
P inches Hg	27.53	28.43	
wP inches Hg	0.05	0.05	uncertainty in last digit of display
wP/P	1.82E-03	1.76E-03	
T °R	530.0	570.0	
wT °R	1.0	1.0	resolution of thermometer
wT/T	1.89E-03	1.75E-03	
MW g/gmole	28.9	28.7	
wMW g/gmole	0.2	0.2	variation in composition with relative humidity changes
wMW/MW	6.92E-03	6.97E-03	
R atm-L/gmole-K	0.08206	0.08206	
wR	0.0001	0.0001	+/- 1 in last digit
wR/R	1.22E-03	1.22E-03	
Sum of squares	5.62E-05	5.62E-05	
RMS uncertainty, $w\rho / \rho$	7.50E-03	7.50E-03	
RMS %	0.750%	0.750%	
density, ρ kg/m^3	1.100	1.049	
RMS $w\rho /2$ +/-kg/m^3	0.004	0.004	

Table 1C - Uncertainty analysis of centerline and 10 meter velocities

Scenario	**1**	**2**	**Source of uncertainty**
Instrument	profiling pitot tube	profiling pitot tube	
measurement	centerline ΔP	centerline ΔP	
Conditions	Best case	Worst case	
Formula	$V = k[2\Delta P/\rho]^{1/2}$	$V = k[2\Delta P/\rho]^{1/2}$	
Typical data			
ΔP, inches H20	0.160	0.160	
+/- uncert in meter reading	0.005	0.020	
cause	meter readability	cross wind fluctuation	see "cause" in each column
$w\Delta P$ inches H20 (= 2x fluct)	0.010	0.040	
$w\Delta P / \Delta P$	**6.25E-02**	**2.50E-01**	
ρ kg/meter^3	1.06	1.06	
$w\rho$ kg/meter^3	0.008	0.008	from density calculation, **Table 1B**
$w\rho / \rho$	**7.55E-03**	**7.55E-03**	
k (pitot constant)	1.000	1.000	
wk	0.020	0.020	variation in k for +/- 5° alignment error
wk/k	**0.020**	**0.020**	
Sum of squares $\Sigma(wX/X)^2$	1.39E-03	1.60E-02	
$wV/V = [\Sigma(wX/X)^2]^{1/2}$	3.73E-02	1.27E-01	
RMS uncert wV/V in %	**3.7%**	**12.7%**	V = centerline velocity at z1 = 7.6 cm
Scenario for U10	**1**	**2**	**Units & source of uncertainty**
Computed centerline velocity	9.2	9.2	m/sec
Uncertainty, wV	0.3	1.2	m/sec
Computed centerline velocity	20.6	20.6	mph
Uncertainty, wV	0.8	2.6	mph
sample aero roughness, zo	0.100	0.100	cm
uncertainty, wzo	0.010	0.010	cm, estimate from regression
centerline height, z1	7.60	7.60	cm
uncertainty, wz1	0.10	0.10	cm, wobble in pitot adjustment
wind measurement height, z2	1000	1000	cm
(RMS term wrt zo)^2	1.27E-02	1.27E-02	
(RMS term wrt z1)^2	9.23E-06	9.23E-06	
(RMS term wrt V, wV/V)^2	1.39E-03	1.60E-02	
RMS uncert w(U10)/(U10) %	**11.9%**	**17.0%**	
extrapolated U(10)	43.7	43.7	mph
uncertainty w(U10)	5.2	7.4	mph

Table 1D - Uncertainty analysis of averaging pitot velocity and tunnel volumetric flow rate

Scenario	**1**	**2**	**Source of uncertainty**
Instrument	averaging pitot tube	averaging pitot tube	
measurement	ΔP at 4 locations	ΔP at 4 locations	
Conditions	Best case	Worst case	
Formula	$V = k[2\Delta P/\rho]^{1/2}$	$V = k[2\Delta P/\rho]^{1/2}$	
Typical data			
ΔP, inches H20	3.200	3.200	
+/- uncert in meter reading	0.050	0.150	
cause	fan pulsation	cross winds	see "cause" in each column
wΔP inches H20 (= 2x fluct)	0.100	0.300	
wΔP / ΔP	**3.13E-02**	**9.38E-02**	
ρ kg/meter^3	1.06	1.06	
wρ kg/meter^3	0.008	0.008	from density calculation, **Table 1B**
wρ / ρ	**7.55E-03**	**7.55E-03**	
k (pitot constant)	0.600	0.600	
wk	0.020	0.020	variation in k for +/- 5° alignment error
wk/k	**3.33E-02**	**3.33E-02**	
Sum of squares $\Sigma(wX/X)^2$	1.37E-03	3.32E-03	
$wV/V = [\Sigma(wX/X)^2]^{1/2}$	3.70E-02	5.76E-02	
RMS uncert wV/V in %	**3.7%**	**5.8%**	
Computed velocity m/sec	24.7	24.7	
RMS uncertainty ± m/sec	0.9	1.4	
Computed velocity mph	55.2	55.2	
RMS uncertainty ± mph	2.0	3.2	
Pipe cross section	round	round	
Volumetric flow conversion	$Q = V(\pi\ diam^2 / 4)$	$Q = V(\pi\ diam^2 / 4)$	
pipe diam inches	4.00	4.00	
pipe diam feet	0.333	0.333	
pipe area ft^2	0.087	0.087	
velocity ft/min	4856	4856	
approximate wall correction	1.00	1.00	
flow rate ft^3/ min	424	424	
flow rate uncertainty ft^3/ min	16	24	

Table 1E - Sources of Uncertainty in flux calculation

Variable	Typical value	Source of uncertainty
Working section length, inches	60	
wLength inches	3.13E-02	measurement uncertainty, tape
wLength/Length	**5.21E-04**	
Working section width, inches	6	
wWidth inches	3.13E-02	measurement uncertainty, tape
wWidth/Width	**5.21E-03**	
Area ft^2	2.500	
wArea ft^2	1.31E-02	RMS error computed from length,width uncertainties
WArea/Area	**5.23E-03**	
Qavg cfm	424	
wQavg / Qavg	5.76E-02	Max fluctuation in meter reading from cross winds, fan oscillations
wQavg cfm	24	Computed from pitot probe fluctuations **(see Table 1D)**
Qcyc cfm	40.0	
wQcyc cfm	1.0	Assumed venturi choke flow uncertainty
wQavg/(Qavg+Qcyc)	**5.26E-02**	
wQcyc/(Qavg+Qcyc)	**2.16E-03**	
Crise ug/m3	1000	
Cbak ug/m3	20	
Crise - Cbak ug/m3	980	
wCrise ug/m3	200	If large, RMS error of fluctuating TSI signal. If small, uncertainty in
wCrise/(Crise-Cbak)	**2.04E-01**	individual TSI measurment. See flux calculation scenarios
wCbak ug/m3	10	Uncertainty in assumed clean air background PM-10
wCbak/(Crise-Cbak)	**1.02E-02**	

Table 1F - Flux calculation - uncertainty analysis scenarios for low riser flow uncertainty and several riser concentrations

Scenario	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
riser concentration	high	high	high	medium	medium	medium	low	low	low
riser concentr uncert	high	medium	low	high	medium	low	high	med	low
Typical site	unstable lands	unstable lands		stable lands	stable lands		stabilized lands	stabilized lands	stabilized lands
Surface condition							torn up		not torn up
Riser flow uncertainty	low	low	low	low	low	low	low	low	low
Data									
Area ft^2	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500
wArea ft^2	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
wArea/Area	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03
Qavg cfm	468	468	468	468	468	468	468	468	468
Qcyc cfm	40	40	40	40	40	40	40	40	40
Qavg+Qcyc cfm	508	508	508	508	508	508	508	508	508
wQavg cfm	21	21	21	21	21	21	21	21	21
wQavg/(Qavg+Qcyc)	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02
wQcyc cfm	1	1	1	1	1	1	1	1	1
wQcyc/(Qavg+Qcyc)	1.97E-03	1.97E-03	1.97E-03	1.97E-03	1.97E-03	1.97E-03	1.97E-03	1.97E-03	1.97E-03
Crise ug/m3	*1000*	*1000*	*1000*	*200*	*200*	*200*	*40*	*40*	*40*
Cbak ug/m3	20	20	20	20	20	20	20	20	20
Crise - Cbak ug/m3	980	980	980	180	180	180	20	20	20
wCrise ug/m3	*200*	*100*	*50*	*50*	*20*	*10*	*10*	*6*	2
wCrise/(Crise-Cbak)	***2.04E-01***	***1.02E-01***	***5.10E-02***	***2.78E-01***	***1.11E-01***	***5.56E-02***	***5.00E-01***	*3.00E-01*	*1.00E-01*
wCbak ug/m3	10	10	10	10	10	10	10	10	10
wCbak/(Crise-Cbak)	*1.02E-02*	*1.02E-02*	*1.02E-02*	*5.56E-02*	*5.56E-02*	***5.56E-02***	***5.00E-01***	***5.00E-01***	***5.00E-01***
$\Sigma(wX/X)^2$	4.35E-02	1.23E-02	4.45E-03	8.20E-02	1.72E-02	7.91E-03	5.02E-01	3.42E-01	2.62E-01
RMS uncert $[\Sigma(wX/X)^2]^{1/2}$	**2.09E-01**	**1.11E-01**	**6.67E-02**	**2.86E-01**	**1.31E-01**	**8.90E-02**	**7.08E-01**	**5.85E-01**	**5.12E-01**
RMS uncertainty %	**21%**	**11%**	**7%**	**29%**	**13%**	**9%**	**71%**	**58%**	**51%**
flux ton/acre/hr	1.63E-02	1.63E-02	1.63E-02	2.99E-03	2.99E-03	2.99E-03	3.32E-04	3.32E-04	3.32E-04
RMS uncer ton/acre/hr	.34E-02	.18E-02	.11E-02	.86E-03	.39E-03	.27E-03	2.35E-04	1.94E-04	1.7E-04

Table 1G - Flux calculation - uncertainty analysis scenarios high riser flow uncertainty and several riser concentrations

Scenario	1	2	3	4	5	6	7	8	9
riser concentration	high	high	high	medium	medium	medium	low	low	low
riser concentr uncert	high	medium	low	high	medium	low	high	med	low
Typical site	unstable lands	unstable lands		stable lands	stable lands		stabilized lands	stabilized lands	stabilized lands
Surface condition							torn up		not torn up
Riser flow uncertainty	high	high	high	high	high	high	high	high	high
Data									
Area ft^2	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500
wArea ft^2	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
wArea/Area	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03	5.23E-03
Qavg cfm	438	438	438	438	438	438	438	438	438
Qcyc cfm	40	40	40	40	40	40	40	40	40
Qavg+Qcyc cfm	478	478	478	478	478	478	478	478	478
wQavg cfm	43	43	43	43	43	43	43	43	43
wQavg/(Qavg+Qcyc)	9.00E-02	9.00E-02	9.00E-02	9.00E-02	9.00E-02	9.00E-02	9.00E-02	9.00E-02	9.00E-02
wQcyc cfm	1	1	1	1	1	1	1	1	1
wQcyc/(Qavg+Qcyc)	2.09E-03	2.09E-03	2.09E-03	2.09E-03	2.09E-03	2.09E-03	2.09E-03	2.09E-03	2.09E-03
Crise ug/m3	*1000*	*1000*	*1000*	*200*	*200*	*200*	*40*	*40*	*40*
Cbak ug/m3	20	20	20	20	20	20	20	20	20
Crise - Cbak ug/m3	980	980	980	180	180	180	20	20	20
wCrise ug/m3	*200*	*100*	*50*	*50*	*20*	*10*	*10*	*6*	*2*
wCrise/(Crise-Cbak)	***2.04E-01***	***1.02E-01***	***5.10E-02***	***2.78E-01***	***1.11E-01***	***5.56E-02***	***5.00E-01***	*3.00E-01*	*1.00E-01*
wCbak ug/m3	10	10	10	10	10	10	10	10	10
wCbak/(Crise-Cbak)	*1.02E-02*	*1.02E-02*	*1.02E-02*	*5.56E-02*	*5.56E-02*	***5.56E-02***	***5.00E-01***	***5.00E-01***	***5.00E-01***
$\Sigma(wX/X)^2$	4.99E-02	1.86E-02	1.08E-02	8.84E-02	2.36E-02	1.43E-02	5.08E-01	3.48E-01	2.68E-01
RMS uncert $[\Sigma(wX/X)^2]^{\frac{1}{2}}$	**2.23E-01**	**1.37E-01**	**1.04E-01**	**2.97E-01**	**1.53E-01**	**1.20E-01**	**7.13E-01**	**5.90E-01**	**5.18E-01**
RMS uncertainty %	**22%**	**14%**	**10%**	**30%**	**15%**	**12%**	**71%**	**59%**	**52%**
flux ton/acre/hr	1.53E-02	1.53E-02	1.53E-02	2.81E-03	2.81E-03	2.81E-03	3.12E-04	3.12E-04	3.12E-04
RMS uncer ton/acre/hr	.34E-02	.21E-02	.16E-02	.84E-03	.43E-03	.34E-03	2.23E-04	1.84E-04	1.62E-04

Table 1H - Results of experimental repeatability study

RUN #	Saltation	Cyclone	Filter	TSI PM-10
	mass	mass	mass	mass
	mg	mg	mg	mg
D003	10086.3	124.5	171.9	0.05949
C001	4853.3	141.8	36.0	0.03835
C002	7366.1	353.0	72.0	0.05722
D004	6137.5	167.0	37.0	0.04166
E001	2201.3	198.0	108.4	0.02516
E002	10527.4	644.2	17.3	0.07374
E003 (γ)	11822.9	871.1	123.4	0.06267
E004	594.6	94.4	111.9	0.01115
average	6698.7	324.3	84.7	0.0462
std. dev	4036.3	285.1	53.1	0.0210
coef. var.	60%	88%	63%	45%
average - 1sd, mg	2662.3	39.2	31.6	0.0252
average, mg	6698.7	324.3	84.7	0.0462
average + 1 sd, mg	10735.0	609.3	137.9	0.0672
Flow rate, cfm	440	40	40	
Flow rate, liter/min				1.7
avg concentr mg/m^3	53.77	28.63	7.48	2.72

Figure 1-1 **Approximate major cross street locations of 1995 Wind tunnel test sites Clark County, Nevada.**

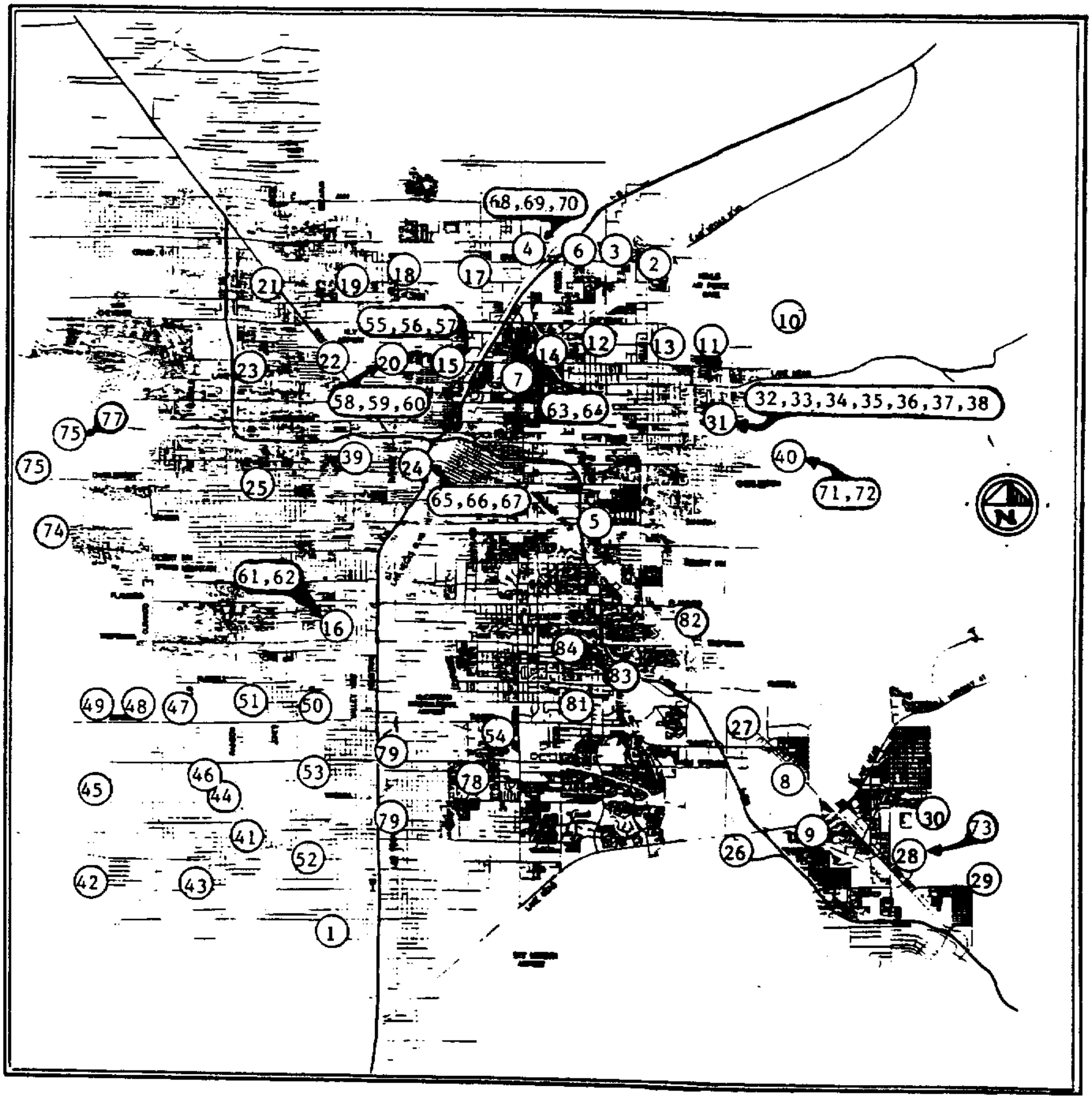


Figure 1-2 – Wind Tunnel Component Diagram

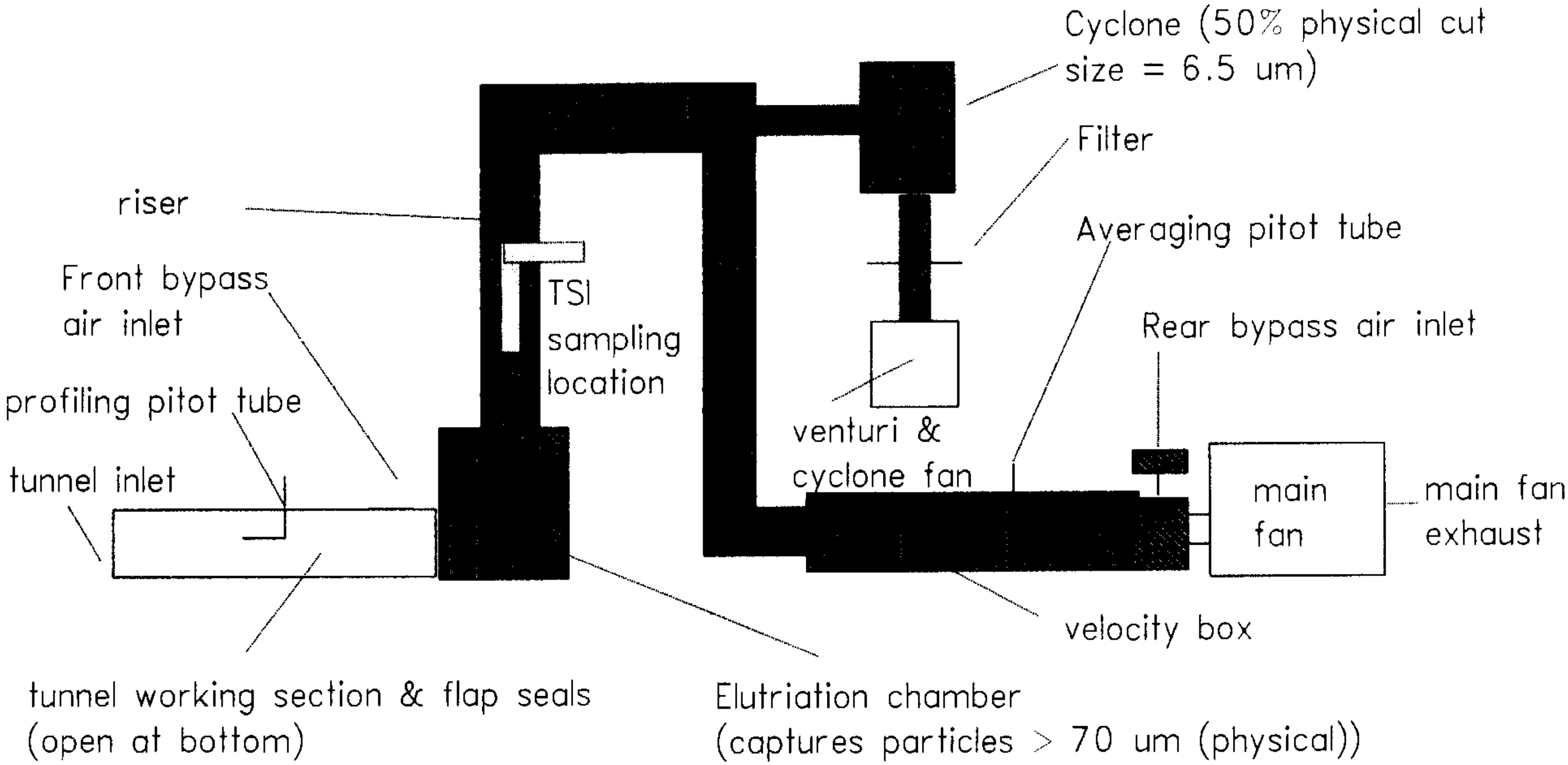


Figure 1-3 Wind Tunnel Processes Diagram
Arrows indicate air flow directions

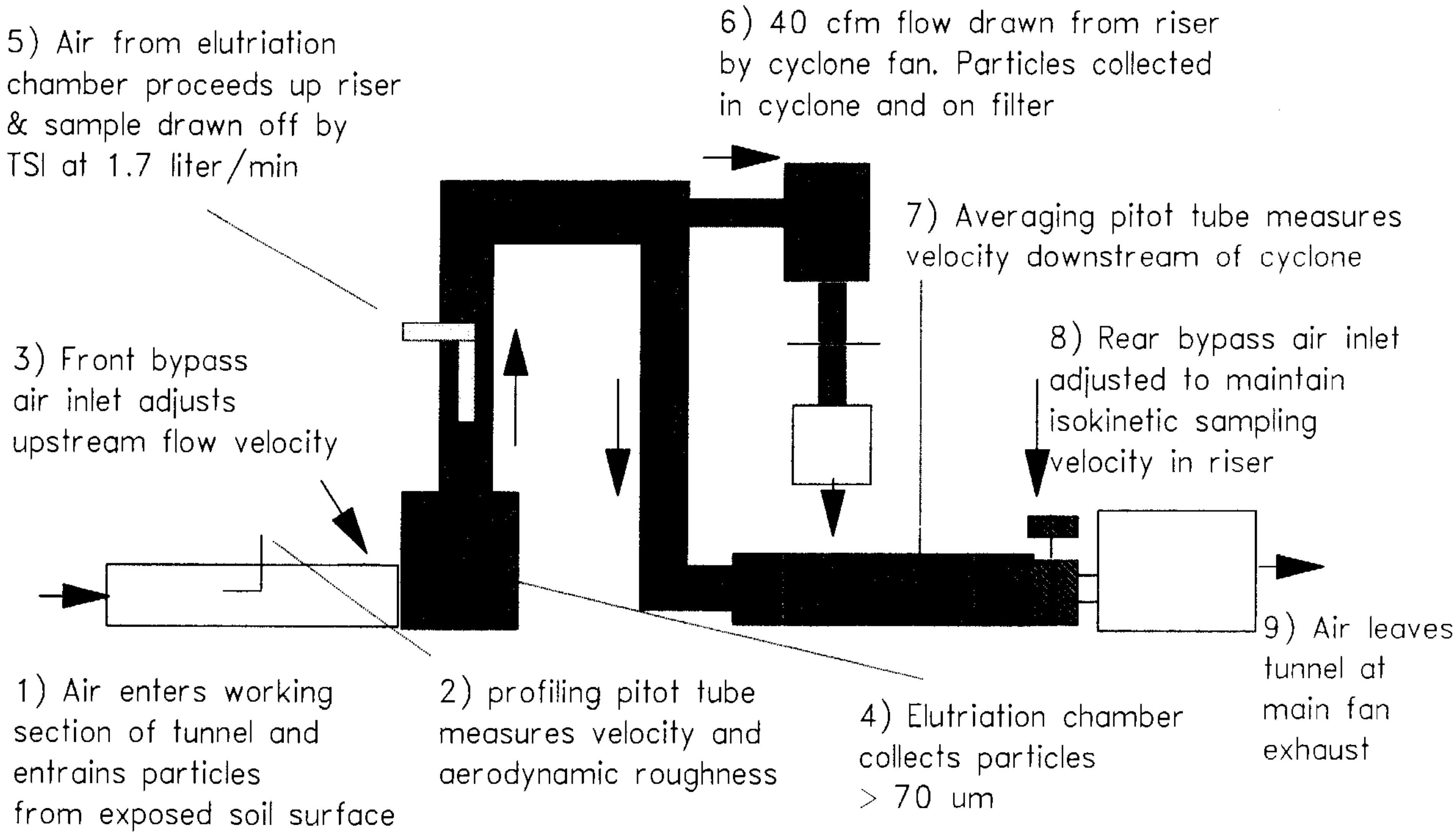


Figure 1-4 - Wind Tunnel Air Flow Balance
Arrows indicate flow directions

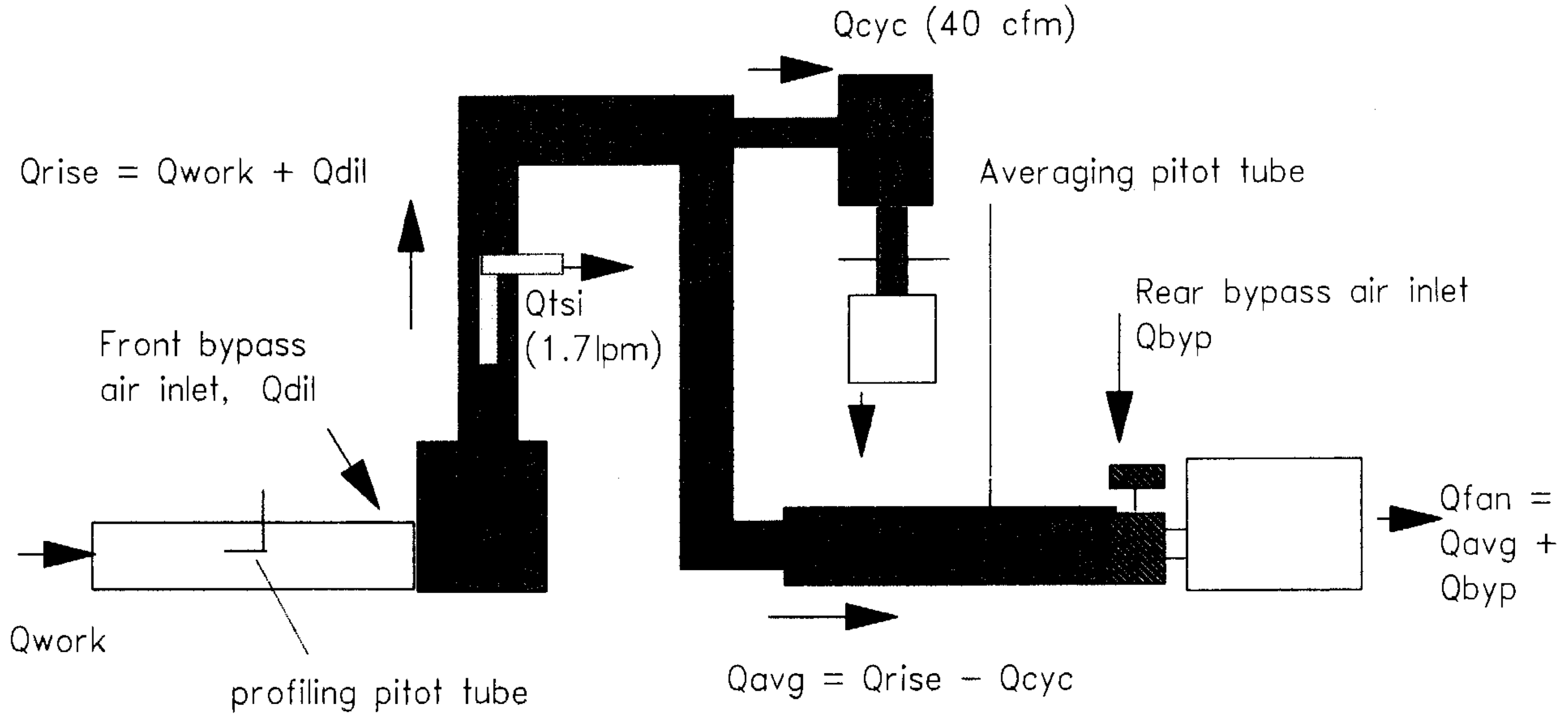


Figure 1-5 - Air flow balance equations

Assuming negligibe air density changes, then mass flow = volumetric flow

Primary equations:
a) Qrise = Qdil + Qwork

b) Qavg = Qrise - Qcyc

c) Qfan = Qavg + Qbyp

Measured or known:

Qavg	measured directly
Qcyc	known, 40 cfm
Qtsi	known, 1.7 liter/min - assumed negligible in gas flow balance

Derived equations:
d) From b, Qrise = Qavg + Qcyc

e) From a, Qdil = Qrise - Qwork

f) Substitute d into e, obtain Qdil = Qavg + Qcyc - Qwork

g) Rearrange f to obtain, Qdil + Qwork = Qavg + Qcyc

With Qavg measured & Qcyc known, then Qdil + Qwork can be computed

Figure 1–6 – Wind Tunnel PM–10 Mass Balance
Arrows indicate PM–10 mass fluxes

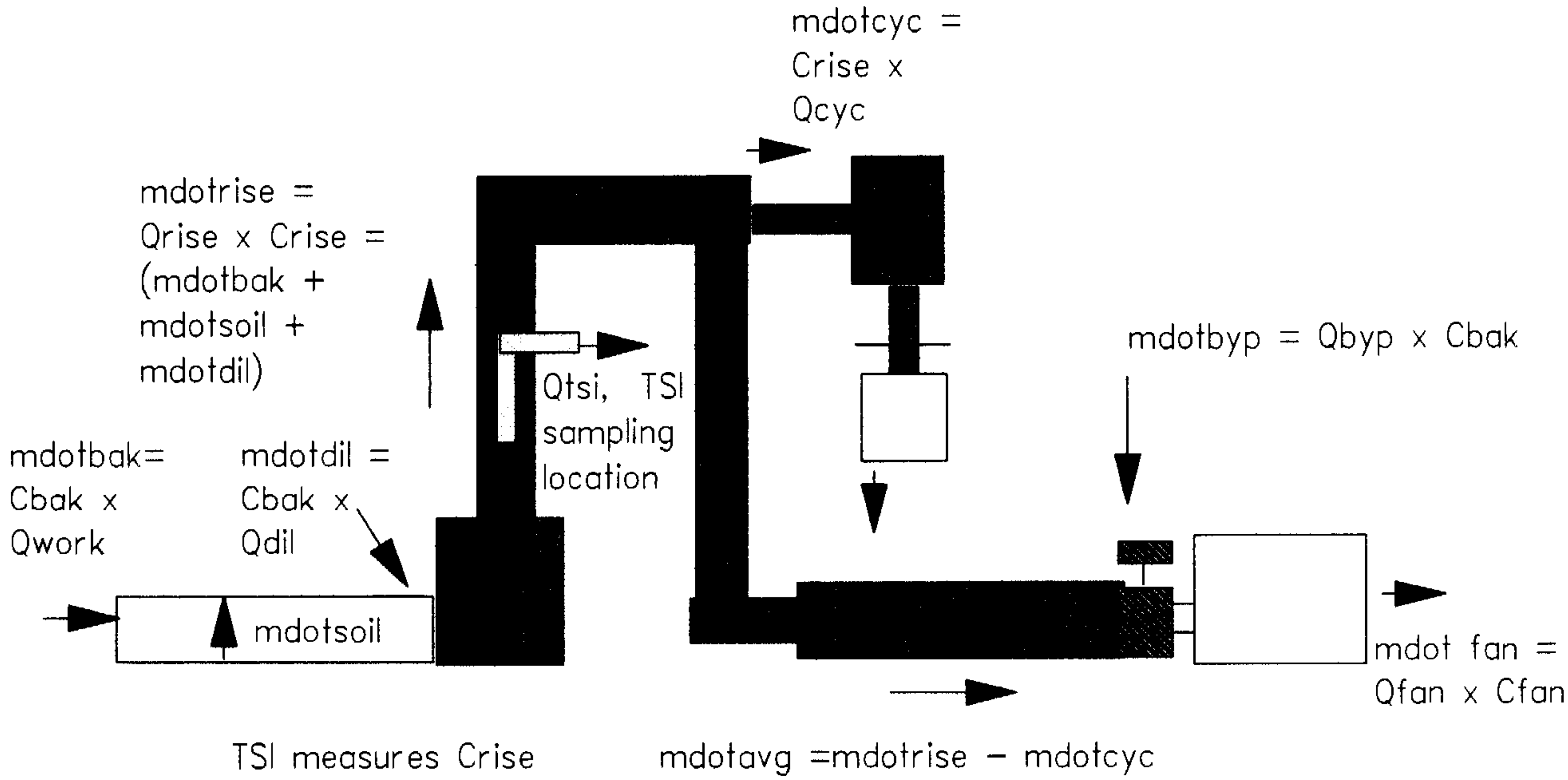


Figure 1-7 - Mass balance equations for PM10 (mdot = mass flow rate)

Primary equations:
a) mdotfan = mdotbyp + mdotavg

b) mdot avg = mdotrise - mdotcyc

c) mdotrise = mdotdil + mdotsoil + mdotbak

d) mdotbak = Qwork x Cbak

e) mdotdil = Qdil x Cbak

f) mdotrise = Qrise x Crise

Measured, assumed or known:

Crise	Measured with TSI Dust Trak(r)					
Cbak	Assumed 20 or 30 ug/m3, or measured with TSI Dust Trak(r)					
Tunnel floor area		0.5 ft wide x		5 ft long	=	2.5 ft^2

Derived equations:
g) from c, mdotsoil = mdotrise - (mdotdil + mdotbak)

h) from d&e, mdotdil + mdotbak = (Qdil+Qwork) x Cbak

i) from Figure 1-5, equation g, Qdil+Qwork = Qavg + Qcyc

j) substitute i into h and h into g

to obtain mdotsoil = mdotrise - (Qavg+Qcyc) x Cbak

k) by c, mdotrise = Qrise x Crise

l) by Figure 1-5, equation d, Qrise = Qavg + Qcyc

m) therefore, mdotrise = (Qavg + Qcyc) x Crise

n) therefore, mdotsoil = (Qavg+Qcyc) x [Crise - Cbak]

o) fluxsoil = mdotsoil / Tunnel floor area

p) therefore, fluxsoil = [(Qavg+Qcyc)x(Crise-Cbak)] / [Tunnel floor area]

Figure 1-8 - Example calculations

A. Raw Data

Qavg	440	cfm
Qcyc	40	cfm
Cbak	20	ug/m3
Crise	432	ug/m3 (average value over 10 min sampling period)
Tunnel floor	2.5	ft2

B. Conversion factors

0.305	m/ft
0.001	mg/ug
2.21E-06	lb/mg
0.0005	ton/lb
4047	m2/acre
60	min/hr

C. Flux calculation using Figure 1-7, equation p

fluxsoil = [(440cfm+40cfm)x(432-20ug/m3)]/[2.5ft2] ug-ft/m3/min =		7.91E+04	ug-ft/m3/min
fluxsoil =	7.91E+04 ug-ft/m3/min x 0.305 m/ft =	2.41E+04	ug/m2/min
fluxsoil =	2.41E+04 ug/m2/min x 0.001 mg/ug =	2.41E+01	mg/m2/min

D. Conversion to ton/acre/hr

fluxsoil =	2.41E+01	mg/m2/min x	2E-06	lb/mg =	5.32E-05	lb/m2/min
fluxsoil =	5.32E-05	lb/m2/min x	0.0005	ton/lb =	2.66E-08	ton/m2/min
fluxsoil =	2.66E-08	ton/m2/min x	4047	m2/acr =	1.08E-04	ton/acre/min
fluxsoil =	1.08E-04	ton/acre/min x	60	min/hr =	6.46E-03	ton/acre/hour
fluxsoil =	6.46E-03	ton/acre/hour				

Figure 1-9 Example velocity profile plot

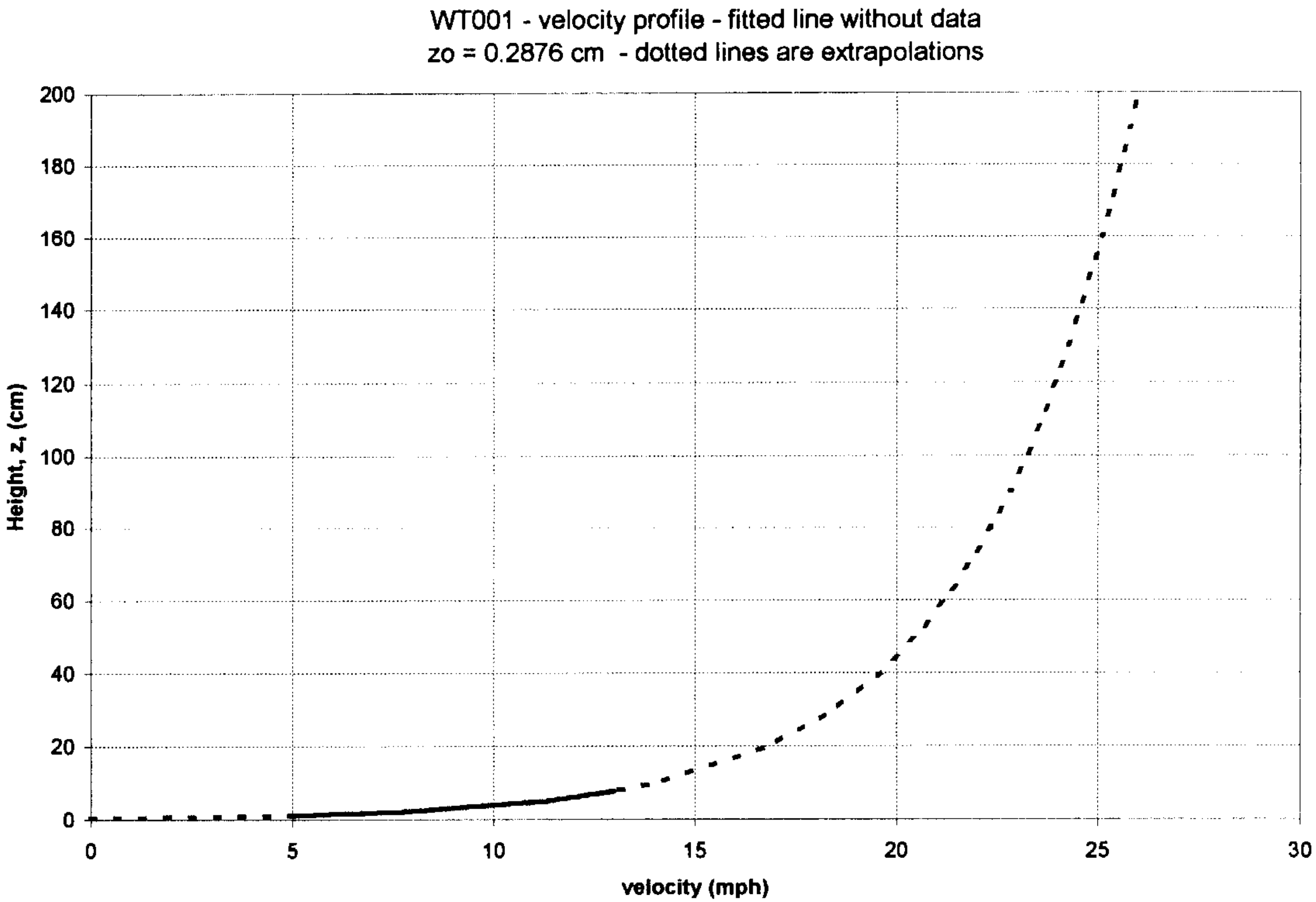
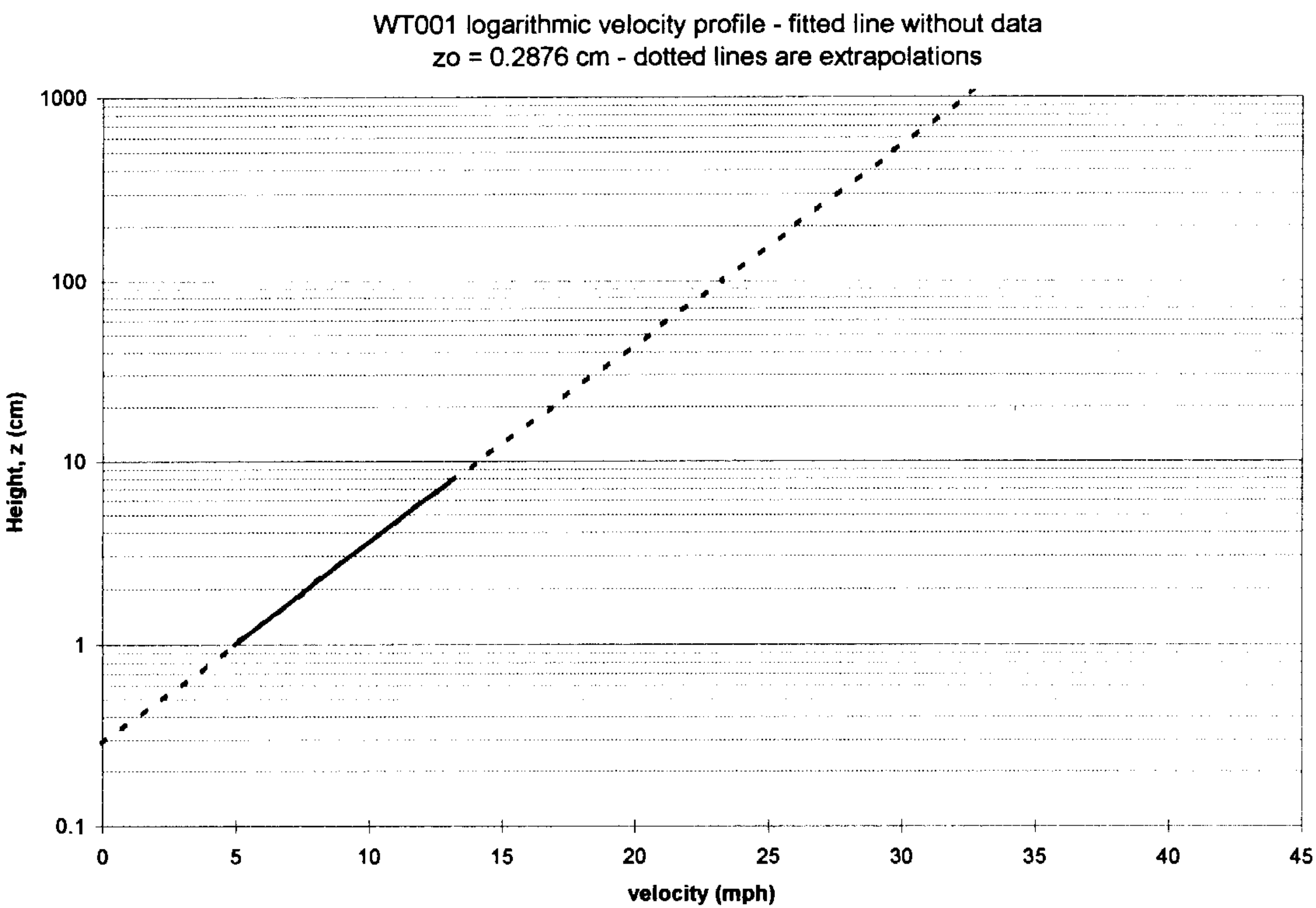


Figure 1-10 - Example velocity profile plot - log-transformed



Section 2 - 1995 wind tunnel field data and uncorrected flux calculations.

Table 2 contains the following data, sorted by Wind tunnel site designation:

1) Date at which each site was sampled.

2) Wind tunnel site designation, listed as WT0xx, where xx is a two-digit site number.

3) Major soil group.

4) Wind tunnel run number at each site.

5) Duration of PM-10 logging event, in minutes. Each event was 600 seconds (10 minutes) long. Logging frequency and run duration were programmed into the Dust-Trak(r). The Dust-Trak(r) measured and recorded PM-10 concentrations every second. The TSI shut-off automatically after 600 seconds of monitoring.

6) Erosion velocity extrapolated to z = 10 meters above the surface (shown as U10).

7) Wind tunnel site stability classification, with 0 = Stable, and 1 = Unstable.

8) Average PM-10 concentration measured by the TSI Dust-Trak(r) during the 10 minute sampling run.

9) Average volumetric flow rate measured through the averaging section of the tunnel (Qactual), measured with a Dwyer averaging pitot tube.

10) Individual, non spike-corrected flux in milligrams per square meter per minute (mg)/(m^2-min). This uncorrected flux is computed using the following equation:

PM-10 flux = [(average measured PM-10 concentration) - (assumed background PM-10 concentration)] x [(average flow rate) + (cyclone flow rate) / (tunnel floor area)

A PM-10 background concentration of 0.030 mg/m^3 (30 μg/m^3)was assumed for all runs.

For example, using data from WT002, run 1, with an average PM-10 concentration of 0.157 mg/m^3, and a flow rate of 431.1 ft^3/min, the calculated result is:

PM-10 flux = [(0.157 mg/m^3) - (0.030 mg/m^3)] x [(431.1 ft^3/min) + (40 ft^3/min)] / (2.500 ft^2) = 23.93 (mg-ft)/ (m^3-min) x (0.305 meter/foot) = <u>7.30 mg / (m^2-min)</u>.

11) Individual non spike-corrected flux, converted to ton/acre/hour. The conversion factor from mg/m^2/min to ton/acre/hour is 2.206×10^{-6} lb/mg x 0.0005 ton/lb x 4047 m^2/acre x 60 min/hour = 2.68×10^{-4} (ton/acre/hr) / (mg/m^2/min). For WT002, run 1, this results in: 7.30 (mg /m^2/min) x 2.68×10^{-4} (ton/acre/hr)/(mg/m^2/min) = <u>1.95×10^{-3} ton/acre/hour</u>.

Table 2 - 1995 Wind tunnel field data and calculated raw (not spike-corrected, not cumulative) fluxes

Date	Site	Major soil group	Run	Duration (min)	U10 (mph)	Unstable (y=1, n=0)	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2-min) indiv nonspike corr	Flux (ton/acre*hr) indiv nonspike corr
5/31/95	WT001	3	1	10	29.0	0	0.063	439.0	1.93E+00	5.16E-04
5/31/95	WT001	3	2	10	45.8	0	0.971	439.0	5.50E+01	1.47E-02
5/31/95	WT001	3	3	10	52.9	0	0.668	439.0	3.73E+01	9.98E-03
6/01/95	WT002	6	1	10	22.3	0	0.157	431.1	7.30E+00	1.95E-03
6/01/95	WT002	6	2	10	27.7	0	0.499	431.1	2.70E+01	7.22E-03
6/01/95	WT002	6	3	10	28.9	0	0.215	431.1	1.06E+01	2.85E-03
6/01/95	WT003	6	1	10	43.3	0	0.187	439.0	9.17E+00	2.46E-03
6/01/95	WT003	6	2	10	50.0	0	0.772	439.0	4.34E+01	1.16E-02
6/01/95	WT003	6	3	10	51.3	0	0.641	439.0	3.57E+01	9.56E-03
6/07/95	WT004	8	1	10	37.5	0	0.139	416.8	6.07E+00	1.63E-03
6/07/95	WT004	8	2	10	44.7	0	0.058	416.8	1.56E+00	4.18E-04
6/07/95	WT004	8	3	10	46.6	0	0.076	416.8	2.56E+00	6.86E-04
6/08/95	WT005	8	1	10	22.9	1	0.182	408.9	8.32E+00	2.23E-03
6/08/95	WT005	8	2	10	28.1	1	0.131	408.9	5.53E+00	1.48E-03
6/08/95	WT006	8	1	10	31.8	0	1.777	418.4	9.77E+01	2.62E-02
6/08/95	WT006	8	2	10	37.6	0	2.058	418.4	1.13E+02	3.04E-02
6/08/95	WT006	8	3	10	38.9	0	1.662	418.4	9.13E+01	2.44E-02
6/09/95	WT007	5	1	10	34.5	0	0.071	416.8	2.29E+00	6.12E-04
6/09/95	WT007	5	2	10	46.9	0	0.637	416.8	3.38E+01	9.06E-03
6/09/95	WT007	5	3	10	49.9	0	0.292	416.8	1.46E+01	3.91E-03
6/09/95	WT008	8	1	10	29.7	0	0.018	427.9	0.00E+00	0.00E+00
6/09/95	WT008	8	2	10	35.0	0	0.055	427.9	1.43E+00	3.82E-04
6/09/95	WT008	8	3	10	39.6	0	0.163	427.9	7.59E+00	2.03E-03
6/09/95	WT009	8	1	10	38.0	0	0.183	433.4	8.84E+00	2.37E-03
6/09/95	WT009	8	2	10	42.3	0	0.470	433.4	2.54E+01	6.80E-03
6/09/95	WT009	8	3	10	47.8	0	0.213	433.4	1.06E+01	2.83E-03
6/19/95	WT010	8	1	10	18.4	0	0.314	426.3	1.62E+01	4.33E-03
6/19/95	WT010	8	2	10	24.5	0	1.544	426.3	8.61E+01	2.31E-02
6/19/95	WT010	8	3	10	35.7	0	0.585	426.3	3.16E+01	8.45E-03
6/19/95	WT011	6	1	10	25.9	0	2.868	435.0	1.64E+02	4.40E-02
6/19/95	WT011	6	2	10	33.6	0	12.617	435.0	7.29E+02	1.95E-01
6/20/95	WT012	2	1	10	35.4	0	0.512	427.1	2.75E+01	7.35E-03
6/20/95	WT012	2	2	10	41.5	0	0.883	427.1	4.86E+01	1.30E-02
6/20/95	WT012	2	3	10	49.0	0	0.809	427.1	4.44E+01	1.19E-02
6/20/95	WT013	8	1	10	38.7	1	2.269	435.0	1.30E+02	3.47E-02
6/20/95	WT013	8	2	10	48.7	1	4.189	435.0	2.41E+02	6.45E-02
6/20/95	WT013	8	3	10	54.8	1	3.788	435.0	2.18E+02	5.83E-02
6/21/95	WT014	8	1	10	37.4	0	0.907	423.2	4.96E+01	1.33E-02
6/21/95	WT014	8	2	10	40.6	0	0.672	423.2	3.63E+01	9.71E-03
6/21/95	WT014	8	3	10	45.8	0	1.338	423.2	7.39E+01	1.98E-02
6/21/95	WT015	2	1	10	37.9	0	0.362	429.5	1.90E+01	5.09E-03

Table 2 - 1995 Wind tunnel field data and calculated raw (not spike-corrected, not cumulative) fluxes

Date	Site	Major soil group	Run	Duration (min)	U10 (mph)	Unstable (y=1, n=0)	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2-min) indiv nonspike corr	Flux (ton/acre*hr) indiv nonspike corr
6/21/95	WT015	2	2	10	45.5	0	0.339	429.5	1.77E+01	4.74E-03
6/21/95	WT015	2	3	10	53.1	0	0.435	429.5	2.32E+01	6.21E-03
6/21/95	WT016	2	1	10	35.3	1	1.093	435.8	6.17E+01	1.65E-02
6/21/95	WT016	2	2	10	39.8	1	0.334	435.8	1.76E+01	4.72E-03
6/21/95	WT016	2	3	10	44.2	1	1.489	435.8	8.47E+01	2.27E-02
6/22/95	WT017	2	1	10	37.3	0	1.330	431.1	7.47E+01	2.00E-02
6/22/95	WT017	2	2	10	43.8	0	0.377	431.1	1.99E+01	5.34E-03
6/22/95	WT017	2	3	10	50.5	0	0.724	431.1	3.99E+01	1.07E-02
6/22/95	WT018	2	1	10	34.9	1	1.343	435.0	7.61E+01	2.04E-02
6/22/95	WT018	2	2	10	44.9	1	1.055	435.0	5.94E+01	1.59E-02
6/22/95	WT018	2	3	10	51.2	1	1.500	435.0	8.52E+01	2.28E-02
6/26/95	WT019	2	1	10	38.2	1	0.513	441.4	2.84E+01	7.59E-03
6/26/95	WT019	2	2	10	41.7	1	0.717	441.4	4.03E+01	1.08E-02
6/26/95	WT019	2	3	10	46.3	1	0.645	441.4	3.61E+01	9.67E-03
6/26/95	WT020	8	1	10	44.7	1	0.234	448.5	1.22E+01	3.25E-03
6/26/95	WT020	8	2	10	45.1	1	0.267	448.5	1.41E+01	3.78E-03
6/26/95	WT020	8	3	10	55.7	1	0.294	448.5	1.57E+01	4.21E-03
6/27/95	WT021	2	1	10	38.6	1	0.282	436.6	1.47E+01	3.92E-03
6/27/95	WT021	2	2	10	41.7	1	0.374	436.6	2.00E+01	5.35E-03
6/27/95	WT021	2	3	10	47.9	1	0.353	436.6	1.88E+01	5.03E-03
6/27/95	WT022	2	1	10	41.2	1	0.100	439.8	4.10E+00	1.10E-03
6/27/95	WT022	2	2	10	45.3	1	0.205	439.8	1.02E+01	2.74E-03
6/27/95	WT022	2	3	10	53.5	1	0.141	439.8	6.50E+00	1.74E-03
6/27/95	WT023	5	1	10	41.3	0	1.555	447.7	9.07E+01	2.43E-02
6/27/95	WT023	5	2	10	48.6	0	1.938	447.7	1.14E+02	3.04E-02
6/27/95	WT023	5	3	10	57.2	0	2.518	447.7	1.48E+02	3.96E-02
6/28/95	WT024	9	1	10	34.2	1	1.573	444.5	9.12E+01	2.44E-02
6/28/95	WT024	9	2	10	42.5	1	2.652	444.5	1.55E+02	4.15E-02
6/28/95	WT024	9	3	10	47.5	1	1.613	444.5	9.36E+01	2.50E-02
6/28/95	WT025	2	1	10	48.0	0	1.628	446.9	9.49E+01	2.54E-02
6/28/95	WT025	2	2	10	53.2	0	1.866	446.9	1.09E+02	2.92E-02
6/28/95	WT025	2	3	10	61.7	0	1.382	446.9	8.03E+01	2.15E-02
6/29/95	WT026	6	1	10	33.5	0	0.332	431.9	1.74E+01	4.65E-03
6/29/95	WT026	6	2	10	38.4	0	0.650	431.9	3.57E+01	9.55E-03
6/29/95	WT026	6	3	10	44.2	0	0.798	431.9	4.42E+01	1.18E-02
6/29/95	WT027	6	1	10	38.2	0	0.590	440.6	3.28E+01	8.79E-03
6/29/95	WT027	6	2	10	43.0	0	0.485	440.6	2.67E+01	7.14E-03
6/29/95	WT027	6	3	10	49.1	0	1.282	440.6	7.34E+01	1.97E-02
6/30/95	WT028	6	1	10	28.3	0	0.942	432.7	5.26E+01	1.41E-02
6/30/95	WT028	6	2	10	31.4	0	1.147	432.7	6.44E+01	1.72E-02
6/30/95	WT028	6	3	10	36.2	0	1.342	432.7	7.57E+01	2.03E-02

Table 2 - 1995 Wind tunnel field data and calculated raw (not spike-corrected, not cumulative) fluxes

Date	Site	Major soil group	Run	Duration (min)	U10 (mph)	Unstable (y=1, n=0)	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2-min) indiv nonspike corr	Flux (ton/acre*hr) indiv nonspike corr
6/30/95	WT029	3	1	10	30.8	1	0.206	433.4	1.02E+01	2.72E-03
6/30/95	WT029	3	2	10	34.0	1	0.495	433.4	2.69E+01	7.19E-03
6/30/95	WT029	3	3	10	37.0	1	0.315	433.4	1.65E+01	4.41E-03
6/30/95	WT030	6	1	10	42.2	0	0.546	441.4	3.03E+01	8.11E-03
6/30/95	WT030	6	2	10	50.1	0	0.500	441.4	2.76E+01	7.39E-03
6/30/95	WT030	6	3	10	56.9	0	0.585	441.4	3.26E+01	8.73E-03
7/05/95	WT031-A	8	1	10	38.8	1	1.431	430.3	8.04E+01	2.15E-02
7/05/95	WT031-A	8	2	10	44.7	1	2.674	430.3	1.52E+02	4.06E-02
7/05/95	WT031-A	8	3	10	47.2	1	4.172	430.3	2.38E+02	6.36E-02
7/05/95	WT031-B	8	1	10	39.0	1	1.392	438.2	7.95E+01	2.13E-02
7/05/95	WT031-B	8	2	10	44.9	1	2.665	438.2	1.54E+02	4.12E-02
7/05/95	WT031-B	8	3	10	47.9	1	5.691	438.2	3.30E+02	8.84E-02
7/05/95	WT031-C	8	1	10	41.5	1	3.599	443.7	2.11E+02	5.64E-02
7/05/95	WT031-C	8	2	10	47.7	1	3.940	443.7	2.31E+02	6.18E-02
7/05/95	WT031-C	8	3	10	50.4	1	5.689	443.7	3.34E+02	8.94E-02
7/06/95	WT031-D	8	1	10	47.1	1	3.230	449.3	1.91E+02	5.11E-02
7/06/95	WT031-D	8	2	10	54.2	1	1.538	449.3	9.00E+01	2.41E-02
7/06/95	WT031-D	8	3	10	59.6	1	9.109	449.3	5.42E+02	1.45E-01
7/07/95	WT031-E	8	1	10	42.9	1	1.656	429.5	9.31E+01	2.49E-02
7/07/95	WT031-E	8	2	10	49.5	1	1.973	429.5	1.11E+02	2.98E-02
7/07/95	WT031-E	8	3	10	52.7	1	2.748	429.5	1.56E+02	4.17E-02
7/10/95	WT031-F	8	1	10	38.1	1	1.885	432.7	1.07E+02	2.86E-02
7/10/95	WT031-F	8	2	10	43.8	1	1.598	432.7	9.04E+01	2.42E-02
7/10/95	WT031-F	8	3	10	48.2	1	2.280	432.7	1.30E+02	3.47E-02
7/10/95	WT031-G	8	1	10	33.6	1	1.032	438.2	5.85E+01	1.56E-02
7/10/95	WT031-G	8	2	10	38.6	1	1.601	438.2	9.16E+01	2.45E-02
7/10/95	WT031-G	8	3	10	42.5	1	1.672	438.2	9.58E+01	2.56E-02
7/10/95	WT031-H	8	1	10	36.2	1	22.840	439.0	1.33E+03	3.57E-01
7/10/95	WT031-H	8	2	10	41.6	1	19.953	439.0	1.16E+03	3.12E-01
7/10/95	WT031-H	8	3	10	44.9	1	48.987	439.0	2.86E+03	7.66E-01
7/06/95	WT032	2	1	10	32.5	1	0.156	436.6	7.33E+00	1.96E-03
7/06/95	WT032	2	2	10	36.4	1	0.115	436.6	4.94E+00	1.32E-03
7/06/95	WT032	2	3	10	39.3	1	0.125	436.6	5.52E+00	1.48E-03
7/07/95	WT033	5	1	10	42.1	0	0.653	439.8	3.65E+01	9.76E-03
7/07/95	WT033	5	2	10	47.4	0	0.631	439.8	3.52E+01	9.42E-03
7/07/95	WT033	5	3	10	52.6	0	0.597	439.8	3.32E+01	8.88E-03
7/12/95	WT034	2	1	10	41.6	0	1.245	432.7	7.01E+01	1.88E-02
7/12/95	WT034	2	2	10	46.7	0	2.073	432.7	1.18E+02	3.15E-02
7/12/95	WT034	2	3	10	52.4	0	4.244	432.7	2.43E+02	6.51E-02
7/12/95	WT035	2	1	10	25.7	0	0.930	438.2	5.25E+01	1.41E-02
7/12/95	WT035	2	2	10	29.6	0	1.832	438.2	1.05E+02	2.81E-02

Table 2 - 1995 Wind tunnel field data and calculated raw (not spike-corrected, not cumulative) fluxes

Date	Site	Major soil group	Run	Duration (min)	U10 (mph)	Unstable (y=1, n=0)	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2-min) indiv nonspike corr	Flux (ton/acre*hr) indiv nonspike corr
7/12/95	WT035	2	3	10	34.3	0	5.148	438.2	2.99E+02	7.99E-02
7/13/95	WT036	2	1	10	42.7	0	0.946	430.3	5.26E+01	1.41E-02
7/13/95	WT036	2	2	10	49.8	0	0.978	430.3	5.44E+01	1.46E-02
7/13/95	WT036	2	3	10	56.1	0	4.645	430.3	2.65E+02	7.09E-02
7/13/95	WT037	2	1	10	45.0	0	0.878	438.2	4.95E+01	1.32E-02
7/13/95	WT037	2	2	10	50.9	0	0.894	438.2	5.04E+01	1.35E-02
7/13/95	WT037	2	3	10	55.8	0	2.571	438.2	1.48E+02	3.97E-02
7/14/95	WT038	2	1	10	33.2	0	0.171	429.5	8.08E+00	2.16E-03
7/14/95	WT038	2	2	10	37.7	0	0.184	429.5	8.82E+00	2.36E-03
7/14/95	WT038	2	3	10	41.5	0	0.248	429.5	1.25E+01	3.34E-03
7/14/95	WT039	2	1	10	43.8	0	0.508	435.0	2.77E+01	7.42E-03
7/14/95	WT039	2	2	10	49.6	0	0.442	435.0	2.39E+01	6.39E-03
7/14/95	WT039	2	3	10	56.2	0	0.744	435.0	4.14E+01	1.11E-02
7/14/95	WT040	2	1	10	37.1	0	0.908	439.8	5.14E+01	1.38E-02
7/14/95	WT040	2	2	10	40.6	0	3.172	439.8	1.84E+02	4.92E-02
7/14/95	WT040	2	3	10	44.8	0	1.336	439.8	7.64E+01	2.05E-02
7/18/95	WT041	2	1	10	42.2	0	0.872	430.3	4.83E+01	1.29E-02
7/18/95	WT041	2	2	10	48.6	0	0.770	430.3	4.25E+01	1.14E-02
7/18/95	WT041	2	3	10	53.6	0	0.849	430.3	4.70E+01	1.26E-02
7/18/95	WT042	2	1	10	39.3	0	0.285	438.2	1.49E+01	3.98E-03
7/18/95	WT042	2	2	10	54.7	0	0.610	438.2	3.38E+01	9.06E-03
7/18/95	WT042	2	3	10	60.7	0	0.460	438.2	2.51E+01	6.72E-03
7/18/95	WT043	2	1	10	34.2	1	2.353	443.7	1.37E+02	3.67E-02
7/18/95	WT043	2	2	10	39.5	1	3.251	443.7	1.90E+02	5.09E-02
7/18/95	WT043	2	3	10	45.9	1	6.955	443.7	4.09E+02	1.09E-01
7/19/95	WT044	2	1	10	30.3	0	0.339	429.5	1.77E+01	4.74E-03
7/19/95	WT044	2	2	10	33.4	0	0.523	429.5	2.82E+01	7.56E-03
7/19/95	WT044	2	3	10	36.9	0	0.853	429.5	4.71E+01	1.26E-02
7/19/95	WT045	2	1	10	44.0	0	1.535	439.8	8.81E+01	2.36E-02
7/19/95	WT045	2	2	10	50.5	0	0.933	439.8	5.29E+01	1.41E-02
7/19/95	WT045	2	3	10	56.8	0	1.664	439.8	9.56E+01	2.56E-02
7/20/95	WT046	3	1	10	41.7	0	0.353	432.7	1.86E+01	4.99E-03
7/20/95	WT046	3	2	10	48.1	0	0.633	432.7	3.48E+01	9.31E-03
7/20/95	WT046	3	3	10	52.4	0	1.395	432.7	7.87E+01	2.11E-02
7/20/95	WT047	7	1	10	40.3	0	0.808	438.2	4.54E+01	1.22E-02
7/20/95	WT047	7	2	10	44.1	0	1.009	438.2	5.71E+01	1.53E-02
7/20/95	WT047	7	3	10	48.9	0	1.155	438.2	6.56E+01	1.76E-02
7/24/95	WT048	2	1	10	21.9	0	0.063	427.0	1.88E+00	5.03E-04
7/24/95	WT048	2	2	10	25.3	0	0.107	427.0	4.39E+00	1.17E-03
7/24/95	WT048	2	3	10	30.2	0	0.129	427.0	5.64E+00	1.51E-03
7/24/95	WT048	2	4	10		0				

Table 2 - 1995 Wind tunnel field data and calculated raw (not spike-corrected, not cumulative) fluxes

Date	Site	Major soil group	Run	Duration (min)	U10 (mph)	Unstable (y=1, n=0)	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2-min) indiv nonspike corr	Flux (ton/acre*hr) indiv nonspike corr
7/24/95	WT049	2	1	10	21.1	0	0.071	436.7	2.38E+00	6.38E-04
7/24/95	WT049	2	2	10	28.5	0	0.243	436.7	1.24E+01	3.32E-03
7/24/95	WT049	2	3	10	34.2	0	0.712	436.7	3.97E+01	1.06E-02
7/26/95	WT050	2	1	10	34.8	1	0.681	418.4	3.64E+01	9.75E-03
7/26/95	WT050	2	2	10	38.8	1	0.770	418.4	4.14E+01	1.11E-02
7/26/95	WT050	2	3	10	45.3	1	5.853	418.4	3.26E+02	8.72E-02
7/26/95	WT050	2	4	10	44.8	1	1.847	421.7	1.02E+02	2.74E-02
7/25/95	WT051	8	1	10	27.2	0	0.123	447.7	5.53E+00	1.48E-03
7/25/95	WT051	8	2	10	33.5	0	0.368	447.7	2.01E+01	5.38E-03
7/25/95	WT051	8	3	10	40.3	0	0.593	447.7	3.35E+01	8.97E-03
7/25/95	WT051	8	4	10	41.5	0	0.403	447.7	2.22E+01	5.94E-03
7/25/95	WT052	8	1	10	30.9	0	0.071	445.5	2.43E+00	6.50E-04
7/25/95	WT052	8	2	10	37.0	0	0.141	445.5	6.58E+00	1.76E-03
7/25/95	WT052	8	3	10	44.4	0	0.244	443.8	1.26E+01	3.38E-03
7/25/95	WT052	8	4	10	46.1	0	0.218	442.1	1.11E+01	2.96E-03
7/26/95	WT053	8	1	10	28.4	1	1.035	466.6	6.21E+01	1.66E-02
7/26/95	WT053	8	2	10	33.7	1	0.966	460.4	5.71E+01	1.53E-02
7/26/95	WT053	8	3	10	43.2	1	2.573	457.9	1.54E+02	4.14E-02
7/26/95	WT053	8	4	10	44.2	1	0.652	457.9	3.78E+01	1.01E-02
7/27/95	WT054	2	1	10	35.1	1	0.154	438.2	7.23E+00	1.94E-03
7/27/95	WT054	2	2	10	42.4	1	0.237	438.2	1.21E+01	3.23E-03
7/27/95	WT054	2	3	10	52.7	1	0.598	438.2	3.31E+01	8.87E-03
7/27/95	WT054	2	4	10	53.9	1	0.532	438.2	2.93E+01	7.84E-03
7/27/95	WT055	2	1	10	30.7	1	0.350	447.7	1.90E+01	5.10E-03
7/27/95	WT055	2	2	10	35.2	1	1.076	447.7	6.22E+01	1.67E-02
7/27/95	WT055	2	3	10	43.6	1	1.360	447.7	7.91E+01	2.12E-02
7/27/95	WT055	2	4	10	44.7	1	0.542	447.7	3.05E+01	8.16E-03
7/28/95	WT056	8	1	10	27.9	1	0.153	439.0	7.19E+00	1.92E-03
7/28/95	WT056	8	2	10	33.9	1	0.305	439.0	1.61E+01	4.30E-03
7/28/95	WT056	8	3	10	41.1	1	0.283	439.0	1.48E+01	3.96E-03
7/28/95	WT056	8	4	10	43.1	1	0.348	439.0	1.86E+01	4.97E-03
7/28/95	WT057	8	1	10	30.2	1	0.063	443.7	1.95E+00	5.21E-04
7/28/95	WT057	8	2	10	33.5	1	0.163	443.7	7.85E+00	2.10E-03
7/28/95	WT057	8	3	10	36.9	1	0.107	443.7	4.54E+00	1.22E-03
7/28/95	WT057	8	4	10	43.1	1	0.244	443.7	1.26E+01	3.38E-03
7/31/95	WT058	9	1	10	32.8	0	0.713	439.0	3.99E+01	1.07E-02
7/31/95	WT058	9	2	10	41.3	0	0.866	439.0	4.89E+01	1.31E-02
7/31/95	WT058	9	3	10	50.4	0	1.472	439.0	8.43E+01	2.26E-02
7/31/95	WT058	9	4	10	51.6	0	0.825	439.0	4.65E+01	1.24E-02
8/01/95	WT059	9	1	10	34.7	0	0.150	435.8	6.97E+00	1.86E-03
8/01/95	WT059	9	2	10	40.8	0	0.210	435.8	1.04E+01	2.80E-03

Table 2 - 1995 Wind tunnel field data and calculated raw (not spike-corrected, not cumulative) fluxes

Date	Site	Major soil group	Run	Duration (min)	U10 (mph)	Unstable (y=1, n=0)	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2-min) indiv nonspike corr	Flux (ton/acre*hr) indiv nonspike corr
8/01/95	WT059	9	3	10	52.4	0	0.212	435.8	1.06E+01	2.83E-03
8/01/95	WT059	9	4	10	52.6	0	0.192	435.8	9.40E+00	2.52E-03
8/01/95	WT060	9	1	10	25.4	0	0.318	441.4	1.69E+01	4.53E-03
8/01/95	WT060	9	2	10	30.4	0	0.253	441.4	1.31E+01	3.51E-03
8/01/95	WT060	9	3	10	37.9	0	0.519	441.4	2.87E+01	7.69E-03
8/01/95	WT060	9	4	10	41.3	0	0.238	441.4	1.22E+01	3.27E-03
8/02/95	WT061	5	1	10	37.8	1	0.736	437.4	4.11E+01	1.10E-02
8/02/95	WT061	5	2	10	43.6	1	1.212	437.4	6.88E+01	1.84E-02
8/02/95	WT061	5	3	10	53.4	1	2.012	437.4	1.15E+02	3.09E-02
8/02/95	WT061	5	4	10	54.5	1	1.055	437.4	5.97E+01	1.60E-02
8/02/95	WT062	5	1	10	39.9	0	0.438	446.9	2.42E+01	6.49E-03
8/02/95	WT062	5	2	10	46.4	0	1.155	446.9	6.68E+01	1.79E-02
8/02/95	WT062	5	3	10	59.2	0	2.788	446.9	1.64E+02	4.39E-02
8/02/95	WT062	5	4	10	60.1	0	1.310	446.9	7.60E+01	2.04E-02
8/02/95	WT063	5	1	10	37.8	0	0.246	449.3	1.29E+01	3.45E-03
8/02/95	WT063	5	2	10	46.8	0	0.950	449.3	5.49E+01	1.47E-02
8/02/95	WT063	5	3	10	57.6	0	0.424	449.3	2.35E+01	6.30E-03
8/02/95	WT063	5	4	10	58.8	0	1.111	449.3	6.45E+01	1.73E-02
8/04/95	WT064	5	1	10	35.1	0	0.327	436.6	1.73E+01	4.62E-03
8/04/95	WT064	5	2	10	43.9	0	0.415	436.6	2.24E+01	5.99E-03
8/04/95	WT064	5	3	10	54.5	0	1.838	436.6	1.05E+02	2.81E-02
8/04/95	WT064	5	4	10	54.8	0	0.654	436.6	3.63E+01	9.71E-03
8/03/95	WT065	5	1	10	30.9	0	0.884	441.5	5.02E+01	1.34E-02
8/03/95	WT065	5	2	10	36.8	0	0.819	441.5	4.64E+01	1.24E-02
8/03/95	WT065	5	3	10	45.5	0	0.790	441.5	4.46E+01	1.20E-02
8/03/95	WT065	5	4	10	47.6	0	1.445	441.5	8.31E+01	2.23E-02
8/03/95	WT066	6	1	10	34.9	0	0.301	435.3	1.57E+01	4.21E-03
8/03/95	WT066	6	2	10	39.7	0	0.393	435.3	2.10E+01	5.63E-03
8/03/95	WT066	6	3	10	46.9	0	0.628	435.3	3.47E+01	9.28E-03
8/03/95	WT066	6	4	10	50.5	0	0.406	435.3	2.18E+01	5.84E-03
8/03/95	WT067	6	1	10	37.7	0	0.316	449.5	1.71E+01	4.57E-03
8/03/95	WT067	6	2	10	46.9	0	0.177	449.5	8.78E+00	2.35E-03
8/03/95	WT067	6	3	10	55.8	0	0.355	449.5	1.94E+01	5.20E-03
8/03/95	WT067	6	4	10		0				
8/08/95	WT068	2	1	10	29.5	0	0.134	439.0	6.08E+00	1.63E-03
8/08/95	WT068	2	2	10	33.1	0	0.394	439.0	2.13E+01	5.69E-03
8/08/95	WT068	2	3	10	41.4	0	0.453	439.0	2.47E+01	6.62E-03
8/08/95	WT068	2	4	10	44.8	0	0.361	439.0	1.93E+01	5.18E-03
8/08/95	WT069	5	1	10	28.7	0	0.435	442.1	2.38E+01	6.38E-03
8/08/95	WT069	5	2	10	32.5	0	2.259	442.1	1.31E+02	3.51E-02
8/08/95	WT069	5	3	10	41.9	0	7.572	442.1	4.44E+02	1.19E-01

Table 2 - 1995 Wind tunnel field data and calculated raw (not spike-corrected, not cumulative) fluxes

Date	Site	Major soil group	Run	Duration (min)	U10 (mph)	Unstable (y=1, n=0)	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2-min) Indiv nonspike corr	Flux (ton/acre*hr) Indiv nonspike corr
8/08/95	WT069	5	4	10	44.4	0	2.345	442.1	1.36E+02	3.65E-02
8/09/95	WT070	5	1	10	34.3	0	0.180	435.8	8.71E+00	2.33E-03
8/09/95	WT070	5	2	10	41.2	0	0.459	435.8	2.49E+01	6.67E-03
8/09/95	WT070	5	3	10	50.1	0	1.413	435.8	8.03E+01	2.15E-02
8/09/95	WT070	5	4	10	51.4	0	0.603	435.8	3.33E+01	8.90E-03
8/14/95	WT071	5	1	10	25.0	1	1.416	432.7	7.99E+01	2.14E-02
8/14/95	WT071	5	2	10	29.6	1	5.440	432.7	3.12E+02	8.35E-02
8/14/95	WT071	5	3	10	34.6	1	9.205	432.7	5.29E+02	1.42E-01
8/14/95	WT071	5	4	10	37.0	1	3.670	432.7	2.10E+02	5.62E-02
8/14/95	WT072	7	1	10	32.1	0	0.481	443.7	2.66E+01	7.13E-03
8/14/95	WT072	7	2	10	37.9	0	0.760	443.7	4.31E+01	1.15E-02
8/14/95	WT072	7	3	10	45.2	0	2.451	443.7	1.43E+02	3.82E-02
8/14/95	WT072	7	4	10	48.3	0	1.860	443.7	1.08E+02	2.89E-02
8/15/95	WT073	7	1	10	39.0	0	0.171	431.1	8.10E+00	2.17E-03
8/15/95	WT073	7	2	10	44.4	0	0.472	431.1	2.54E+01	6.80E-03
8/15/95	WT073	7	3	10	53.0	0	0.980	431.1	5.46E+01	1.46E-02
8/15/95	WT073	7	4	10	56.0	0	0.802	431.1	4.44E+01	1.19E-02
8/18/95	WT074	7	1	10	31.9	0	0.084	425.5	3.07E+00	8.21E-04
8/18/95	WT074	7	2	10	37.3	0	0.123	425.5	5.28E+00	1.41E-03
8/18/95	WT074	7	3	10	45.9	0	0.197	425.5	9.48E+00	2.54E-03
8/18/95	WT074	7	4	10	49.1	0	0.247	425.5	1.23E+01	3.30E-03
8/18/95	WT075	9	1	10	38.4	0	0.193	437.4	9.49E+00	2.54E-03
8/18/95	WT075	9	2	10	47.3	0	0.242	437.4	1.23E+01	3.31E-03
8/18/95	WT075	9	3	10	57.7	0	0.740	437.4	4.14E+01	1.11E-02
8/18/95	WT075	9	4	10	60.7	0	0.513	437.4	2.81E+01	7.53E-03
8/30/95	WT076	9	1	10	28.8	0	0.252	431.1	1.28E+01	3.42E-03
8/30/95	WT076	9	2	10	33.7	0	0.454	431.1	2.44E+01	6.52E-03
8/30/95	WT076	9	3	10	41.0	0	0.599	431.1	3.27E+01	8.75E-03
8/30/95	WT076	9	4	10	45.1	0	0.433	431.1	2.32E+01	6.20E-03
8/30/95	WT077	9	1	10	32.5	0	0.447	443.7	2.46E+01	6.59E-03
8/30/95	WT077	9	2	10	38.6	0	0.452	443.7	2.49E+01	6.67E-03
8/30/95	WT077	9	3	10	44.7	0	3.148	443.7	1.84E+02	4.93E-02
8/30/95	WT077	9	4	10	47.9	0	1.950	443.7	1.13E+02	3.03E-02
9/01/95	WT078	9	1	10	24.9	1	2.453	431.9	1.39E+02	3.73E-02
9/01/95	WT078	9	2	10	33.2	1	43.902	431.9	2.53E+03	6.76E-01
9/01/95	WT078	9	3	10	40.8	1	68.618	431.9	3.95E+03	1.06E+00
9/01/95	WT078	9	4	10	44.1	1	5.040	431.9	2.88E+02	7.72E-02

Section 3 - 1995 wind tunnel spike-corrected individual and cumulative fluxes

Table 3 contains the following data:

1) Fractional spike area, computed as the proportion of the area under the curve that can be attributed to the initial "spike" of loose PM-10. This proportion of area is graphically displayed as the dark portion of the line on the left side of the plot in Figure 3-1. It was computed using a Turbo-Pascal(r) program that processed the data files, computing the area under the spike portion of the curve, the total area under the curve, and then calculated the ratio of the spike area to the total area.

2) Individual, not spike-corrected flux, from Table 2.

3) Fractional area, not spike, computed as (1 - fractional spike area)

4) Individual spike-corrected flux, computed as (fractional area, not spike) x (Individual, not spike corrected flux)

5) Cumulative flux, spike-corrected = running sum of spike-corrected fluxes over the several runs at each wind tunnel test site.

6) For Example, using data from WT002, runs 1 and 2

Run 1 Fractional area, not spike = 1 - 0.178 = 0.822.
Individual flux, spike-corrected = 0.822 x 1.95×10^{-3} = 1.61×10^{-3} ton/acre/hour

Run 2 Fractional area, not spike = 1 - 0.602 = 0.398.
Individual flux, spike-corrected = 0.398 x 7.22×10^{-3} = 2.87×10^{-3} ton/acre/hour

Cumulative spike-corrected flux, run 2 =
individual flux, run 1 + individual flux, run 2 =
1.61×10^{-3} ton/acre/hour + 2.87×10^{-3} ton/acre/hour = 4.48×10^{-3} ton/acre/hour

Cumulative spike-corrected flux, run 3 =
individual flux, run 3 + cumulative flux, run2 =
1.50×10^{-3} ton/acre/hour + 4.48×10^{-3} ton/acre/hour = 5.98×10^{-3} ton/acre/hour

7) Blanks in Table 3 indicate runs for which 600 data point TSI files, needed for computation of spike area, were not available. Some files were corrupted or lost after download from the TSI Dust-Trak(r). Spike corrected individual and cumulative fluxes are presented in Table 3 for all wind tunnel runs for which TSI data files are available.

Figure 3-1 - Example of Spike removal for WT-056 - Run #1

Dark Line - Spike portion of trace - removed and computed separately

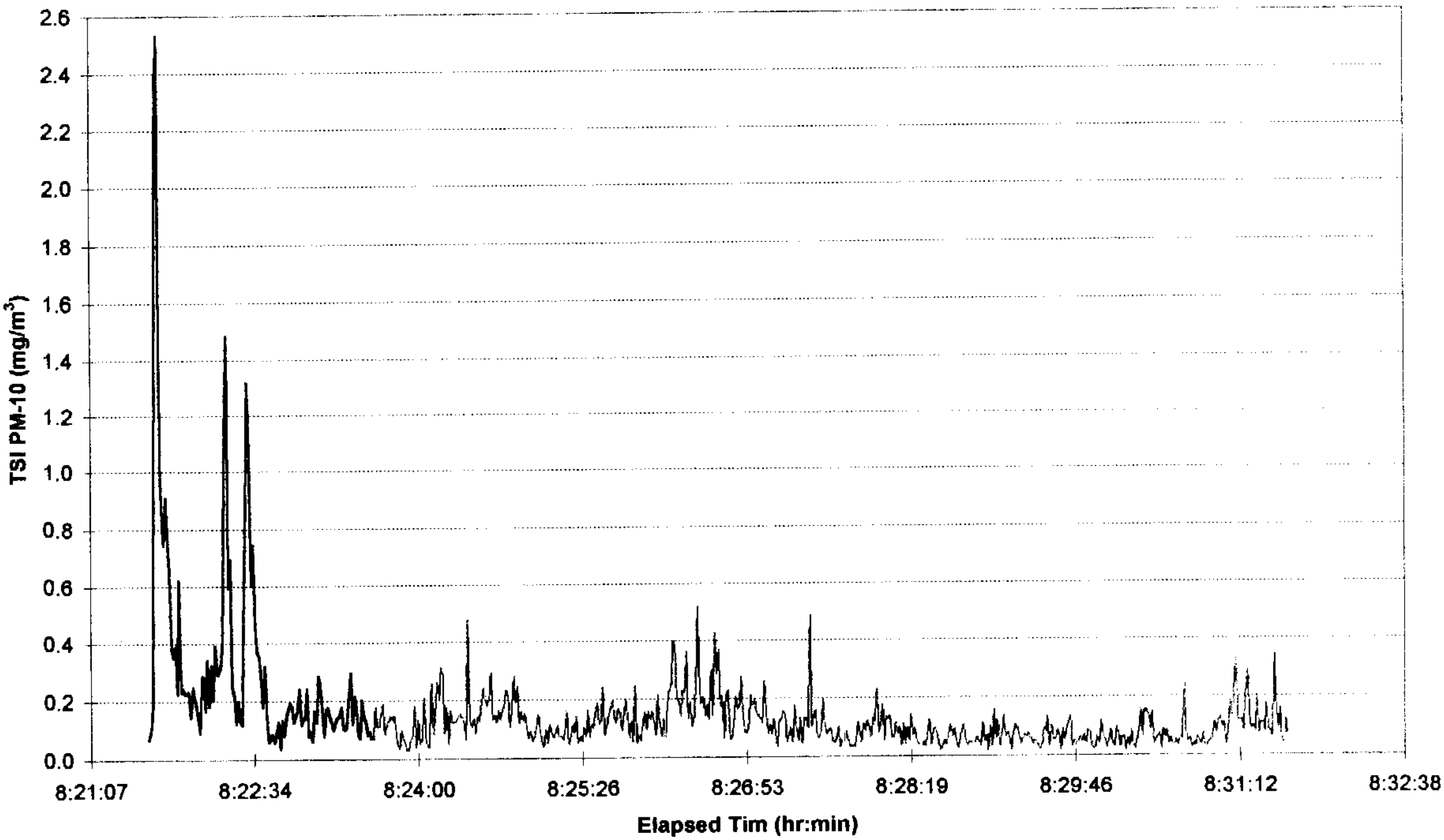


Table 3 - Spike correction and cumulative flux calculations, all in ton/acre/hour

ID	Site	Run	fractional spike area	individual flux not spike-corrected	fractional area not spike	individual flux spike-corrected	cumulative flux spike-corrected
1	WT001	1	0.000	5.16E-04	1.000	5.16E-04	5.16E-04
2	WT001	2	0.648	1.47E-02	0.352	5.17E-03	5.69E-03
3	WT001	3	0.829	9.98E-03	0.171	1.70E-03	7.39E-03
4	WT002	1	0.178	1.95E-03	0.822	1.61E-03	1.61E-03
5	WT002	2	0.602	7.22E-03	0.398	2.87E-03	4.48E-03
6	WT002	3	0.474	2.85E-03	0.526	1.50E-03	5.98E-03
7	WT003	1	0.501	2.46E-03	0.499	1.22E-03	1.22E-03
8	WT003	2	0.600	1.16E-02	0.400	4.64E-03	5.87E-03
9	WT003	3	0.699	9.56E-03	0.301	2.88E-03	8.74E-03
10	WT004	1		1.63E-03			
11	WT004	2		4.18E-04			
12	WT004	3		6.86E-04			
13	WT005	1	0.273	2.23E-03	0.727	1.62E-03	1.62E-03
14	WT005	2	0.792	1.48E-03	0.208	3.09E-04	1.93E-03
15	WT006	1	0.656	2.62E-02	0.344	8.99E-03	8.99E-03
16	WT006	2	0.708	3.04E-02	0.292	8.85E-03	1.78E-02
17	WT006	3	0.434	2.44E-02	0.566	1.38E-02	3.17E-02
18	WT007	1	0.426	6.12E-04	0.574	3.51E-04	3.51E-04
19	WT007	2	0.692	9.06E-03	0.308	2.79E-03	3.14E-03
20	WT007	3	0.563	3.91E-03	0.437	1.71E-03	4.85E-03
21	WT008	1	0.306	0.00E+00	0.694	0.00E+00	0.00E+00
22	WT008	2	0.441	3.82E-04	0.559	2.14E-04	2.14E-04
23	WT008	3	0.533	2.03E-03	0.467	9.50E-04	1.16E-03
24	WT009	1		2.37E-03			
25	WT009	2		6.80E-03			
26	WT009	3		2.83E-03			
27	WT010	1	0.550	4.33E-03	0.450	1.95E-03	1.95E-03
28	WT010	2	0.625	2.31E-02	0.375	8.64E-03	1.06E-02
29	WT010	3	0.483	8.45E-03	0.517	4.37E-03	1.50E-02
30	WT011	1	0.568	4.40E-02	0.432	1.90E-02	1.90E-02
31	WT011	2	0.114	1.95E-01	0.886	1.73E-01	1.92E-01
32	WT012	1	0.775	7.35E-03	0.225	1.66E-03	1.66E-03
33	WT012	2	0.766	1.30E-02	0.234	3.04E-03	4.70E-03
34	WT012	3	0.480	1.19E-02	0.520	6.18E-03	1.09E-02
35	WT013	1	0.536	3.47E-02	0.464	1.61E-02	1.61E-02
36	WT013	2	0.674	6.45E-02	0.326	2.10E-02	3.72E-02
37	WT013	3	0.221	5.83E-02	0.779	4.54E-02	8.26E-02
38	WT014	1	0.687	1.33E-02	0.313	4.16E-03	4.16E-03
39	WT014	2	0.659	9.71E-03	0.341	3.31E-03	7.47E-03
40	WT014	3	0.554	1.98E-02	0.446	8.83E-03	1.63E-02
41	WT015	1	0.696	5.09E-03	0.304	1.55E-03	1.55E-03

Table 3 - Spike correction and cumulative flux calculations, all in ton/acre/hour

ID	Site	Run	fractional spike area	individual flux not spike-corrected	fractional area not spike	individual flux spike-corrected	cumulative flux spike-corrected
42	WT015	2	0.594	4.74E-03	0.406	1.92E-03	3.47E-03
43	WT015	3	0.743	6.21E-03	0.257	1.60E-03	5.07E-03
44	WT016	1	0.809	1.65E-02	0.191	3.16E-03	3.16E-03
45	WT016	2	0.618	4.72E-03	0.382	1.81E-03	4.97E-03
46	WT016	3	0.882	2.27E-02	0.118	2.67E-03	7.64E-03
47	WT017	1	0.869	2.00E-02	0.131	2.62E-03	2.62E-03
48	WT017	2		5.34E-03			
49	WT017	3		1.07E-02			
50	WT018	1	0.622	2.04E-02	0.378	7.70E-03	7.70E-03
51	WT018	2	0.777	1.59E-02	0.223	3.55E-03	1.13E-02
52	WT018	3	0.419	2.28E-02	0.581	1.32E-02	2.45E-02
53	WT019	1	0.715	7.59E-03	0.285	2.17E-03	2.17E-03
54	WT019	2	0.715	1.08E-02	0.285	3.08E-03	5.25E-03
55	WT019	3	0.631	9.67E-03	0.369	3.57E-03	8.82E-03
56	WT020	1	0.600	3.25E-03	0.400	1.30E-03	1.30E-03
57	WT020	2	0.734	3.78E-03	0.266	1.01E-03	2.31E-03
58	WT020	3	0.673	4.21E-03	0.327	1.38E-03	3.69E-03
59	WT021	1	0.825	3.92E-03	0.175	6.87E-04	6.87E-04
60	WT021	2	0.504	5.35E-03	0.496	2.66E-03	3.34E-03
61	WT021	3	0.819	5.03E-03	0.181	9.12E-04	4.26E-03
62	WT022	1	0.437	1.10E-03	0.563	6.18E-04	6.18E-04
63	WT022	2	0.694	2.74E-03	0.306	8.38E-04	1.46E-03
64	WT022	3	0.510	1.74E-03	0.490	8.52E-04	2.31E-03
65	WT023	1	0.909	2.43E-02	0.091	2.20E-03	2.20E-03
66	WT023	2	0.426	3.04E-02	0.574	1.74E-02	1.96E-02
67	WT023	3	0.262	3.96E-02	0.738	2.93E-02	4.89E-02
68	WT024	1	0.570	2.44E-02	0.430	1.05E-02	1.05E-02
69	WT024	2	0.170	4.15E-02	0.830	3.44E-02	4.49E-02
70	WT024	3	0.767	2.50E-02	0.233	5.83E-03	5.07E-02
71	WT025	1	0.802	2.54E-02	0.198	5.03E-03	5.03E-03
72	WT025	2	0.563	2.92E-02	0.437	1.27E-02	1.78E-02
73	WT025	3	0.619	2.15E-02	0.381	8.20E-03	2.60E-02
74	WT026	1	0.614	4.65E-03	0.386	1.80E-03	1.80E-03
75	WT026	2	0.746	9.55E-03	0.254	2.43E-03	4.23E-03
76	WT026	3	0.587	1.18E-02	0.413	4.89E-03	9.12E-03
77	WT027	1	0.843	8.79E-03	0.157	1.38E-03	1.38E-03
78	WT027	2	0.687	7.14E-03	0.313	2.24E-03	3.62E-03
79	WT027	3	0.722	1.97E-02	0.278	5.46E-03	9.08E-03
80	WT028	1	0.616	1.41E-02	0.384	5.41E-03	5.41E-03
81	WT028	2	0.503	1.72E-02	0.497	8.58E-03	1.40E-02
82	WT028	3	0.768	2.03E-02	0.232	4.69E-03	1.87E-02

Table 3 - Spike correction and cumulative flux calculations, all in ton/acre/hour

ID	Site	Run	fractional spike area	individual flux not spike-corrected	fractional area not spike	individual flux spike-corrected	cumulative flux spike-corrected
83	WT029	1	0.765	2.72E-03	0.235	6.39E-04	6.39E-04
84	WT029	2	0.685	7.19E-03	0.315	2.26E-03	2.90E-03
85	WT029	3	0.429	4.41E-03	0.571	2.52E-03	5.42E-03
86	WT030	1	0.469	8.11E-03	0.531	4.31E-03	4.31E-03
87	WT030	2	0.342	7.39E-03	0.658	4.87E-03	9.17E-03
88	WT030	3	0.685	8.73E-03	0.315	2.75E-03	1.19E-02
89	WT031-A	1	0.581	2.15E-02	0.419	9.02E-03	9.02E-03
90	WT031-A	2	0.851	4.06E-02	0.149	6.05E-03	1.51E-02
91	WT031-A	3	0.696	6.36E-02	0.304	1.94E-02	3.44E-02
92	WT031-B	1		2.13E-02			
93	WT031-B	2		4.12E-02			
94	WT031-B	3		8.84E-02			
95	WT031-C	1		5.64E-02			
96	WT031-C	2		6.18E-02			
97	WT031-C	3		8.94E-02			
98	WT031-D	1		5.11E-02			
99	WT031-D	2		2.41E-02			
100	WT031-D	3		1.45E-01			
101	WT031-E	1		1.96E-03			
102	WT031-E	2		1.32E-03			
103	WT031-E	3		1.48E-03			
104	WT031-F	1		2.49E-02			
105	WT031-F	2		2.98E-02			
106	WT031-F	3		4.17E-02			
107	WT031-G	1		9.76E-03			
108	WT031-G	2		9.42E-03			
109	WT031-G	3		8.88E-03			
110	WT031-H	1		2.86E-02			
111	WT031-H	2		2.42E-02			
112	WT031-H	3		3.47E-02			
113	WT032	1	0.349	1.96E-03	0.651	1.28E-03	1.28E-03
114	WT032	2	0.260	1.32E-03	0.740	9.79E-04	2.26E-03
115	WT032	3	0.369	1.48E-03	0.631	9.34E-04	3.19E-03
116	WT033	1	0.767	9.76E-03	0.233	2.27E-03	2.27E-03
117	WT033	2	0.582	9.42E-03	0.418	3.94E-03	6.21E-03
118	WT033	3	0.516	8.88E-03	0.484	4.30E-03	1.05E-02
119	WT034	1	0.656	1.88E-02	0.344	6.46E-03	6.46E-03
120	WT034	2	0.374	3.15E-02	0.626	1.97E-02	2.62E-02
121	WT034	3	0.518	6.51E-02	0.482	3.13E-02	5.75E-02
122	WT035	1		1.41E-02			
123	WT035	2		2.81E-02			

Table 3 - Spike correction and cumulative flux calculations, all in ton/acre/hour

ID	Site	Run	fractional spike area	individual flux not spike-corrected	fractional area not spike	individual flux spike-corrected	cumulative flux spike-corrected
124	WT035	3		7.99E-02			
125	WT036	1	0.784	1.41E-02	0.216	3.04E-03	3.04E-03
126	WT036	2	0.627	1.46E-02	0.373	5.43E-03	8.47E-03
127	WT036	3	0.587	7.09E-02	0.413	2.93E-02	3.78E-02
128	WT037	1	0.780	1.32E-02	0.220	2.92E-03	2.92E-03
129	WT037	2	0.351	1.35E-02	0.649	8.76E-03	1.17E-02
130	WT037	3	0.571	3.97E-02	0.429	1.70E-02	2.87E-02
131	WT038	1	0.834	2.16E-03	0.166	3.59E-04	3.59E-04
132	WT038	2	0.497	2.36E-03	0.503	1.19E-03	1.55E-03
133	WT038	3	0.699	3.34E-03	0.301	1.01E-03	2.55E-03
134	WT039	1	0.709	7.42E-03	0.291	2.16E-03	2.16E-03
135	WT039	2	0.397	6.39E-03	0.603	3.86E-03	6.01E-03
136	WT039	3	0.303	1.11E-02	0.697	7.72E-03	1.37E-02
137	WT040	1	0.575	1.38E-02	0.425	5.85E-03	5.85E-03
138	WT040	2	0.278	4.92E-02	0.722	3.56E-02	4.14E-02
139	WT040	3	0.681	2.05E-02	0.319	6.52E-03	4.79E-02
140	WT041	1	0.761	1.29E-02	0.239	3.09E-03	3.09E-03
141	WT041	2	0.437	1.14E-02	0.563	6.40E-03	9.49E-03
142	WT041	3	0.717	1.26E-02	0.283	3.56E-03	1.31E-02
143	WT042	1	0.717	3.98E-03	0.283	1.13E-03	1.13E-03
144	WT042	2	0.246	9.06E-03	0.754	6.83E-03	7.95E-03
145	WT042	3	0.753	6.72E-03	0.247	1.66E-03	9.61E-03
146	WT043	1	0.577	3.67E-02	0.423	1.55E-02	1.55E-02
147	WT043	2	0.542	5.09E-02	0.458	2.33E-02	3.88E-02
148	WT043	3	0.310	1.09E-01	0.690	7.55E-02	1.14E-01
149	WT044	1	0.535	4.74E-03	0.465	2.20E-03	2.20E-03
150	WT044	2	0.572	7.56E-03	0.428	3.24E-03	5.44E-03
151	WT044	3	0.814	1.26E-02	0.186	2.34E-03	7.78E-03
152	WT045	1	0.848	2.36E-02	0.152	3.58E-03	3.58E-03
153	WT045	2	0.747	1.41E-02	0.253	3.58E-03	7.16E-03
154	WT045	3	0.675	2.56E-02	0.325	8.32E-03	1.55E-02
155	WT046	1	0.618	4.99E-03	0.382	1.91E-03	1.91E-03
156	WT046	2	0.595	9.31E-03	0.405	3.77E-03	5.67E-03
157	WT046	3	0.912	2.11E-02	0.088	1.85E-03	7.53E-03
158	WT047	1	0.769	1.22E-02	0.231	2.81E-03	2.81E-03
159	WT047	2	0.324	1.53E-02	0.676	1.03E-02	1.32E-02
160	WT047	3	0.000	1.76E-02	1.000	1.76E-02	3.07E-02
161	WT048	1	0.000	5.03E-04	1.000	5.03E-04	5.03E-04
162	WT048	2	0.333	1.17E-03	0.667	7.83E-04	1.29E-03
163	WT048	3	0.467	1.51E-03	0.533	8.05E-04	2.09E-03
164	WT048	4	0.345		0.655		

Table 3 - Spike correction and cumulative flux calculations, all in ton/acre/hour

ID	Site	Run	fractional spike area	individual flux not spike-corrected	fractional area not spike	individual flux spike-corrected	cumulative flux spike-corrected
165	WT049	1	0.328	6.38E-04	0.672	4.29E-04	4.29E-04
166	WT049	2	0.339	3.32E-03	0.661	2.19E-03	2.62E-03
167	WT049	3	0.626	1.06E-02	0.374	3.97E-03	6.59E-03
168	WT050	1	0.666	1.48E-03	0.334	4.95E-04	4.95E-04
169	WT050	2		5.38E-03			
170	WT050	3		8.97E-03			
171	WT050	4		5.94E-03			
172	WT051	1	0.000	6.50E-04	1.000	6.50E-04	6.50E-04
173	WT051	2	0.173	1.76E-03	0.827	1.46E-03	2.11E-03
174	WT051	3	0.520	3.38E-03	0.480	1.62E-03	3.73E-03
175	WT051	4	0.360	2.96E-03	0.640	1.89E-03	5.62E-03
176	WT052	1	0.000	9.75E-03	1.000	9.75E-03	9.75E-03
177	WT052	2		1.11E-02			
178	WT052	3		8.72E-02			
179	WT052	4		2.74E-02			
180	WT053	1	0.341	1.66E-02	0.659	1.10E-02	1.10E-02
181	WT053	2		1.53E-02			
182	WT053	3		4.14E-02			
183	WT053	4		1.01E-02			
184	WT054	1	0.687	1.94E-03	0.313	6.05E-04	6.05E-04
185	WT054	2		3.23E-03			
186	WT054	3		8.87E-03			
187	WT054	4		7.84E-03			
188	WT055	1	0.528	5.10E-03	0.472	2.40E-03	2.40E-03
189	WT055	2		1.67E-02			
190	WT055	3		2.12E-02			
191	WT055	4		8.16E-03			
192	WT056	1	0.334	1.92E-03	0.666	1.28E-03	1.28E-03
193	WT056	2		4.30E-03			
194	WT056	3		3.96E-03			
195	WT056	4		4.97E-03			
196	WT057	1		5.21E-04			
197	WT057	2		2.10E-03			
198	WT057	3		1.22E-03			
199	WT057	4		3.38E-03			
200	WT058	1	0.559	1.07E-02	0.441	4.71E-03	4.71E-03
201	WT058	2	0.610	1.31E-02	0.390	5.11E-03	9.82E-03
202	WT058	3	0.670	2.26E-02	0.330	7.43E-03	1.73E-02
203	WT058	4	0.251	1.24E-02	0.749	9.32E-03	2.66E-02
204	WT059	1	0.200	1.86E-03	0.800	1.49E-03	1.49E-03
205	WT059	2	0.435	2.80E-03	0.565	1.58E-03	3.07E-03

Table 3 - Spike correction and cumulative flux calculations, all in ton/acre/hour

ID	Site	Run	fractional spike area	individual flux not spike-corrected	fractional area not spike	individual flux spike-corrected	cumulative flux spike-corrected
206	WT059	3	0.585	2.83E-03	0.415	1.17E-03	4.25E-03
207	WT059	4	0.395	2.52E-03	0.605	1.52E-03	5.77E-03
208	WT060	1	0.721	4.53E-03	0.279	1.26E-03	1.26E-03
209	WT060	2	0.395	3.51E-03	0.605	2.12E-03	3.38E-03
210	WT060	3	0.463	7.69E-03	0.537	4.13E-03	7.51E-03
211	WT060	4	0.538	3.27E-03	0.462	1.51E-03	9.03E-03
212	WT061	1	0.619	1.10E-02	0.381	4.19E-03	4.19E-03
213	WT061	2	0.794	1.84E-02	0.206	3.79E-03	7.99E-03
214	WT061	3	0.620	3.09E-02	0.380	1.17E-02	1.97E-02
215	WT061	4	0.515	1.60E-02	0.485	7.75E-03	2.75E-02
216	WT062	1	0.673	6.49E-03	0.327	2.12E-03	2.12E-03
217	WT062	2	0.889	1.79E-02	0.111	1.98E-03	4.10E-03
218	WT062	3	0.723	4.39E-02	0.277	1.21E-02	1.62E-02
219	WT062	4	0.562	2.04E-02	0.438	8.91E-03	2.52E-02
220	WT063	1	0.576	3.45E-03	0.424	1.46E-03	1.46E-03
221	WT063	2	0.229	1.47E-02	0.771	1.13E-02	1.28E-02
222	WT063	3	0.655	6.30E-03	0.345	2.17E-03	1.50E-02
223	WT063	4	0.821	1.73E-02	0.179	3.08E-03	1.81E-02
224	WT064	1	0.645	1.34E-02	0.355	4.76E-03	4.76E-03
225	WT064	2	0.605	1.24E-02	0.395	4.91E-03	9.67E-03
226	WT064	3	0.840	1.20E-02	0.160	1.92E-03	1.16E-02
227	WT064	4	0.335	2.23E-02	0.665	1.48E-02	2.64E-02
228	WT065	1	0.706	4.21E-03	0.294	1.24E-03	1.24E-03
229	WT065	2	0.523	5.63E-03	0.477	2.69E-03	3.93E-03
230	WT065	3	0.559	9.28E-03	0.441	4.09E-03	8.02E-03
231	WT065	4	0.694	5.84E-03	0.306	1.79E-03	9.81E-03
232	WT066	1		4.57E-03			
233	WT066	2	1.000	2.35E-03	0.000	2.35E-03	2.35E-03
234	WT066	3	1.000	5.20E-03	0.000	5.20E-03	7.55E-03
235	WT066	4					
236	WT067	1	0.401	4.62E-03	0.599	2.77E-03	2.77E-03
237	WT067	2	0.293	5.99E-03	0.707	4.24E-03	7.01E-03
238	WT067	3	0.625	2.81E-02	0.375	1.05E-02	1.76E-02
239	WT067	4		9.71E-03			
240	WT068	1	0.360	1.63E-03	0.640	1.04E-03	1.04E-03
241	WT068	2	0.487	5.69E-03	0.513	2.92E-03	3.96E-03
242	WT068	3	0.451	6.62E-03	0.549	3.63E-03	7.59E-03
243	WT068	4	0.556	5.18E-03	0.444	2.30E-03	9.89E-03
244	WT069	1	0.605	6.38E-03	0.395	2.52E-03	2.52E-03
245	WT069	2	0.604	3.51E-02	0.396	1.39E-02	1.64E-02
246	WT069	3	0.792	1.19E-01	0.208	2.47E-02	4.11E-02

Table 3 - Spike correction and cumulative flux calculations, all in ton/acre/hour

ID	Site	Run	fractional spike area	individual flux not spike-corrected	fractional area not spike	individual flux spike-corrected	cumulative flux spike-corrected
247	WT069	4	0.641	3.65E-02	0.359	1.31E-02	5.42E-02
248	WT070	1	0.601	2.33E-03	0.399	9.29E-04	9.29E-04
249	WT070	2	0.682	6.67E-03	0.318	2.12E-03	3.05E-03
250	WT070	3	0.468	2.15E-02	0.532	1.14E-02	1.45E-02
251	WT070	4	0.302	8.90E-03	0.698	6.22E-03	2.07E-02
252	WT071	1	0.801	2.14E-02	0.199	4.26E-03	4.26E-03
253	WT071	2	0.725	8.35E-02	0.275	2.30E-02	2.72E-02
254	WT071	3	0.682	1.42E-01	0.318	4.50E-02	7.22E-02
255	WT071	4	0.668	5.62E-02	0.332	1.87E-02	9.09E-02
256	WT072	1	0.491	7.13E-03	0.509	3.63E-03	3.63E-03
257	WT072	2	0.552	1.15E-02	0.448	5.16E-03	8.79E-03
258	WT072	3	0.741	3.82E-02	0.259	9.89E-03	1.87E-02
259	WT072	4	0.829	2.89E-02	0.171	4.93E-03	2.36E-02
260	WT073	1	0.421	2.17E-03	0.579	1.26E-03	1.26E-03
261	WT073	2	0.371	6.80E-03	0.629	4.28E-03	5.53E-03
262	WT073	3	0.403	1.46E-02	0.597	8.73E-03	1.43E-02
263	WT073	4	0.305	1.19E-02	0.695	8.26E-03	2.25E-02
264	WT074	1	0.318	8.21E-04	0.682	5.60E-04	5.60E-04
265	WT074	2	0.502	1.41E-03	0.498	7.04E-04	1.26E-03
266	WT074	3	0.576	2.54E-03	0.424	1.08E-03	2.34E-03
267	WT074	4	0.623	3.30E-03	0.377	1.25E-03	3.59E-03
268	WT075	1	0.713	2.54E-03	0.287	7.30E-04	7.30E-04
269	WT075	2	0.562	3.31E-03	0.438	1.45E-03	2.18E-03
270	WT075	3	0.635	1.11E-02	0.365	4.05E-03	6.22E-03
271	WT075	4	0.223	7.53E-03	0.777	5.85E-03	1.21E-02
272	WT076	1	0.401	3.42E-03	0.599	2.05E-03	2.05E-03
273	WT076	2	0.257	6.52E-03	0.743	4.84E-03	6.89E-03
274	WT076	3	0.781	8.75E-03	0.219	1.91E-03	8.81E-03
275	WT076	4	0.900	6.20E-03	0.100	6.21E-04	9.43E-03
276	WT077	1	0.770	6.59E-03	0.230	1.52E-03	1.52E-03
277	WT077	2	0.352	6.67E-03	0.648	4.32E-03	5.83E-03
278	WT077	3	0.749	4.93E-02	0.251	1.24E-02	1.82E-02
279	WT077	4	0.515	3.03E-02	0.485	1.47E-02	3.29E-02
280	WT078	1	0.532	3.73E-02	0.468	1.75E-02	1.75E-02
281	WT078	2	0.732	6.76E-01	0.268	1.81E-01	1.98E-01
282	WT078	3	0.320	1.06E+00	0.680	7.19E-01	9.18E-01
283	WT078	4	0.588	7.72E-02	0.412	3.18E-02	9.49E-01

Section 4 - 1995 Wind tunnel individual and cumulative spike masses

Spike masses were computed by the following procedure:

1) The TSI Dust -Trak(r) logging software computes an average PM-10 concentration sampled during each 600 second run.

2) The average flow rate in the riser section of the tunnel was computed as (flow from averaging pitot tube data, cfm) - (cyclone flow, cfm). The cyclone flow, choked through a venturi, was 40 cfm for all runs.

3) The total PM-10 mass passing through the riser during the sampling period is

PM-10 mass = (average riser flow rate) x (PM-10 riser concentration) x (run duration)

4) For each 600 second run, the proportion of the total signal area that corresponded to the initial "spike" of loose PM-10 was computed using a Turbo-Pascal(r) computer program. Figure 3-1 depicts this spike area as the dark line on the left side of the plot. This proportion of spike area is presented in Table 4 in the column labeled as Aspike/Atotal.

5) The PM-10 spike mass per unit area for each run was computed as

PM-10 spike mass = (PM-10 mass) x (Aspike/Atotal) / (tunnel floor area)

and converted from mg/ft^2 to ton/acre using $4.797\text{x}10^{-5}$ (ton/acre) / (mg/ft^2)

6) The cumulative spike masses were computed by summing spike masses from preceding runs at each site.

For example, using data from WT002, runs 1 and 2

Run 1 PM-10 spike mass = (0.157 mg/m^3 x 12.21 m^3/min x 10 min) x (0.178) / 2.5 ft^2 = 1.37 mg/ft^2 x (4.797 x 10^{-5} [ton/acre]/[mg/ft^2]) = $6.56\text{x}10^{-5}$ ton/acre

Run 2 PM-10 spike mass = (0.499 mg/m^3 x 12.21 m^3/min x 10 min) x (0.602) / 2.5 ft^2 = 14.66 mg/ft^2 x (4.797 x 10^{-5} [ton/acre] / [mg/ft^2]) = 7.03 x 10^{-4} ton/acre

The cumulative spike mass, the amount of loose PM-10 assumed to come off if the first wind tunnel run had started at the higher wind speed of Run 2, is the sum of the two spike masses for Runs 1 and 2.

Cumulative spike mass = 0.656 x 10^{-4} + 7.03 x 10^{-4} = 7.69 x 10^{-4} ton/acre

7) Blanks in Table 4 indicate runs for which 600 data point TSI data files were not available. Some files were corrupted or lost after download from the TSI Dust-Trak(r). Spike mass data are presented in Table 4 for all runs for which TSI data files are available.

Table 4 - Computation of individual and cumulative spike masses from TSI concentration and tunnel flow rate

Site	Run	Aspike/Atotal	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Qactual m^3/min	Duration min	Spike mass mg/ft^2	Spike mass ton/acre	Cumulative mass ton/acre
WT001	1	0.000	0.063	439.0	12.43	10	0.00	0.00E+00	0.00E+00
WT001	2	0.648	0.971	439.0	12.43	10	31.31	1.50E-03	1.50E-03
WT001	3	0.829	0.668	439.0	12.43	10	27.54	1.32E-03	2.82E-03
WT002	1	0.178	0.157	431.1	12.21	10	1.37	6.56E-05	6.56E-05
WT002	2	0.602	0.499	431.1	12.21	10	14.66	7.03E-04	7.69E-04
WT002	3	0.474	0.215	431.1	12.21	10	4.97	2.39E-04	1.01E-03
WT003	1	0.501	0.187	439.0	12.43	10	4.66	2.24E-04	2.24E-04
WT003	2	0.600	0.772	439.0	12.43	10	23.04	1.11E-03	1.33E-03
WT003	3	0.699	0.641	439.0	12.43	10	22.28	1.07E-03	2.40E-03
WT004	1		0.139	416.8	11.80	10			
WT004	2		0.058	416.8	11.80	10			
WT004	3		0.076	416.8	11.80	10			
WT005	1	0.273	0.182	408.9	11.58	10	2.30	1.10E-04	1.10E-04
WT005	2	0.792	0.131	408.9	11.58	10	4.80	2.30E-04	3.41E-04
WT006	1	0.656	1.777	418.4	11.85	10	55.27	2.65E-03	2.65E-03
WT006	2	0.708	2.058	418.4	11.85	10	69.09	3.31E-03	5.97E-03
WT006	3	0.434	1.662	418.4	11.85	10	34.16	1.64E-03	7.60E-03
WT007	1	0.426	0.071	416.8	11.80	10	1.43	6.85E-05	6.85E-05
WT007	2	0.692	0.637	416.8	11.80	10	20.80	9.98E-04	1.07E-03
WT007	3	0.563	0.292	416.8	11.80	10	7.77	3.73E-04	1.44E-03
WT008	1	0.306	0.018	427.9	12.12	10	0.27	1.28E-05	1.28E-05
WT008	2	0.441	0.055	427.9	12.12	10	1.18	5.64E-05	6.92E-05
WT008	3	0.533	0.163	427.9	12.12	10	4.21	2.02E-04	2.71E-04
WT009	1		0.183	433.4	12.27	10			
WT009	2		0.470	433.4	12.27	10			
WT009	3		0.213	433.4	12.27	10			
WT010	1	0.550	0.314	426.3	12.07	10	8.33	4.00E-04	4.00E-04
WT010	2	0.625	1.544	426.3	12.07	10	46.63	2.24E-03	2.64E-03
WT010	3	0.483	0.585	426.3	12.07	10	13.64	6.54E-04	3.29E-03
WT011	1	0.568	2.868	435.0	12.32	10	80.24	3.85E-03	3.85E-03
WT011	2	0.114	12.617	435.0	12.32	10	70.82	3.40E-03	7.25E-03
WT012	1	0.775	0.512	427.1	12.09	10	19.19	9.21E-04	9.21E-04
WT012	2	0.766	0.883	427.1	12.09	10	32.74	1.57E-03	2.49E-03
WT012	3	0.480	0.809	427.1	12.09	10	18.78	9.01E-04	3.39E-03
WT013	1	0.536	2.269	435.0	12.32	10	59.88	2.87E-03	2.87E-03
WT013	2	0.674	4.189	435.0	12.32	10	139.10	6.67E-03	9.55E-03
WT013	3	0.221	3.788	435.0	12.32	10	41.26	1.98E-03	1.15E-02
WT014	1	0.687	0.907	423.2	11.98	10	29.85	1.43E-03	1.43E-03
WT014	2	0.659	0.672	423.2	11.98	10	21.23	1.02E-03	2.45E-03
WT014	3	0.554	1.338	423.2	11.98	10	35.51	1.70E-03	4.15E-03
WT015	1	0.696	0.362	429.5	12.16	10	12.25	5.88E-04	5.88E-04

Table 4 - Computation of individual and cumulative spike masses from TSI concentration and tunnel flow rate

Site	Run	Aspike/Atotal	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Qactual m^3/min	Duration min	Spike mass mg/ft^2	Spike mass ton/acre	Cumulative mass ton/acre
WT015	2	0.594	0.339	429.5	12.16	10	9.80	4.70E-04	1.06E-03
WT015	3	0.743	0.435	429.5	12.16	10	15.72	7.54E-04	1.81E-03
WT016	1	0.809	1.093	435.8	12.34	10	43.63	2.09E-03	2.09E-03
WT016	2	0.618	0.334	435.8	12.34	10	10.19	4.89E-04	2.58E-03
WT016	3	0.882	1.489	435.8	12.34	10	64.84	3.11E-03	5.69E-03
WT017	1	0.869	1.330	431.1	12.21	10	56.43	2.71E-03	2.71E-03
WT017	2		0.377	431.1	12.21	10			
WT017	3		0.724	431.1	12.21	10			
WT018	1	0.622	1.343	435.0	12.32	10	41.17	1.97E-03	1.97E-03
WT018	2	0.777	1.055	435.0	12.32	10	40.37	1.94E-03	3.91E-03
WT018	3	0.419	1.500	435.0	12.32	10	31.00	1.49E-03	5.40E-03
WT019	1	0.715	0.513	441.4	12.50	10	18.33	8.79E-04	8.79E-04
WT019	2	0.715	0.717	441.4	12.50	10	25.61	1.23E-03	2.11E-03
WT019	3	0.631	0.645	441.4	12.50	10	20.35	9.76E-04	3.08E-03
WT020	1	0.600	0.234	448.5	12.70	10	7.13	3.42E-04	3.42E-04
WT020	2	0.734	0.267	448.5	12.70	10	9.96	4.78E-04	8.20E-04
WT020	3	0.673	0.294	448.5	12.70	10	10.05	4.82E-04	1.30E-03
WT021	1	0.825	0.282	436.6	12.36	10	11.50	5.52E-04	5.52E-04
WT021	2	0.504	0.374	436.6	12.36	10	9.32	4.47E-04	9.99E-04
WT021	3	0.819	0.353	436.6	12.36	10	14.29	6.86E-04	1.68E-03
WT022	1	0.437	0.100	439.8	12.45	10	2.18	1.04E-04	1.04E-04
WT022	2	0.694	0.205	439.8	12.45	10	7.09	3.40E-04	4.44E-04
WT022	3	0.510	0.141	439.8	12.45	10	3.58	1.72E-04	6.16E-04
WT023	1	0.909	1.555	447.7	12.68	10	71.70	3.44E-03	3.44E-03
WT023	2	0.426	1.938	447.7	12.68	10	41.90	2.01E-03	5.45E-03
WT023	3	0.262	2.518	447.7	12.68	10	33.43	1.60E-03	7.05E-03
WT024	1	0.570	1.573	444.5	12.59	10	45.16	2.17E-03	2.17E-03
WT024	2	0.170	2.652	444.5	12.59	10	22.75	1.09E-03	3.26E-03
WT024	3	0.767	1.613	444.5	12.59	10	62.33	2.99E-03	6.25E-03
WT025	1	0.802	1.628	446.9	12.65	10	66.08	3.17E-03	3.17E-03
WT025	2	0.563	1.866	446.9	12.65	10	53.22	2.55E-03	5.72E-03
WT025	3	0.619	1.382	446.9	12.65	10	43.28	2.08E-03	7.80E-03
WT026	1	0.614	0.332	431.9	12.23	10	9.96	4.78E-04	4.78E-04
WT026	2	0.746	0.650	431.9	12.23	10	23.71	1.14E-03	1.62E-03
WT026	3	0.587	0.798	431.9	12.23	10	22.90	1.10E-03	2.71E-03
WT027	1	0.843	0.590	440.6	12.48	10	24.83	1.19E-03	1.19E-03
WT027	2	0.687	0.485	440.6	12.48	10	16.61	7.97E-04	1.99E-03
WT027	3	0.722	1.282	440.6	12.48	10	46.19	2.22E-03	4.20E-03
WT028	1	0.616	0.942	432.7	12.25	10	28.43	1.36E-03	1.36E-03
WT028	2	0.503	1.147	432.7	12.25	10	28.25	1.36E-03	2.72E-03
WT028	3	0.768	1.342	432.7	12.25	10	50.53	2.42E-03	5.14E-03

Table 4 - Computation of individual and cumulative spike masses from TSI concentration and tunnel flow rate

Site	Run	Aspike/Atotal	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Qactual m^3/min	Duration min	Spike mass mg/ft^2	Spike mass ton/acre	Cumulative mass ton/acre
WT029	1	0.765	0.206	433.4	12.27	10	7.74	3.71E-04	3.71E-04
WT029	2	0.685	0.495	433.4	12.27	10	16.65	7.99E-04	1.17E-03
WT029	3	0.429	0.315	433.4	12.27	10	6.64	3.18E-04	1.49E-03
WT030	1	0.469	0.546	441.4	12.50	10	12.80	6.14E-04	6.14E-04
WT030	2	0.342	0.500	441.4	12.50	10	8.54	4.10E-04	1.02E-03
WT030	3	0.685	0.585	441.4	12.50	10	20.04	9.61E-04	1.98E-03
WT031-A	1	0.581	1.431	430.3	12.18	10	40.50	1.94E-03	1.94E-03
WT031-A	2	0.851	2.674	430.3	12.18	10	110.92	5.32E-03	7.26E-03
WT031-A	3	0.696	4.172	430.3	12.18	10	141.43	6.78E-03	1.40E-02
WT031-B	1		1.392	438.2	12.41	10			
WT031-B	2		2.665	438.2	12.41	10			
WT031-B	3		5.691	438.2	12.41	10			
WT031-C	1		3.599	443.7	12.56	10			
WT031-C	2		3.940	443.7	12.56	10			
WT031-C	3		5.689	443.7	12.56	10			
WT031-D	1		3.230	449.3	12.72	10			
WT031-D	2		1.538	449.3	12.72	10			
WT031-D	3		9.109	449.3	12.72	10			
WT031-E	1		1.656	429.5	12.16	10			
WT031-E	2		1.973	429.5	12.16	10			
WT031-E	3		2.748	429.5	12.16	10			
WT031-F	1		1.885	432.7	12.25	10			
WT031-F	2		1.598	432.7	12.25	10			
WT031-F	3		2.280	432.7	12.25	10			
WT031-G	1		1.032	438.2	12.41	10			
WT031-G	2		1.601	438.2	12.41	10			
WT031-G	3		1.672	438.2	12.41	10			
WT031-H	1		22.840	439.0	12.43	10			
WT031-H	2		19.953	439.0	12.43	10			
WT031-H	3		48.987	439.0	12.43	10			
WT032	1	0.349	0.156	436.6	12.36	10	2.69	1.29E-04	1.29E-04
WT032	2	0.260	0.115	436.6	12.36	10	1.48	7.10E-05	2.00E-04
WT032	3	0.369	0.125	436.6	12.36	10	2.28	1.09E-04	3.10E-04
WT033	1	0.767	0.653	439.8	12.45	10	24.95	1.20E-03	1.20E-03
WT033	2	0.582	0.631	439.8	12.45	10	18.28	8.77E-04	2.07E-03
WT033	3	0.516	0.597	439.8	12.45	10	15.34	7.36E-04	2.81E-03
WT034	1	0.656	1.245	432.7	12.25	10	39.99	1.92E-03	1.92E-03
WT034	2	0.374	2.073	432.7	12.25	10	37.97	1.82E-03	3.74E-03
WT034	3	0.518	4.244	432.7	12.25	10	107.83	5.17E-03	8.91E-03
WT035	1		0.930	438.2	12.41	10			
WT035	2		1.832	438.2	12.41	10			

Table 4 - Computation of individual and cumulative spike masses from TSI concentration and tunnel flow rate

Site	Run	Aspike/Atotal	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Qactual m^3/min	Duration min	Spike mass mg/m^2	Spike mass ton/acre	Cumulative mass ton/acre
WT035	3		5.148	438.2	12.41	10			
WT036	1	0.784	0.946	430.3	12.18	10	36.16	1.73E-03	1.73E-03
WT036	2	0.627	0.978	430.3	12.18	10	29.87	1.43E-03	3.17E-03
WT036	3	0.587	4.645	430.3	12.18	10	132.84	6.37E-03	9.54E-03
WT037	1	0.780	0.878	438.2	12.41	10	33.98	1.63E-03	1.63E-03
WT037	2	0.351	0.894	438.2	12.41	10	15.56	7.46E-04	2.38E-03
WT037	3	0.571	2.571	438.2	12.41	10	72.84	3.49E-03	5.87E-03
WT038	1	0.834	0.171	429.5	12.16	10	6.94	3.33E-04	3.33E-04
WT038	2	0.497	0.184	429.5	12.16	10	4.45	2.13E-04	5.46E-04
WT038	3	0.699	0.248	429.5	12.16	10	8.43	4.05E-04	9.51E-04
WT039	1	0.709	0.508	435.0	12.32	10	17.75	8.52E-04	8.52E-04
WT039	2	0.397	0.442	435.0	12.32	10	8.64	4.15E-04	1.27E-03
WT039	3	0.303	0.744	435.0	12.32	10	11.11	5.33E-04	1.80E-03
WT040	1	0.575	0.908	439.8	12.45	10	26.00	1.25E-03	1.25E-03
WT040	2	0.278	3.172	439.8	12.45	10	43.85	2.10E-03	3.35E-03
WT040	3	0.681	1.336	439.8	12.45	10	45.34	2.18E-03	5.53E-03
WT041	1	0.761	0.872	430.3	12.18	10	32.34	1.55E-03	1.55E-03
WT041	2	0.437	0.770	430.3	12.18	10	16.41	7.87E-04	2.34E-03
WT041	3	0.717	0.849	430.3	12.18	10	29.66	1.42E-03	3.76E-03
WT042	1	0.717	0.285	438.2	12.41	10	10.14	4.87E-04	4.87E-04
WT042	2	0.246	0.610	438.2	12.41	10	7.46	3.58E-04	8.44E-04
WT042	3	0.753	0.460	438.2	12.41	10	17.19	8.25E-04	1.67E-03
WT043	1	0.577	2.353	443.7	12.56	10	68.29	3.28E-03	3.28E-03
WT043	2	0.542	3.251	443.7	12.56	10	88.56	4.25E-03	7.52E-03
WT043	3	0.310	6.955	443.7	12.56	10	108.25	5.19E-03	1.27E-02
WT044	1	0.535	0.339	429.5	12.16	10	8.83	4.23E-04	4.23E-04
WT044	2	0.572	0.523	429.5	12.16	10	14.54	6.98E-04	1.12E-03
WT044	3	0.814	0.853	429.5	12.16	10	33.79	1.62E-03	2.74E-03
WT045	1	0.848	1.535	439.8	12.45	10	64.87	3.11E-03	3.11E-03
WT045	2	0.747	0.933	439.8	12.45	10	34.70	1.66E-03	4.78E-03
WT045	3	0.675	1.664	439.8	12.45	10	55.97	2.68E-03	7.46E-03
WT046	1	0.618	0.353	432.7	12.25	10	10.68	5.13E-04	5.13E-04
WT046	2	0.595	0.633	432.7	12.25	10	18.47	8.86E-04	1.40E-03
WT046	3	0.912	1.395	432.7	12.25	10	62.35	2.99E-03	4.39E-03
WT047	1	0.769	0.808	438.2	12.41	10	30.82	1.48E-03	1.48E-03
WT047	2	0.324	1.009	438.2	12.41	10	16.22	7.78E-04	2.26E-03
WT047	3	0.000	1.155	438.2	12.41	10	0.00	0.00E+00	2.26E-03
WT048	1	0.000	0.063	427.0	12.09	10	0.00	0.00E+00	0.00E+00
WT048	2	0.333	0.107	427.0	12.09	10	1.73	8.28E-05	8.28E-05
WT048	3	0.467	0.129	427.0	12.09	10	2.91	1.40E-04	2.23E-04
WT048	4	0.345			0.00	10			

Table 4 - Computation of individual and cumulative spike masses from TSI concentration and tunnel flow rate

Site	Run	Aspike/Atotal	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Qactual m^3/min	Duration min	Spike mass mg/ft^2	Spike mass ton/acre	Cumulative mass ton/acre
WT049	1	0.328	0.071	436.7	12.37	10	1.15	5.53E-05	5.53E-05
WT049	2	0.339	0.243	436.7	12.37	10	4.07	1.95E-04	2.51E-04
WT049	3	0.626	0.712	436.7	12.37	10	22.04	1.06E-03	1.31E-03
WT050	1	0.666	0.681	418.4	11.85	10	21.50	1.03E-03	1.03E-03
WT050	2		0.770	418.4	11.85	10			
WT050	3		5.853	418.4	11.85	10			
WT050	4		1.847	421.7	11.94	10			
WT051	1	0.000	0.123	447.7	12.68	10	0.00	0.00E+00	0.00E+00
WT051	2	0.173	0.368	447.7	12.68	10	3.22	1.55E-04	1.55E-04
WT051	3	0.520	0.593	447.7	12.68	10	15.64	7.50E-04	9.05E-04
WT051	4	0.360	0.403	447.7	12.68	10	7.36	3.53E-04	1.26E-03
WT052	1	0.000	0.071	445.5	12.62	10	0.00	0.00E+00	0.00E+00
WT052	2		0.141	445.5	12.62	10			
WT052	3		0.244	443.8	12.57	10			
WT052	4		0.218	442.1	12.52	10			
WT053	1	0.341	1.035	466.6	13.21	10	18.64	8.94E-04	8.94E-04
WT053	2		0.966	460.4	13.04	10			
WT053	3		2.573	457.9	12.97	10			
WT053	4		0.652	457.9	12.97	10			
WT054	1	0.687	0.154	438.2	12.41	10	5.25	2.52E-04	2.52E-04
WT054	2		0.237	438.2	12.41	10			
WT054	3		0.598	438.2	12.41	10			
WT054	4		0.532	438.2	12.41	10			
WT055	1	0.528	0.350	447.7	12.68	10	9.38	4.50E-04	4.50E-04
WT055	2		1.076	447.7	12.68	10			
WT055	3		1.360	447.7	12.68	10			
WT055	4		0.542	447.7	12.68	10			
WT056	1	0.334	0.153	439.0	12.43	10	2.54	1.22E-04	1.22E-04
WT056	2		0.305	439.0	12.43	10			
WT056	3		0.283	439.0	12.43	10			
WT056	4		0.348	439.0	12.43	10			
WT057	1		0.063	443.7	12.56	10			
WT057	2		0.163	443.7	12.56	10			
WT057	3		0.107	443.7	12.56	10			
WT057	4		0.244	443.7	12.56	10			
WT058	1	0.559	0.713	439.0	12.43	10	19.82	9.51E-04	9.51E-04
WT058	2	0.610	0.866	439.0	12.43	10	26.25	1.26E-03	2.21E-03
WT058	3	0.670	1.472	439.0	12.43	10	49.07	2.35E-03	4.56E-03
WT058	4	0.251	0.825	439.0	12.43	10	10.29	4.94E-04	5.06E-03
WT059	1	0.200	0.150	435.8	12.34	10	1.48	7.09E-05	7.09E-05
WT059	2	0.435	0.210	435.8	12.34	10	4.51	2.16E-04	2.87E-04

Table 4 - Computation of individual and cumulative spike masses from TSI concentration and tunnel flow rate

Site	Run	Aspike/Atotal	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Qactual m^3/min	Duration min	Spike mass mg/ft^2	Spike mass ton/acre	Cumulative mass ton/acre
WT059	3	0.585	0.212	435.8	12.34	10	6.12	2.94E-04	5.81E-04
WT059	4	0.395	0.192	435.8	12.34	10	3.74	1.80E-04	7.60E-04
WT060	1	0.721	0.318	441.4	12.50	10	11.46	5.50E-04	5.50E-04
WT060	2	0.395	0.253	441.4	12.50	10	5.00	2.40E-04	7.90E-04
WT060	3	0.463	0.519	441.4	12.50	10	12.01	5.76E-04	1.37E-03
WT060	4	0.538	0.238	441.4	12.50	10	6.40	3.07E-04	1.67E-03
WT061	1	0.619	0.736	437.4	12.39	10	22.57	1.08E-03	1.08E-03
WT061	2	0.794	1.212	437.4	12.39	10	47.69	2.29E-03	3.37E-03
WT061	3	0.620	2.012	437.4	12.39	10	61.82	2.97E-03	6.34E-03
WT061	4	0.515	1.055	437.4	12.39	10	26.93	1.29E-03	7.63E-03
WT062	1	0.673	0.438	446.9	12.65	10	14.93	7.16E-04	7.16E-04
WT062	2	0.889	1.155	446.9	12.65	10	51.98	2.49E-03	3.21E-03
WT062	3	0.723	2.788	446.9	12.65	10	102.07	4.90E-03	8.11E-03
WT062	4	0.562	1.310	446.9	12.65	10	37.28	1.79E-03	9.89E-03
WT063	1	0.576	0.246	449.3	12.72	10	7.21	3.46E-04	3.46E-04
WT063	2	0.229	0.950	449.3	12.72	10	11.05	5.30E-04	8.76E-04
WT063	3	0.655	0.424	449.3	12.72	10	14.14	6.78E-04	1.55E-03
WT063	4	0.821	1.111	449.3	12.72	10	46.44	2.23E-03	3.78E-03
WT064	1	0.645	0.327	436.6	12.36	10	10.44	5.01E-04	5.01E-04
WT064	2	0.605	0.415	436.6	12.36	10	12.41	5.95E-04	1.10E-03
WT064	3	0.840	1.838	436.6	12.36	10	76.33	3.66E-03	4.76E-03
WT064	4	0.335	0.654	436.6	12.36	10	10.84	5.20E-04	5.28E-03
WT065	1	0.706	0.884	441.5	12.50	10	31.20	1.50E-03	1.50E-03
WT065	2	0.523	0.819	441.5	12.50	10	21.41	1.03E-03	2.52E-03
WT065	3	0.559	0.790	441.5	12.50	10	22.09	1.06E-03	3.58E-03
WT065	4	0.694	1.445	441.5	12.50	10	50.15	2.41E-03	5.99E-03
WT066	1		0.301	435.3	12.33	10			
WT066	2	1.000	0.393	435.3	12.33	10	19.38	9.30E-04	9.30E-04
WT066	3	1.000	0.628	435.3	12.33	10	30.96	1.49E-03	2.41E-03
WT066	4	1.000	0.406	435.3	12.33	10	20.02	9.60E-04	3.38E-03
WT067	1	0.401	0.316	449.5	12.73	10	6.44	3.09E-04	3.09E-04
WT067	2	0.293	0.177	449.5	12.73	10	2.64	1.27E-04	4.36E-04
WT067	3	0.625	0.355	449.5	12.73	10	11.30	5.42E-04	9.78E-04
WT067	4					10			
WT068	1	0.360	0.134	439.0	12.43	10	2.40	1.15E-04	1.15E-04
WT068	2	0.487	0.394	439.0	12.43	10	9.55	4.58E-04	5.73E-04
WT068	3	0.451	0.453	439.0	12.43	10	10.16	4.87E-04	1.06E-03
WT068	4	0.556	0.361	439.0	12.43	10	9.98	4.79E-04	1.54E-03
WT069	1	0.605	0.435	442.1	12.52	10	13.18	6.32E-04	6.32E-04
WT069	2	0.604	2.259	442.1	12.52	10	68.28	3.28E-03	3.91E-03
WT069	3	0.792	7.572	442.1	12.52	10	300.49	1.44E-02	1.83E-02

Table 4 - Computation of individual and cumulative spike masses from TSI concentration and tunnel flow rate

Site	Run	Aspike/Atotal	Avg TSI conc (mg/m^3)	Qactual (ft^3/min)	Qactual m^3/min	Duration min	Spike mass mg/ft^2	Spike mass ton/acre	Cumulative mass ton/acre
WT069	4	0.641	2.345	442.1	12.52	10	75.27	3.61E-03	2.19E-02
WT070	1	0.601	0.180	435.8	12.34	10	5.34	2.56E-04	2.56E-04
WT070	2	0.682	0.459	435.8	12.34	10	15.46	7.42E-04	9.98E-04
WT070	3	0.468	1.413	435.8	12.34	10	32.67	1.57E-03	2.57E-03
WT070	4	0.302	0.603	435.8	12.34	10	8.98	4.31E-04	3.00E-03
WT071	1	0.801	1.416	432.7	12.25	10	55.57	2.67E-03	2.67E-03
WT071	2	0.725	5.440	432.7	12.25	10	193.29	9.27E-03	1.19E-02
WT071	3	0.682	9.205	432.7	12.25	10	307.76	1.48E-02	2.67E-02
WT071	4	0.668	3.670	432.7	12.25	10	120.10	5.76E-03	3.25E-02
WT072	1	0.491	0.481	443.7	12.56	10	11.87	5.69E-04	5.69E-04
WT072	2	0.552	0.760	443.7	12.56	10	21.10	1.01E-03	1.58E-03
WT072	3	0.741	2.451	443.7	12.56	10	91.34	4.38E-03	5.96E-03
WT072	4	0.829	1.860	443.7	12.56	10	77.53	3.72E-03	9.68E-03
WT073	1	0.421	0.171	431.1	12.21	10	3.52	1.69E-04	1.69E-04
WT073	2	0.371	0.472	431.1	12.21	10	8.54	4.10E-04	5.79E-04
WT073	3	0.403	0.980	431.1	12.21	10	19.27	9.24E-04	1.50E-03
WT073	4	0.305	0.802	431.1	12.21	10	11.93	5.72E-04	2.08E-03
WT074	1	0.318	0.084	425.5	12.05	10	1.29	6.18E-05	6.18E-05
WT074	2	0.502	0.123	425.5	12.05	10	2.98	1.43E-04	2.05E-04
WT074	3	0.576	0.197	425.5	12.05	10	5.47	2.63E-04	4.67E-04
WT074	4	0.623	0.247	425.5	12.05	10	7.41	3.56E-04	8.23E-04
WT075	1	0.713	0.193	437.4	12.39	10	6.82	3.27E-04	3.27E-04
WT075	2	0.562	0.242	437.4	12.39	10	6.74	3.23E-04	6.50E-04
WT075	3	0.635	0.740	437.4	12.39	10	23.26	1.12E-03	1.77E-03
WT075	4	0.223	0.513	437.4	12.39	10	5.67	2.72E-04	2.04E-03
WT076	1	0.401	0.252	431.1	12.21	10	4.93	2.37E-04	2.37E-04
WT076	2	0.257	0.454	431.1	12.21	10	5.71	2.74E-04	5.10E-04
WT076	3	0.781	0.599	431.1	12.21	10	22.85	1.10E-03	1.61E-03
WT076	4	0.900	0.433	431.1	12.21	10	19.02	9.13E-04	2.52E-03
WT077	1	0.770	0.447	443.7	12.56	10	17.30	8.30E-04	8.30E-04
WT077	2	0.352	0.452	443.7	12.56	10	8.01	3.84E-04	1.21E-03
WT077	3	0.749	3.148	443.7	12.56	10	118.51	5.69E-03	6.90E-03
WT077	4	0.515	1.950	443.7	12.56	10	50.43	2.42E-03	9.32E-03
WT078	1	0.532	2.453	431.9	12.23	10	63.82	3.06E-03	3.06E-03
WT078	2	0.732	43.902	431.9	12.23	10	1572.55	7.54E-02	7.85E-02
WT078	3	0.320	68.618	431.9	12.23	10	1073.33	5.15E-02	1.30E-01
WT078	4	0.588	5.040	431.9	12.23	10	145.03	6.96E-03	1.37E-01

Section 5 - 1995 Stable and Unstable cumulative fluxes and spike masses

The tables in this section represent a consolidation of the results presented in Sections 3 (fluxes) and 4 (spike masses). The tables present results organized according to the following scheme.

Table #	Major soil group	Stability
no table	1	Stable
no table	1	Unstable
5.2.0	2	Stable
5.2.1	2	Unstable
5.3.0	3	Stable
5.3.1	3	Unstable
no table	4	Stable
no table	4	Unstable
5.5.0	5	Stable
5.5.1	5	Unstable
5.6.0	6	Stable
no table	6	Unstable
5.7.0	7	Stable
no table	7	Unstable
5.8.0	8	Stable
5.8.1	8	Unstable
5.9.0	9	Stable
5.9.1	9	Unstable

If no data were available for a particular soil group, there is no corresponding table in this section.

Each table contains wind tunnel site designation, wind tunnel run number, major soil group designation, 1999 stability classification, average erosive wind speed extrapolated to z = 10 meters (U10), cumulative spike-corrected flux, ton/acre/hour, and cumulative spike mass (ton/acre).

Explanations of missing tables are given below:

Soil group 1	steep slopes, mountain-sides, inaccessible to test equipment
Soil group 4	located mostly outside the Las Vegas Valley
Soil group 6 - unstable	no tested sites corresponded to this classification
Soil group 7 - unstable	no tested sites corresponded to this classification

Table 5.2.0 - Vacant land PM-10 emission factor data. Major soil group 2, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT049	1	2	0	21.1	4.29E-04	5.53E-05
WT048	1	2	0	21.9	5.03E-04	0.00E+00
WT048	2	2	0	25.3	1.29E-03	8.28E-05
WT035	1	2	0	25.7		
WT049	2	2	0	28.5	2.62E-03	2.51E-04
WT068	1	2	0	29.5	1.04E-03	1.15E-04
WT035	2	2	0	29.6		
WT048	3	2	0	30.2	2.09E-03	2.23E-04
WT044	1	2	0	30.3	2.20E-03	4.23E-04
WT068	2	2	0	33.1	3.96E-03	5.73E-04
WT038	1	2	0	33.2	3.59E-04	3.33E-04
WT044	2	2	0	33.4	5.44E-03	1.12E-03
WT049	3	2	0	34.2	6.59E-03	1.31E-03
WT035	3	2	0	34.3		
WT012	1	2	0	35.4	1.66E-03	9.21E-04
WT044	3	2	0	36.9	7.78E-03	2.74E-03
WT040	1	2	0	37.1	5.85E-03	1.25E-03
WT017	1	2	0	37.3	2.62E-03	2.71E-03
WT038	2	2	0	37.7	1.55E-03	5.46E-04
WT015	1	2	0	37.9	1.55E-03	5.88E-04
WT042	1	2	0	39.3	1.13E-03	4.87E-04
WT040	2	2	0	40.6	4.14E-02	3.35E-03
WT068	3	2	0	41.4	7.59E-03	1.06E-03
WT012	2	2	0	41.5	4.70E-03	2.49E-03
WT038	3	2	0	41.5	2.55E-03	9.51E-04
WT034	1	2	0	41.6	6.46E-03	1.92E-03
WT041	1	2	0	42.2	3.09E-03	1.55E-03
WT036	1	2	0	42.7	3.04E-03	1.73E-03
WT017	2	2	0	43.8		
WT039	1	2	0	43.8	2.16E-03	8.52E-04
WT045	1	2	0	44.0	3.58E-03	3.11E-03
WT040	3	2	0	44.8	4.79E-02	5.53E-03
WT068	4	2	0	44.8	9.89E-03	1.54E-03
WT037	1	2	0	45.0	2.92E-03	1.63E-03

Table 5.2.0 - Vacant land PM-10 emission factor data. Major soil group 2, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT015	2	2	0	45.5	3.47E-03	1.06E-03
WT034	2	2	0	46.7	2.62E-02	3.74E-03
WT025	1	2	0	48.0	5.03E-03	3.17E-03
WT041	2	2	0	48.6	9.49E-03	2.34E-03
WT012	3	2	0	49.0	1.09E-02	3.39E-03
WT039	2	2	0	49.6	6.01E-03	1.27E-03
WT036	2	2	0	49.8	8.47E-03	3.17E-03
WT045	2	2	0	50.5	7.16E-03	4.78E-03
WT017	3	2	0	50.5		
WT037	2	2	0	50.9	1.17E-02	2.38E-03
WT034	3	2	0	52.4	5.75E-02	8.91E-03
WT015	3	2	0	53.1	5.07E-03	1.81E-03
WT025	2	2	0	53.2	1.78E-02	5.72E-03
WT041	3	2	0	53.6	1.31E-02	3.76E-03
WT042	2	2	0	54.7	7.95E-03	8.44E-04
WT037	3	2	0	55.8	2.87E-02	5.87E-03
WT036	3	2	0	56.1	3.78E-02	9.54E-03
WT039	3	2	0	56.2	1.37E-02	1.80E-03
WT045	3	2	0	56.8	1.55E-02	7.46E-03
WT042	3	2	0	60.7	9.61E-03	1.67E-03
WT025	3	2	0	61.7	2.60E-02	7.80E-03
WT048	4	2	0			

Table 5.2.1 - Vacant land PM-10 emission factor data. Major soil group 2, Unstable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT055	1	2	1	30.7	2.40E-03	4.50E-04
WT032	1	2	1	32.5	1.28E-03	1.29E-04
WT043	1	2	1	34.2	1.55E-02	3.28E-03
WT050	1	2	1	34.8	4.95E-04	1.03E-03
WT018	1	2	1	34.9	7.70E-03	1.97E-03
WT054	1	2	1	35.1	6.05E-04	2.52E-04
WT055	2	2	1	35.2		
WT016	1	2	1	35.3	3.16E-03	2.09E-03
WT032	2	2	1	36.4	2.26E-03	2.00E-04
WT019	1	2	1	38.2	2.17E-03	8.79E-04
WT021	1	2	1	38.6	6.87E-04	5.52E-04
WT050	2	2	1	38.8		
WT032	3	2	1	39.3	3.19E-03	3.10E-04
WT043	2	2	1	39.5	3.88E-02	7.52E-03
WT016	2	2	1	39.8	4.97E-03	2.58E-03
WT022	1	2	1	41.2	6.18E-04	1.04E-04
WT019	2	2	1	41.7	5.25E-03	2.11E-03
WT021	2	2	1	41.7	3.34E-03	9.99E-04
WT054	2	2	1	42.4		
WT055	3	2	1	43.6		
WT016	3	2	1	44.2	7.64E-03	5.69E-03
WT055	4	2	1	44.7		
WT050	4	2	1	44.8		
WT018	2	2	1	44.9	1.13E-02	3.91E-03
WT022	2	2	1	45.3	1.46E-03	4.44E-04
WT050	3	2	1	45.3		
WT043	3	2	1	45.9	1.14E-01	1.27E-02
WT019	3	2	1	46.3	8.82E-03	3.08E-03
WT021	3	2	1	47.9	4.26E-03	1.68E-03
WT018	3	2	1	51.2	2.45E-02	5.40E-03
WT054	3	2	1	52.7		
WT022	3	2	1	53.5	2.31E-03	6.16E-04
WT054	4	2	1	53.9		

Table 5.3.0 - Vacant land PM-10 emission factor data. Major soil group 3, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT001	1	3	0	29.0	5.16E-04	0.00E+00
WT046	1	3	0	41.7	1.91E-03	5.13E-04
WT001	2	3	0	45.8	5.69E-03	1.50E-03
WT046	2	3	0	48.1	5.67E-03	1.40E-03
WT046	3	3	0	52.4	7.53E-03	4.39E-03
WT001	3	3	0	52.9	7.39E-03	2.82E-03

Table 5.3.1 - Vacant land PM-10 emission factor data. Major soil group 3, Unstable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT029	1	3	1	30.8	6.39E-04	3.71E-04
WT029	2	3	1	34.0	2.90E-03	1.17E-03
WT029	3	3	1	37.0	5.42E-03	1.49E-03

Table 5.5.0 - Vacant land PM-10 emission factor data. Major soil group 5, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT069	1	5	0	28.7	2.52E-03	6.32E-04
WT065	1	5	0	30.9	1.24E-03	1.50E-03
WT069	2	5	0	32.5	1.64E-02	3.91E-03
WT070	1	5	0	34.3	9.29E-04	2.56E-04
WT007	1	5	0	34.5	3.51E-04	6.85E-05
WT064	1	5	0	35.1	4.76E-03	5.01E-04
WT065	2	5	0	36.8	3.93E-03	2.52E-03
WT063	1	5	0	37.8	1.46E-03	3.46E-04
WT062	1	5	0	39.9	2.12E-03	7.16E-04
WT070	2	5	0	41.2	3.05E-03	9.98E-04
WT023	1	5	0	41.3	2.20E-03	3.44E-03
WT069	3	5	0	41.9	4.11E-02	1.83E-02
WT033	1	5	0	42.1	2.27E-03	1.20E-03
WT064	2	5	0	43.9	9.67E-03	1.10E-03
WT069	4	5	0	44.4	5.42E-02	2.19E-02
WT065	3	5	0	45.5	8.02E-03	3.58E-03
WT062	2	5	0	46.4	4.10E-03	3.21E-03
WT063	2	5	0	46.8	1.28E-02	8.76E-04
WT007	2	5	0	46.9	3.14E-03	1.07E-03
WT033	2	5	0	47.4	6.21E-03	2.07E-03
WT065	4	5	0	47.6	9.81E-03	5.99E-03
WT023	2	5	0	48.6	1.96E-02	5.45E-03
WT007	3	5	0	49.9	4.85E-03	1.44E-03
WT070	3	5	0	50.1	1.45E-02	2.57E-03
WT070	4	5	0	51.4	2.07E-02	3.00E-03
WT033	3	5	0	52.6	1.05E-02	2.81E-03
WT064	3	5	0	54.5	1.16E-02	4.76E-03
WT064	4	5	0	54.8	2.64E-02	5.28E-03
WT023	3	5	0	57.2	4.89E-02	7.05E-03
WT063	3	5	0	57.6	1.50E-02	1.55E-03
WT063	4	5	0	58.8	1.81E-02	3.78E-03
WT062	3	5	0	59.2	1.62E-02	8.11E-03
WT062	4	5	0	60.1	2.52E-02	9.89E-03

Table 5.5.1 - Vacant land PM-10 emission factor data. Major soil group 5, Unstable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT071	2	5	1	29.6	2.72E-02	1.19E-02
WT071	3	5	1	34.6	7.22E-02	2.67E-02
WT071	4	5	1	37.0	9.09E-02	3.25E-02
WT061	1	5	1	37.8	4.19E-03	1.08E-03
WT061	2	5	1	43.6	7.99E-03	3.37E-03
WT061	3	5	1	53.4	1.97E-02	6.34E-03
WT061	4	5	1	54.5	2.75E-02	7.63E-03

Table 5.6.0 - Vacant land PM-10 emission factor data. Major soil group 6, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT002	1	6	0	22.3	1.61E-03	6.56E-05
WT011	1	6	0	25.9	1.90E-02	3.85E-03
WT002	2	6	0	27.7	4.48E-03	7.69E-04
WT028	1	6	0	28.3	5.41E-03	1.36E-03
WT002	3	6	0	28.9	5.98E-03	1.01E-03
WT028	2	6	0	31.4	1.40E-02	2.72E-03
WT026	1	6	0	33.5	1.80E-03	4.78E-04
WT011	2	6	0	33.6	1.92E-01	7.25E-03
WT066	1	6	0	34.9		
WT028	3	6	0	36.2	1.87E-02	5.14E-03
WT067	1	6	0	37.7	2.77E-03	3.09E-04
WT027	1	6	0	38.2	1.38E-03	1.19E-03
WT026	2	6	0	38.4	4.23E-03	1.62E-03
WT066	2	6	0	39.7	2.35E-03	9.30E-04
WT030	1	6	0	42.2	4.31E-03	6.14E-04
WT027	2	6	0	43.0	3.62E-03	1.99E-03
WT003	1	6	0	43.3	1.22E-03	2.24E-04
WT026	3	6	0	44.2	9.12E-03	2.71E-03
WT066	3	6	0	46.9	7.55E-03	2.41E-03
WT067	2	6	0	46.9	7.01E-03	4.36E-04
WT027	3	6	0	49.1	9.08E-03	4.20E-03
WT003	2	6	0	50.0	5.87E-03	1.33E-03
WT030	2	6	0	50.1	9.17E-03	1.02E-03
WT066	4	6	0	50.5		3.38E-03
WT003	3	6	0	51.3	8.74E-03	2.40E-03
WT067	3	6	0	55.8	1.76E-02	9.78E-04
WT030	3	6	0	56.9	1.19E-02	1.98E-03
WT067	4	6	0			

Table 5.7.0 - Vacant land PM-10 emission factor data. Major soil group 7, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT074	1	7	0	31.9	5.60E-04	6.18E-05
WT072	1	7	0	32.1	3.63E-03	5.69E-04
WT074	2	7	0	37.3	1.26E-03	2.05E-04
WT072	2	7	0	37.9	8.79E-03	1.58E-03
WT073	1	7	0	39.0	1.26E-03	1.69E-04
WT047	1	7	0	40.3	2.81E-03	1.48E-03
WT047	2	7	0	44.1	1.32E-02	2.26E-03
WT073	2	7	0	44.4	5.53E-03	5.79E-04
WT072	3	7	0	45.2	1.87E-02	5.96E-03
WT074	3	7	0	45.9	2.34E-03	4.67E-04
WT072	4	7	0	48.3	2.36E-02	9.88E-03
WT047	3	7	0	48.9	3.07E-02	2.26E-03
WT074	4	7	0	49.1	3.59E-03	8.23E-04
WT073	3	7	0	53.0	1.43E-02	1.50E-03
WT073	4	7	0	56.0	2.25E-02	2.08E-03

Table 5.8.0 - Vacant land PM-10 emission factor data. Major soil group 8, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT010	1	8	0	18.4	1.95E-03	4.00E-04
WT010	2	8	0	24.5	1.06E-02	2.64E-03
WT051	1	8	0	27.2	6.50E-04	0.00E+00
WT008	1	8	0	29.7	0.00E+00	1.28E-05
WT052	1	8	0	30.9	9.75E-03	0.00E+00
WT006	1	8	0	31.8	8.99E-03	2.65E-03
WT051	2	8	0	33.5	2.11E-03	1.55E-04
WT008	2	8	0	35.0	2.14E-04	6.92E-05
WT010	3	8	0	35.7	1.50E-02	3.29E-03
WT052	2	8	0	37.0		
WT014	1	8	0	37.4	4.16E-03	1.43E-03
WT004	1	8	0	37.5		
WT006	2	8	0	37.6	1.78E-02	5.97E-03
WT009	1	8	0	38.0		
WT006	3	8	0	38.9	3.17E-02	7.60E-03
WT008	3	8	0	39.6	1.16E-03	2.71E-04
WT051	3	8	0	40.3	3.73E-03	9.05E-04
WT014	2	8	0	40.6	7.47E-03	2.45E-03
WT051	4	8	0	41.5	5.62E-03	1.26E-03
WT009	2	8	0	42.3		
WT052	3	8	0	44.4		
WT004	2	8	0	44.7		
WT014	3	8	0	45.8	1.63E-02	4.15E-03
WT052	4	8	0	46.1		
WT004	3	8	0	46.6		
WT009	3	8	0	47.8		

Table 5.8.1 - Vacant land PM-10 emission factor data. Major soil group 8, Unstable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT005	1	8	1	22.9	1.62E-03	1.10E-04
WT056	1	8	1	27.9	1.28E-03	1.22E-04
WT005	2	8	1	28.1	1.93E-03	3.41E-04
WT053	1	8	1	28.4	1.10E-02	8.94E-04
WT057	1	8	1	30.2		
WT057	2	8	1	33.5		
WT031-G	1	8	1	33.6		
WT053	2	8	1	33.7		
WT056	2	8	1	33.9		
WT031-H	1	8	1	36.2		
WT057	3	8	1	36.9		
WT031-F	1	8	1	38.1		
WT031-G	2	8	1	38.6		
WT013	1	8	1	38.7	1.61E-02	2.87E-03
WT031-A	1	8	1	38.8	9.02E-03	1.94E-03
WT031-B	1	8	1	39.0		
WT056	3	8	1	41.1		
WT031-C	1	8	1	41.5		
WT031-H	2	8	1	41.6		
WT031-G	3	8	1	42.5		
WT031-E	1	8	1	42.9		
WT056	4	8	1	43.1		
WT057	4	8	1	43.1		
WT053	3	8	1	43.2		
WT031-F	2	8	1	43.8		
WT053	4	8	1	44.2		
WT031-A	2	8	1	44.7	1.51E-02	7.26E-03
WT020	1	8	1	44.7	1.30E-03	3.42E-04
WT031-B	2	8	1	44.9		
WT031-H	3	8	1	44.9		
WT020	2	8	1	45.1	2.31E-03	8.20E-04
WT031-D	1	8	1	47.1		
WT031-A	3	8	1	47.2	3.44E-02	1.40E-02
WT031-C	2	8	1	47.7		

Table 5.8.1 - Vacant land PM-10 emission factor data. Major soil group 8, Unstable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT031-B	3	8	1	47.9		
WT031-F	3	8	1	48.2		
WT013	2	8	1	48.7	3.72E-02	9.55E-03
WT031-E	2	8	1	49.5		
WT031-C	3	8	1	50.4		
WT031-E	3	8	1	52.7		
WT031-D	2	8	1	54.2		
WT013	3	8	1	54.8	8.26E-02	1.15E-02
WT020	3	8	1	55.7	3.69E-03	1.30E-03
WT031-D	3	8	1	59.6		

Table 5.9.0 - Vacant land PM-10 emission factor data. Major soil group 9, Stable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT060	1	9	0	25.4	1.26E-03	5.50E-04
WT076	1	9	0	28.8	2.05E-03	2.37E-04
WT060	2	9	0	30.4	3.38E-03	7.90E-04
WT077	1	9	0	32.5	1.52E-03	8.30E-04
WT058	1	9	0	32.8	4.71E-03	9.51E-04
WT076	2	9	0	33.7	6.89E-03	5.10E-04
WT059	1	9	0	34.7	1.49E-03	7.09E-05
WT060	3	9	0	37.9	7.51E-03	1.37E-03
WT075	1	9	0	38.4	7.30E-04	3.27E-04
WT077	2	9	0	38.6	5.83E-03	1.21E-03
WT059	2	9	0	40.8	3.07E-03	2.87E-04
WT076	3	9	0	41.0	8.81E-03	1.61E-03
WT058	2	9	0	41.3	9.82E-03	2.21E-03
WT060	4	9	0	41.3	9.03E-03	1.67E-03
WT077	3	9	0	44.7	1.82E-02	6.90E-03
WT076	4	9	0	45.1	9.43E-03	2.52E-03
WT075	2	9	0	47.3	2.18E-03	6.50E-04
WT077	4	9	0	47.9	3.29E-02	9.32E-03
WT058	3	9	0	50.4	1.73E-02	4.56E-03
WT058	4	9	0	51.6	2.66E-02	5.06E-03
WT059	3	9	0	52.4	4.25E-03	5.81E-04
WT059	4	9	0	52.6	5.77E-03	7.60E-04
WT075	3	9	0	57.7	6.22E-03	1.77E-03
WT075	4	9	0	80.7	1.21E-02	2.04E-03

Table 5.9.1 - Vacant land PM-10 emission factor data. Major soil group 9, Unstable

Site	Run	Major soil group	Unstable (y=1, n=0)	U10 (mph)	cumulative flux spike-corrected (ton/acre/hour)	Cumulative spike mass (ton/acre)
WT078	1	9	1	24.9	1.75E-02	3.06E-03
WT078	2	9	1	33.2	1.98E-01	7.85E-02
WT024	1	9	1	34.2	1.05E-02	2.17E-03
WT078	3	9	1	40.8	9.18E-01	1.30E-01
WT024	2	9	1	42.5	4.49E-02	3.26E-03
WT078	4	9	1	44.1	9.49E-01	1.37E-01
WT024	3	9	1	47.5	5.07E-02	6.25E-03

Sections A and B - 1995 Unstable and Stable cumulative fluxes and spikes - sorted by wind speed category

Data in the tables in Section A and B are organized as follows:

Wind speed category (extrapolated to z=10 m)	**Unstable all soil group Table #**	**Stable all soil groups Table #**
15-19.9 mph		B.0
20-24.9 mph	A.1	B.1
25-29.9 mph	A.2	B.2
30-34.9 mph	A.3	B.3
35-39.9 mph	A.4	B.4
40-44.9 mph	A.5	B.5
45-49.9 mph	A.6	B.6
50-54.9 mph	A.7	B.7
55-59.9 mph	A.8	B.8
60-64.9 mph		B.9

These tables contain the data and computations of the geometric mean spike-corrected cumulative fluxes (ton/acre/hour) and cumulative spike masses (ton/acre), for all soil groups in each wind-speed range.

To generate these tables, data from the Section 5 Tables was combined, and sorted by wind speed range and surface stability category, and exported to Tables A.1-A.8 and B.0 through B.9. The flux and spike mass data were then log10 transformed, and computations of mean and standard deviation were run on the log10-transformed data. The log10means and standard deviations were then back-transformed to generate the geometric mean data. The following formula were used for the back-transformations:

geometric mean - 1 standard deviation	$10^{(\text{mean of logs} - \text{standard deviation of logs})}$
geometric mean	$10^{(\text{mean of logs})}$
geometric mean + 1 standard deviation	$10^{(\text{mean of logs} + \text{standard deviation of logs})}$

The transformations were performed because most of the data sets exhibited a strong amount of right-skew (right-skew =a condition where the data set contains a few high values far from the mean, but no low values equally distant from the mean)

Results from the tables in Sections A and B were combined into the summary tables presented in Section C

Table A.1 - Individual data points - Unstable - 20-25 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT005	1	8	1	22.9	1.62E-03	-2.790	1.10E-04	-3.958
WT071	1	5	1	25.0	4.26E-03	-2.370	2.67E-03	-2.574
WT078	1	9	1	24.9	1.75E-02	-1.757	3.06E-03	-2.514
average of logs						-2.306		-3.015
std.dev of logs						0.519		0.817
sample size						3		3
geom mean - 1 std.dev					1.50E-03		1.47E-04	
geom mean					4.95E-03		9.65E-04	
geom mean + 1 std dev					1.63E-02		6.33E-03	

Table A.2 - Individual data points - Unstable - 25-30 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT005	2	8	1	28.1	1.93E-03	-2.714	3.41E-04	-3.468
WT053	1	8	1	28.4	1.10E-02	-1.960	8.94E-04	-3.048
WT056	1	8	1	27.9	1.28E-03	-2.892	1.22E-04	-3.914
WT071	2	5	1	29.6	2.72E-02	-1.565	1.19E-02	-1.923
average of logs						-2.283		-3.088
std.dev of logs						0.626		0.853
sample size						4		4
geom mean - 1 std.dev					1.23E-03		1.14E-04	
geom mean					5.21E-03		8.16E-04	
geom mean + 1 std dev					2.21E-02		5.82E-03	

Table A.3 - Individual data points - Unstable - 30-35 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT018	1	2	1	34.9	7.70E-03	-2.113	1.97E-03	-2.704
WT024	1	9	1	34.2	1.05E-02	-1.979	2.17E-03	-2.664
WT029	1	3	1	30.8	6.39E-04	-3.195	3.71E-04	-3.430
WT029	2	3	1	34.0	2.90E-03	-2.537	1.17E-03	-2.932
WT031-G	1	8	1	33.6				
WT032	1	2	1	32.5	1.28E-03	-2.894	1.29E-04	-3.889
WT043	1	2	1	34.2	1.55E-02	-1.809	3.28E-03	-2.485
WT050	1	2	1	34.8	3.26E-03	-2.487	1.03E-03	-2.987
WT053	2	8	1	33.7	1.10E-02	-1.960		
WT055	1	2	1	30.7	2.40E-03	-2.619	4.50E-04	-3.347
WT056	2	8	1	33.9	1.28E-03	-2.892		
WT057	1	8	1	30.2				
WT057	2	8	1	33.5				
WT071	3	5	1	34.6	7.23E-02	-1.141	2.67E-02	-1.573
WT078	2	9	1	33.2	1.99E-01	-0.702	7.85E-02	-1.105
average of logs						-2.194		-2.712
std.dev of logs						0.736		0.841
sample size						12		10
geom mean - 1 std.dev					1.18E-03		2.80E-04	
geom mean					6.40E-03		1.94E-03	
geom mean + 1 std dev					3.48E-02		1.35E-02	

Table A.4 - Individual data points - Unstable - 35-40 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT013	1	8	1	38.7	1.61E-02	-1.792	2.87E-03	-2.542
WT016	1	2	1	35.3	3.16E-03	-2.500	2.09E-03	-2.679
WT016	2	2	1	39.8	4.97E-03	-2.304	2.58E-03	-2.588
WT019	1	2	1	38.2	2.17E-03	-2.664	8.79E-04	-3.056
WT021	1	2	1	38.6	6.87E-04	-3.163	5.52E-04	-3.258
WT029	3	3	1	37.0	5.42E-03	-2.266	1.49E-03	-2.827
WT031-A	1	8	1	38.8	9.03E-03	-2.045	1.94E-03	-2.712
WT031-B	1	8	1	39.0				
WT031-F	1	8	1	38.1				
WT031-G	2	8	1	38.6				
WT031-H	1	8	1	36.2				
WT032	2	2	1	36.4	2.26E-03	-2.647	2.00E-04	-3.698
WT032	3	2	1	39.3	3.19E-03	-2.496	3.10E-04	-3.509
WT043	2	2	1	39.5	3.88E-02	-1.411	7.52E-03	-2.124
WT050	2	2	1	38.8	3.26E-03	-2.487		
WT054	1	2	1	35.1	6.06E-04	-3.218	2.52E-04	-3.599
WT055	2	2	1	35.2	2.40E-03	-2.619		
WT057	3	8	1	36.9				
WT061	1	5	1	37.8	4.20E-03	-2.377	1.08E-03	-2.965
WT071	4	5	1	37.0	9.09E-02	-1.041	3.25E-02	-1.489
average of logs						-2.335		-2.850
std.dev of logs						0.582		0.614
sample size						15		13
geom mean - 1 std.dev					1.21E-03		3.43E-04	
geom mean					4.62E-03		1.41E-03	
geom mean + 1 std dev					1.76E-02		5.82E-03	

Table A.5 - Individual data points - Unstable - 40-45 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT016	3	2	1	44.2	7.64E-03	-2.117	5.69E-03	-2.245
WT018	2	2	1	44.9	1.13E-02	-1.949	3.91E-03	-2.408
WT019	2	2	1	41.7	5.25E-03	-2.280	2.11E-03	-2.676
WT020	1	8	1	44.7	1.30E-03	-2.885	3.42E-04	-3.466
WT021	2	2	1	41.7	3.34E-03	-2.476	9.99E-04	-3.000
WT022	1	2	1	41.2	6.18E-04	-3.209	1.04E-04	-3.981
WT024	2	9	1	42.5	4.49E-02	-1.347	3.26E-03	-2.487
WT031-A	2	8	1	44.7	1.51E-02	-1.822	7.26E-03	-2.139
WT031-B	2	8	1	44.9				
WT031-C	1	8	1	41.5				
WT031-E	1	8	1	42.9				
WT031-F	2	8	1	43.8				
WT031-G	3	8	1	42.5				
WT031-H	2	8	1	41.6				
WT031-H	3	8	1	44.9				
WT050	4	2	1	44.8	3.26E-03	-2.487		
WT053	3	8	1	43.2	1.10E-02	-1.960		
WT053	4	8	1	44.2	1.10E-02	-1.960		
WT054	2	2	1	42.4	6.06E-04	-3.218		
WT055	3	2	1	43.6	2.40E-03	-2.619		
WT055	4	2	1	44.7	2.40E-03	-2.619		
WT056	3	8	1	41.1	1.28E-03	-2.892		
WT056	4	8	1	43.1	1.28E-03	-2.892		
WT057	4	8	1	43.1				
WT061	2	5	1	43.6	7.99E-03	-2.097	3.37E-03	-2.472
WT078	3	9	1	40.8	9.18E-01	-0.037	1.30E-01	-0.886
WT078	4	9	1	44.1	9.50E-01	-0.022	1.37E-01	-0.863
average of logs						-2.152		-2.420
std.dev of logs						0.896		0.940
sample size						19		11
geom mean - 1 std.dev		8.96E-04					4.37E-04	
geom mean		7.05E-03					3.80E-03	
geom mean + 1 std dev		5.54E-02					3.31E-02	

Table A.6 - Individual data points - Unstable - 45-50 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT013	2	8	1	48.7	3.72E-02	-1.430	9.55E-03	-2.020
WT019	3	2	1	46.3	8.82E-03	-2.055	3.08E-03	-2.511
WT020	2	8	1	45.1	2.31E-03	-2.637	8.20E-04	-3.086
WT021	3	2	1	47.9	4.26E-03	-2.371	1.68E-03	-2.774
WT022	2	2	1	45.3	1.46E-03	-2.837	4.44E-04	-3.352
WT024	3	9	1	47.5	5.08E-02	-1.294	6.25E-03	-2.204
WT031-A	3	8	1	47.2	3.45E-02	-1.463	1.40E-02	-1.852
WT031-B	3	8	1	47.9				
WT031-C	2	8	1	47.7				
WT031-D	1	8	1	47.1				
WT031-E	2	8	1	49.5				
WT031-F	3	8	1	48.2				
WT043	3	2	1	45.9	1.14E-01	-0.942	1.27E-02	-1.896
WT050	3	2	1	45.3	3.26E-03	-2.487		
average of logs						-1.946		-2.462
std.dev of logs						0.679		0.565
sample size						9		8
geom mean - 1 std.dev					2.37E-03		9.40E-04	
geom mean					1.13E-02		3.45E-03	
geom mean + 1 std dev					5.41E-02		1.27E-02	

Table A.7 - Individual data points - Unstable - 50-55 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT013	3	8	1	54.8	8.26E-02	-1.083	1.15E-02	-1.938
WT018	3	2	1	51.2	2.45E-02	-1.611	5.40E-03	-2.268
WT022	3	2	1	53.5	2.31E-03	-2.637	6.16E-04	-3.210
WT031-C	3	8	1	50.4				
WT031-D	2	8	1	54.2				
WT031-E	3	8	1	52.7				
WT054	3	2	1	52.7	6.06E-04	-3.218		
WT054	4	2	1	53.9	6.06E-04	-3.218		
WT061	3	5	1	53.4	1.97E-02	-1.705	6.34E-03	-2.198
WT061	4	5	1	54.5	2.75E-02	-1.561	7.63E-03	-2.118
average of logs						-2.147		-2.346
std.dev of logs						0.865		0.498
sample size						7		5
geom mean - 1 std.dev					9.71E-04		1.43E-03	
geom mean					7.12E-03		4.50E-03	
geom mean + 1 std dev					5.22E-02		1.42E-02	

Table A.8 - Individual data points - Unstable - 55-60 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT020	3	8	1	55.7	3.69E-03	-2.433	1.30E-03	-2.885
WT031-D	3	8	1	59.6				
average of logs						-2.433		-2.885
std.dev of logs						#DIV/0!		#DIV/0!
sample size						1		1
geom mean - 1 std.dev					#DIV/0!		#DIV/0!	
geom mean					3.69E-03		1.30E-03	
geom mean + 1 std dev					#DIV/0!		#DIV/0!	

Table B.0 - Individual data points - Stable - 15-20 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT010	1	8	0	18.4	1.95E-03	-2.710	4.00E-04	-3.398
average of logs						-2.710		-3.398
std.dev of logs						#DIV/0!		#DIV/0!
sample size						1		1
geom mean - 1 std.dev					#DIV/0!		#DIV/0!	
geom mean					1.95E-03		4.00E-04	
geom mean + 1 std dev					#DIV/0!		#DIV/0!	

Table B.1 - Individual data points - Stable - 20-25 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT002	1	6	0	22.3	1.61E-03	-2.794	6.56E-05	-4.183
WT010	2	8	0	24.5	1.06E-02	-1.975	2.64E-03	-2.579
WT048	1	2	0	21.9	5.04E-04	-3.298		
WT049	1	2	0	21.1	4.29E-04	-3.368	5.53E-05	-4.257
average of logs		average				-2.859		-3.673
std.dev of logs		std.dev				0.642		0.948
sample size						4		3
geom mean - 1 std.dev					3.16E-04		2.39E-05	
geom mean					1.38E-03		2.12E-04	
geom mean + 1 std dev					6.07E-03		1.88E-03	

Table B.2 - Individual data points - Stable - 25-30 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT001	1	3	0	29.0	5.16E-04	-3.287		
WT002	2	6	0	27.7	4.48E-03	-2.349	7.69E-04	-3.114
WT002	3	6	0	28.9	5.98E-03	-2.223	1.01E-03	-2.997
WT008	1	8	0	29.7				
WT011	1	6	0	25.9	1.90E-02	-1.720	3.85E-03	-2.415
WT028	1	6	0	28.3	5.41E-03	-2.267	1.36E-03	-2.865
WT035	1	2	0	25.7				
WT035	2	2	0	29.6				
WT048	2	2	0	25.3	1.29E-03	-2.890	8.28E-05	-4.082
WT049	2	2	0	28.5	2.62E-03	-2.581	2.51E-04	-3.601
WT051	1	8	0	27.2				
WT060	1	9	0	25.4	1.27E-03	-2.898	5.50E-04	-3.260
WT068	1	2	0	29.5	1.04E-03	-2.983	1.15E-04	-3.939
WT069	1	5	0	28.7	2.52E-03	-2.598	6.32E-04	-3.199
WT076	1	9	0	28.8	2.05E-03	-2.689	2.37E-04	-3.626
average of logs						-2.590		-3.310
std.dev of logs						0.435		0.508
sample size						11		10
geom mean - 1 std.dev					9.46E-04		1.52E-04	
geom mean					2.57E-03		4.90E-04	
geom mean + 1 std dev					7.00E-03		1.58E-03	

Table B.3 - Individual data points - Stable - 30-35 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT006	1	8	0	31.8	8.99E-03	-2.046	2.65E-03	-2.576
WT007	1	5	0	34.5	3.51E-04	-3.455	6.85E-05	-4.164
WT011	2	6	0	33.6	1.92E-01	-0.716	7.25E-03	-2.140
WT026	1	6	0	33.5	1.80E-03	-2.745	4.78E-04	-3.321
WT028	2	6	0	31.4	1.40E-02	-1.854	2.72E-03	-2.566
WT035	3	2	0	34.3				
WT038	1	2	0	33.2	3.59E-04	-3.445	3.33E-04	-3.478
WT044	1	2	0	30.3	2.20E-03	-2.657	4.23E-04	-3.373
WT044	2	2	0	33.4	5.44E-03	-2.264	1.12E-03	-2.950
WT048	3	2	0	30.2	2.09E-03	-2.679	2.23E-04	-3.653
WT049	3	2	0	34.2	6.60E-03	-2.181	1.31E-03	-2.883
WT051	2	8	0	33.5	4.46E-03	-2.351	1.55E-04	-3.811
WT052	1	8	0	30.9	6.50E-04	-3.187		
WT058	1	9	0	32.8	4.71E-03	-2.327	9.51E-04	-3.022
WT059	1	9	0	34.7	1.49E-03	-2.826	7.09E-05	-4.149
WT060	2	9	0	30.4	3.39E-03	-2.470	7.90E-04	-3.103
WT065	1	5	0	30.9	3.95E-03	-2.403	1.50E-03	-2.825
WT066	1	6	0	34.9				
WT068	2	2	0	33.1	3.96E-03	-2.402	5.73E-04	-3.242
WT069	2	5	0	32.5	1.64E-02	-1.784	3.91E-03	-2.408
WT070	1	5	0	34.3	9.29E-04	-3.032	2.56E-04	-3.591
WT072	1	7	0	32.1	3.63E-03	-2.440	5.69E-04	-3.245
WT074	1	7	0	31.9	5.60E-04	-3.252	6.18E-05	-4.209
WT076	2	9	0	33.7	6.89E-03	-2.162	5.10E-04	-3.292
WT077	1	9	0	32.5	1.52E-03	-2.819	8.30E-04	-3.081
average of logs						-2.500		-3.231
std.dev of logs						0.607		0.560
sample size						23		22
geom mean - 1 std.dev					7.81E-04		1.62E-04	
geom mean					3.16E-03		5.88E-04	
geom mean + 1 std dev					1.28E-02		2.14E-03	

Table B.4 - Individual data points - Stable - 35-40 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT004	1	8	0	37.5				
WT006	2	8	0	37.6	1.78E-02	-1.748	5.97E-03	-2.224
WT006	3	8	0	38.9	3.17E-02	-1.499	7.60E-03	-2.119
WT008	2	8	0	35.0	2.14E-04	-3.670	5.64E-05	-4.249
WT008	3	8	0	39.6	1.16E-03	-2.934	2.58E-04	-3.588
WT009	1	8	0	38.0				
WT010	3	8	0	35.7	1.50E-02	-1.825	3.29E-03	-2.483
WT012	1	2	0	35.4	1.66E-03	-2.781	9.21E-04	-3.036
WT014	1	8	0	37.4	4.16E-03	-2.381	1.43E-03	-2.844
WT015	1	2	0	37.9	1.55E-03	-2.810	5.88E-04	-3.231
WT017	1	2	0	37.3	2.62E-03	-2.581	2.71E-03	-2.567
WT026	2	6	0	38.4	4.23E-03	-2.374	1.62E-03	-2.792
WT027	1	6	0	38.2	1.38E-03	-2.861	1.19E-03	-2.924
WT028	3	6	0	36.2	1.87E-02	-1.729	5.14E-03	-2.289
WT038	2	2	0	37.7	1.55E-03	-2.810	5.46E-04	-3.263
WT040	1	2	0	37.1	5.85E-03	-2.233	1.25E-03	-2.904
WT042	1	2	0	39.3	1.13E-03	-2.948	4.87E-04	-3.313
WT044	3	2	0	36.9	7.79E-03	-2.109	2.74E-03	-2.562
WT052	2	8	0	37.0	6.50E-04	-3.187		
WT060	3	9	0	37.9	7.52E-03	-2.124	1.37E-03	-2.865
WT062	1	5	0	39.9	2.12E-03	-2.674	7.16E-04	-3.145
WT063	1	5	0	37.8	1.46E-03	-2.834	3.46E-04	-3.461
WT064	1	5	0	35.1	1.64E-03	-2.785	5.01E-04	-3.300
WT065	2	5	0	36.8	9.88E-03	-2.005	2.52E-03	-2.598
WT066	2	6	0	39.7				
WT067	1		0	37.7	2.74E-03	-2.562	3.09E-04	-3.510
WT072	2	7	0	37.9	8.79E-03	-2.056	1.58E-03	-2.801
WT073	1	7	0	39.0	1.26E-03	-2.901	1.69E-04	-3.773
WT074	2	7	0	37.3	1.26E-03	-2.898	2.05E-04	-3.689
WT075	1	9	0	38.4	7.30E-04	-3.137	3.27E-04	-3.485
WT077	2	9	0	38.6	5.83E-03	-2.234	1.21E-03	-2.916
average of logs						-2.525		-3.034
std.dev of logs						0.513		0.512
sample size						28		27
geom mean - 1 std.dev					9.17E-04		2.84E-04	
geom mean					2.99E-03		9.24E-04	
geom mean + 1 std dev					9.73E-03		3.01E-03	

Table B.5 - Individual data points - Stable - 40-45 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT003	1	6	0	43.3	1.22E-03	-2.912	2.24E-04	-3.650
WT004	2	8	0	44.7				
WT009	2	8	0	42.3				
WT012	2	2	0	41.5	4.70E-03	-2.328	2.49E-03	-2.604
WT014	2	8	0	40.6	7.47E-03	-2.127	2.45E-03	-2.611
WT017	2	2	0	43.8				
WT023	1	5	0	41.3	2.20E-03	-2.657	3.44E-03	-2.463
WT026	3	6	0	44.2	9.12E-03	-2.040	2.71E-03	-2.566
WT027	2	6	0	43.0	3.62E-03	-2.442	1.99E-03	-2.702
WT030	1	6	0	42.2	4.31E-03	-2.366	6.14E-04	-3.212
WT033	1	5	0	42.1	2.28E-03	-2.643	1.20E-03	-2.922
WT034	1	2	0	41.6	6.46E-03	-2.190	1.92E-03	-2.717
WT036	1	2	0	42.7	3.04E-03	-2.518	1.73E-03	-2.761
WT038	3	2	0	41.5	2.55E-03	-2.593	9.51E-04	-3.022
WT039	1	2	0	43.8	2.16E-03	-2.666	8.52E-04	-3.070
WT040	2	2	0	40.8	4.14E-02	-1.383	3.35E-03	-2.475
WT040	3	2	0	44.8	4.80E-02	-1.319	5.53E-03	-2.258
WT041	1	2	0	42.2	3.09E-03	-2.510	1.55E-03	-2.809
WT045	1	2	0	44.0	3.58E-03	-2.446	3.11E-03	-2.507
WT046	1	3	0	41.7	1.91E-03	-2.720	5.13E-04	-3.290
WT047	1	7	0	40.3	2.81E-03	-2.551	1.48E-03	-2.830
WT047	2	7	0	44.1	1.32E-02	-1.881	2.26E-03	-2.647
WT051	3	8	0	40.3	8.76E-03	-2.058	9.05E-04	-3.043
WT051	4	8	0	41.5	1.26E-02	-1.901	1.26E-03	-2.900
WT052	3	8	0	44.4	6.50E-04	-3.187		
WT058	2	9	0	41.3	9.82E-03	-2.008	2.21E-03	-2.656
WT059	2	9	0	40.8	3.07E-03	-2.512	2.87E-04	-3.542
WT060	4	9	0	41.3	9.03E-03	-2.044	1.67E-03	-2.777
WT064	2	5	0	43.9	4.01E-03	-2.397	1.10E-03	-2.960
WT068	3	2	0	41.4	7.60E-03	-2.119	1.06E-03	-2.975
WT068	4	2	0	44.8	9.90E-03	-2.004	1.54E-03	-2.813
WT069	3	5	0	41.9	4.11E-02	-1.386	1.83E-02	-1.737
WT069	4	5	0	44.4	5.42E-02	-1.266	2.19E-02	-1.659
WT070	2	5	0	41.2	3.05E-03	-2.516	9.98E-04	-3.001
WT073	2	7	0	44.4	5.54E-03	-2.257	5.79E-04	-3.238
WT076	3	9	0	41.0	8.81E-03	-2.055	1.61E-03	-2.794
WT077	3	9	0	44.7	1.82E-02	-1.740	6.90E-03	-2.161
average of logs						-2.228		-2.769
std.dev of logs						0.453		0.425
sample size						34		33
geom mean - 1 std.dev					2.08E-03		6.40E-04	
geom mean					5.92E-03		1.70E-03	
geom mean + 1 std dev					1.68E-02		4.53E-03	

Table B.6 - Individual data points - Stable - 45-50 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT001	2	3	0	45.8	5.69E-03	-2.245	1.50E-03	-2.823
WT004	3	8	0	46.6				
WT007	2	5	0	46.9	3.14E-03	-2.502	1.07E-03	-2.972
WT007	3	5	0	49.9	4.85E-03	-2.314	1.44E-03	-2.842
WT009	3	8	0	47.8				
WT012	3	2	0	49.0	1.09E-02	-1.963	3.39E-03	-2.470
WT014	3	8	0	45.8	1.63E-02	-1.788	4.15E-03	-2.381
WT015	2	2	0	45.5	3.47E-03	-2.459	1.06E-03	-2.976
WT023	2	5	0	48.6	1.96E-02	-1.707	5.45E-03	-2.264
WT025	1	2	0	48.0	5.04E-03	-2.298	3.17E-03	-2.499
WT027	3	6	0	49.1	9.08E-03	-2.042	4.20E-03	-2.376
WT033	2	5	0	47.4	6.22E-03	-2.206	2.07E-03	-2.683
WT034	2	2	0	46.7	2.62E-02	-1.581	3.74E-03	-2.427
WT036	2	2	0	49.8	8.47E-03	-2.072	3.17E-03	-2.499
WT037	1	2	0	45.0	2.92E-03	-2.535	1.63E-03	-2.788
WT039	2	2	0	49.6	6.02E-03	-2.221	1.27E-03	-2.898
WT041	2	2	0	48.6	9.49E-03	-2.023	2.34E-03	-2.631
WT046	2	3	0	48.1	5.68E-03	-2.246	1.40E-03	-2.854
WT047	3	7	0	48.9	3.07E-02	-1.512	2.26E-03	-2.647
WT052	4	8	0	46.1	6.50E-04	-3.187		
WT062	2	5	0	46.4	4.10E-03	-2.387	3.21E-03	-2.494
WT063	2	5	0	46.8	1.28E-02	-1.892	8.76E-04	-3.058
WT065	3	5	0	45.5	1.51E-02	-1.820	3.58E-03	-2.446
WT065	4	5	0	47.6	2.20E-02	-1.658	5.99E-03	-2.223
WT066	3	6	0	46.9				
WT067	2		0	46.9	4.40E-03	-2.356	4.36E-04	-3.361
WT072	3	7	0	45.2	1.87E-02	-1.729	5.96E-03	-2.225
WT072	4	7	0	48.3	2.36E-02	-1.627	9.68E-03	-2.014
WT074	3	7	0	45.9	2.34E-03	-2.631	4.67E-04	-3.331
WT074	4	7	0	49.1	3.59E-03	-2.445	8.23E-04	-3.085
WT075	2	9	0	47.3	2.18E-03	-2.662	6.50E-04	-3.187
WT076	4	9	0	45.1	9.43E-03	-2.025	2.52E-03	-2.599
WT077	4	9	0	47.9	3.29E-02	-1.482	9.32E-03	-2.031
average of logs						-2.121		-2.658
std.dev of logs						0.399		0.361
sample size						30		29
geom mean - 1 std.dev					3.02E-03		9.57E-04	
geom mean					7.58E-03		2.20E-03	
geom mean + 1 std dev					1.90E-02		5.05E-03	

Table B.7 - Individual data points - Stable - 50-55 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT001	3	3	0	52.9	7.40E-03	-2.131	2.82E-03	-2.549
WT003	2	6	0	50.0	5.87E-03	-2.231	1.33E-03	-2.877
WT003	3	6	0	51.3	8.75E-03	-2.058	2.40E-03	-2.620
WT015	3	2	0	53.1	5.07E-03	-2.295	1.81E-03	-2.742
WT017	3	2	0	50.5				
WT025	2	2	0	53.2	1.78E-02	-1.750	5.72E-03	-2.242
WT030	2	6	0	50.1	9.18E-03	-2.037	1.02E-03	-2.990
WT033	3	5	0	52.6	1.05E-02	-1.978	2.81E-03	-2.551
WT034	3	2	0	52.4	5.76E-02	-1.240	8.91E-03	-2.050
WT037	2	2	0	50.9	1.17E-02	-1.932	2.38E-03	-2.624
WT041	3	2	0	53.6	1.31E-02	-1.884	3.76E-03	-2.425
WT042	2	2	0	54.7	7.96E-03	-2.099	8.44E-04	-3.074
WT045	2	2	0	50.5	7.16E-03	-2.145	4.78E-03	-2.321
WT046	3	3	0	52.4	7.53E-03	-2.123	4.39E-03	-2.358
WT058	3	9	0	50.4	1.73E-02	-1.763	4.56E-03	-2.341
WT058	4	9	0	51.6	2.66E-02	-1.575	5.06E-03	-2.296
WT059	3	9	0	52.4	4.25E-03	-2.372	5.81E-04	-3.236
WT059	4	9	0	52.6	5.77E-03	-2.239	7.60E-04	-3.119
WT064	3	5	0	54.5	8.52E-03	-2.069	4.76E-03	-2.323
WT064	4	5	0	54.8	1.50E-02	-1.824	5.28E-03	-2.278
WT066	4	6	0	50.5				
WT070	3	5	0	50.1	1.45E-02	-1.839	2.57E-03	-2.591
WT070	4	5	0	51.4	2.07E-02	-1.684	3.00E-03	-2.523
WT073	3	7	0	53.0	1.43E-02	-1.846	1.50E-03	-2.823
average of logs		average				-1.960		-2.589
std.dev of logs		std.dev				0.266		0.327
sample size						22		22
geom mean - 1 std.dev					5.94E-03		1.21E-03	
geom mean					1.10E-02		2.58E-03	
geom mean + 1 std dev					2.02E-02		5.48E-03	

Table B.8 - Individual data points - Stable - 55-60 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT023	3	5	0	57.2	4.89E-02	-1.311	7.05E-03	-2.152
WT030	3	6	0	56.9	1.19E-02	-1.924	1.98E-03	-2.702
WT036	3	2	0	56.1	3.78E-02	-1.423	9.54E-03	-2.020
WT037	3	2	0	55.8	2.87E-02	-1.542	5.87E-03	-2.231
WT039	3	2	0	56.2	1.37E-02	-1.862	1.80E-03	-2.745
WT045	3	2	0	56.8	1.55E-02	-1.810	7.46E-03	-2.127
WT062	3	5	0	59.2	1.62E-02	-1.789	8.11E-03	-2.091
WT063	3	5	0	57.6	1.50E-02	-1.824	1.55E-03	-2.809
WT063	4	5	0	58.8	1.81E-02	-1.743	3.78E-03	-2.422
WT067	3		0	55.8	6.35E-03	-2.197	9.78E-04	-3.010
WT073	4	7	0	56.0	2.25E-02	-1.647	2.08E-03	-2.683
WT075	3	9	0	57.7	6.22E-03	-2.206	1.77E-03	-2.753
average of logs						-1.773		-2.479
std.dev of logs						0.271		0.342
sample size						12		12
geom mean - 1 std.dev					9.03E-03		1.51E-03	
geom mean					1.69E-02		3.32E-03	
geom mean + 1 std dev					3.15E-02		7.29E-03	

Table B.9 - Individual data points - Stable - 60-65 mph

Site and Statistics	Run	Soil group	Disturbed / Unstable yes = 1, no = 0	Extrapolated 10-meter velocity (mph)	cumulative spike-corrected flux (ton/acre/hr)	log10(flux)	cumulative spike mass (ton/acre) (ton/acre)	log10(spike mass)
WT025	3	2	0	61.7	2.60E-02	-1.585	7.80E-03	-2.108
WT042	3	2	0	60.7	9.62E-03	-2.017	1.67E-03	-2.778
WT062	4	5	0	60.1	2.52E-02	-1.599	9.89E-03	-2.005
WT075	4	9	0	60.7	1.21E-02	-1.918	2.04E-03	-2.691
average of logs						-1.780		-2.395
std.dev of logs						0.220		0.395
sample size						4		4
geom mean - 1 std.dev					9.99E-03		1.62E-03	
geom mean					1.66E-02		4.03E-03	
geom mean + 1 std dev					2.76E-02		1.00E-02	

Section C - Statistical summary tables and figures, 1995 Unstable and Stable PM-10 cumulative fluxes and spikes

Tables C.1 through C.16 contain data on the samples sizes, geometric means and standard deviations for PM-10 emissions as fluxes in ton/acre/hour, and for PM-10 spikes, in ton/acre, from unstable lands and from stable native desert in the 1995 wind tunnel field study.

The geometric means and standard deviations in each wind speed category in Tables C.1-C.16 were extracted from the computational tables in Sections A and B of this report. Sample sizes are shown in the header of each table as n = x, where x is an integer value representing the number of records in the study that correspond to that particular classification.

Tables C.1-C.16 are organized in the following manner:

Soil group	**Unstable**	**Stable**
All soils	C.1	C.2
Group 2	C.3	C.4
Group 3	C.5	C.6
Group 5	C.7	C.8
Group 6	C.9 *	C.10
Group 7	C.11*	C.12
Group 8	C.13	C.14
Group 9	C.15	C.16

An asterisk(*) indicates that the table contains no data (the 1995 wind tunnel field study did not uniformly cover all soil groups and conditions), but the blank tables are included for completeness.

Figure C.1 is a plot of the spike-corrected cumulative flux data in Table C.2 for stable lands, all soils. Cumulative fluxes from stable lands tended to consistently increase with increasing 10-meter wind speed.

Figure C.2 is a plot of the spike-corrected cumulative flux data in Table C.1 for unstable lands, all soils. Cumulative fluxes from unstable lands did not increase uniformly with wind speeds, but tended to oscillate near a mean value of 5.00×10^{-3} ton/acre/hour.

Figure C.3 is a plot of the spike data in Table C.2 for stable lands, all soils. Cumulative stable spikes lands tended to consistently increase with increasing 10-meter wind speed.

Figure C.4 is a plot of the spike data in Table C.1, for unstable lands, all soils. Cumulative spikes from unstable lands tended to be somewhat larger and to increase more erratically with increasing wind speeds than cumulative spikes from stable lands (compare Figure C.4 to Figure C.3).

Table C.1 Geometric mean PM-10 spike-corrected fluxes and spikes

All Soils - Unstable

Unstable (disturbed) sites (new classfication) n = 68								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	1.50E-03	4.95E-03	1.63E-02	1.47E-04	9.65E-04	6.33E-03	3	3
20-24.9	1.23E-03	5.21E-03	2.21E-02	1.14E-04	8.16E-04	5.82E-03	4	4
25-29.9	1.18E-03	6.40E-03	3.48E-02	2.80E-04	1.94E-03	1.35E-02	12	11
30-34.9	1.21E-03	4.62E-03	1.76E-02	3.43E-04	1.41E-03	5.82E-03	13	13
35-39.9	8.96E-04	7.05E-03	5.54E-02	4.37E-04	3.80E-03	3.31E-02	19	11
40-44.9	2.37E-03	1.13E-02	5.41E-02	9.40E-04	3.45E-03	1.27E-02	9	8
45-49.9	9.71E-04	7.12E-03	5.22E-02	1.43E-03	4.50E-03	1.42E-02	7	5
50-54.9	N/A	3.69E-03	N/A	N/A	1.30E-03	N/A	1	1
55-59.9								
60-64.9								
65-69.9								
total runs							68	56

Table C.2 Geometric mean PM-10 spike-corrected fluxes and spikes
All Soils - Stable

Stable (undisturbed) sites (new classification) n = 169								
Wind Speed (mph)	**Geom mean flux -1 Std. Dev (ton/acre/hr)**	**Geom mean flux (ton/acre/hr)**	**Geom mean flux +1 Std. Dev (ton/acre/hr)**	**Geom mean spike -1 Std. Dev (ton/acre)**	**Geom mean spike (ton/acre)**	**Geom mean spike +1 Std. Dev (ton/acre)**	**Number of flux Runs**	**Number of spike Runs**
10-14.9								
15-19.9	N/A	1.95E-03	N/A	N/A	4.00E-04	N/A	1	1
20-24.9	3.16E-04	1.38E-03	6.07E-03	2.39E-05	2.12E-04	1.88E-03	4	3
25-29.9	9.46E-04	2.57E-03	7.00E-03	1.52E-04	4.90E-04	1.58E-03	11	10
30-34.9	7.81E-04	3.16E-03	1.28E-02	1.62E-04	5.88E-04	2.14E-03	23	22
35-39.9	9.17E-04	2.99E-03	9.73E-03	2.84E-04	9.24E-04	3.01E-03	28	27
40-44.9	2.08E-03	5.92E-03	1.68E-02	6.40E-04	1.70E-03	4.53E-03	34	33
45-49.9	3.02E-03	7.58E-03	1.90E-02	9.57E-04	2.20E-03	5.05E-03	30	29
50-54.9	5.94E-03	1.10E-02	2.02E-02	1.21E-03	2.58E-03	5.48E-03	22	22
55-59.9	9.03E-03	1.69E-02	3.15E-02	1.51E-03	3.32E-03	7.29E-03	12	12
60-64.9	9.99E-03	1.66E-02	2.76E-02	1.62E-03	4.03E-03	1.00E-02	4	4
65-69.9								
total runs							169	163

Table C.3 Geometric mean PM-10 spike-corrected fluxes and spikes
Group 2 - Unstable

Unstable (disturbed) sites (new classfication) n = 33								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
25-29.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30-34.9	1.54E-03	4.12E-03	1.10E-02	2.31E-04	8.28E-04	2.97E-03	5	5
35-39.9	8.97E-04	2.81E-03	8.82E-03	2.39E-04	8.63E-04	3.12E-03	10	10
40-44.9	1.03E-03	2.80E-03	7.65E-03	2.82E-04	1.37E-03	6.70E-03	9	5
45-49.9	1.37E-03	7.27E-03	3.86E-02	5.79E-04	2.33E-03	9.36E-03	5	4
50-54.9	3.73E-04	2.13E-03	1.22E-02	3.93E-04	1.82E-03	8.46E-03	4	2
55-59.9								
60-64.9								
65-69.9								
total runs							33	26

Table C.4 Geometric mean PM-10 spike-corrected fluxes and spikes
Group 2 - Stable

Stable (undisturbed) sites (new classification) n = 52								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20-24.9	4.15E-04	4.65E-04	5.21E-04	5.53E-05	5.53E-05	5.53E-05	2	1
25-29.9	9.37E-04	1.52E-03	2.47E-03	7.57E-05	1.34E-04	2.36E-04	3	3
30-34.9	8.64E-04	2.48E-03	7.14E-03	2.73E-04	5.46E-04	1.09E-03	6	6
35-39.9	1.17E-03	2.45E-03	5.14E-03	5.01E-04	1.04E-03	2.17E-03	7	7
40-44.9	2.24E-03	6.48E-03	1.88E-02	1.05E-03	1.87E-03	3.33E-03	12	11
45-49.9	3.56E-03	7.18E-03	1.45E-02	1.38E-03	2.25E-03	3.66E-03	8	8
50-54.9	5.60E-03	1.24E-02	2.75E-02	1.44E-03	3.19E-03	7.03E-03	8	8
55-59.9	1.35E-02	2.19E-02	3.56E-02	2.50E-03	5.24E-03	1.10E-02	4	4
60-64.9	7.83E-03	1.58E-02	3.19E-02	1.21E-03	3.61E-03	1.07E-02	2	2
65-69.9								
total runs							52	50

Table C.5 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 3 - Unstable

Unstable (disturbed) sites (new classfication) n = 3								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
25-29.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
30-34.9	4.67E-04	1.36E-03	3.97E-03	2.93E-04	6.59E-04	1.48E-03	2	2
35-39.9	N/A	5.42E-03	N/A	N/A	1.49E-03	N/A	1	1
40-44.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
65-69.9								
total runs							3	3

Table C.6 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 3 - Stable

Stable (undisturbed) sites (new classification) n = 6								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
25-29.9	N/A	5.16E-04	N/A	N/A	N/A	N/A	1	0
30-34.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
35-39.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
40-44.9	N/A	1.91E-03	N/A	N/A	5.13E-04	N/A	1	1
45-49.9	5.67E-03	5.68E-03	5.70E-03	1.38E-03	1.45E-03	1.52E-03	2	2
50-54.9	7.37E-03	7.46E-03	7.56E-03	2.58E-03	3.52E-03	4.81E-03	2	2
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
65-69.9								
total runs							6	5

Table C.7 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 5 - Unstable

Unstable (disturbed) sites (new classfication) n = 8								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	4.26E-03	N/A	N/A	2.67E-03	N/A	1	1
25-29.9	N/A	2.72E-02	N/A	N/A	1.19E-02	N/A	1	1
30-34.9	N/A	7.23E-02	N/A	N/A	2.67E-02	N/A	1	1
35-39.9	2.22E-03	1.95E-02	1.72E-01	5.35E-04	5.93E-03	6.57E-02	2	2
40-44.9	N/A	7.99E-03	N/A	N/A	3.37E-03	N/A	1	1
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
50-54.9	1.84E-02	2.33E-02	2.94E-02	6.10E-03	6.95E-03	7.93E-03	2	2
55-59.9								
60-64.9								
65-69.9								
total runs							8	8

Table C.8 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 5 - Stable

Stable (undisturbed) sites (new classification) n = 33								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
25-29.9	N/A	2.52E-03	N/A	N/A	6.32E-04	N/A	1	1
30-34.9	3.99E-04	2.15E-03	1.15E-02	9.32E-05	5.66E-04	3.44E-03	4	4
35-39.9	1.10E-03	2.66E-03	6.47E-03	3.15E-04	7.48E-04	1.77E-03	4	4
40-44.9	1.64E-03	7.18E-03	3.15E-02	8.38E-04	3.49E-03	1.45E-02	6	6
45-49.9	4.07E-03	8.69E-03	1.86E-02	1.15E-03	2.38E-03	4.94E-03	8	8
50-54.9	9.38E-03	1.32E-02	1.86E-02	2.54E-03	3.52E-03	4.89E-03	5	5
55-59.9	1.24E-02	2.15E-02	3.74E-02	2.02E-03	4.28E-03	9.09E-03	4	4
60-64.9	N/A	2.52E-02	N/A	N/A	9.89E-03	N/A	1	1
65-69.9								
total runs							33	33

Table C.9 Geometric mean PM-10 spike-corrected fluxes and spikes
Group 6 - Unstable

Unstable (disturbed) sites (new classfication) n = 0								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
25-29.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
30-34.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
35-39.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
40-44.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
65-69.9								
total runs							0	0

Table C.10 Geometric mean PM-10 spike-corrected fluxes and spikes
Group 6 - Stable

Stable (undisturbed) sites (new classification) n = 20								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	1.61E-03	N/A	N/A	6.56E-05	N/A	1	1
25-29.9	3.77E-03	7.25E-03	1.40E-02	7.02E-04	1.42E-03	2.87E-03	4	4
30-34.9	1.63E-03	1.69E-02	1.76E-01	5.33E-04	2.11E-03	8.37E-03	3	3
35-39.9	1.29E-03	4.78E-03	1.77E-02	9.92E-04	2.15E-03	4.65E-03	3	3
40-44.9	1.59E-03	3.63E-03	8.32E-03	2.96E-04	9.28E-04	2.91E-03	4	4
45-49.9	N/A	9.08E-03	N/A	N/A	4.20E-03	N/A	1	1
50-54.9	6.09E-03	7.78E-03	9.94E-03	9.59E-04	1.48E-03	2.29E-03	3	3
55-59.9	N/A	1.19E-02	N/A	N/A	1.98E-03	N/A	1	1
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
65-69.9								
total runs							20	20

Table C.11 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 7 - Unstable

Unstable (disturbed) sites (new classfication) n = 0								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
25-29.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
30-34.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
35-39.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
40-44.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
65-69.9								
total runs							0	0

Table C.12 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 7 - Stable

Stable (undisturbed) sites (new classification) n = 15								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
25-29.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
30-34.9	3.80E-04	1.43E-03	5.34E-03	3.90E-05	1.88E-04	9.02E-04	2	2
35-39.9	7.85E-04	2.41E-03	7.39E-03	1.10E-04	3.79E-04	1.31E-03	3	3
40-44.9	2.72E-03	5.90E-03	1.28E-02	6.20E-04	1.25E-03	2.50E-03	3	3
45-49.9	3.16E-03	1.03E-02	3.33E-02	6.08E-04	2.19E-03	7.87E-03	5	5
50-54.9	N/A	1.43E-02	N/A	N/A	1.50E-03	N/A	1	1
55-59.9	N/A	2.25E-02	N/A	N/A	2.08E-03	N/A	1	1
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
65-69.9								
total runs							15	15

Table C.13 Geometric mean PM-10 spike-corrected fluxes and spikes
Group 8 - Unstable

Unstable (disturbed) sites (new classfication) n = 19								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9	N/A	N/A	N/A	N/A	N/A	N/A		
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A		
20-24.9	N/A	1.62E-03	N/A	N/A	1.10E-04	N/A	1	1
25-29.9	9.61E-04	3.00E-03	9.39E-03	1.23E-04	3.34E-04	9.04E-04	3	3
30-34.9	8.22E-04	3.75E-03	1.71E-02	N/A	N/A	N/A	2	0
35-39.9	8.00E-03	1.21E-02	1.82E-02	1.79E-03	2.36E-03	3.12E-03	2	2
40-44.9	1.15E-03	3.96E-03	1.36E-02	1.82E-04	1.58E-03	1.37E-02	6	2
45-49.9	2.95E-03	1.44E-02	6.99E-02	1.03E-03	4.79E-03	2.24E-02	3	3
50-54.9	N/A	8.26E-02	N/A	N/A	1.15E-02	N/A	1	1
55-59.9	N/A	3.69E-03	N/A	N/A	1.30E-03	N/A	1	1
60-64.9								
65-69.9								
total runs							19	13

Table C.14 Geometric mean PM-10 spike-corrected fluxes and spikes
Group 8 - Stable

Stable (undisturbed) sites (new classification) n = 17								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	1.95E-03	N/A	N/A	4.00E-04	N/A	1	1
20-24.9	N/A	1.06E-02	N/A	N/A	2.64E-03	N/A	1	1
25-29.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
30-34.9	3.85E-03	6.33E-03	1.04E-02	8.58E-05	6.40E-04	4.78E-03	2	2
35-39.9	5.18E-04	3.44E-03	2.28E-02	1.74E-04	1.21E-03	8.38E-03	7	6
40-44.9	1.24E-03	4.81E-03	1.86E-02	8.48E-04	1.41E-03	2.34E-03	4	3
45-49.9	3.34E-04	3.26E-03	3.18E-02	N/A	4.15E-03	N/A	2	1
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
60-64.9								
65-69.9								
total runs							17	14

Table C.15 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 9 - Unstable

Unstable (disturbed) sites (new classification) n = 7								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	1.75E-02	N/A	N/A	3.06E-03	N/A	1	1
25-29.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
30-34.9	5.71E-03	4.57E-02	3.65E-01	1.03E-03	1.30E-02	1.65E-01	2	2
35-39.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
40-44.9	5.89E-02	3.40E-01	1.96E+00	4.54E-03	3.87E-02	3.30E-01	3	3
45-49.9	N/A	5.08E-02	N/A	N/A	6.25E-03	N/A	1	1
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
65-69.9								
total runs							7	7

Table C.16 Geometric mean PM-10 spike-corrected fluxes and spikes

Group 9 - Stable

Stable (undisturbed) sites (new classification) n = 24								
Wind Speed (mph)	Geom mean flux -1 Std. Dev (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev (ton/acre/hr)	Geom mean spike -1 Std. Dev (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev (ton/acre)	Number of flux Runs	Number of spike Runs
10-14.9								
15-19.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
20-24.9	N/A	N/A	N/A	N/A	N/A	N/A	0	0
25-29.9	1.15E-03	1.61E-03	2.26E-03	1.99E-04	3.61E-04	6.54E-04	2	2
30-34.9	1.52E-03	3.01E-03	5.97E-03	1.59E-04	4.68E-04	1.38E-03	5	5
35-39.9	8.83E-04	3.18E-03	1.14E-02	3.69E-04	8.15E-04	1.80E-03	3	3
40-44.9	4.47E-03	8.47E-03	1.61E-02	5.24E-04	1.64E-03	5.11E-03	5	5
45-49.9	2.25E-03	8.78E-03	3.42E-02	6.55E-04	2.48E-03	9.39E-03	3	3
50-54.9	4.30E-03	1.03E-02	2.46E-02	5.67E-04	1.79E-03	5.63E-03	4	4
55-59.9	N/A	6.22E-03	N/A	N/A	1.77E-03	N/A	1	1
60-64.9	N/A	1.21E-02	N/A	N/A	2.04E-03	N/A	1	1
65-69.9								
total runs							24	24

Figure C1 - Stable (undisturbed) flux - spikes removed - all soils

Geometric mean +/- 1 standard deviation

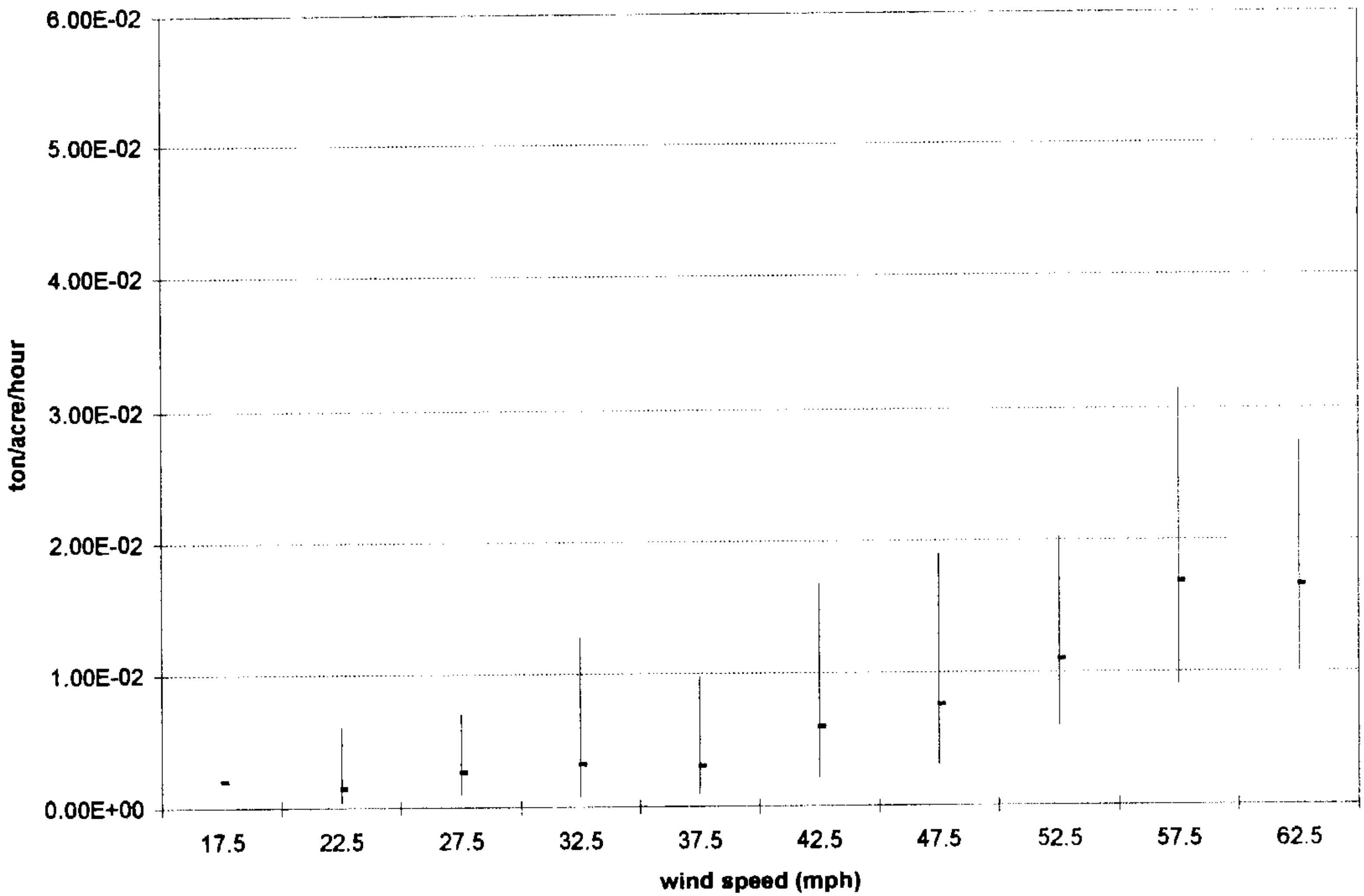


Figure C2 - Unstable (disturbed) flux - spikes removed - all soils

Geometric mean +/- 1 standard deviation

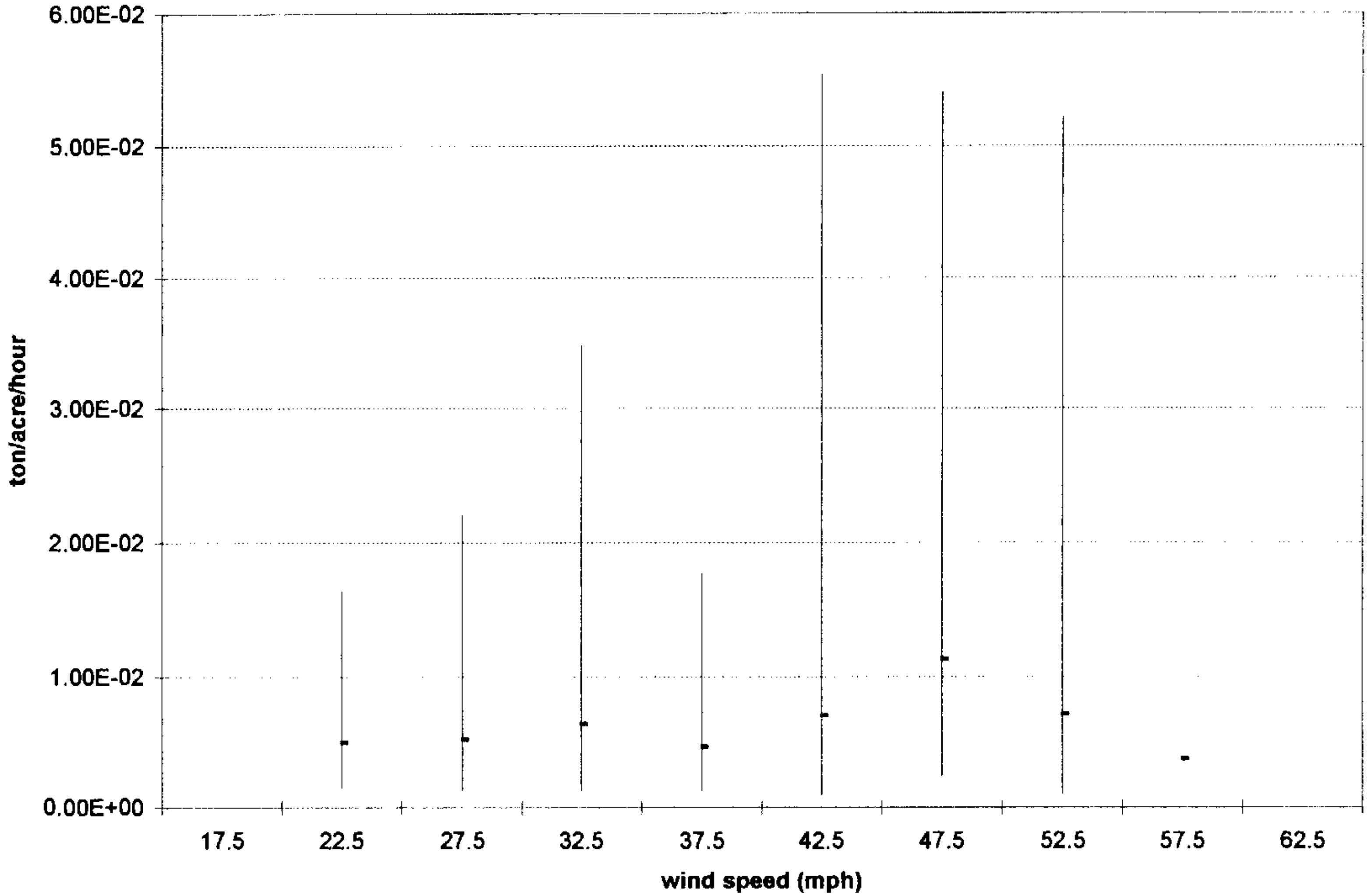


Figure C3 - Stable (undisturbed) spikes - all soils

Geometric mean +/- 1 standard deviation

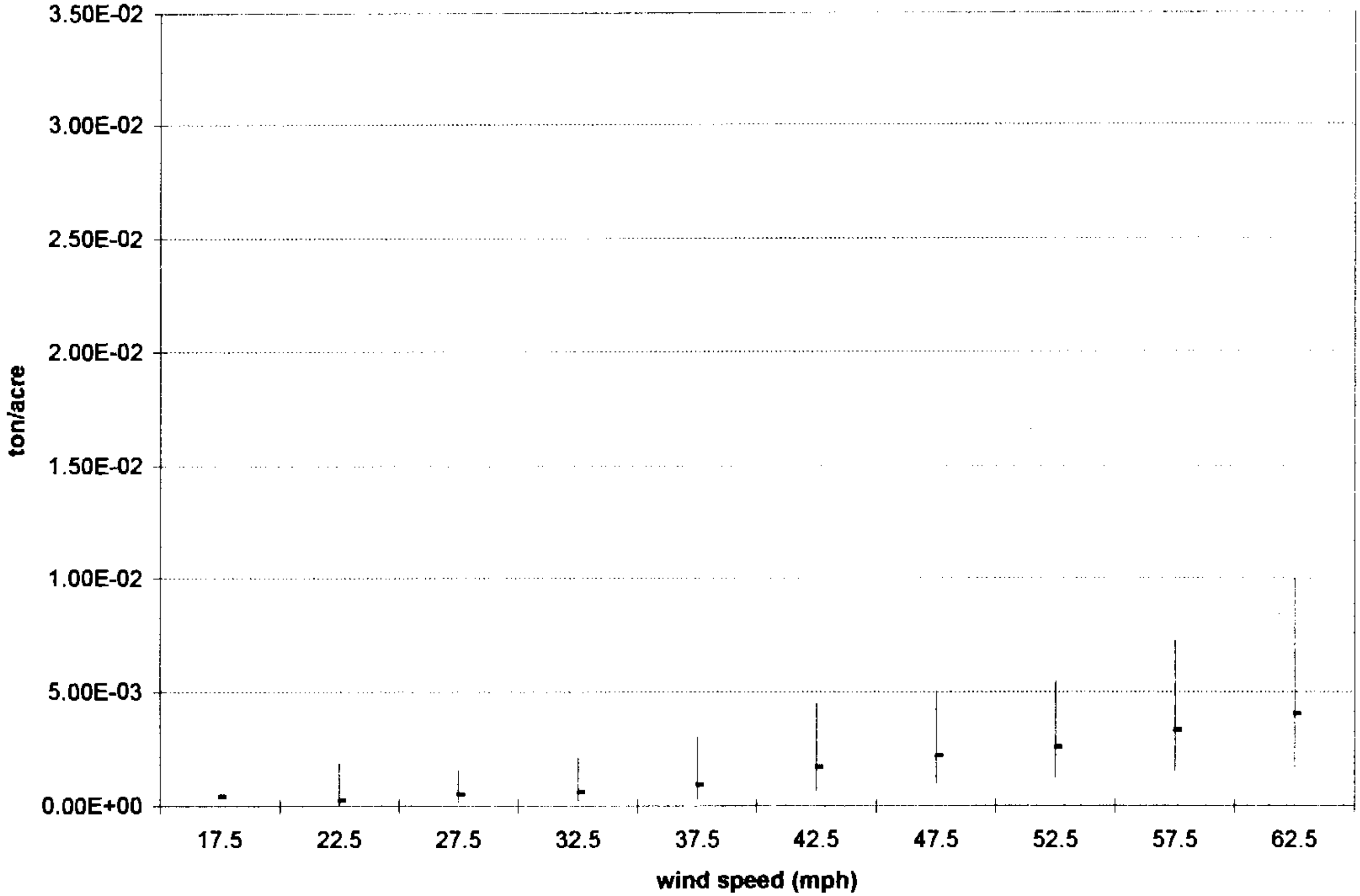
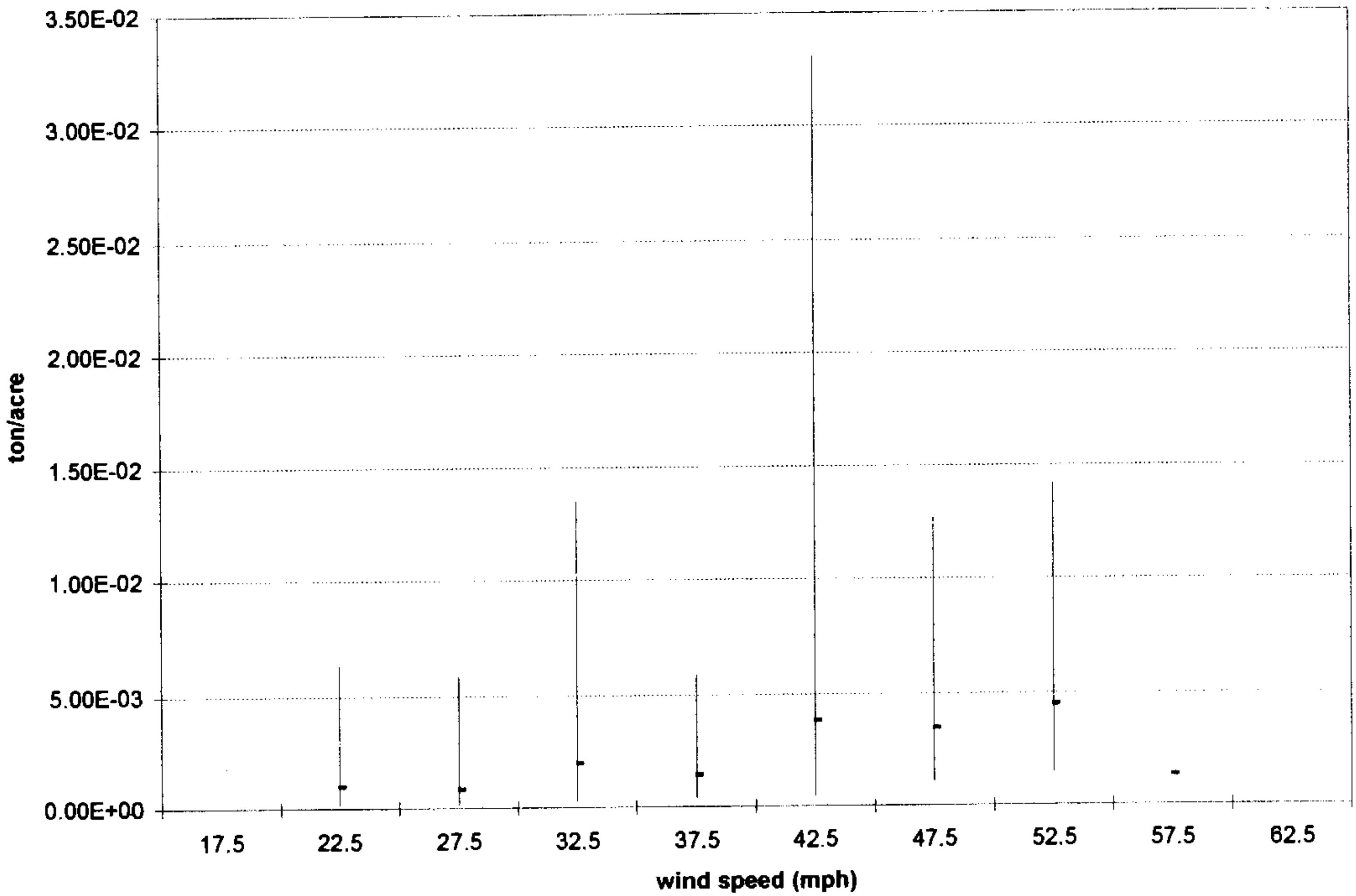


Figure C4 - Unstable (disturbed) spikes - all soils

Geometric mean +/- 1 standard deviation



Section D - 1995 wind tunnel aerodynamic roughnesses and PM-10 initiation velocities

Table D.00 contains the direct measurements of aerodynamic roughness height, zo, and observed PM-10 spike velocities, at both z=7.5 centimeters and z=10 meters, from the 1995 wind tunnel field study.

Aerodynamic roughness height, zo, was determined from a logarithmic fit to the velocity profile measured over the soil surface by the profiling pitot tube in the working section of the tunnel. Physically, aerodynamic roughness may be thought of as the height above the surface at which the wind velocity goes to zero.

The PM-10 spike velocity is computed from the profiling pitot tube pressure drop that corresponded to the first indication of a PM-10 concentration "spike" exceeding 1.00 mg/m^3, as measured by the TSI Dust-Trak(r). The concentration "spike" was obtained by starting the wind tunnel with the front bypass air inlet wide open, and slowly closing it until a spike was observed on the TSI display. The pitot tube pressure drop, measured at an elevation of 7.50 centimeters, corresponding to this damper position was recorded, and the pressure drop was subsequently converted to a flow velocity.

The aerodynamic roughness height was then used with this 7.50 cm spike velocity to compute an extrapolated velocity at an elevation of 10 meters.

Data in Table D.00 are sorted by wind tunnel Site designation, to facilitate direct comparison with wind tunnel site data in Section 1, Table 1 of this report.

In the next table, Table D.0, the same data are presented, this time sorted by major soil group and by unstable/stable classification. Sorted data in this table were then extracted into a series of sub-tables, one table for each soil group and stability condition. Computations of geometric mean and standard deviation were performed in each sub table, and the results from each subtable were exported to Tables D.1 through D.8.

Tables D.1 through D.8 contain minimum, maximum, geometric mean and standard deviation aerodynamic roughnesses and spike velocities for each major soil group and for each stability (unstable/stable) classification. The tables are arranged in the following order:

Table #	**Major soil group**
D.1	All soils
D.2	2
D.3	3
D.4	5
D.5	6
D.6	7
D.7	8
D.8	9

Table D.00 - 1995 aerodynamic roughnesses and observed initiation velocities for elevated PM-10 (spike velocities)
Sorted by sampling locations

Date	Site	Major soil group	Unstable (y=1,n=0)	Aerodynamic roughness, zo (cm)	PM-10 spike velocity at z=7.6 cm (mph)	Extrapolated spike velocity at z=10m (mph)
5/31/95	WT001	3	0	.2876	13.0	32.4
6/01/95	WT002	6	0	.0001	10.3	14.5
6/01/95	WT003	6	0	.2127	16.5	39.1
6/07/95	WT004	8	0	.1996	13.2	31.0
6/08/95	WT005	8	1	.0043	11.5	19.1
6/08/95	WT006	8	0	.1176	10.7	23.4
6/09/95	WT007	5	0	.2127	16.5	39.1
6/09/95	WT008	8	0	.0116	14.4	25.3
6/09/95	WT009	8	0	.0964	15.3	32.5
6/19/95	WT010	8	0	.0234	6.7	12.4
6/19/95	WT011	6	0	.0395	9.5	18.4
6/20/95	WT012	2	0	.1216	11.5	25.0
6/20/95	WT013	8	1	.2158	11.5	27.3
6/21/95	WT014	8	0	.1068	13.4	28.9
6/21/95	WT015	2	0	.1695	11.3	26.0
6/21/95	WT016	2	1	.0355	16.9	32.4
6/22/95	WT017	2	0	.1760	11.9	27.4
6/22/95	WT018	2	1	.1970	11.2	26.2
6/26/95	WT019	2	1	.0547	14.6	29.2
6/26/95	WT020	8	1	.3493	14.3	37.1
6/27/95	WT021	2	1	.0862	15.4	32.4
6/27/95	WT022	2	1	.1606	15.1	34.4
6/27/95	WT023	5	0	.2189	12.5	29.8
6/28/95	WT024	9	1	.0511	11.9	23.5
6/28/95	WT025	2	0	.4891	10.9	30.3
6/29/95	WT026	6	0	.0394	13.6	26.2
6/29/95	WT027	6	0	.0658	14.5	29.6
6/30/95	WT028	6	0	.0169	11.1	19.9
6/30/95	WT029	3	1	.0121	13.6	24.0
6/30/95	WT030	6	0	.2453	12.1	29.4
7/05/95	WT031-A	8	1	.0733	13.5	27.7

Table D.00 - 1995 aerodynamic roughnesses and observed initiation velocities for elevated PM-10 (spike velocities)
Sorted by sampling locations

Date	Site	Major soil group	Unstable (y=1,n=0)	Aerodynamic roughness, zo (cm)	PM-10 spike velocity at z=7.6 cm (mph)	Extrapolated spike velocity at z=10m (mph)
7/05/95	WT031-B	8	1	.0707	12.0	24.6
7/05/95	WT031-C	8	1	.1146	12.7	27.6
7/06/95	WT031-D	8	1	.2628	13.1	32.3
7/07/95	WT031-E	8	1	.1666	12.2	27.8
7/10/95	WT031-F	8	1	.0588	11.1	22.3
7/10/95	WT031-G	8	1	.0112	13.5	23.7
7/10/95	WT031-H	8	1	.0312	13.3	25.1
7/06/95	WT032	2	1	.0046	17.3	28.7
7/07/95	WT033	5	0	.1403	13.6	30.2
7/12/95	WT034	2	0	.1738	13.0	29.8
7/12/95	WT035	2	0	.0001	11.9	17.3
7/13/95	WT036	2	0	.2405	12.5	30.4
7/13/95	WT037	2	0	.1942	12.9	30.2
7/14/95	WT038	2	0	.0281	14.3	26.8
7/14/95	WT039	2	0	.2172	12.2	29.0
7/14/95	WT040	2	0	.0467	14.7	28.8
7/18/95	WT041	2	0	.2238	12.5	29.9
7/18/95	WT042	2	0	.3416	12.4	32.2
7/18/95	WT043	2	1	.0531	13.1	26.1
7/19/95	WT044	2	0	.0018	19.1	30.4
7/19/95	WT045	2	0	.2219	11.4	27.2
7/20/95	WT046	3	0	.1157	14.9	32.3
7/20/95	WT047	7	0	.1727	13.7	31.5
7/24/95	WT048	2	0	.0086	11.8	20.4
7/24/95	WT049	2	0	.0037	12.8	21.0
7/26/95	WT050	2	1	.1031	12.0	25.7
7/25/95	WT051	8	0	.0487	13.8	27.1
7/25/95	WT052	8	0	.1863	13.5	31.3
7/26/95	WT053	8	1	.0227	11.9	22.0
7/27/95	WT054	2	1	.1596	13.7	31.1
7/27/95	WT055	2	1	.0400	14.0	27.1

Table D.00 - 1995 aerodynamic roughnesses and observed initiation velocities for elevated PM-10 (spike velocities)
Sorted by sampling locations

Date	Site	Major soil group	Unstable (y=1,n=0)	Aerodynamic roughness, zo (cm)	PM-10 spike velocity at z=7.6 cm (mph)	Extrapolated spike velocity at z=10m (mph)
7/28/95	WT056	8	1	.0251	12.7	23.6
7/28/95	WT057	8	1	.0223	15.7	28.9
7/31/95	WT058	9	0	.1691	11.2	25.7
8/01/95	WT059	9	0	.1395	13.8	30.7
8/01/95	WT060	9	0	.0172	11.5	20.8
8/02/95	WT061	5	1	.4099	10.7	28.6
8/02/95	WT062	5	0	.3139	11.8	30.1
8/02/95	WT063	5	0	.2891	12.8	31.9
8/04/95	WT064	5	0	.2226	10.6	25.3
8/03/95	WT065	5	0	.0489	13.0	25.6
8/03/95	WT066	6	0	.0690	14.1	28.7
8/03/95	WT067	6	0			
8/08/95	WT068	2	0	.0340	12.4	23.7
8/08/95	WT069	5	0	.0300	12.1	22.9
8/09/95	WT070	5	0	.1081	14.2	30.5
8/14/95	WT071	5	1	.0027	12.1	19.5
8/14/95	WT072	7	0	.0930	12.8	27.1
8/15/95	WT073	7	0	.2319	14.7	35.3
8/18/95	WT074	7	0	.1053	12.3	26.5
8/18/95	WT075	9	0	.3099	12.5	31.7
8/30/95	WT076	9	0	.0334	12.2	23.2
8/30/95	WT077	9	0	.0654	13.6	27.6
9/01/95	WT078	9	1	.0323	9.6	18.2

Table D.0 - 1995 aerodynamic roughnesses and observed initiation velocities for elevated PM-10 (spike velocities)
Sorted by major soil group

Date	Site	Major soil group	Unstable (y=1,n=0)	Aerodynamic roughness, zo (cm)	PM-10 spike velocity at z=7.6 cm (mph)	Extrapolated spike velocity at z=10m (mph)
7/12/95	WT035	2	0	.0001	11.9	17.3
7/24/95	WT048	2	0	.0086	11.8	20.4
7/24/95	WT049	2	0	.0037	12.8	21.0
8/08/95	WT068	2	0	.0340	12.4	23.7
6/20/95	WT012	2	0	.1216	11.5	25.0
6/21/95	WT015	2	0	.1695	11.3	26.0
7/14/95	WT038	2	0	.0281	14.3	26.8
7/19/95	WT045	2	0	.2219	11.4	27.2
6/22/95	WT017	2	0	.1760	11.9	27.4
7/14/95	WT040	2	0	.0467	14.7	28.8
7/14/95	WT039	2	0	.2172	12.2	29.0
7/12/95	WT034	2	0	.1738	13.0	29.8
7/18/95	WT041	2	0	.2238	12.5	29.9
7/13/95	WT037	2	0	.1942	12.9	30.2
6/28/95	WT025	2	0	.4891	10.9	30.3
7/13/95	WT036	2	0	.2405	12.5	30.4
7/19/95	WT044	2	0	.0018	19.1	30.4
7/18/95	WT042	2	0	.3416	12.4	32.2
7/26/95	WT050	2	1	.1031	12.0	25.7
7/18/95	WT043	2	1	.0531	13.1	26.1
6/22/95	WT018	2	1	.1970	11.2	26.2
7/27/95	WT055	2	1	.0400	14.0	27.1
7/06/95	WT032	2	1	.0046	17.3	28.7
6/26/95	WT019	2	1	.0547	14.6	29.2
7/27/95	WT054	2	1	.1596	13.7	31.1
6/27/95	WT021	2	1	.0862	15.4	32.4
6/21/95	WT016	2	1	.0355	16.9	32.4
6/27/95	WT022	2	1	.1606	15.1	34.4
7/20/95	WT046	3	0	.1157	14.9	32.3
5/31/95	WT001	3	0	.2876	13.0	32.4
6/30/95	WT029	3	1	.0121	13.6	24.0

Table D.0 - 1995 aerodynamic roughnesses and observed initiation velocities for elevated PM-10 (spike velocities)
Sorted by major soil group

Date	Site	Major soil group	Unstable (y=1,n=0)	Aerodynamic roughness, zo (cm)	PM-10 spike velocity at z=7.6 cm (mph)	Extrapolated spike velocity at z=10m (mph)
8/08/95	WT069	5	0	.0300	12.1	22.9
8/04/95	WT064	5	0	.2226	10.6	25.3
8/03/95	WT065	5	0	.0489	13.0	25.6
6/27/95	WT023	5	0	.2189	12.5	29.8
8/02/95	WT062	5	0	.3139	11.8	30.1
7/07/95	WT033	5	0	.1403	13.6	30.2
8/09/95	WT070	5	0	.1081	14.2	30.5
8/02/95	WT063	5	0	.2891	12.8	31.9
6/09/95	WT007	5	0	.2127	16.5	39.1
8/14/95	WT071	5	1	.0027	12.1	19.5
8/02/95	WT061	5	1	.4099	10.7	28.6
6/01/95	WT002	6	0	.0001	10.3	14.5
6/19/95	WT011	6	0	.0395	9.5	18.4
6/30/95	WT028	6	0	.0169	11.1	19.9
6/29/95	WT026	6	0	.0394	13.6	26.2
8/03/95	WT066	6	0	.0690	14.1	28.7
6/30/95	WT030	6	0	.2453	12.1	29.4
6/29/95	WT027	6	0	.0658	14.5	29.6
6/01/95	WT003	6	0	.2127	16.5	39.1
8/18/95	WT074	7	0	.1053	12.3	26.5
8/14/95	WT072	7	0	.0930	12.8	27.1
7/20/95	WT047	7	0	.1727	13.7	31.5
8/15/95	WT073	7	0	.2319	14.7	35.3
6/19/95	WT010	8	0	.0234	6.7	12.4
6/08/95	WT006	8	0	.1176	10.7	23.4
6/09/95	WT008	8	0	.0116	14.4	25.3
7/25/95	WT051	8	0	.0487	13.8	27.1
6/21/95	WT014	8	0	.1068	13.4	28.9
6/07/95	WT004	8	0	.1996	13.2	31.0
7/25/95	WT052	8	0	.1863	13.5	31.3
6/09/95	WT009	8	0	.0964	15.3	32.5

Table D.0 - 1995 aerodynamic roughnesses and observed initiation velocities for elevated PM-10 (spike velocities)
Sorted by major soil group

Date	Site	Major soil group	Unstable (y=1,n=0)	Aerodynamic roughness, zo (cm)	PM-10 spike velocity at z=7.6 cm (mph)	Extrapolated spike velocity at z=10m (mph)
6/08/95	WT005	8	1	.0043	11.5	19.1
7/26/95	WT053	8	1	.0227	11.9	22.0
7/10/95	WT031-F	8	1	.0588	11.1	22.3
7/28/95	WT056	8	1	.0251	12.7	23.6
7/10/95	WT031-G	8	1	.0112	13.5	23.7
7/05/95	WT031-B	8	1	.0707	12.0	24.6
7/10/95	WT031-H	8	1	.0312	13.3	25.1
6/20/95	WT013	8	1	.2158	11.5	27.3
7/05/95	WT031-C	8	1	.1146	12.7	27.6
7/05/95	WT031-A	8	1	.0733	13.5	27.7
7/07/95	WT031-E	8	1	.1666	12.2	27.8
7/28/95	WT057	8	1	.0223	15.7	28.9
7/06/95	WT031-D	8	1	.2628	13.1	32.3
6/26/95	WT020	8	1	.3493	14.3	37.1
8/01/95	WT060	9	0	.0172	11.5	20.8
8/30/95	WT076	9	0	.0334	12.2	23.2
7/31/95	WT058	9	0	.1691	11.2	25.7
8/30/95	WT077	9	0	.0654	13.6	27.6
8/01/95	WT059	9	0	.1395	13.8	30.7
8/18/95	WT075	9	0	.3099	12.5	31.7
9/01/95	WT078	9	1	.0323	9.6	18.2
6/28/95	WT024	9	1	.0511	11.9	23.5
8/03/95	WT067					

Table D.1 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities

All soils

Unstable (disturbed) sites (new classification) n = 29			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0027	9.6	18.2
mean - 1 std.dev	0.0139	11.3	22.2
mean	0.0514	13.0	26.4
mean + 1 std.dev	0.1898	14.9	31.3
maximum	0.4099	17.3	37.1

Stable (undisturbed) sites (new classification) n = 56			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0001	6.7	12.4
mean - 1 std.dev	0.0124	10.9	21.8
mean	0.0712	12.7	27.0
mean + 1 std.dev	0.4106	14.7	33.4
maximum	0.4899	19.1	39.1

Table D.2 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities
Soil Group 2

Unstable (disturbed) sites (new classification) n = 1			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0046	11.2	25.7
mean - 1 std.dev	0.0207	12.4	26.3
mean	0.0621	14.2	29.2
mean + 1 std.dev	0.1858	16.3	32.4
maximum	0.1970	17.3	34.4

Stable (undisturbed) sites (new classification) n = 2			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0001	10.9	17.3
mean - 1 std.dev	0.0062	11.1	22.5
mean	0.0547	12.6	26.6
mean + 1 std.dev	0.4853	14.4	31.5
maximum	0.4891	19.1	32.2

Table D.3 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities
Soil Group 3

Unstable (disturbed) sites (new classification) n = 1			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	N/A	N/A	N/A
mean - 1 std.dev	N/A	N/A	N/A
mean	0.0121	13.6	24.0
mean + 1 std.dev	N/A	N/A	N/A
maximum	N/A	N/A	N/A

Stable (undisturbed) sites (new classification) n = 2			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.1157	13.0	32.3
mean - 1 std.dev	0.0958	12.6	32.3
mean	0.1824	13.9	32.4
mean + 1 std.dev	0.3473	15.3	32.5
maximum	0.2876	14.9	32.4

Table D.4 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities
Soil Group 5

Unstable (disturbed) sites (new classification) n = 1			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0027	10.7	19.5
mean - 1 std.dev	0.0009	10.4	18.0
mean	0.0330	11.3	23.6
mean + 1 std.dev	1.1636	12.4	30.9
maximum	0.4099	12.1	28.6

Stable (undisturbed) sites (new classification) n = 2			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0300	10.6	22.9
mean - 1 std.dev	0.0620	11.4	25.0
mean	0.1402	12.9	29.2
mean + 1 std.dev	0.3168	14.6	34.1
maximum	0.3139	16.5	39.1

Table D.5 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities
Soil Group 6

Unstable (disturbed) sites (new classification) n = 1			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	N/A	N/A	N/A
mean - 1 std.dev	N/A	N/A	N/A
mean	N/A	N/A	N/A
mean + 1 std.dev	N/A	N/A	N/A
maximum	N/A	N/A	N/A

Stable (undisturbed) sites (new classification) n = 2			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0001	9.5	14.5
mean - 1 std.dev	0.0018	10.3	17.9
mean	0.0273	12.5	24.6
mean + 1 std.dev	0.4050	15.1	33.9
maximum	0.2453	16.5	39.1

Table D.6 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities
Soil Group 7

Unstable (disturbed) sites (new classification) n = 1			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	N/A	N/A	N/A
mean - 1 std.dev	N/A	N/A	N/A
mean	N/A	N/A	N/A
mean + 1 std.dev	N/A	N/A	N/A
maximum	N/A	N/A	N/A

Stable (undisturbed) sites (new classification) n = 2			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0930	12.3	26.5
mean - 1 std.dev	0.0918	12.4	26.1
mean	0.1407	13.3	29.9
mean + 1 std.dev	0.2157	14.4	34.2
maximum	0.2319	14.7	35.3

Table D.7 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities
Soil Group 8

Unstable (disturbed) sites (new classification) n = 1			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0043	11.1	19.1
mean - 1 std.dev	0.0153	11.6	22.0
mean	0.0548	12.7	26.0
mean + 1 std.dev	0.1966	14.0	30.8
maximum	0.3493	15.7	37.1

Stable (undisturbed) sites (new classification) n = 2			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0116	6.7	12.4
mean - 1 std.dev	0.0255	9.4	18.7
mean	0.0703	12.3	25.5
mean + 1 std.dev	0.1934	16.0	34.9
maximum	0.1996	15.3	32.5

Table D.8 Statistical summary of aerodynamic roughnesses and PM-10 spike velocities
Soil Group 9

Unstable (disturbed) sites (new classification) n = 1			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0323	9.6	18.2
mean - 1 std.dev	0.0294	9.2	17.3
mean	0.0406	10.7	20.7
mean + 1 std.dev	0.0562	12.4	24.8
maximum	0.0511	11.9	23.5

Stable (undisturbed) sites (new classification) n = 2			
		computed	extrapolated
category	aero roughness (cm)	spike velocity @ 7.6 cm (mph)	spike velocity @ 10 m (mph)
minimum	0.0172	11.2	20.8
mean - 1 std.dev	0.0273	11.4	22.4
mean	0.0806	12.4	26.3
mean + 1 std.dev	0.2382	13.5	31.0
maximum	0.3099	13.8	31.7

Section E - 1998-1999 wind tunnel emission factors for Stabilized surfaces

A. Explanation of Tables

The wind tunnel mass balance diagram and the list of mass balance equations (see Section 1) summarize the manipulations of wind tunnel flow data, TSI Dust-Trak(r) concentration data, assumed PM-10 background concentration and tunnel floor dimensions that were employed to compute PM-10 fluxes from the stabilized soil surfaces during Phase I and Phase II .

Phase I took place from August 1998 through December 1998. During wind tunnel testing, the tunnel was run at only velocity on each treated surface. To catch the effects of weathering over time, the tunnel was run once on a treated surface, and then moved to the next treatment. After all 10 surfaces had been tested, the cycle was repeated. the tunnel was returned to the first treated plot, run once, and again moved to the next plot.

Phase I was terminated after inundations of the test location with flood water from four El Nino-associated storms in September and October, and after a freezing and inundation with snowfall from a La Nina-associated storm in December. It was the opinion of the investigator that weathering of the suppressant-treated surfaces under these conditions was not "typical" for southern Nevada, and Phase I was terminated at the end of December.

At the end of Phase I, suppressant was completely removed from all of the surfaces (except for RAP). After removal of all suppressant and crust, the plot that had been treated with lignin sulfonate surface was tested with the wind tunnel prior to reapplication of dust suppressants. This was done to determine the baseline emissions of the untreated, uncrusted surfaces prior to application of suppressants in Phase II.

Phase II took place from February through June of 1999. During Phase II, the tunnel was run several times on each test plot before being moved to the next surface. Additionally, surfaces of the plots were torn up by a pick-up truck tire, and the torn-up sections were tested. Results for Phase II are available as both not torn-up (intact surface) and as torn-up (partially abraded surface) throughout the testing period.

Table E.1 reviews the constants and conversion factors used in PM-10 flux calculations. The cyclone flow is nearly constant at 40 cfm because it is drawn through a venturi that chokes the flow at 40 cfm regardless of atmospheric density. A PM-10 atmospheric background concentration of 20 mg/m^3 was assumed.

Tables E.2 through E.11 are organized as follows by dust suppressant for Phase II, not spike-corrected data, both not torn-up and torn-up.

Table E.2	Magnesium chloride
Table E.3	Double water
Table E.4	Lignin sulfonate
Table E.5	PennzsuppressD(r)
Table E.6	Rohm & Haas acrylic polymer
Table E.7	Hydroseed
Table E.8	Recycled asphalt product (RAP)
Table E.9	Control (surface crusted)
Table E.10	Plastex(r)
Table E.11	Soil Sement(r)

Tables E.2 through E.11 show, for each suppressant applied during Phase II (February 1999 through June 1999), the run date, the wind tunnel run number, the run duration (minutes), soil surface condition (torn up = 1, not torn up = 0), extrapolated wind speed at 10 mph for the run (based on measured aerodynamic roughness), measured average PM-10 concentration (in mg/m^3) for the run, wind tunnel total volumetric flow rate (cubic feet per minute), and computed not spike-corrected flux in milligrams/square meter/minute ($mg/m^2/min$) and in ton/acre/hour.

Tables E.12 through E.22 are organized as follows for Phase I, not spike corrected data, not torn-up.

Table E.12	Magnesium chloride
Table E.13	Double water
Table E.14	Lignin sulfonate
Table E.15	PennzsuppressD(r)
Table E.16	Rohm & Haas acrylic polymer
Table E.17	Hydroseed
Table E.18	Recycled asphalt product (RAP)
Table E.19	Control - crusted
Table E.20	Control - uncrusted
Table E.21	Plastex(r)
Table E.22	Soil Sement(r)

Tables E.12 through E.22 show, for each suppressant applied during Phase I, (August 1998 through December 1998), the run date, the wind tunnel run number, the run duration (minutes), soil surface condition (torn up = 1, not torn up = 0), extrapolated wind speed at 10 mph for the run (based on measured aerodynamic roughness), measured average PM-10 concentration (in mg/m^3) for the run, wind tunnel total volumetric flow rate (cubic feet per minute), and computed flux in milligrams/square meter/minute ($mg/m^2/min$) and in ton/acre/hour.

Tables E.23 through E.26 are organized by wind speed category for Phase II stabilized surface, not torn-up fluxes, averaged over the several dust suppressants:

Table E.23	15-19.9 mph
Table E.24	20-24.9 mph
Table E.25	25-29.9 mph
Table E.26	30-34.9 mph

Tables E.23 through E.26 show the computations of geometric mean non-spike corrected flux in each wind speed category for the Phase II testing. The geometric mean fluxes were averaged across all Phase II applied dust suppressants, except for RAP (which had not been reapplied, and would not typically be used to stabilize vacant lands), Hydroseed (which would not typically be used to suppress dust in short-term applications), and the control (which had not been treated with any suppressant).

Since the tunnel was never operated in the same place for more than one run, cumulative fluxes were not computed for the stabilized surfaces. (In comparison, during the 1995 field study, the wind tunnel was operated in the same place for three or four runs at progressively increasing wind speeds, so cumulative fluxes were computed. See Section 1 and Sections A through C, for the methodology of computation of cumulative fluxes and for the results).

Tables E.27 through E.33 are organized by wind speed category for Phase I stabilized surface, not torn-up fluxes, averaged over the several dust suppressants:

Table E.27	5 - 9.9 mph
Table E.28	10-14.9 mph
Table E.29	15-19.9 mph
Table E.30	20-24.9 mph
Table E.31	25-29.9 mph
Table E.32	30-34.9 mph
Table E.33	35-39.9 mph

Tables E.27 though E.33 show the computations of geometric mean non spike-corrected flux in each wind speed category for the Phase I testing. The mean fluxes were averaged across all Phase I applied dust suppressants, except for RAP (which would not typically be used to stabilize vacant lands), Hydroseed (which would not typically be used to suppress dust in short-term applications), and the control (which had not been treated with any suppressant).

At the end of Phase I, the lignin sulfonate surface was torn-up and fluxes were measured for the surface without any suppressant or crust present. These runs were performed to generate baseline, untreated surface data prior to the reapplication of suppressants in Phase II. Records for these runs are marked with an asterisk(*) in Table E.14 and in Tables E.28, E.29 and E.30. As these torn-up surfaces had much higher fluxes than the treated surface, Phase I fluxes were computed for two cases. Case 1 included the torn-up surface runs in the computations of average flux in each wind speed category. Case 2 excluded the torn-up surface runs from the computations of average flux in each wind speed category.

Tables E23 through E33 were generated by running queries to extract all records for each wind speed category for each experimental Phase in a MS Access[r] database of the wind tunnel flux data.

Tables E.34 through E.38 summarize data presented in earlier tables. They are organized as follows:

Table E.34 - Phase I fluxes	not-torn up	not spike-corrected, compared to Phase II
Table E.35 - Phase II fluxes	not torn up	not spike-corrected
Table E.36 - Phase II fluxes	not torn up	spike-corrected
Table E.37 - Phase II fluxes	torn-up	not spike-corrected
Table E.38 - Phase II fluxes	torn-up	spike-corrected

Table E.34 summarizes and compares Phase I and Phase II not torn-up , not spike-corrected fluxes previously presented in Tables E.23 through E.33. It presents geometric mean - 1 standard deviation, geometric mean, and geometric mean + 1 standard deviation values. Each entry in Table E.34 is referenced to the table number (23 through 33) where the computations are carried out. Geometric means were computed instead of arithmetic means because the data sets of fluxes in each 5 mph wind speed range were all strongly right-skewed. Arithmetic means and arithmetic standard deviations did not adequately describe the data, as computations of arithmetic mean - 1 standard deviation would often produce negative results.

Given the unusual weathering (flood inundation and snow) experienced by the Phase I surfaces, it is felt that the Phase II surfaces more realistically represent typical surface treatments that would be initially applied and then weather in the Las Vegas Valley. *It is recommended that Phase II emission factors be used for stabilized lands, and not the Phase I factors.* Phase I data are presented here for completeness and for comparison to Phase II.

Both Phase I and Phase II data were processed for spike removal. However, since use of Phase II factors is recommended, the only spike-corrected stabilized surface data presented in this report are for Phase II. The effects of spike correction on the Phase II data were found to be small

Tables E.35 and E.36 present the Phase II emission factors for intact treated surfaces (*not torn up by the truck tire*). Table E.35 contains data not corrected for effects of the initial "spike" of high PM-10. Table E.36 contains data corrected for effects of the spike.

Tables E.37 and E.38 present the Phase II emission factors for treated surfaces, *torn up by the truck tire*. Table E.37 contains data not corrected for effects of the initial "spike" of high PM-10. Table E.38 contains data corrected for effects of the spike.

B. Explanation of Figures

Figures E1 through E12 graphically display data from Tables E.34 through E.38, so that the reader may visually compare means and dispersions for the stabilized surfaces.

Relationships between data in Figures and Tables are:

Figure	Table	Description
E1	E.34	Phase I stabilized not spike-corrected fluxes
E2	E.34	Phase I stabilized not spike-corrected fluxes - same scale as Fig E3
E3	E.35	Phase II stabilized not spike-corrected fluxes - not torn up
E4	E.36	Phase II stabilized spike-corrected fluxes - not torn up
E5	E.37	Phase II stabilized not spike-corrected fluxes - torn up
E6	E.37	Phase II stabilized not spike-corrected fluxes - torn up - scale as Fig E3
E7	E.38	Phase II stabilized spike-corrected fluxes - torn up - same scale as Fig E5
E8	E.38	Phase II stabilized spike-corrected fluxes - torn up - same scale as Fig E6
E9	E.36	Phase II spikes (ton/acre) - not torn up - 1/1000 scale of Figs C3 and C4
E10	E.38	Phase II spikes (ton/acre) - torn up - 1/10 scale of Figs C3 and C4
E11	E.35-E.36	Phase II fluxes - not spike-corrected v. spike-corrected - not torn up
E12	E.37-E.38	Phase II fluxes - not spike-corrected v. spike-corrected - torn up

Figures E1 and E2 depict Phase I stabilized not spike-corrected fluxes, and are generated from Table E.34. In this case, "not spike-corrected" means that the PM-10 concentration "spike" observed at the beginning of a wind-tunnel run has not been removed prior to computing hourly average fluxes.

Figure E.3 depicts Phase II stabilized not-spike corrected fluxes, (Table E.35) plotted on the same scale as Figure E2 so that Phase I and Phase II data may be directly compared. Figure E3 shows that Phase II stabilized fluxes were lower than Phase I stabilized fluxes.

Relative magnitudes of Phase I and Phase II fluxes may be best compared by examining Table E.34 and by comparing Figures E2 and E3. In general, Phase I fluxes were higher than in Phase II. Typical treated surface PM-10 flux values are on the order of $6x10^{-4}$ ton/acre/hour for Phase I and $3x10^{-4}$ ton/acre/hour for Phase II; however, the standard deviations are very large.

In the case of intact surfaces treated with dust suppressant, the presence of the spike was assumed to be small. This assumption was tested for the Phase II by subsequent processing of the data to remove the spike.

Figure E4 depicts Phase II stabilized *spike-corrected* fluxes from intact surfaces, and is generated from Table E.36. In this case, "not spike-corrected" means that the PM-10 concentration "spike" observed at the beginning of a wind-tunnel run has not been removed prior to computing hourly average fluxes. In the case of intact surfaces treated with dust suppressant, the presence of the spike was assumed to be small. This assumption will be tested by subsequent processing of the data to remove the spike.

Figures E5 and E6 depict Phase II, *not spike-corrected* fluxes from the surfaces torn up by the truck tire (Table E.37). Figure E6 replots the Figure E5 data on the same scale as Figure E3 so that not torn up (Figure E3) and torn-up results (Figure E6) may be directly compared.

Figures E7 and E8 depict Phase II, *spike-corrected* fluxes from the surfaces torn up by the truck tire (Table E.38). Figure E7 plots the spike-corrected data on the same scale as Figure E5, so that spike-corrected (Figure E7) and not-spike corrected (Figure E5) results may be directly compared.

Figure E8 replots the Figure E7 data on the same scale as Figures E6 and E3 so that torn-up spike-corrected (Figure E8), torn-up not spike corrected (Figure E6), and not torn-up (not-spike corrected -Figure E3) may be directly compared.

Figure E9 presents the Phase II *not torn-up* spike data in ton/acre, (Table E.36) plotted on 1/1000 the scale of the spike data for unstable and stable native desert (Figures C3 and C4), and shows that not-torn up stabilized surface spike data are very small, about 1/1000 the magnitude of spikes measured from unstable or stable native desert.

Figure E10 presents the Phase II *torn-up* spike data in ton/acre, (Table E.38) plotted on 1/10 the scale of the spike data for unstable and stable native desert (Figures C3 and C4), and shows that torn up stabilized surface spike data are about 1/10 the magnitude of spikes measured from unstable or stable native desert. After a modest amount of abrasion, stabilized surfaces still produce somewhat less PM-10 than native desert.

Figure E11 graphically compares not spike-corrected and spike-corrected *not torn-up* Phase II stabilized land PM-10 emission factors (fluxes in ton/acre/hour) for three wind-speed categories (Tables E.35 and E.36). It shows that spike-removal processing produced spike-corrected means somewhat lower than not-spike corrected; however, at 15-19.9 mph (plotted as 17.5) and 25-29.9 mph (plotted as 27.5), the not-spike corrected and spike-corrected distributions show considerable overlap. At 20-24.9 mph (plotted as 22.5), the distributions show less overlap. Subsequent statistical analyses will determine if the means in the 20-24.9 mph category are significantly different.

Figure E12 graphically compares not spike-corrected and spike-corrected *torn up* Phase II stabilized land PM-10 emission factors (fluxes in ton/acre/hour) for three wind-speed categories (Tables E.37 and E.38). The data need to be replotted on a finer scale to compare the means, but, within each wind-speed category, the distributions show considerable overlap.

Table E.1

Item	Value	Units	Uncertainty +/-
cyclone flow	40	cfm	1
background PM-10	0.020	mg / m3	0.010
conversion factor	0.305	m / ft	0.0002
conversion factor	1000	ug / mg	exact
conversion factor	2.205E-06	lb / mg	.001E-06
conversion factor	5.000E-04	ton / lb	exact
conversion factor	43560	ft2 / acre	exact
conversion factor	4047	m2 / acre	1
conversion factor	60	min / hr	exact
tunnel floor area	2.500	ft2	0.013
tunnel floor area	0.232	m2	0.001
derived conversion	2.68E-04	(ton/acre/hr)/(mg/m2/min)	
conversion factor	1.00E-06	kg/mg	
conversion factor	10000	m2/hectare	
derived conversion	1.00E-02	(kg-m2)/(mg-hectare)	

Table E.2

Magnesium Chloride Phase II fluxes - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
19-Mar-99	1096	MgCl	5	0	24.9	0.012	458.7	-4.86E-01	-1.30E-04
19-Mar-99	1096	MgCl	10	0	24.9	0.016	458.7	-2.43E-01	-6.50E-05
19-Mar-99	1097	MgCl	5	0	23.3	0.026	462.5	3.68E-01	9.83E-05
19-Mar-99	1097	MgCl	10	0	23.3	0.065	462.5	2.76E+00	7.37E-04
19-Mar-99	1098	MgCl	5	0	21.4	0.022	461.9	1.22E-01	3.27E-05
19-Mar-99	1098	MgCl	10	0	21.4	0.021	461.9	6.12E-02	1.64E-05
19-Mar-99	1099	MgCl	5	0	22.6	0.050	463.2	1.84E+00	4.92E-04
19-Mar-99	1099	MgCl	10	0	22.6	0.031	463.2	6.75E-01	1.80E-04
20-Mar-99	1146	MgCl	5	0	20.3	0.175	455.3	9.36E+00	2.50E-03
20-Mar-99	1146	MgCl	10	0	20.3	0.078	455.3	3.50E+00	9.37E-04
20-Mar-99	1147	MgCl	5	1	28.5	0.047	466.9	1.67E+00	4.46E-04
20-Mar-99	1147	MgCl	10	1	28.5	0.043	466.9	1.42E+00	3.80E-04
20-Mar-99	1148	MgCl	5	1	25.6	0.032	470.7	7.47E-01	2.00E-04
20-Mar-99	1148	MgCl	10	1	25.6	0.025	470.7	3.11E-01	8.33E-05
20-Mar-99	1149	MgCl	5	1	25.3	0.285	467.7	1.64E+01	4.39E-03
20-Mar-99	1149	MgCl	10	1	25.3	0.209	467.7	1.17E+01	3.13E-03
20-Mar-99	1150	MgCl	5	1	22.2	0.408	468.3	2.40E+01	6.43E-03
20-Mar-99	1150	MgCl	10	1	22.2	2.237	468.3	1.37E+02	3.67E-02
20-Mar-99	1151	MgCl	5	1	24.5	0.216	468.8	1.22E+01	3.25E-03
20-Mar-99	1151	MgCl	10	1	24.5	0.165	468.8	9.00E+00	2.41E-03
8-Jun-99	1173	MgCl	5	1	23.2	0.063	450.6	2.57E+00	6.88E-04
8-Jun-99	1173	MgCl	10	1	23.2	0.057	450.6	2.21E+00	5.92E-04
8-Jun-99	1174	MgCl	5	1	21.1	0.045	453.5	1.50E+00	4.02E-04
8-Jun-99	1174	MgCl	10	1	21.1	0.060	453.5	2.41E+00	6.44E-04
9-Jun-99	1181	MgCl	5	1	19.7	0.070	453.9	3.01E+00	8.05E-04
9-Jun-99	1181	MgCl	10	1	19.7	0.122	453.9	6.14E+00	1.64E-03
9-Jun-99	1182	MgCl	5	1	22.1	0.072	456.5	3.15E+00	8.42E-04
9-Jun-99	1182	MgCl	10	1	22.1	1.340	456.5	7.99E+01	2.14E-02
9-Jun-99	1183	MgCl	5	1	18.6	0.101	457.5	4.91E+00	1.31E-03
9-Jun-99	1183	MgCl	10	1	18.6	0.059	457.5	2.37E+00	6.33E-04

Table E.3

Double water Phase II fluxes - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
24-Mar-99	1105	Double Water	5	0	25.2	0.043	457.2	1.39E+00	3.73E-04
24-Mar-99	1105	Double Water	10	0	25.2	0.028	457.2	4.85E-01	1.30E-04
24-Mar-99	1106	Double Water	5	0	22.4	0.044	464.9	1.48E+00	3.95E-04
24-Mar-99	1106	Double Water	10	0	22.4	0.030	464.9	6.16E-01	1.65E-04
24-Mar-99	1107	Double Water	5	0	22.0	0.032	461.9	7.34E-01	1.96E-04
24-Mar-99	1107	Double Water	10	0	22.0	0.029	461.9	5.51E-01	1.47E-04
24-Mar-99	1108	Double Water	5	0	25.4	0.039	459.7	1.16E+00	3.10E-04
24-Mar-99	1108	Double Water	10	0	25.4	0.027	459.7	4.26E-01	1.14E-04
24-Mar-99	1109	Double Water	5	0	19.6	0.037	458.4	1.03E+00	2.76E-04
24-Mar-99	1109	Double Water	10	0	19.6	0.050	458.4	1.82E+00	4.88E-04
24-May-99	1157	Double Water	5	1	21.8	0.882	445.8	5.11E+01	1.37E-02
24-May-99	1157	Double Water	10	1	21.8	2.154	445.8	1.26E+02	3.38E-02
24-May-99	1158	Double Water	5	1	27.1	0.542	453.2	3.14E+01	8.39E-03
24-May-99	1158	Double Water	10	1	27.1	1.036	453.2	6.11E+01	1.63E-02
24-May-99	1159	Double Water	5	1	17.6	4.613	452.0	2.75E+02	7.37E-02
24-May-99	1159	Double Water	10	1	17.6	3.708	452.0	2.21E+02	5.92E-02
24-May-99	1160	Double Water	5	1	25.6	0.433	454.0	2.49E+01	6.65E-03
24-May-99	1160	Double Water	10	1	25.6	2.402	454.0	1.43E+02	3.84E-02
24-May-99	1161	Double Water	5	1	26.9	0.323	471.6	1.89E+01	5.05E-03
24-May-99	1161	Double Water	10	1	26.9	2.568	471.6	1.59E+02	4.25E-02
7-Jun-99	1171	Double Water	5	1	18.6	0.281	465.6	1.61E+01	4.30E-03
7-Jun-99	1171	Double Water	10	1	18.6	1.167	465.6	7.07E+01	1.89E-02
7-Jun-99	1172	Double Water	5	1	14.9	1.100	465.7	6.66E+01	1.78E-02
7-Jun-99	1172	Double Water	10	1	14.9	1.827	465.7	1.11E+02	2.98E-02
8-Jun-99	1175	Double Water	5	1	27.9	0.197	455.9	1.07E+01	2.86E-03
8-Jun-99	1175	Double Water	10	1	27.9	0.513	455.9	2.98E+01	7.97E-03
8-Jun-99	1176	Double Water	5	1	27.3	0.337	459.3	1.93E+01	5.16E-03
8-Jun-99	1176	Double Water	10	1	27.3	0.122	459.3	6.21E+00	1.66E-03
9-Jun-99	1184	Double Water	5	1	21.5	0.949	456.8	5.63E+01	1.50E-02
9-Jun-99	1184	Double Water	10	1	21.5	0.251	456.8	1.40E+01	3.74E-03

Table E.4

Lignin sulfonate - Phase II fluxes - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
29-Jan-99	1049	Lig Sulfonate	5	0	25.5	0.055	424.6	1.98E+00	5.30E-04
29-Jan-99	1049	Lig Sulfonate	10	0	25.5	0.049	424.6	1.64E+00	4.39E-04
29-Jan-99	1050	Lig Sulfonate	5	0	18.7	0.118	430.2	5.62E+00	1.50E-03
29-Jan-99	1051	Lig Sulfonate	10	0	18.7	0.064	430.2	2.52E+00	6.75E-04
29-Jan-99	1052	Lig Sulfonate	5	0	15.1	0.099	435.2	4.58E+00	1.22E-03
29-Jan-99	1053	Lig Sulfonate	10	0	15.1	0.092	435.2	4.17E+00	1.12E-03
22-Feb-99	1068	Lig Sulfonate	5	0	21.2	0.052	448.8	1.91E+00	5.10E-04
22-Feb-99	1066	Lig Sulfonate	10	0	21.2	0.129	448.8	6.50E+00	1.74E-03
22-Feb-99	1067	Lig Sulfonate	5	0	23.1	0.059	451.4	2.34E+00	6.25E-04
22-Feb-99	1068	Lig Sulfonate	10	0	23.1	0.038	451.4	1.08E+00	2.88E-04
17-May-99	1136	Lig Sulfonate	5	0	27.1	0.074	468.9	3.35E+00	8.96E-04
17-May-99	1136	Lig Sulfonate	10	0	27.1	0.018	468.9	-1.24E-01	-3.32E-05
17-May-99	1137	Lig Sulfonate	5	0	21.3	0.010	468.4	-6.20E-01	-1.66E-04
17-May-99	1137	Lig Sulfonate	10	0	21.3	0.023	468.4	1.86E-01	4.97E-05
18-May-99	1138	Lig Sulfonate	5	0	27.5	0.068	449.5	2.86E+00	7.66E-04
18-May-99	1138	Lig Sulfonate	10	0	27.5	0.073	449.5	3.16E+00	8.46E-04
18-May-99	1139	Lig Sulfonate	5	0	21.0	0.060	451.6	2.40E+00	6.41E-04
18-May-99	1139	Lig Sulfonate	10	0	21.0	0.069	451.6	2.94E+00	7.85E-04
18-May-99	1140	Lig Sulfonate	5	0	29.5	0.052	458.4	1.94E+00	5.20E-04
18-May-99	1140	Lig Sulfonate	10	0	29.5	0.045	458.4	1.52E+00	4.06E-04
29-Jan-99	1141	Lig Sulfonate	5	1	21.5	0.041	434.9	1.22E+00	3.25E-04
29-Jan-99	1142	Lig Sulfonate	10	1	21.5	0.531	434.9	2.96E+01	7.91E-03
29-Jan-99	1143	Lig Sulfonate	5	1	23.9	0.062	439.5	2.46E+00	6.57E-04
29-Jan-99	1144	Lig Sulfonate	10	1	23.9	0.310	439.5	1.70E+01	4.53E-03
29-Jan-99	1145	Lig Sulfonate	5	1	24.8	0.033	440.2	7.61E-01	2.04E-04
29-Jan-99	1146	Lig Sulfonate	10	1	24.8	0.033	440.2	7.61E-01	2.04E-04
22-Feb-99	1147	Lig Sulfonate	5	1	27.1	0.108	449.3	5.25E+00	1.40E-03
22-Feb-99	1148	Lig Sulfonate	10	1	27.1	0.128	449.3	6.44E+00	1.72E-03
22-Feb-99	1149	Lig Sulfonate	5	1	18.8	0.051	447.7	1.84E+00	4.93E-04
22-Feb-99	1150	Lig Sulfonate	10	1	18.8	0.076	447.7	3.33E+00	8.91E-04
18-May-99	1141	Lig Sulfonate	5	1	27.1	0.068	462.9	2.94E+00	7.87E-04
18-May-99	1141	Lig Sulfonate	10	1	27.1	0.059	462.9	2.39E+00	6.39E-04
18-May-99	1142	Lig Sulfonate	5	1	21.3	0.051	465.3	1.91E+00	5.11E-04
18-May-99	1142	Lig Sulfonate	10	1	21.3	0.043	465.3	1.42E+00	3.79E-04
18-May-99	1143	Lig Sulfonate	5	1	27.5	0.150	468.5	8.06E+00	2.16E-03
18-May-99	1143	Lig Sulfonate	10	1	27.5	0.138	468.5	7.31E+00	1.96E-03
18-May-99	1144	Lig Sulfonate	5	1	21.0	0.195	475.5	1.10E+01	2.94E-03
18-May-99	1144	Lig Sulfonate	10	1	21.0	0.047	475.5	1.70E+00	4.54E-04
18-May-99	1145	Lig Sulfonate	5	1	29.5	0.043	467.1	1.42E+00	3.80E-04
18-May-99	1145	Lig Sulfonate	10	1	29.5	0.238	467.1	1.35E+01	3.60E-03

Table E.4

Lignin sulfonate - Phase II fluxes - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
7-Jun-99	1169	Lig Sulfonate	5	1	27.1	0.024	462.8	2.45E-01	6.56E-05
7-Jun-99	1169	Lig Sulfonate	10	1	27.1	0.031	462.8	6.74E-01	1.80E-04
7-Jun-99	1170	Lig Sulfonate	5	1	21.3	0.045	460.1	1.52E+00	4.08E-04
7-Jun-99	1170	Lig Sulfonate	10	1	21.3	0.042	460.1	1.34E+00	3.59E-04
8-Jun-99	1177	Lig Sulfonate	5	1	27.5	0.085	462.9	3.99E+00	1.07E-03
8-Jun-99	1177	Lig Sulfonate	10	1	27.5	0.053	462.9	2.02E+00	5.41E-04
8-Jun-99	1178	Lig Sulfonate	5	1	21.0	0.066	477.8	2.90E+00	7.76E-04
8-Jun-99	1178	Lig Sulfonate	10	1	21.0	0.082	477.8	3.91E+00	1.05E-03
9-Jun-99	1185	Lig Sulfonate	5	1	29.5	0.065	467.4	2.78E+00	7.44E-04
9-Jun-99	1185	Lig Sulfonate	10	1	29.5	0.115	467.4	5.88E+00	1.57E-03

Table E.5

PennzsuppressD - Phase II fluxes - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
17-Mar-99	1091	Penn Suppress	5	0	16.3	0.028	454.6	4.82E-01	1.29E-04
17-Mar-99	1091	Penn Suppress	10	0	16.3	0.045	454.6	1.51E+00	4.03E-04
17-Mar-99	1092	Penn Suppress	5	0	16.1	0.035	457.9	9.11E-01	2.43E-04
17-Mar-99	1092	Penn Suppress	10	0	16.1	0.029	457.9	5.46E-01	1.46E-04
17-Mar-99	1093	Penn Suppress	5	0	24.1	0.030	460.0	6.10E-01	1.63E-04
17-Mar-99	1093	Penn Suppress	10	0	24.1	0.033	460.0	7.92E-01	2.12E-04
17-Mar-99	1094	Penn Suppress	5	0	16.8	0.028	459.5	4.87E-01	1.30E-04
17-Mar-99	1094	Penn Suppress	10	0	16.8	0.035	459.5	9.13E-01	2.44E-04
17-Mar-99	1095	Penn Suppress	5	0	17.9	0.031	457.3	6.67E-01	1.78E-04
17-Mar-99	1095	Penn Suppress	10	0	17.9	0.080	457.3	3.64E+00	9.73E-04
1-Jun-99	1162	Penn Suppress	5	1	20.6	0.067	454.1	2.83E+00	7.57E-04
1-Jun-99	1162	Penn Suppress	10	1	20.6	0.437	454.1	2.51E+01	6.72E-03
1-Jun-99	1163	Penn Suppress	5	1	22.9	1.259	451.9	7.43E+01	1.99E-02
1-Jun-99	1163	Penn Suppress	10	1	22.9	3.701	451.9	2.21E+02	5.90E-02
1-Jun-99	1164	Penn Suppress	5	1	17.7	2.098	459.2	1.26E+02	3.38E-02
1-Jun-99	1164	Penn Suppress	10	1	17.7	0.962	459.2	5.73E+01	1.53E-02
1-Jun-99	1165	Penn Suppress	5	1	19.0	0.988	457.5	5.87E+01	1.57E-02
1-Jun-99	1165	Penn Suppress	10	1	19.0	3.609	457.5	2.18E+02	5.82E-02
10-Jun-99	1166	Penn Suppress	5	1	17.3	1.185	458.5	7.08E+01	1.89E-02
10-Jun-99	1166	Penn Suppress	10	1	17.3	4.801	458.5	2.91E+02	7.77E-02
10-Jun-99	1187	Penn Suppress	5	1	17.0	3.400	466.3	2.09E+02	5.58E-02
10-Jun-99	1187	Penn Suppress	10	1	17.0	0.639	466.3	3.82E+01	1.02E-02
10-Jun-99	1188	Penn Suppress	5	1	18.4	0.557	464.4	3.30E+01	8.83E-03
10-Jun-99	1188	Penn Suppress	10	1	18.4	1.691	464.4	1.03E+02	2.75E-02
10-Jun-99	1189	Penn Suppress	5	1	23.4	1.995	476.8	1.24E+02	3.33E-02
10-Jun-99	1189	Penn Suppress	10	1	23.4	0.814	476.8	5.00E+01	1.34E-02
16-Jun-99	1190	Penn Suppress	5	1	27.0	0.106	462.4	5.27E+00	1.41E-03
16-Jun-99	1190	Penn Suppress	10	1	27.0	0.191	462.4	1.05E+01	2.80E-03
16-Jun-99	1196	Penn Suppress	5	1	32.0	0.349	481.3	2.09E+01	5.59E-03
16-Jun-99	1196	Penn Suppress	10	1	32.0	0.174	481.3	9.79E+00	2.62E-03

Table E.6

Rohm Haas Acrylic Polymer - Phase II fluxes - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
5-Mar-99	1081	Acrylic Polymer	5	0	17.0	0.018	450.2	-1.20E-01	-3.20E-05
5-Mar-99	1081	Acrylic Polymer	10	0	17.0	0.038	450.2	1.08E+00	2.88E-04
5-Mar-99	1082	Acrylic Polymer	5	0	21.9	0.024	451.6	2.40E-01	6.41E-05
5-Mar-99	1082	Acrylic Polymer	10	0	21.9	0.047	451.6	1.62E+00	4.33E-04
5-Mar-99	1084	Acrylic Polymer	5	0	16.4	0.058	456.6	2.30E+00	6.15E-04
5-Mar-99	1084	Acrylic Polymer	10	0	16.4	0.063	456.6	2.60E+00	6.96E-04
5-Mar-99	1085	Acrylic Polymer	5	0	19.9	0.031	450.1	6.57E-01	1.76E-04
5-Mar-99	1085	Acrylic Polymer	10	0	19.9	0.039	450.1	1.14E+00	3.04E-04
5-Mar-99	1086	Acrylic Polymer	5	0	22.8	0.037	450.8	1.02E+00	2.72E-04
5-Mar-99	1086	Acrylic Polymer	10	0	22.8	0.032	450.8	7.18E-01	1.92E-04
5-Mar-99	1083	Acrylic Polymer	5	1	25.5	0.107	455.9	5.26E+00	1.41E-03
5-Mar-99	1083	Acrylic Polymer	10	1	25.5	0.244	455.9	1.35E+01	3.62E-03
10-Mar-99	1087	Acrylic Polymer	5	1	27.8	0.026	452.0	3.60E-01	9.62E-05
10-Mar-99	1087	Acrylic Polymer	10	1	27.8	0.026	452.0	3.60E-01	9.62E-05
10-Mar-99	1088	Acrylic Polymer	5	1	24.8	0.032	450.8	7.18E-01	1.92E-04
10-Mar-99	1088	Acrylic Polymer	10	1	24.8	0.048	450.8	1.68E+00	4.48E-04
10-Mar-99	1089	Acrylic Polymer	5	1	20.5	0.053	456.5	2.00E+00	5.34E-04
10-Mar-99	1089	Acrylic Polymer	10	1	20.5	0.399	456.5	2.29E+01	6.14E-03
10-Mar-99	1090	Acrylic Polymer	5	1	16.6	0.075	452.6	3.30E+00	8.83E-04
10-Mar-99	1090	Acrylic Polymer	10	1	16.6	0.085	452.6	3.90E+00	1.04E-03
16-Jun-99	1191	Acrylic Polymer	5	1	25.1	0.151	467.1	8.10E+00	2.17E-03
16-Jun-99	1191	Acrylic Polymer	10	1	25.1	0.221	467.1	1.24E+01	3.32E-03
16-Jun-99	1192	Acrylic Polymer	5	1	20.2	0.155	473.4	8.45E+00	2.26E-03
16-Jun-99	1192	Acrylic Polymer	10	1	20.2	0.123	473.4	6.45E+00	1.72E-03
16-Jun-99	1193	Acrylic Polymer	5	1	27.1	0.164	472.8	9.00E+00	2.41E-03
16-Jun-99	1193	Acrylic Polymer	10	1	27.1	0.096	472.8	4.75E+00	1.27E-03
16-Jun-99	1194	Acrylic Polymer	5	1	25.2	0.064	473.1	2.75E+00	7.36E-04
16-Jun-99	1194	Acrylic Polymer	10	1	25.2	0.064	473.1	2.75E+00	7.36E-04
16-Jun-99	1195	Acrylic Polymer	5	1	24.8	0.055	482.1	2.23E+00	5.96E-04
16-Jun-99	1195	Acrylic Polymer	10	1	24.8	0.063	482.1	2.74E+00	7.32E-04

Table E.7

Hydroseed - Phase II fluxes - not spike-corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
27-Feb-99	1070	Hydroseed	5	0	24.2	0.078	441.6	3.41E+00	9.11E-04
27-Feb-99	1070	Hydroseed	10	0	24.2	0.067	441.6	2.76E+00	7.38E-04
27-Feb-99	1071	Hydroseed	5	0	22.0	0.061	445.3	2.43E+00	6.49E-04
27-Feb-99	1071	Hydroseed	10	0	22.0	0.045	445.3	1.48E+00	3.96E-04
2-Mar-99	1078	Hydroseed	5	0	22.3	3.046	446.6	1.80E+02	4.80E-02
2-Mar-99	1078	Hydroseed	10	0	22.3	2.472	446.6	1.45E+02	3.89E-02
2-Mar-99	1079	Hydroseed	5	0	19.6	2.959	455.0	1.77E+02	4.74E-02
2-Mar-99	1079	Hydroseed	10	0	19.6	2.427	455.0	1.45E+02	3.88E-02
2-Mar-99	1080	Hydroseed	5	0	28.5	2.092	461.2	1.27E+02	3.39E-02
2-Mar-99	1080	Hydroseed	10	0	28.5	1.803	461.2	1.09E+02	2.91E-02
6-Apr-99	1110	Hydroseed	5	0	28.7	0.032	443.0	7.07E-01	1.89E-04
6-Apr-99	1110	Hydroseed	10	0	28.7	0.027	443.0	4.12E-01	1.10E-04
15-Apr-99	1118	Hydroseed	5	0	27.2	0.035	444.5	8.86E-01	2.37E-04
15-Apr-99	1118	Hydroseed	10	0	27.2	0.043	444.5	1.36E+00	3.63E-04
15-Apr-99	1119	Hydroseed	5	0	28.1	0.026	439.1	3.50E-01	9.37E-05
15-Apr-99	1119	Hydroseed	10	0	28.1	0.054	439.1	1.99E+00	5.31E-04
27-Feb-99	1072	Hydroseed	5	1	32.3	0.049	447.8	1.72E+00	4.61E-04
27-Feb-99	1072	Hydroseed	10	1	32.3	0.034	447.8	8.33E-01	2.23E-04
27-Feb-99	1073	Hydroseed	5	1	31.1	0.035	449.7	8.96E-01	2.40E-04
27-Feb-99	1073	Hydroseed	10	1	31.1	0.027	449.7	4.18E-01	1.12E-04
27-Feb-99	1074	Hydroseed	5	1	27.4	VOIDED		VOIDED	
27-Feb-99	1074	Hydroseed	10	1	27.4	VOIDED		VOIDED	
27-Feb-99	1075	Hydroseed	5	1	21.0	VOIDED		VOIDED	
27-Feb-99	1075	Hydroseed	10	1	21.0	VOIDED		VOIDED	
27-Feb-99	1076	Hydroseed	5	1	24.3	VOIDED		VOIDED	
27-Feb-99	1076	Hydroseed	10	1	24.3	VOIDED		VOIDED	
2-Mar-99	1077	Hydroseed	5	1		VOIDED		VOIDED	
2-Mar-99	1077	Hydroseed	10	1		VOIDED		VOIDED	
6-Apr-99	1111	Hydroseed	5	1	25.1	0.045	446.2	1.48E+00	3.96E-04
6-Apr-99	1111	Hydroseed	10	1	25.1	0.054	446.2	2.02E+00	5.39E-04
6-Apr-99	1112	Hydroseed	5	1	24.0	0.155	442.1	7.93E+00	2.12E-03
6-Apr-99	1112	Hydroseed	10	1	24.0	0.332	442.1	1.83E+01	4.90E-03
17-Jun-99	1197	Hydroseed	5	1	23.0	0.182	459.7	9.87E+00	2.64E-03
17-Jun-99	1197	Hydroseed	10	1	23.0	0.355	459.7	2.04E+01	5.46E-03
17-Jun-99	1198	Hydroseed	5	1	25.8	0.151	476.4	8.25E+00	2.21E-03
17-Jun-99	1198	Hydroseed	10	1	25.8	0.377	476.4	2.25E+01	6.01E-03
17-Jun-99	1199	Hydroseed	5	1	29.7	0.639	476.3	3.90E+01	1.04E-02
17-Jun-99	1199	Hydroseed	10	1	29.7	0.192	476.3	1.08E+01	2.90E-03
17-Jun-99	1200	Hydroseed	5	1	25.3	0.411	471.7	2.44E+01	6.52E-03
17-Jun-99	1200	Hydroseed	10	1	25.3	0.259	471.7	1.49E+01	3.99E-03

Table E.7

Hydroseed - Phase II fluxes - not spike-corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
17-Jun-99	1201	Hydroseed	5	1	29.9	0.229	482.0	1.33E+01	3.56E-03
17-Jun-99	1201	Hydroseed	10	1	29.9	0.166	482.0	9.29E+00	2.48E-03
24-Jun-99	1207	Hydroseed	5	1	27.0	0.116	467.5	5.94E+00	1.59E-03
24-Jun-99	1207	Hydroseed	10	1	27.0	0.060	467.5	2.47E+00	6.62E-04

Table E.8

Rap fluxes - Phase II - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
6-May-99	1131	RAP	5	0	18.8	0.072	465.7	3.21E+00	8.57E-04
6-May-99	1131	RAP	10	0	18.8	0.047	465.7	1.66E+00	4.45E-04
6-May-99	1132	RAP	5	0	20.8	0.132	472.4	7.00E+00	1.87E-03
6-May-99	1132	RAP	10	0	20.8	0.050	472.4	1.87E+00	5.01E-04
7-May-99	1133	RAP	5	0		VOIDED		VOIDED	
7-May-99	1133	RAP	10	0		VOIDED		VOIDED	
7-May-99	1134	RAP	5	0	21.2	0.030	476.4	6.30E-01	1.68E-04
7-May-99	1134	RAP	10	0	21.2	0.024	476.4	2.52E-01	6.73E-05
7-May-99	1135	RAP	5	0	20.9	0.017	475.4	-1.88E-01	-5.04E-05
7-May-99	1135	RAP	10	0	20.9	0.023	475.4	1.88E-01	5.04E-05
22-Jun-99	1202	RAP	5	0	16.6	0.077	457.1	3.45E+00	9.24E-04
22-Jun-99	1202	RAP	10	0	16.6	0.081	457.1	3.70E+00	9.89E-04
21-May-99	1152	RAP	5	1	21.7	0.060	450.7	2.39E+00	6.40E-04
21-May-99	1152	RAP	10	1	21.7	0.078	450.7	3.47E+00	9.28E-04
21-May-99	1153	RAP	5	1	23.7	0.062	464.7	2.58E+00	6.91E-04
21-May-99	1153	RAP	10	1	23.7	0.067	464.7	2.89E+00	7.73E-04
21-May-99	1154	RAP	5	1	22.9	0.043	468.5	1.43E+00	3.81E-04
21-May-99	1154	RAP	10	1	22.9	0.032	468.5	7.44E-01	1.99E-04
21-May-99	1155	RAP	5	1	23.1	0.037	476.4	1.07E+00	2.86E-04
21-May-99	1155	RAP	10	1	23.1	0.036	476.4	1.01E+00	2.69E-04
21-May-99	1156	RAP	5	1	24.7	0.036	475.1	1.00E+00	2.69E-04
21-May-99	1156	RAP	10	1	24.7	0.030	475.1	6.28E-01	1.68E-04
22-Jun-99	1203	RAP	5	1	24.5	0.156	474.6	8.53E+00	2.28E-03
22-Jun-99	1203	RAP	10	1	24.5	0.174	474.6	9.66E+00	2.58E-03
22-Jun-99	1204	RAP	5	1	20.7	0.076	471.1	3.49E+00	9.33E-04
22-Jun-99	1204	RAP	10	1	20.7	0.083	471.1	3.93E+00	1.05E-03
22-Jun-99	1205	RAP	5	1	19.8	0.104	467.5	5.20E+00	1.39E-03
22-Jun-99	1205	RAP	10	1	19.8	0.182	467.5	1.00E+01	2.68E-03
22-Jun-99	1206	RAP	5	1	20.6	0.077	468.7	3.54E+00	9.45E-04
22-Jun-99	1206	RAP	10	1	20.6	0.125	468.7	6.51E+00	1.74E-03
25-Jun-99	1213	RAP	5	1	16.0	0.082	458.8	3.77E+00	1.01E-03
25-Jun-99	1213	RAP	10	1	16.0	0.083	458.8	3.83E+00	1.02E-03

Table E.9

Control fluxes - Phase II - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
21-Apr-99	1120	Control	5	0	24.3	0.075	463.7	3.38E+00	9.03E-04
21-Apr-99	1120	Control	10	0	24.3	0.029	463.7	5.53E-01	1.48E-04
21-Apr-99	1121	Control	5	0	22.1	0.065	472.4	2.81E+00	7.52E-04
21-Apr-99	1121	Control	10	0	22.1	0.045	472.4	1.56E+00	4.18E-04
26-Apr-99	1124	Control	5	0	23.4	0.061	465.6	2.53E+00	6.76E-04
26-Apr-99	1124	Control	10	0	23.4	0.071	465.6	3.14E+00	8.41E-04
26-Apr-99	1125	Control	5	0	22.0	0.295	473.0	1.72E+01	4.60E-03
26-Apr-99	1125	Control	10	0	22.0	0.166	473.0	9.13E+00	2.44E-03
6-May-99	1128	Control	5	0	18.2	0.050	457.4	1.82E+00	4.87E-04
6-May-99	1128	Control	10	0	18.2	0.086	457.4	4.00E+00	1.07E-03
21-Apr-99	1122	Control	5	1	19.6	0.049	467.6	1.79E+00	4.80E-04
21-Apr-99	1122	Control	10	1	19.6	0.050	467.6	1.86E+00	4.96E-04
23-Apr-99	1123	Control	5	1	22.1	0.176	444.8	9.22E+00	2.47E-03
23-Apr-99	1123	Control	10	1	22.1	1.159	444.8	6.73E+01	1.80E-02
26-Apr-99	1126	Control	5	1	23.7	0.260	469.5	1.49E+01	3.99E-03
26-Apr-99	1126	Control	10	1	23.7	0.721	469.5	4.35E+01	1.16E-02
26-Apr-99	1127	Control	5	1	30.0	0.159	476.8	8.76E+00	2.34E-03
26-Apr-99	1127	Control	10	1	30.0	0.066	476.8	2.90E+00	7.75E-04
6-May-99	1129	Control	5	1	20.7	0.259	459.1	1.45E+01	3.89E-03
6-May-99	1129	Control	10	1	20.7	1.848	459.1	1.11E+02	2.97E-02
6-May-99	1130	Control	5	1	19.3	0.347	459.0	1.99E+01	5.32E-03
6-May-99	1130	Control	10	1	19.3	1.336	459.0	8.01E+01	2.14E-02
25-Jun-99	1214	Control	5	1	19.0	0.154	463.3	8.22E+00	2.20E-03
25-Jun-99	1214	Control	10	1	19.0	0.250	463.3	1.41E+01	3.77E-03
25-Jun-99	1215	Control	5	1	16.6	0.142	466.0	7.53E+00	2.01E-03
25-Jun-99	1215	Control	10	1	16.6	0.225	466.0	1.26E+01	3.38E-03
25-Jun-99	1216	Control	5	1	19.0	0.494	468.3	2.94E+01	7.85E-03
25-Jun-99	1216	Control	10	1	19.0	0.375	468.3	2.20E+01	5.88E-03
25-Jun-99	1217	Control	5	1	20.0	0.798	473.7	4.87E+01	1.30E-02
25-Jun-99	1217	Control	10	1	20.0	0.487	473.7	2.93E+01	7.82E-03

Table E.10

Plastex fluxes - Phase II - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
3-Feb-99	1056	Plastex	5	0	23.5	0.062	441.9	2.47E+00	6.60E-04
3-Feb-99	1056	Plastex	10	0	23.5	0.055	441.9	2.06E+00	5.50E-04
3-Feb-99	1057	Plastex	5	0	24.7	0.055	442.5	2.06E+00	5.51E-04
3-Feb-99	1058	Plastex	10	0	24.7	0.057	442.5	2.18E+00	5.82E-04
3-Feb-99	1059	Plastex	5	0	19.8	0.059	448.7	2.32E+00	6.21E-04
3-Feb-99	1060	Plastex	10	0	19.8	0.058	448.7	2.26E+00	6.05E-04
3-Feb-99	1061	Plastex	5	0	24.0	0.069	446.9	2.91E+00	7.78E-04
3-Feb-99	1062	Plastex	10	0	24.0	0.071	446.9	3.03E+00	8.10E-04
3-Feb-99	1063	Plastex	5	0	25.7	0.044	452.8	1.44E+00	3.86E-04
3-Feb-99	1064	Plastex	10	0	25.7	0.039	452.8	1.14E+00	3.05E-04
3-Feb-99	1065	Plastex	5	1	20.8	0.078	446.5	3.44E+00	9.20E-04
3-Feb-99	1066	Plastex	10	1	20.8	0.491	446.5	2.79E+01	7.47E-03
3-Feb-99	1067	Plastex	5	1	26.0	0.180	452.5	9.61E+00	2.57E-03
3-Feb-99	1068	Plastex	10	1	26.0	0.100	452.5	4.80E+00	1.28E-03
3-Feb-99	1069	Plastex	5	1	19.3	0.102	445.6	4.85E+00	1.30E-03
3-Feb-99	1070	Plastex	10	1	19.3	0.134	445.6	6.75E+00	1.80E-03
3-Feb-99	1071	Plastex	5	1	22.8	0.106	444.1	5.08E+00	1.36E-03
3-Feb-99	1072	Plastex	10	1	22.8	0.101	444.1	4.78E+00	1.28E-03
3-Feb-99	1073	Plastex	5	1	20.5	0.109	450.4	5.32E+00	1.42E-03
3-Feb-99	1074	Plastex	10	1	20.5	0.082	450.4	3.71E+00	9.91E-04
24-Jun-99	1208	Plastex	5	1	27.1	0.042	472.4	1.37E+00	3.68E-04
24-Jun-99	1208	Plastex	10	1	27.1	0.081	472.4	3.81E+00	1.02E-03
24-Jun-99	1209	Plastex	5	1	25.5	0.155	472.5	8.44E+00	2.26E-03
24-Jun-99	1209	Plastex	10	1	25.5	0.095	472.5	4.69E+00	1.25E-03
24-Jun-99	1210	Plastex	5	1	21.3	0.168	474.5	9.28E+00	2.48E-03
24-Jun-99	1210	Plastex	10	1	21.3	0.173	474.5	9.60E+00	2.57E-03
24-Jun-99	1211	Plastex	5	1	23.9	0.206	474.5	1.17E+01	3.12E-03
24-Jun-99	1211	Plastex	10	1	23.9	0.226	474.5	1.29E+01	3.46E-03
24-Jun-99	1212	Plastex	5	1	26.2	0.123	474.1	6.46E+00	1.73E-03
24-Jun-99	1212	Plastex	10	1	26.2	0.175	474.1	9.71E+00	2.60E-03

Table E.11

Soil Sement(c) fluxes - Phase II - not spike corrected

Date	Run #	Suppressant	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/(m^2*min)	Flux (ton/(acre*hr)
22-Mar-99	1100	Soil Sement	5	0	30.2	0.007	459.7	-7.92E-01	-2.12E-04
22-Mar-99	1100	Soil Sement	10	0	30.2	0.013	459.7	-4.26E-01	-1.14E-04
22-Mar-99	1101	Soil Sement	5	0	25.2	0.020	462.6	0.00E+00	0.00E+00
22-Mar-99	1101	Soil Sement	10	0	25.2	0.021	462.6	6.13E-02	1.64E-05
22-Mar-99	1102	Soil Sement	5	0	29.1	0.021	461.9	6.12E-02	1.64E-05
22-Mar-99	1102	Soil Sement	10	0	29.1	0.019	461.9	-6.12E-02	-1.64E-05
22-Mar-99	1103	Soil Sement	5	0	27.4	0.025	461.1	3.05E-01	8.17E-05
22-Mar-99	1103	Soil Sement	10	0	27.4	0.023	461.1	1.83E-01	4.90E-05
22-Mar-99	1104	Soil Sement	5	0	24.7	0.024	461.0	2.44E-01	6.53E-05
22-Mar-99	1104	Soil Sement	10	0	24.7	0.027	461.0	4.28E-01	1.14E-04
13-Apr-99	1113	Soil Sement	5	1	26.6	0.029	462.1	5.51E-01	1.47E-04
13-Apr-99	1113	Soil Sement	10	1	26.6	0.029	462.1	5.51E-01	1.47E-04
13-Apr-99	1114	Soil Sement	5	1	22.2	0.021	465.3	6.16E-02	1.65E-05
13-Apr-99	1114	Soil Sement	10	1	22.2	0.022	465.3	1.23E-01	3.30E-05
13-Apr-99	1115	Soil Sement	5	1	24.2	0.019	467.1	-6.18E-02	-1.65E-05
13-Apr-99	1115	Soil Sement	10	1	24.2	0.020	467.1	0.00E+00	0.00E+00
13-Apr-99	1116	Soil Sement	5	1	23.9	0.019	467.5	-6.19E-02	-1.65E-05
13-Apr-99	1116	Soil Sement	10	1	23.9	0.020	467.5	0.00E+00	0.00E+00
13-Apr-99	1117	Soil Sement	5	1	26.5	0.025	468.4	3.10E-01	8.29E-05
13-Apr-99	1117	Soil Sement	10	1	26.5	0.030	468.4	6.20E-01	1.66E-04
7-Jun-99	1167	Soil Sement	5	1	27.2	0.075	454.1	3.31E+00	8.86E-04
7-Jun-99	1167	Soil Sement	10	1	27.2	0.044	454.1	1.45E+00	3.87E-04
7-Jun-99	1168	Soil Sement	5	1	22.3	0.046	455.8	1.57E+00	4.20E-04
7-Jun-99	1168	Soil Sement	10	1	22.3	0.037	455.8	1.03E+00	2.75E-04
8-Jun-99	1179	Soil Sement	5	1	21.3	0.083	468.7	3.91E+00	1.04E-03
8-Jun-99	1179	Soil Sement	10	1	21.3	0.196	468.7	1.09E+01	2.92E-03
8-Jun-99	1180	Soil Sement	5	1	24.5	0.058	471.8	2.37E+00	6.34E-04
8-Jun-99	1180	Soil Sement	10	1	24.5	0.126	471.8	6.61E+00	1.77E-03
9-Jun-99	1186	Soil Sement	5	1	25.0	0.128	466.7	6.67E+00	1.78E-03
9-Jun-99	1186	Soil Sement	10	1	25.0	0.075	466.7	3.40E+00	9.09E-04

Table E.12

Magnesium chloride Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/11/98	MgCl	102	10	32.4	0	0.039	474.2	1.19E+00	3.19E-04
8/20/98	MgCl	112	10	19.6	0	0.093	459.1	4.44E+00	1.19E-03
8/25/98	MgCl	130	10	26.0	0	0.151	463.2	8.04E+00	2.15E-03
8/28/98	MgCl	137	10	30.1	0	0.094	459.3	4.51E+00	1.20E-03
9/16/98	MgCl	156	5	29.3	0	0.030	467.7	6.19E-01	1.66E-04
9/16/98	MgCl	156	10	29.3	0	0.029	467.7	5.57E-01	1.49E-04
9/25/98	MgCl	171	5	22.4	0	0.033	459.3	7.91E-01	2.12E-04
9/25/98	MgCl	171	10	22.4	0	0.043	459.3	1.40E+00	3.74E-04
10/5/98	MgCl	182	5	8.2	0	0.046	447.1	1.54E+00	4.13E-04
10/5/98	MgCl	182	10	8.2	0	0.113	447.1	5.52E+00	1.48E-03
10/21/98	MgCl	190	5	17.7	0	0.062	439.2	2.45E+00	6.56E-04
10/21/98	MgCl	190	10	17.7	0	0.067	439.2	2.75E+00	7.34E-04
11/4/98	MgCl	1015	5	21.7	0	0.026	455.1	3.62E-01	9.69E-05
11/4/98	MgCl	1015	10	21.7	0	0.026	455.1	3.62E-01	9.69E-05
11/6/98	MgCl	1016	5	19.3	0	0.025	433.7	2.89E-01	7.72E-05
11/6/98	MgCl	1016	10	19.3	0	0.027	433.7	4.04E-01	1.08E-04
11/6/98	MgCl	1017	5	23.3	0	0.023	433.4	1.73E-01	4.63E-05
11/6/98	MgCl	1017	10	23.3	0	0.031	433.4	6.35E-01	1.70E-04

Table E.13

Double water - Phase I fluxes - not spike-corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/11/98	Double Water	108	10	25.6	0	0.332	482.2	1.99E+01	5.31E-03
8/20/98	Double Water	114	10	25.1	0	0.045	463.9	1.54E+00	4.11E-04
8/25/98	Double Water	129	10	23.6	0	0.249	465.5	1.41E+01	3.77E-03
8/28/98	Double Water	136	10	34.8	0	0.067	465.4	2.90E+00	7.75E-04
9/16/98	Double Water	155	5	33.8	0	0.044	470.0	1.49E+00	3.99E-04
9/16/98	Double Water	155	10	33.8	0	0.035	470.0	9.33E-01	2.49E-04
9/25/98	Double Water	170	5	21.0	0	0.034	460.1	8.54E-01	2.28E-04
9/25/98	Double Water	170	10	21.0	0	0.042	460.1	1.34E+00	3.59E-04
10/5/98	Double Water	181	5	13.1	0	0.054	445.9	2.01E+00	5.39E-04
10/5/98	Double Water	181	10	13.1	0	0.129	445.9	6.46E+00	1.73E-03
10/21/98	Double Water	191	5	25.9	0	0.104	440.8	4.92E+00	1.32E-03
10/21/98	Double Water	191	10	25.9	0	0.099	440.8	4.63E+00	1.24E-03
11/4/98	Double Water	1014	5	19.6	0	0.026	463.4	3.68E-01	9.85E-05
11/4/98	Double Water	1014	10	19.6	0	0.020	463.4	0.00E+00	0.00E+00
11/6/98	Double Water	1018	5	26.5	0	0.016	438.6	-2.33E-01	-6.24E-05
11/6/98	Double Water	1018	10	26.5	0	0.026	438.6	3.50E-01	9.36E-05
11/6/98	Double Water	1019	5	28.8	0	0.048	450.9	1.68E+00	4.48E-04
11/6/98	Double Water	1019	10	28.8	0	0.041	450.9	1.26E+00	3.36E-04

Table E.14

Lignin Sulfonate Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/12/98	Lignin Sulfonate	107	10	34.8	0	0.427	471.7	2.54E+01	6.79E-03
8/20/98	Lignin Sulfonate	115	10	14.6	0	0.139	475.6	7.48E+00	2.00E-03
8/25/98	Lignin Sulfonate	128	10	34.9	0	0.078	468.2	3.59E+00	9.61E-04
8/28/98	Lignin Sulfonate	139	10	15.4	0	0.144	476.9	7.81E+00	2.09E-03
9/16/98	Lignin Sulfonate	154	5	13.1	0	0.064	460.9	2.69E+00	7.19E-04
9/16/98	Lignin Sulfonate	154	10	13.1	0	0.044	460.9	1.47E+00	3.92E-04
9/25/98	Lignin Sulfonate	169	5	11.1	0	0.040	461.6	1.22E+00	3.27E-04
9/25/98	Lignin Sulfonate	169	10	11.1	0	0.057	461.6	2.26E+00	6.05E-04
10/5/98	Lignin Sulfonate	179	5	17.7	0	0.054	439.1	1.99E+00	5.31E-04
10/5/98	Lignin Sulfonate	179	10	17.7	0	0.333	439.1	1.83E+01	4.89E-03
10/21/98	Lignin Sulfonate	192	5	32.2	0	0.069	447.0	2.91E+00	7.78E-04
10/21/98	Lignin Sulfonate	192	10	32.2	0	0.079	447.0	3.50E+00	9.37E-04
11/4/98	Lignin Sulfonate	1013	5	24.1	0	0.020	454.0	0.00E+00	0.00E+00
11/4/98	Lignin Sulfonate	1013	10	24.1	0	0.023	454.0	1.81E-01	4.83E-05
11/6/98	Lignin Sulfonate	1020	5	20.2	0	0.035	446.8	8.90E-01	2.38E-04
11/6/98	Lignin Sulfonate	1020	10	20.2	0	0.059	446.8	2.31E+00	6.19E-04
11/6/98	Lignin Sulfonate	1021	5	24.9	0	0.029	445.3	5.32E-01	1.42E-04
11/6/98	Lignin Sulfonate	1021	10	24.9	0	0.025	445.3	2.96E-01	7.91E-05
12/30/98	Lignin Sulfonate*	1035	5	21.8	0	0.159	433.9	8.03E+00	2.15E-03
12/30/98	Lignin Sulfonate*	1035	10	21.8	0	0.153	433.9	7.68E+00	2.05E-03
12/30/98	Lignin Sulfonate*	1036	5	18.9	0	0.359	427.9	1.93E+01	5.17E-03
12/30/98	Lignin Sulfonate*	1036	10	18.9	0	10.648	427.9	6.06E+02	1.62E-01
12/30/98	Lignin Sulfonate*	1037	5	10.4	0	0.174	431.4	8.85E+00	2.37E-03
12/30/98	Lignin Sulfonate*	1037	10	10.4	0	1.473	431.4	8.35E+01	2.23E-02
12/30/98	Lignin Sulfonate*	1038	5	18.3	0	0.408	432.9	2.24E+01	5.98E-03
12/30/98	Lignin Sulfonate*	1038	10	18.3	0	0.269	432.9	1.44E+01	3.84E-03

Table E.15

Penn Suppress Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/13/98	Penn Suppress	105	10	21.8	0	0.411	470.0	2.43E+01	6.50E-03
8/21/98	Penn Suppress	116	10	22.0	0	0.099	474.8	4.96E+00	1.33E-03
8/26/98	Penn Suppress	132	10	24.3	0	0.157	461.4	8.38E+00	2.24E-03
8/31/98	Penn Suppress	141	10	38.9	0	0.022	457.4	1.21E-01	3.24E-05
9/14/98	Penn Suppress	160	5	29.6	0	0.023	474.2	1.88E-01	5.03E-05
9/14/98	Penn Suppress	160	10	29.6	0	0.012	474.2	-5.02E-01	-1.34E-04
9/23/98	Penn Suppress	167	5	29.3	0	0.035	465.4	9.24E-01	2.47E-04
9/23/98	Penn Suppress	167	10	29.3	0	0.034	465.4	8.63E-01	2.31E-04
9/28/98	Penn Suppress	175	5	18.7	0	0.057	459.3	2.25E+00	6.02E-04
9/28/98	Penn Suppress	175	10	18.7	0	0.084	459.3	3.90E+00	1.04E-03
10/9/98	Penn Suppress	189	5	23.4	0	0.083	463.9	3.87E+00	1.04E-03
10/9/98	Penn Suppress	189	10	23.4	0	0.093	463.9	4.48E+00	1.20E-03
10/21/98	Penn Suppress	194	5	19.1	0	0.035	456.3	9.08E-01	2.43E-04
10/21/98	Penn Suppress	194	10	19.1	0	0.145	456.3	7.56E+00	2.02E-03
10/26/98	Penn Suppress	199	5	19.0	0	0.023	445.9	1.78E-01	4.75E-05
10/26/98	Penn Suppress	199	10	19.0	0	0.028	445.9	4.74E-01	1.27E-04
11/4/98	Penn Suppress	1011	5	33.3	0	0.030	441.1	5.87E-01	1.57E-04
11/4/98	Penn Suppress	1011	10	33.3	0	0.022	441.1	1.17E-01	3.14E-05

Table E.16

Rohm Haas Acrylic Polymer - Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/13/98	Acrylic Polymer	101	10		0	0.176	473.8	9.77E+00	2.61E-03
8/21/98	Acrylic Polymer	117	10	25.3	0	0.090	459.5	4.26E+00	1.14E-03
8/26/98	Acrylic Polymer	134	10	36.0	0	0.062	469.0	2.61E+00	6.97E-04
8/31/98	Acrylic Polymer	142	10	23.0	0	0.034	475.4	8.80E-01	2.35E-04
9/14/98	Acrylic Polymer	159	5	22.3	0	0.014	466.2	-3.70E-01	-9.90E-05
9/14/98	Acrylic Polymer	159	10	22.3	0	0.022	466.2	1.23E-01	3.30E-05
9/23/98	Acrylic Polymer	166	5	24.4	0	0.048	464.7	1.72E+00	4.61E-04
9/23/98	Acrylic Polymer	166	10	24.4	0	0.051	464.7	1.91E+00	5.10E-04
9/28/98	Acrylic Polymer	174	5	35.3	0	0.063	451.7	2.58E+00	6.89E-04
9/28/98	Acrylic Polymer	174	10	35.3	0	0.060	451.7	2.40E+00	6.41E-04
10/9/98	Acrylic Polymer	188	5	28.4	0	0.069	463.2	3.01E+00	8.04E-04
10/9/98	Acrylic Polymer	188	10	28.4	0	0.055	463.2	2.15E+00	5.74E-04
10/21/98	Acrylic Polymer	195	5	14.4	0	0.031	455.6	6.65E-01	1.78E-04
10/21/98	Acrylic Polymer	195	10	14.4	0	0.037	455.6	1.03E+00	2.75E-04
10/26/98	Acrylic Polymer	1000	5	18.7	0	0.026	445.3	3.55E-01	9.49E-05
10/26/98	Acrylic Polymer	1000	10	18.7	0	0.032	445.3	7.10E-01	1.90E-04
11/4/98	Acrylic Polymer	1010	5	19.8	0	0.092	444.2	4.25E+00	1.14E-03
11/4/98	Acrylic Polymer	1010	10	19.8	0	0.104	444.2	4.96E+00	1.33E-03

Table E.17

Hydroseed - Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/21/98	Hydroseed	119	10	23.5	0	0.070	461.6	3.06E+00	8.18E-04
8/17/98	Hydroseed	124	10	38.7	0	0.028	494.5	5.21E-01	1.39E-04
8/26/98	Hydroseed	131	10	40.1	0	0.030	478.0	6.32E-01	1.69E-04
9/2/98	Hydroseed	143	10	33.3	0	0.014	467.0	-3.71E-01	-9.92E-05
9/14/98	Hydroseed	157	5	45.5	0	0.085	454.0	3.91E+00	1.05E-03
9/14/98	Hydroseed	157	10	45.5	0	0.040	454.0	1.20E+00	3.22E-04
9/23/98	Hydroseed	164	5	21.5	0	0.112	450.2	5.50E+00	1.47E-03
9/23/98	Hydroseed	164	10	21.5	0	0.092	450.2	4.30E+00	1.15E-03
9/28/98	Hydroseed	172	5	34.2	0	0.068	447.9	2.86E+00	7.64E-04
9/28/98	Hydroseed	172	10	34.2	0	0.055	447.9	2.08E+00	5.57E-04
10/9/98	Hydroseed	186	5	19.6	0	0.093	455.5	4.41E+00	1.18E-03
10/9/98	Hydroseed	186	10	19.6	0	0.133	455.5	6.83E+00	1.83E-03
10/21/98	Hydroseed	197	5	30.4	0	0.090	472.4	4.37E+00	1.17E-03
10/21/98	Hydroseed	197	10	30.4	0	0.079	472.4	3.69E+00	9.86E-04
10/26/98	Hydroseed	1002	5	35.9	0	0.026	454.4	3.62E-01	9.67E-05
10/26/98	Hydroseed	1002	10	35.9	0	0.028	454.4	4.82E-01	1.29E-04
11/4/98	Hydroseed	1008	5	25.6	0	0.057	435.5	2.15E+00	5.74E-04
11/4/98	Hydroseed	1008	10	25.6	0	0.080	435.5	3.48E+00	9.30E-04

Table E.18

Rap - Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/5/98	RAP	109	10	18.0	0		468.7	-1.24E+00	-3.32E-04
8/17/98	RAP	121	10	25.4	0	0.036	475.4	1.01E+00	2.69E-04
8/24/98	RAP	126	10	22.2	0	0.054	472.7	2.13E+00	5.68E-04
8/27/98	RAP	138	10	42.1	0	0.044	460.4	1.46E+00	3.92E-04
9/11/98	RAP	152	5	29.0	0	0.029	471.6	5.61E-01	1.50E-04
9/11/98	RAP	152	10	29.0	0	0.029	471.6	5.61E-01	1.50E-04
9/21/98	RAP	163	5	30.8	0	0.061	476.1	2.58E+00	6.90E-04
9/21/98	RAP	163	10	30.8	0	0.080	476.1	3.78E+00	1.01E-03
9/30/98	RAP	178	5	41.7	0	0.029	470.8	5.60E-01	1.50E-04
9/30/98	RAP	178	10	41.7	0	0.036	470.8	9.96E-01	2.66E-04
10/9/98	RAP	185	5	19.2	0	0.123	446.4	6.11E+00	1.63E-03
10/9/98	RAP	185	10	19.2	0	0.119	446.4	5.87E+00	1.57E-03
10/26/98	RAP	1003	5	49.6	0	0.011	450.7	-5.38E-01	-1.44E-04
10/26/98	RAP	1003	10	49.6	0	0.012	450.7	-4.79E-01	-1.28E-04
11/6/98	RAP	1024	5	36.7	0	0.016	451.6	-2.40E-01	-6.41E-05
11/6/98	RAP	1024	10	36.7	0	0.016	451.6	-2.40E-01	-6.41E-05
11/6/98	RAP	1025	5	33.9	0	0.022	452.7	1.20E-01	3.21E-05
11/6/98	RAP	1025	10	33.9	0	0.041	452.7	1.26E+00	3.37E-04

Table E.19

Control Crusted - Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/5/98	Control Crusted	100	10	47.1	0		476.7	0	0
8/19/98	Control Crusted	111	10	28.5	0	0.050	468.5	1.86E+00	4.97E-04
9/11/98	Control Crusted	151	5	27.5	0	0.072	449.9	3.11E+00	8.31E-04
9/11/98	Control Crusted	151	10	27.5	0	0.049	449.9	1.73E+00	4.63E-04
9/21/98	Control Crusted	161	5	16.5	0	0.036	464.7	9.84E-01	2.63E-04
9/21/98	Control Crusted	161	10	16.5	0	0.050	464.7	1.85E+00	4.94E-04
9/30/98	Control Crusted	177	5	15.7	0	0.041	460.1	1.28E+00	3.42E-04
9/30/98	Control Crusted	177	10	15.7	0	0.054	460.1	2.07E+00	5.54E-04
10/9/98	Control Crusted	183	5	15.7	0	0.131	441.0	6.51E+00	1.74E-03
10/9/98	Control Crusted	183	10	15.7	0	0.166	441.0	8.56E+00	2.29E-03
10/23/98	Control Crusted	198	5	36.9	0	0.045	444.1	1.48E+00	3.95E-04
10/23/98	Control Crusted	198	10	36.9	0	0.069	444.1	2.89E+00	7.73E-04
10/28/98	Control Crusted	1005	5	27.9	0	0.057	444.5	2.19E+00	5.84E-04
10/28/98	Control Crusted	1005	10	27.9	0	0.048	444.5	1.65E+00	4.42E-04
11/9/98	Control Crusted	1026	5	20.1	0	0.201	433.4	1.04E+01	2.79E-03
11/9/98	Control Crusted	1026	10	20.1	0	0.190	433.4	9.81E+00	2.62E-03
9/4/98	Control Crusted	144A	5	VOID	0	VOIDED		VOIDED	
9/4/98	Control Crusted	144A	10	VOID	0	VOIDED		VOIDED	

Table E.20

Control Uncrusted - Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/24/98	Control Uncrusted	120	10	31.7	0	0.845	482.8	5.26E+01	1.41E-02
8/27/98	Control Uncrusted	135	10	34.3	0	0.307	470.8	1.79E+01	4.78E-03
9/11/98	Control Uncrusted	150	5	30.0	0	0.050	466.4	1.85E+00	4.95E-04
9/11/98	Control Uncrusted	150	10	30.0	0	0.049	466.4	1.79E+00	4.79E-04
9/21/98	Control Uncrusted	162	5	19.3	0	0.054	470.2	2.11E+00	5.66E-04
9/21/98	Control Uncrusted	162	10	19.3	0	3.913	470.2	2.42E+02	6.48E-02
9/30/98	Control Uncrusted	176	5	18.6	0	0.070	463.9	3.07E+00	8.21E-04
9/30/98	Control Uncrusted	176	10	18.6	0	0.169	463.9	9.15E+00	2.45E-03
10/9/98	Control Uncrusted	184	5	14.3	0	0.112	436.4	5.34E+00	1.43E-03
10/9/98	Control Uncrusted	184	10	14.3	0	2.362	436.4	1.36E+02	3.64E-02
10/26/98	Control Uncrusted	1004	5	27.7	0	0.136	451.7	6.95E+00	1.86E-03
10/26/98	Control Uncrusted	1004	10	27.7	0	0.151	451.7	7.85E+00	2.10E-03
10/28/98	Control Uncrusted	1006	5	32.0	0	0.056	443.0	2.12E+00	5.67E-04
10/28/98	Control Uncrusted	1006	10	32.0	0	0.061	443.0	2.41E+00	6.46E-04
11/9/98	Control Uncrusted	1027	5	14.7	0	0.180	432.5	9.22E+00	2.46E-03
11/9/98	Control Uncrusted	1027	10	14.7	0	2.788	432.5	1.59E+02	4.26E-02
9/4/98	Control Uncrusted	142A	5	24.9	0	VOIDED		VOIDED	
9/4/98	Control Uncrusted	142A	10	38.0	0	VOIDED		VOIDED	

Table E.21

Plastex - Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/13/98	Plastex	103	10	23.7	0	1.607	478.1	1.00E+02	2.68E-02
8/21/98	Plastex	118	10	25.0	0	0.195	462.7	1.07E+01	2.87E-03
8/26/98	Plastex	133	10	35.1	0	0.047	476.1	1.70E+00	4.54E-04
9/2/98	Plastex	144	10	32.6	0	0.022	476.9	1.26E-01	3.37E-05
9/14/98	Plastex	158	5	32.6	0	0.051	460.1	1.89E+00	5.05E-04
9/14/98	Plastex	158	10	32.6	0	0.047	460.1	1.65E+00	4.40E-04
9/23/98	Plastex	165	5	26.1	0	0.106	461.6	5.26E+00	1.41E-03
9/23/98	Plastex	165	10	26.1	0	0.084	461.6	3.91E+00	1.05E-03
9/28/98	Plastex	173	5	35.6	0	0.066	447.9	2.74E+00	7.32E-04
9/28/98	Plastex	173	10	35.6	0	0.064	447.9	2.62E+00	7.00E-04
10/9/98	Plastex	187	5	27.9	0	0.119	441.1	5.81E+00	1.55E-03
10/9/98	Plastex	187	10	27.9	0	0.065	441.1	2.64E+00	7.06E-04
10/21/98	Plastex	196	5	32.1	0	0.193	461.0	1.06E+01	2.83E-03
10/21/98	Plastex	196	10	32.1	0	0.144	461.0	7.57E+00	2.03E-03
10/26/98	Plastex	1001	5	36.3	0	0.069	444.8	2.90E+00	7.75E-04
10/26/98	Plastex	1001	10	36.3	0	0.022	444.8	1.18E-01	3.16E-05
11/4/98	Plastex	1009	5	34.9	0	0.083	443.4	3.71E+00	9.93E-04
11/4/98	Plastex	1009	10	34.9	0	0.086	443.4	3.89E+00	1.04E-03

Table E.22

Soil Sement(c) - Phase I fluxes - not spike corrected

Date	Suppressant	Run #	Duration (min)	U10 (mph)	Torn Up (y=1,n=0)	Avg. Conc. (mg/m^3)	Qactual (ft^3/min)	Flux (mg/m^2*min)	Flux (ton/(acre*hr)
8/12/98	Soil Cement	104	10	18.6	0	0.089	477.7	4.35E+00	1.16E-03
8/20/98	Soil Cement	113	10	29.2	0	0.028	476.1	5.03E-01	1.35E-04
8/25/98	Soil Cement	127	10	30.3	0	0.135	476.7	7.24E+00	1.94E-03
8/28/98	Soil Cement	140	10	26.4	0	0.081	481.5	3.88E+00	1.04E-03
9/16/98	Soil Cement	153	5	27.5	0	0.067	454.0	2.83E+00	7.57E-04
9/16/98	Soil Cement	153	10	27.5	0	0.078	454.0	3.49E+00	9.34E-04
9/25/98	Soil Cement	168	5	30.9	0	0.044	449.4	1.43E+00	3.83E-04
9/25/98	Soil Cement	168	10	30.9	0	0.072	449.4	3.10E+00	8.30E-04
10/5/98	Soil Cement	180	5	19.7	0	0.033	444.1	7.67E-01	2.05E-04
10/5/98	Soil Cement	180	10	19.7	0	0.062	444.1	2.48E+00	6.63E-04
10/21/98	Soil Cement	193	5	15.2	0	0.509	450.1	2.92E+01	7.81E-03
10/21/98	Soil Cement	193	10	15.2	0	0.033	450.1	7.77E-01	2.08E-04
11/4/98	Soil Cement	1012	5	30.7	0	0.034	453.2	8.42E-01	2.25E-04
11/4/98	Soil Cement	1012	10	30.7	0	0.015	453.2	-3.01E-01	-8.04E-05
11/6/98	Soil Cement	1022	5	23.8	0	0.022	446.5	1.19E-01	3.17E-05
11/6/98	Soil Cement	1022	10	23.8	0	0.022	446.5	1.19E-01	3.17E-05
11/6/98	Soil Cement	1023	5	22.5	0	0.037	450.8	1.02E+00	2.72E-04
11/6/98	Soil Cement	1023	10	22.5	0	0.032	450.8	7.18E-01	1.92E-04

Table E.23

Phase II - computation of 15-19.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	Log of Weighted Flux
Double Water	1109	5	0	19.6	2.76E-04		
Double Water	1109	10	0	19.6	4.88E-04	4.17E-04	-3.380
Acrylic Polymer	1081	5	0	17.0	-3.20E-05		
Acrylic Polymer	1081	10	0	17.0	2.88E-04	1.81E-04	-3.742
Acrylic Polymer	1084	5	0	16.4	6.15E-04		
Acrylic Polymer	1084	10	0	16.4	6.96E-04	6.69E-04	-3.174
Acrylic Polymer	1085	5	0	19.9	1.76E-04		
Acrylic Polymer	1085	10	0	19.9	3.04E-04	2.61E-04	-3.583
Lig Sulfonate	1050	5	0	18.7	1.50E-03		
Lig Sulfonate	1051	10	0	18.7	6.75E-04	9.51E-04	-3.022
Lig Sulfonate	1052	5	0	15.1	1.22E-03		
Lig Sulfonate	1053	10	0	15.1	1.12E-03	1.15E-03	-2.939
Penn Suppress	1091	5	0	16.3	1.29E-04		
Penn Suppress	1091	10	0	16.3	4.03E-04	3.12E-04	-3.506
Penn Suppress	1092	5	0	16.1	2.43E-04		
Penn Suppress	1092	10	0	16.1	1.46E-04	1.79E-04	-3.748
Penn Suppress	1094	5	0	16.8	1.30E-04		
Penn Suppress	1094	10	0	16.8	2.44E-04	2.06E-04	-3.686
Penn Suppress	1095	5	0	17.9	1.78E-04		
Penn Suppress	1095	10	0	17.9	9.73E-04	7.08E-04	-3.150
Plastex	1059	5	0	19.8	6.21E-04		
Plastex	1060	10	0	19.8	6.05E-04	6.11E-04	-3.214
						average of log =	-3.377
						std dev of log =	0.294
						geo mean - 1 std dev	2.14E-04
						geo mean	4.20E-04
						geo mean + 1 std dev	8.26E-04

Table E.24

Phase II - computation of 20-24.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	Log of Weighted flux
Double Water	1106	5	0	22.4	3.95E-04		
Double Water	1106	10	0	22.4	1.65E-04	2.41E-04	-3.617
Double Water	1107	5	0	22.0	1.96E-04		
Double Water	1107	10	0	22.0	1.47E-04	1.64E-04	-3.786
Acrylic Polymer	1082	5	0	21.9	6.41E-05		
Acrylic Polymer	1082	10	0	21.9	4.33E-04	3.10E-04	-3.509
Acrylic Polymer	1086	5	0	22.8	2.72E-04		
Acrylic Polymer	1086	10	0	22.8	1.92E-04	2.19E-04	-3.660
Lig Sulfonate	1066	5	0	21.2	5.10E-04		
Lig Sulfonate	1066	10	0	21.2	1.74E-03	1.33E-03	-2.877
Lig Sulfonate	1067	5	0	23.1	6.25E-04		
Lig Sulfonate	1068	10	0	23.1	2.88E-04	4.01E-04	-3.397
Lig Sulfonate	1137	5	0	21.3	-1.66E-04		
Lig Sulfonate	1137	10	0	21.3	4.97E-05	-2.21E-05	
Lig Sulfonate	1139	5	0	21.0	6.41E-04		
Lig Sulfonate	1139	10	0	21.0	7.85E-04	7.37E-04	-3.132
MgCl	1096	5	0	24.9	-6.50E-05		
MgCl	1096	10	0	24.9	-1.30E-04	-1.08E-04	
MgCl	1097	5	0	23.3	7.37E-04		
MgCl	1097	10	0	23.3	9.83E-05	3.11E-04	-3.507
MgCl	1098	5	0	21.4	1.64E-05		
MgCl	1098	10	0	21.4	3.27E-05	2.73E-05	-4.564
MgCl	1099	5	0	22.6	1.80E-04		
MgCl	1099	10	0	22.6	4.92E-04	3.88E-04	-3.411
MgCl	1146	5	0	20.3	9.37E-04		
MgCl	1146	10	0	20.3	2.50E-03	1.98E-03	-2.703
Penn Suppress	1093	5	0	24.1	1.63E-04		
Penn Suppress	1093	10	0	24.1	2.12E-04	1.96E-04	-3.709
Plastex	1056	5	0	23.5	6.60E-04		
Plastex	1056	10	0	23.5	5.50E-04	5.87E-04	-3.232
Plastex	1057	5	0	24.7	5.51E-04		
Plastex	1058	10	0	24.7	5.82E-04	5.72E-04	-3.243
Plastex	1061	5	0	24.0	7.78E-04		
Plastex	1062	10	0	24.0	8.10E-04	7.99E-04	-3.097
Soil Sement	1104	5	0	24.7	6.53E-05		
Soil Sement	1104	10	0	24.7	1.14E-04	9.80E-05	-4.009

Table E.24

Phase II - computation of 20-24.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	Log of Weighted flux
						average of log =	-3.466
						std dev of log =	0.448
						geo mean - 1 std dev	1.22E-04
						geo mean	3.42E-04
						geo mean + 1 std dev	9.60E-04

Table E.25

Phase II - computation of 25-29.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	Torn Up (y=1,n=0)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	Log of Weighted Flux
Double Water	1105	5	0	25.2	3.73E-04		
Double Water	1105	10	0	25.2	1.30E-04	2.11E-04	-3.676
Double Water	1108	5	0	25.4	3.10E-04		
Double Water	1108	10	0	25.4	1.14E-04	1.79E-04	-3.747
Lig Sulfonate	1049	5	0	25.5	5.30E-04		
Lig Sulfonate	1049	10	0	25.5	4.39E-04	4.70E-04	-3.328
Lig Sulfonate	1136	5	0	27.1	8.96E-04		
Lig Sulfonate	1136	10	0	27.1	-3.32E-05	2.77E-04	-3.558
Lig Sulfonate	1138	5	0	27.5	7.66E-04		
Lig Sulfonate	1138	10	0	27.5	8.46E-04	8.19E-04	-3.087
Lig Sulfonate	1140	5	0	29.5	5.20E-04		
Lig Sulfonate	1140	10	0	29.5	4.06E-04	4.44E-04	-3.352
Plastex	1063	5	0	25.7	3.86E-04		
Plastex	1063	10	0	25.7	3.05E-04	3.32E-04	-3.479
Soil Sement	1101	5	0	25.2	0.00E+00		
Soil Sement	1101	10	0	25.2	1.64E-05	1.09E-05	-4.962
Soil Sement	1102	5	0	29.1	1.64E-05		
Soil Sement	1102	10	0	29.1	-1.64E-05	-5.45E-06	
Soil Sement	1103	5	0	27.4	8.17E-05		
Soil Sement	1103	10	0	27.4	4.90E-05	5.99E-05	-4.223
						average of log =	-3.712
						std dev of log =	0.567
						geo mean - 1 std dev	5.26E-05
						geo mean	1.94E-04
						geo mean + 1 std dev	7.15E-04

Table E.26 Phase II - computation of 30-34.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	Tom Up (y=1,n=0)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	log of Weighted Flux
Soil Sement	1100	5	0	30.2	-2.12E-04		
Soil Sement	1100	10	0	30.2	-1.14E-04	-1.47E-04	#NUM!

Table E.27

Phase I - computation of 5-9.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	Log of Weighted flux
MgCl	182	5	8.2	4.13E-04		
MgCl	182	10	8.2	1.48E-03	1.12E-03	-2.950
					average of logs =	-2.950
					std dev of logs =	#DIV/0!
					geo mean - 1 std dev	
					geo mean =	1.12E-03
					geo mean + 1 std dev	

Table E. 28

Phase I - computation of 10-14.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	Log of Weighted Flux
Double Water	181	5	13.1	5.39E-04		
Double Water	181	10	13.1	1.73E-03	1.33E-03	-2.876
Acrylic Polymer	195	5	14.4	1.78E-04		
Acrylic Polymer	195	10	14.4	2.75E-04	2.42E-04	-3.616
Lignin Sulfonate	115	10	14.6	2.00E-03	2.00E-03	-2.699
Lignin Sulfonate	154	5	13.1	7.19E-04		
Lignin Sulfonate	154	10	13.1	3.92E-04	5.01E-04	-3.300
Lignin Sulfonate	169	5	11.1	3.27E-04		
Lignin Sulfonate	169	10	11.1	6.05E-04	5.12E-04	-3.290
Lignin Sulfonate*	1037	5	10.4	2.37E-03		
Lignin Sulfonate*	1037	10	10.4	2.23E-02	1.57E-02	-1.805
*Baseline Data:	suppressant removed & surface tom up				**Including baseline**	
					average of logs =	-2.931
					std dev of logs =	0.642
					geo mean - 1 std dev	2.67E-04
					geo mean =	1.17E-03
					geo mean + 1 std dev	5.14E-03
					Excluding baseline	
					average of logs =	-3.156
					std dev of logs =	0.367
					geo mean - 1 std dev	3.00E-04
					geo mean =	6.98E-04
					geo mean + 1 std dev	1.62E-03

Table E.29

Phase I - computation of 15-19.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	U10 (mph)	Flux (ton/(acre*hr)	Flux Weighted Avg	Log of Weighted Flux
Double Water	1014	5	19.6	9.85E-05		
Double Water	1014	10	19.6	0.00E+00	3.28E-05	-4.484
Acrylic Polymer	1000	5	18.7	9.49E-05		
Acrylic Polymer	1000	10	18.7	1.90E-04	1.58E-04	-3.801
Acrylic Polymer	1010	5	19.8	1.14E-03		
Acrylic Polymer	1010	10	19.8	1.33E-03	1.26E-03	-2.899
Lignin Sulfonate	139	10	15.4	2.09E-03	2.09E-03	-2.680
Lignin Sulfonate	179	5	17.7	5.31E-04		
Lignin Sulfonate	179	10	17.7	4.89E-03	3.44E-03	-2.464
Lignin Sulfonate*	1036	5	18.9	5.17E-03		
Lignin Sulfonate*	1036	10	18.9	1.62E-01	1.10E-01	-0.959
Lignin Sulfonate*	1038	5	18.3	5.98E-03		
Lignin Sulfonate*	1038	10	18.3	3.84E-03	4.55E-03	-2.342
MgCl	112	10	19.6	1.19E-03	1.19E-03	-2.925
MgCl	190	5	17.7	6.56E-04		
MgCl	190	10	17.7	7.34E-04	7.08E-04	-3.150
MgCl	1016	5	19.3	7.72E-05		
MgCl	1016	10	19.3	1.08E-04	9.78E-05	-4.010
Penn Suppress	175	5	18.7	6.02E-04		
Penn Suppress	175	10	18.7	1.04E-03	8.95E-04	-3.048
Penn Suppress	194	5	19.1	2.43E-04		
Penn Suppress	194	10	19.1	2.02E-03	1.43E-03	-2.845
Penn Suppress	199	5	19.0	4.75E-05		
Penn Suppress	199	10	19.0	1.27E-04	1.00E-04	-3.999
Soil Sement	104	10	18.6	1.16E-03	1.16E-03	-2.934
Soil Sement	180	5	19.7	2.05E-04		
Soil Sement	180	10	19.7	6.63E-04	5.10E-04	-3.292
Soil Sement	193	5	15.2	7.81E-03		
Soil Sement	193	10	15.2	2.08E-04	2.74E-03	-2.562
*Baseline Data:	suppressant removed & surface torn up				**Including baseline**	
					average of logs =	-3.024
					std dev of logs =	0.824

Table E.29

Phase I - computation of 15-19.9 mph weighted flux - averaged over all suppressants

					geo mean - 1 std dev	1.42E-04
					geo mean =	9.45E-04
					geo mean + 1 std dev	6.30E-03
					Excluding baseline	
					average of logs =	-3.221
					std dev of logs =	0.615
					geo mean - 1 std dev	1.46E-04
					geo mean =	6.01E-04
					geo mean + 1 std dev	2.48E-03

Table E.30

Phase I - computation of 20-24.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	U10 (mph)	Flux (ton/(acre*hr)	weighted avg	log of wt avg
Double Water	129	10	23.6	3.77E-03		
Double Water	170	5	21.0	2.28E-04	1.41E-03	-2.851
Double Water	170	10	21.0	3.59E-04	3.59E-04	-3.445
Acrylic Polymer	142	10	23.0	2.35E-04	2.35E-04	-3.629
Acrylic Polymer	159	5	22.3	-9.90E-05		
Acrylic Polymer	159	10	22.3	3.30E-05	-1.10E-05	
Acrylic Polymer	166	5	24.4	4.61E-04		
Acrylic Polymer	166	10	24.4	5.10E-04	4.94E-04	-3.307
Lignin Sulfonate	1013	5	24.1	0.00E+00		
Lignin Sulfonate	1013	10	24.1	4.83E-05	3.22E-05	-4.492
Lignin Sulfonate	1020	5	20.2	2.38E-04		
Lignin Sulfonate	1020	10	20.2	6.19E-04	4.92E-04	-3.308
Lignin Sulfonate*	1035	5	21.8	2.15E-03		
Lignin Sulfonate*	1035	10	21.8	2.05E-03	2.09E-03	-2.681
MgCl	171	5	22.4	2.12E-04		
MgCl	171	10	22.4	3.74E-04	3.20E-04	-3.495
MgCl	1015	5	21.7	9.69E-05		
MgCl	1015	10	21.7	9.69E-05	9.69E-05	-4.014
MgCl	1017	5	23.3	4.63E-05		
MgCl	1017	10	23.3	1.70E-04	1.29E-04	-3.891
Penn Suppress	105	10	21.8	6.50E-03	6.50E-03	-2.187
Penn Suppress	116	10	22.0	1.33E-03	1.33E-03	-2.877
Penn Suppress	132	10	24.3	2.24E-03	2.24E-03	-2.650
Penn Suppress	189	5	23.4	1.04E-03		
Penn Suppress	189	10	23.4	1.20E-03	1.14E-03	-2.941
Plastex	103	10	23.7	2.68E-02	2.68E-02	-1.572
Soil Cement	1022	5	23.8	3.17E-05		
Soil Cement	1022	10	23.8	3.17E-05	3.17E-05	-4.499
Soil Cement	1023	5	22.5	2.72E-04		
Soil Cement	1023	10	22.5	1.92E-04	2.19E-04	-3.660
*Baseline Data:	suppressant removed & surface torn up				**Including baseline**	
					average of logs =	-3.265
					std dev of logs =	0.772

Table E.30

Phase I - computation of 20-24.9 mph weighted flux - averaged over all suppressants

					geo mean - 1 std dev	9.20E-05
					geo mean =	5.44E-04
					geo mean + 1 std dev	3.22E-03
					Excluding baseline	
					average of logs =	-3.301
					std dev of logs =	0.782
					geo mean - 1 std dev	8.26E-05
					geo mean =	5.00E-04
					geo mean + 1 std dev	3.03E-03

Table E.31

Phase I - computation of 25-29.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	U10 (mph)	Flux (ton/(acre*hr)	weighted average	log of wt avg
Double Water	108	10	25.6	5.31E-03	5.31E-03	-2.275
Double Water	114	10	25.1	4.11E-04	4.11E-04	-3.386
Double Water	191	5	25.9	1.32E-03		
Double Water	191	10	25.9	1.24E-03	1.26E-03	-2.898
Double Water	1018	5	26.5	-6.24E-05		
Double Water	1018	10	26.5	9.36E-05	4.16E-05	-4.381
Double Water	1019	5	28.8	4.48E-04		
Double Water	1019	10	28.8	3.36E-04	3.73E-04	-3.428
Acrylic Polymer	117	10	25.3	1.14E-03	1.14E-03	-2.943
Acrylic Polymer	188	5	28.4	8.04E-04		
Acrylic Polymer	188	10	28.4	5.74E-04	6.51E-04	-3.187
MgCl	130	10	26.0	2.15E-03	2.15E-03	-2.668
MgCl	156	5	29.3	1.66E-04		
MgCl	156	10	29.3	1.49E-04	1.55E-04	-3.811
Penn Suppress	160	5	29.6	5.03E-05		
Penn Suppress	160	10	29.6	-1.34E-04	-7.26E-05	
Penn Suppress	167	5	29.3	2.47E-04		
Penn Suppress	167	10	29.3	2.31E-04	2.36E-04	-3.627
Plastex	118	10	25.0	2.87E-03	2.87E-03	-2.542
Plastex	165	5	26.1	1.41E-03		
Plastex	165	10	26.1	1.05E-03	1.17E-03	-2.933
Plastex	187	5	27.9	1.55E-03		
Plastex	187	10	27.9	7.06E-04	9.88E-04	-3.005
Soil Sement	113	10	29.2	1.35E-04	1.35E-04	-3.871
Soil Sement	140	10	26.4	1.04E-03	1.04E-03	-2.984
Soil Sement	153	5	27.5	7.57E-04		
Soil Sement	153	10	27.5	9.34E-04	8.75E-04	-3.058
					average of logs =	-3.187
					std dev of logs =	0.541
					geo mean - 1 std dev	1.87E-04
					geo mean =	6.50E-04
					geo mean + 1 std dev	2.26E-03

Table E.32

Phase I - computation of 30-34.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	U10 (mph)	Flux (ton/(acre*hr))	wt avg of flux	log wt flux
Double Water	136	10	34.8	7.75E-04	7.75E-04	-3.111
Double Water	155	5	33.8	3.99E-04		
Double Water	155	10	33.8	2.49E-04	2.99E-04	-3.524
Lignin Sulfonate	107	10	34.8	6.79E-03	6.79E-03	-2.168
Lignin Sulfonate	128	10	34.9	9.61E-04	9.61E-04	-3.017
Lignin Sulfonate	192	5	32.2	7.78E-04		
Lignin Sulfonate	192	10	32.2	9.37E-04	8.84E-04	-3.054
MgCl	102	10	32.4	3.19E-04	3.19E-04	-3.497
MgCl	137	10	30.1	1.20E-03	1.20E-03	-2.919
Penn Suppress	1011	5	33.3	1.57E-04		
Penn Suppress	1011	10	33.3	3.14E-05	7.32E-05	-4.135
Plastex	144	10	32.6	3.37E-05	3.37E-05	-4.472
Plastex	158	5	32.6	5.05E-04		
Plastex	158	10	32.6	4.40E-04	4.62E-04	-3.335
Plastex	196	5	32.1	2.83E-03		
Plastex	196	10	32.1	2.03E-03	2.29E-03	-2.640
Soil Sement	127	10	30.3	1.94E-03	1.94E-03	-2.713
Soil Sement	168	5	30.9	3.83E-04		
Soil Sement	168	10	30.9	8.30E-04	6.81E-04	-3.167
Soil Sement	1012	5	30.7	2.25E-04		
Soil Sement	1012	10	30.7	-8.04E-05	2.14E-05	-4.669
					average of logs =	-3.316
					std dev of logs =	0.703
					geo mean - 1 std dev	9.57E-05
					geo mean =	4.83E-04
					geo mean + 1 std dev	2.44E-03

Table E.33

Phase I - computation of 35-39.9 mph weighted flux - averaged over all suppressants

Suppressant	Run #	Duration (min)	U10 (mph)	Flux (ton/(acre*hr))	wt avg of flux	log flux
Acrylic Polymer	134	10	36.0	6.97E-04	6.97E-04	-3.157
Acrylic Polymer	174	5	35.3	6.89E-04		
Acrylic Polymer	174	10	35.3	6.41E-04	6.57E-04	-3.182
Penn Suppress	141	10	38.9	3.24E-05	3.24E-05	-4.489
Plastex	133	10	35.1	4.54E-04	4.54E-04	-3.343
Plastex	173	5	35.6	7.32E-04		
Plastex	173	10	35.6	7.00E-04	7.10E-04	-3.148
Plastex	1001	5	36.3	7.75E-04		
Plastex	1001	10	36.3	3.16E-05	2.79E-04	-3.554
					average of logs =	-3.479
					std dev of logs =	0.519
					geo mean - 1 std dev	1.01E-04
					geo mean =	3.32E-04
					geo mean + 1 std dev	1.10E-03

Table E.34 - Summary of treated surface fluxes - not torn up and not corrected for spike

Flux Averages : Phase I - excludes baseline runs					
Wind Speed (mph)	Geometric Mean - 1 Std. Dev (ton/acre/hr)	Geometric Mean (ton/acre/hr)	Geometric Mean + 1 Std. Dev (ton/acre/hr)	Number of Runs	App E Table #
5 - 9.9		1.12E-03		2	**27**
10 - 14.9	3.00E-04	6.98E-04	1.62E-03	9	**28**
15 - 19.9	1.46E-04	6.01E-04	2.48E-03	25	**29**
20 - 24.9	8.26E-05	5.00E-04	3.03E-03	28	**30**
25 - 29.9	1.87E-04	6.50E-04	2.26E-03	27	**31**
30 - 34.9	9.57E-05	4.83E-04	2.44E-03	21	**32**
35 - 39.9	1.01E-04	3.32E-04	1.10E-03	9	**33**
total runs				121	

Flux Averages : Phase II					
Wind Speed (mph)	Geometric Mean - 1 Std. Dev (ton/acre/hr)	Geometric Mean (ton/acre/hr)	Geometric Mean + 1 Std. Dev (ton/acre/hr)	Number of Runs	App E Table #
5 - 9.9	N/A	N/A	N/A	0	
10 - 14.9	N/A	N/A	N/A	0	
15 - 19.9	2.14E-04	4.20E-04	8.26E-04	22	**23**
20 - 24.9	1.22E-04	3.42E-04	9.60E-04	36	**24**
25 - 29.9	5.26E-05	1.94E-04	7.15E-04	20	**25**
30 - 34.9	N/A	N/A	N/A	0	**26**
35 - 39.9	N/A	N/A	N/A	0	
total runs				78	

Table E.35 STABILIZED LAND EMISSION FACTORS - averaged over 7 tested suppressants
NOT CORRECTED FOR EFFECTS OF SPIKE - NOT TORN UP

Phase II Results - Not Torn Up Tests - Not spike-corrected							
Wind Speed (mph)	Geom mean flux -1 Std. Dev. (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev. (ton/acre/hr)	Geom mean spike -1 Std. Dev. (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev. (ton/acre)	Number of runs
10-14.9							
15-19.9	2.14E-04	4.20E-04	8.26E-04	N/A	N/A	N/A	22
20-24.9	1.22E-04	3.42E-04	9.60E-04	N/A	N/A	N/A	36
25-29.9	5.26E-05	1.94E-04	7.15E-04	N/A	N/A	N/A	20
30-34.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35-35.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40-44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
65-69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
total runs							78

Table E.36 STABILIZED LAND EMISSION FACTORS - averaged over 7 tested suppressants
CORRECTED FOR EFFECTS OF SPIKE - NOT TORN UP

Phase II Results - Not Torn Up Tests - Spike corrected							
Wind Speed (mph)	Geom mean flux -1 Std. Dev. (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev. (ton/acre/hr)	Geom mean spike -1 Std. Dev. (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev. (ton/acre)	Number of runs spike corrected
10-14.9							
15-19.9	1.00E-04	2.65E-04	7.04E-04	7.26E-07	5.03E-06	3.48E-05	18
20-24.9	5.24E-05	1.38E-04	3.65E-04	1.74E-06	4.59E-06	1.21E-05	32
25-29.9	1.92E-05	1.09E-04	6.19E-04	N/A	N/A	N/A	18
30-34.9	N/A	N/A	N/A	N/A	N/A	N/A	2
35-35.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40-44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
65-69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
total runs							70

Table E.37 STABILIZED LAND EMISSION FACTORS - averaged over 7 tested suppressants
NOT CORRECTED FOR EFFECTS OF SPIKE - TORN UP BY TRUCK TIRE

Phase II Results - Torn Up Tests - Not Spike corrected							
Wind Speed (mph)	Geom mean flux -1 Std. Dev. (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev. (ton/acre/hr)	Geom mean spike -1 Std. Dev. (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev. (ton/acre)	Number of runs spike corrected
10-14.9	N/A	2.18E-03	N/A	N/A	N/A	N/A	2
15-19.9	1.69E-03	9.39E-03	5.22E-02	N/A	N/A	N/A	22
20-24.9	4.10E-04	2.17E-03	1.15E-02	N/A	N/A	N/A	58
25-29.9	2.58E-04	8.14E-04	2.57E-03	N/A	N/A	N/A	46
30-34.9	N/A	3.61E-03	N/A	N/A	N/A	N/A	2
35-35.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40-44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
65-69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
total runs							130

Table E.38 STABILIZED LAND EMISSION FACTORS - averaged over 7 tested suppressants
CORRECTED FOR EFFECTS OF SPIKE - TORN UP BY TRUCK TIRE

Phase II Results - Torn Up Tests - Spike corrected							
Wind Speed (mph)	Geom mean flux -1 Std. Dev. (ton/acre/hr)	Geom mean flux (ton/acre/hr)	Geom mean flux +1 Std. Dev. (ton/acre/hr)	Geom mean spike -1 Std. Dev. (ton/acre)	Geom mean spike (ton/acre)	Geom mean spike +1 Std. Dev. (ton/acre)	Number of runs spike corrected
10-14.9	N/A	1.87E-03	N/A	N/A	4.05E-03	N/A	2
15-19.9	7.20E-04	3.80E-03	2.01E-02	2.10E-05	2.67E-04	3.40E-03	22
20-24.9	1.04E-04	8.89E-04	7.60E-03	9.09E-06	5.64E-05	3.50E-04	58
25-29.9	1.01E-04	4.70E-04	2.19E-03	2.56E-06	1.63E-05	1.04E-04	46
30-34.9	N/A	3.57E-03	N/A	N/A	9.68E-06	N/A	2
35-35.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40-44.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45-49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50-54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
55-59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60-64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
65-69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
total runs							130

Figure E1 - Phase I stabilized uncorrected fluxes - not torn up

Geometric mean +/- 1 standard deviation - excludes baseline (untreated) surfaces

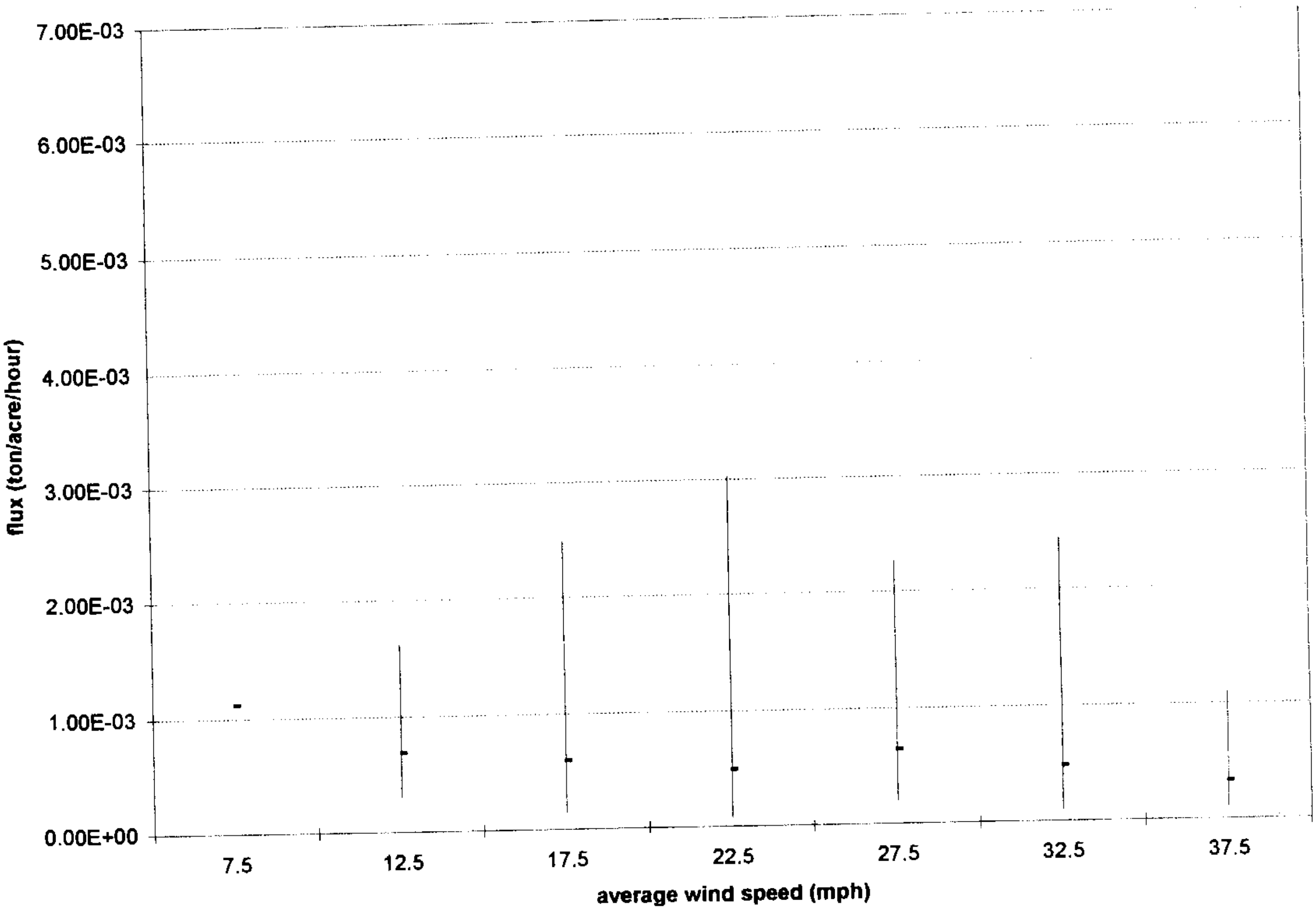


Figure E2 - Phase I stabilized uncorrected fluxes - not torn up - same scale as Phase II (Fig E3)

Geometric mean +/- 1 standard deviation - excludes baseline (untreated) surfaces

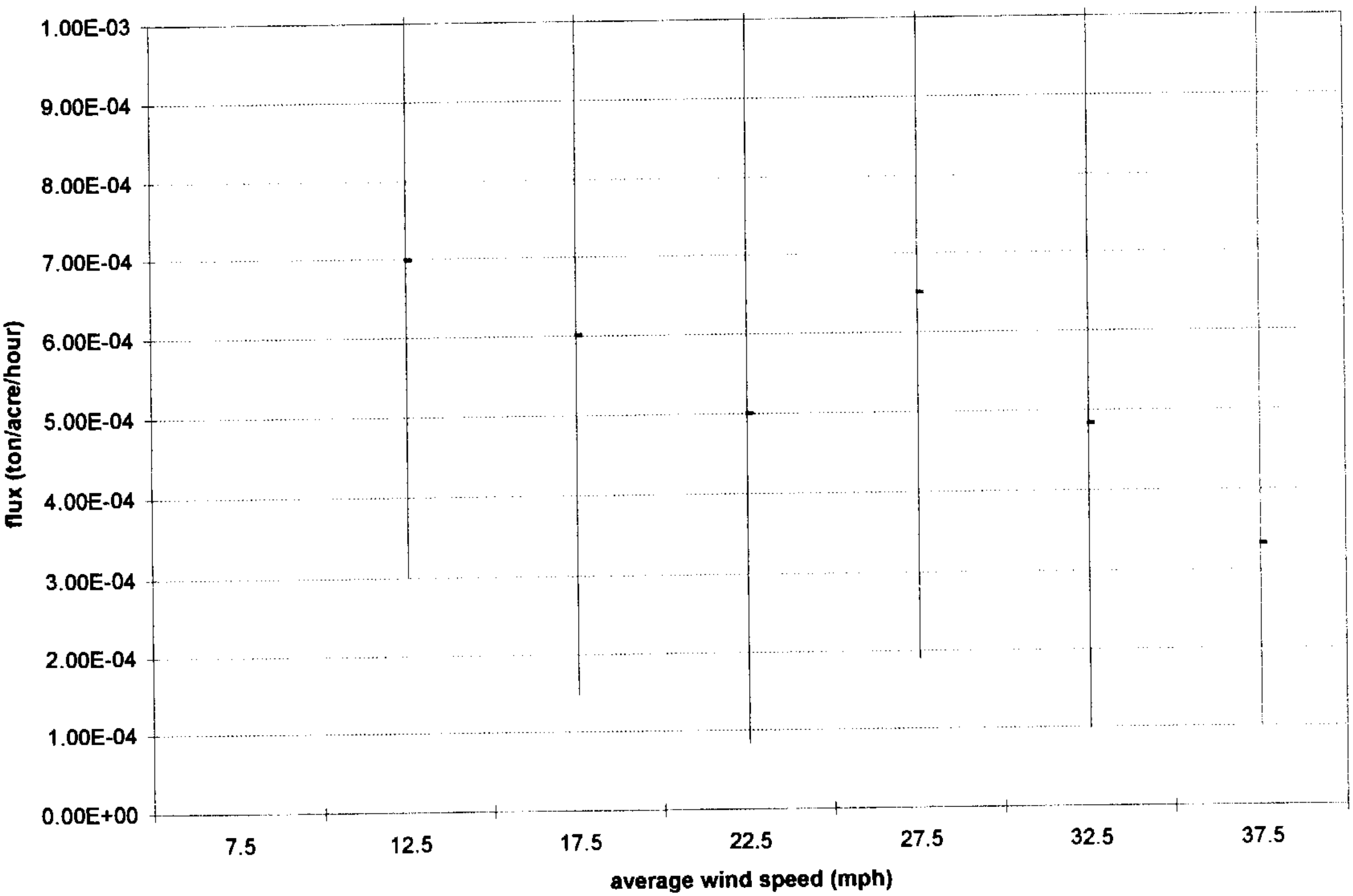


Figure E3 - Phase II stabilized uncorrected fluxes - not torn up

Geometric mean +/- 1 standard deviation

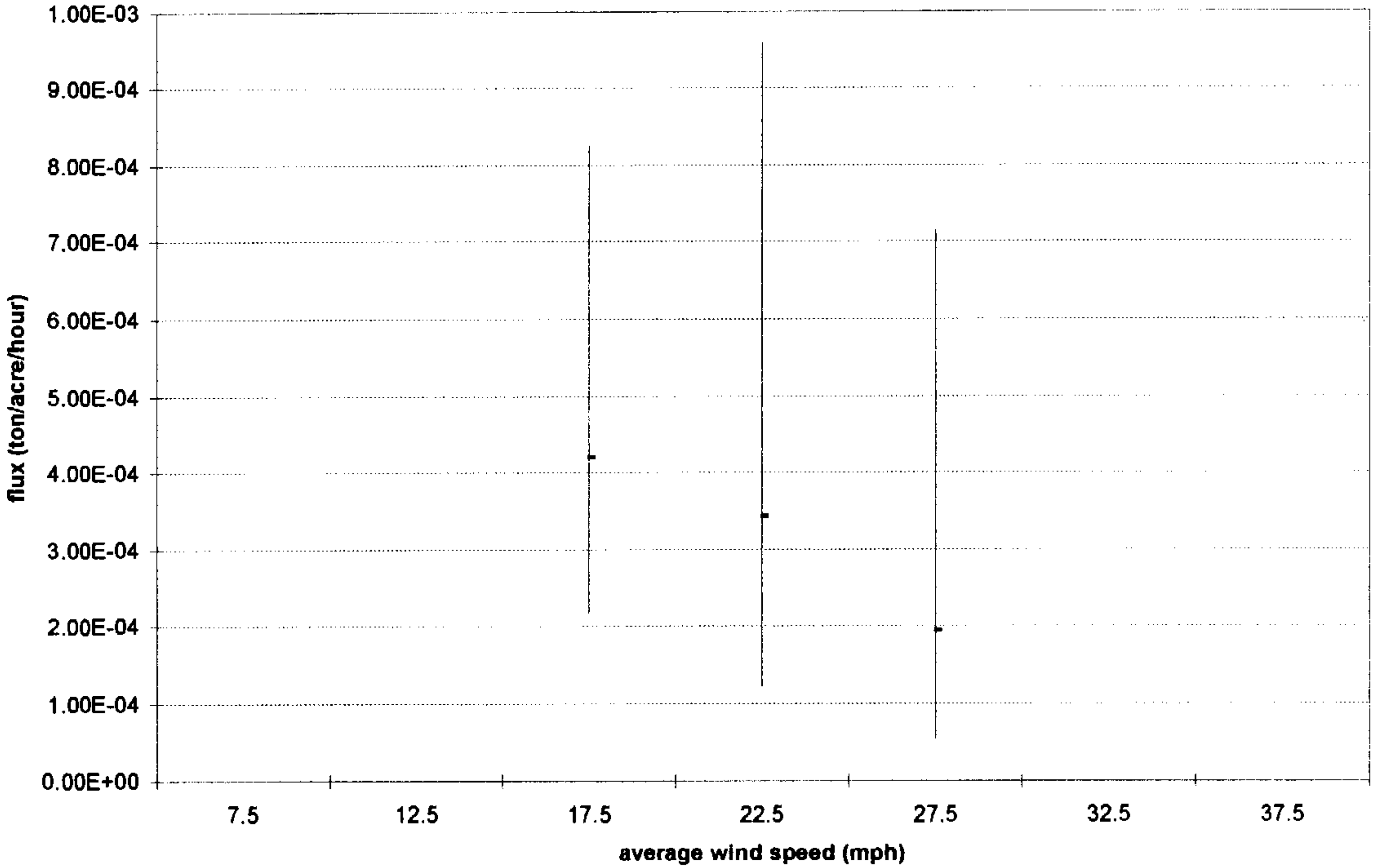


Figure E4 - Phase II stabilized spike-corrected fluxes - not torn up

Geometric mean +/- 1 standard deviation

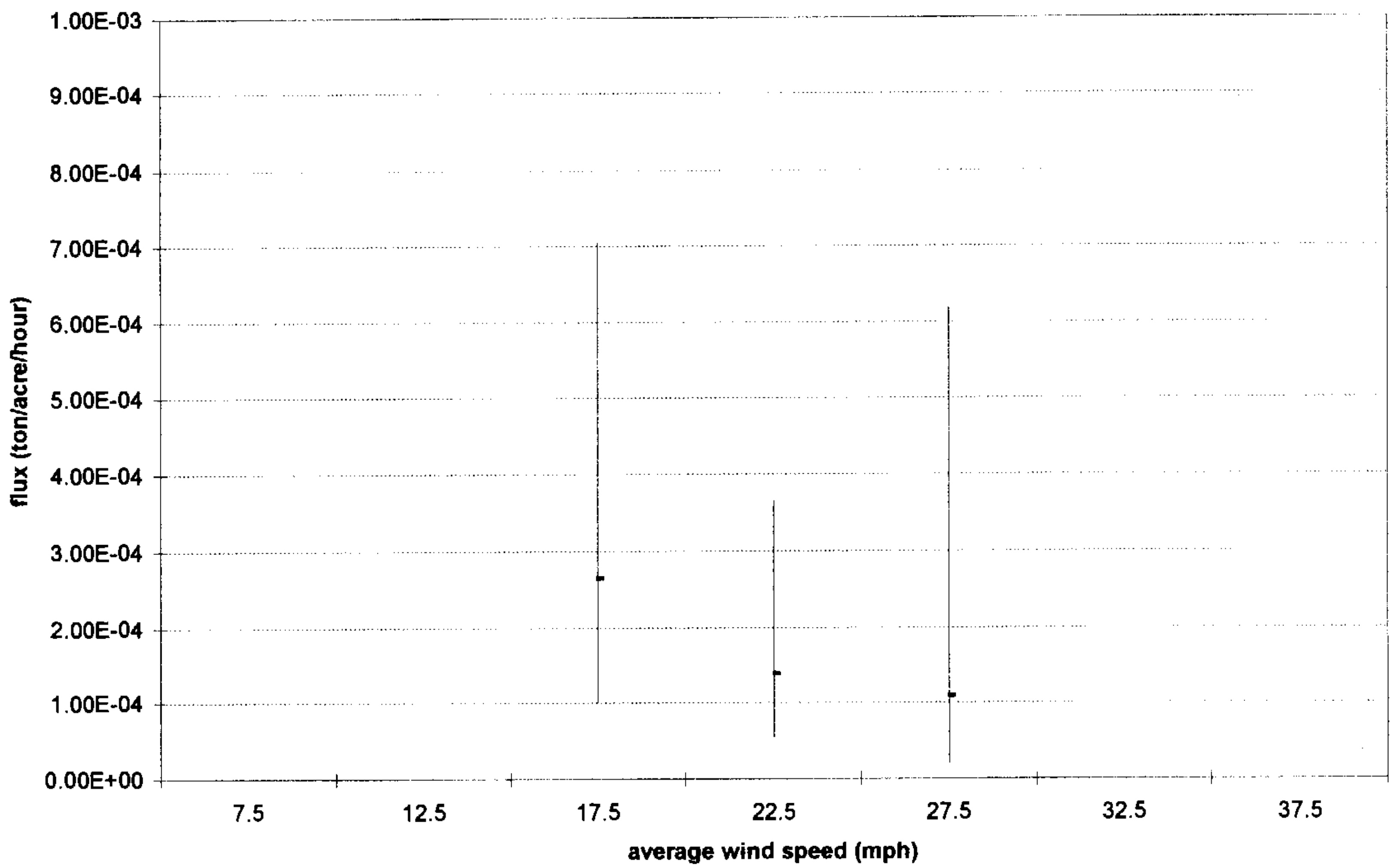


Figure E5 - Phase II surface fluxes - torn up by truck tire, not spike-corrected

Geometric mean +/- 1 standard deviation

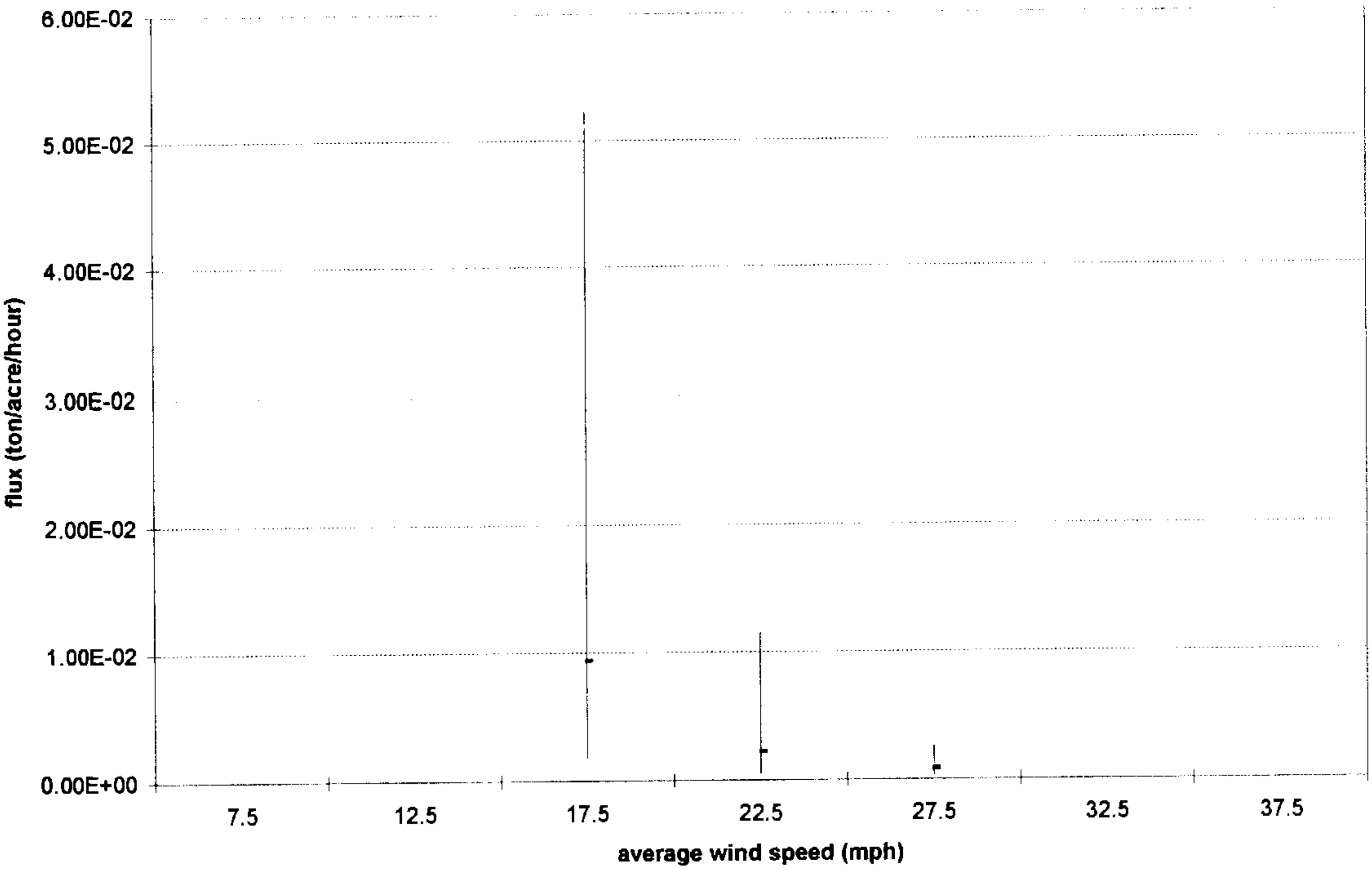


Figure E6 - Phase II surface fluxes - torn up by truck tire, not spike-corrected - (same scale as Fig E3)

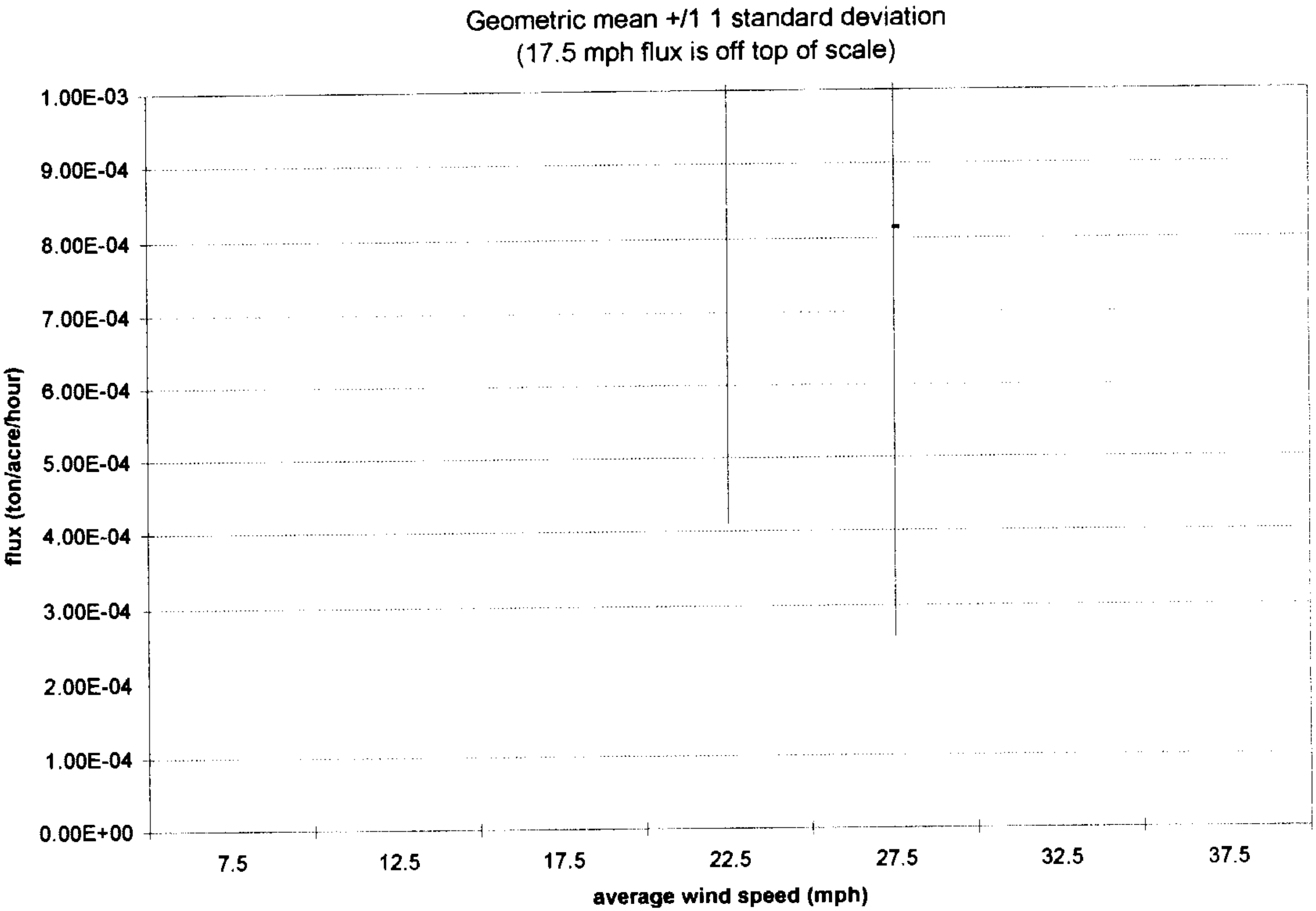


Figure E7 - Phase II surface fluxes - torn up by truck tire, spike corrected (same scale as Fig E5)

Geometric mean +/- 1 standard deviation

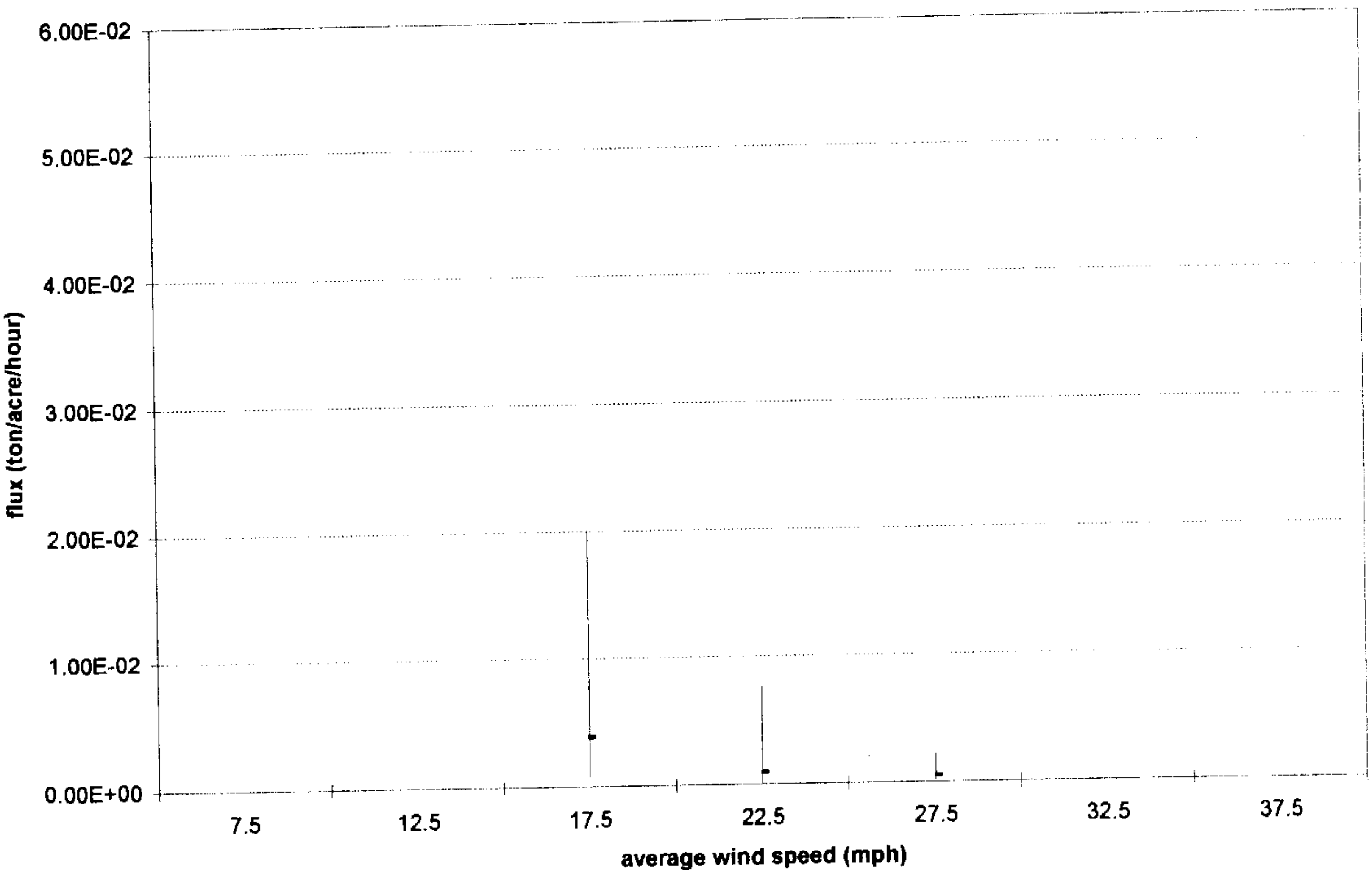


Figure E8 - Phase II surface fluxes - torn up by truck tire, spike corrected (rescaled to same as Fig E6)

Geometric mean +/- 1 standard deviation

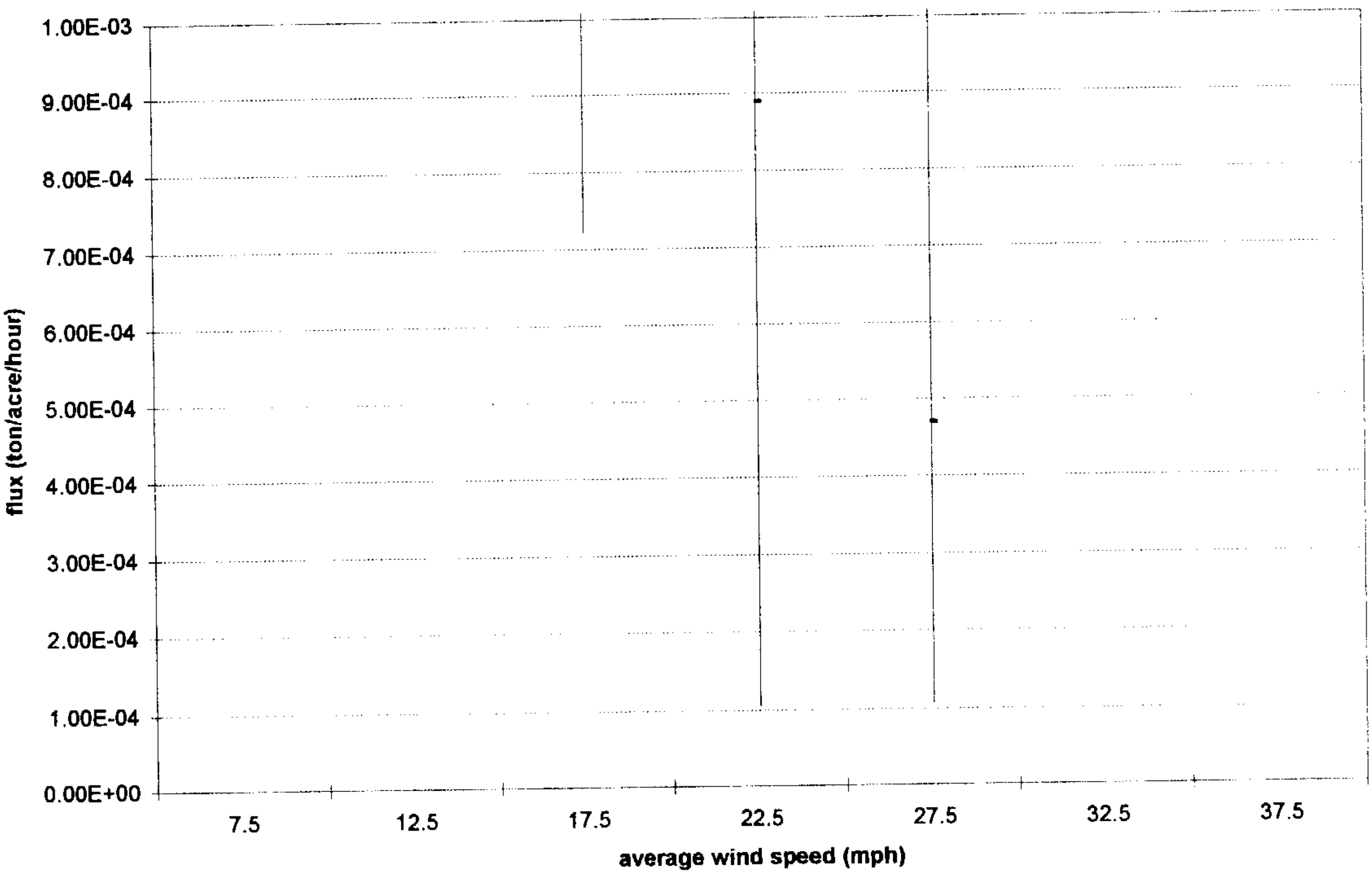


Figure E9 - Phase II not torn up spikes - 1/1000 scale of Figures C3 and C4

Geometric mean +/- 1 standard deviation

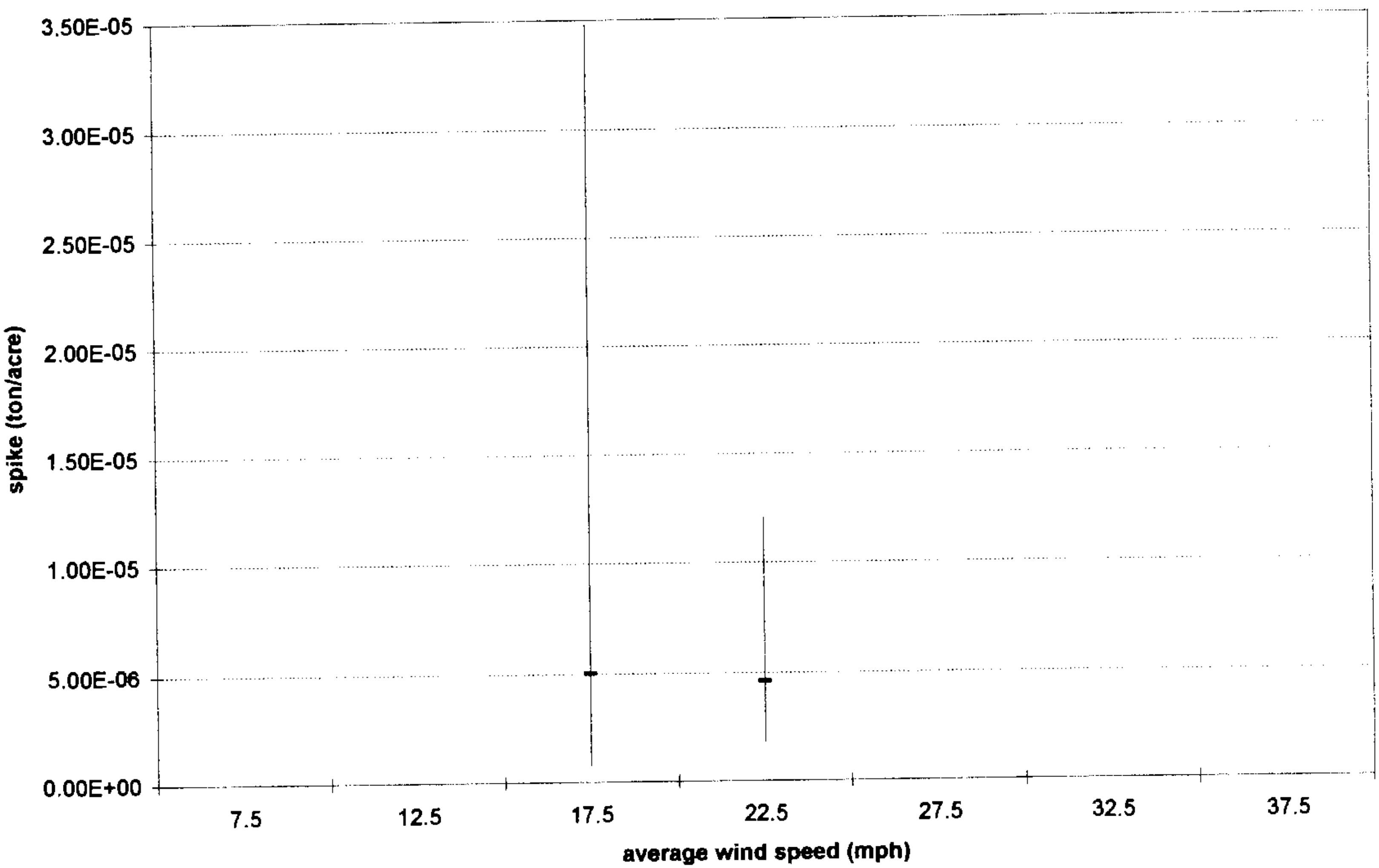


Figure E10 - Phase II torn-up spikes - 1/10 scale of Figures C3 and C4

Geometric mean +/- 1 standard deviation

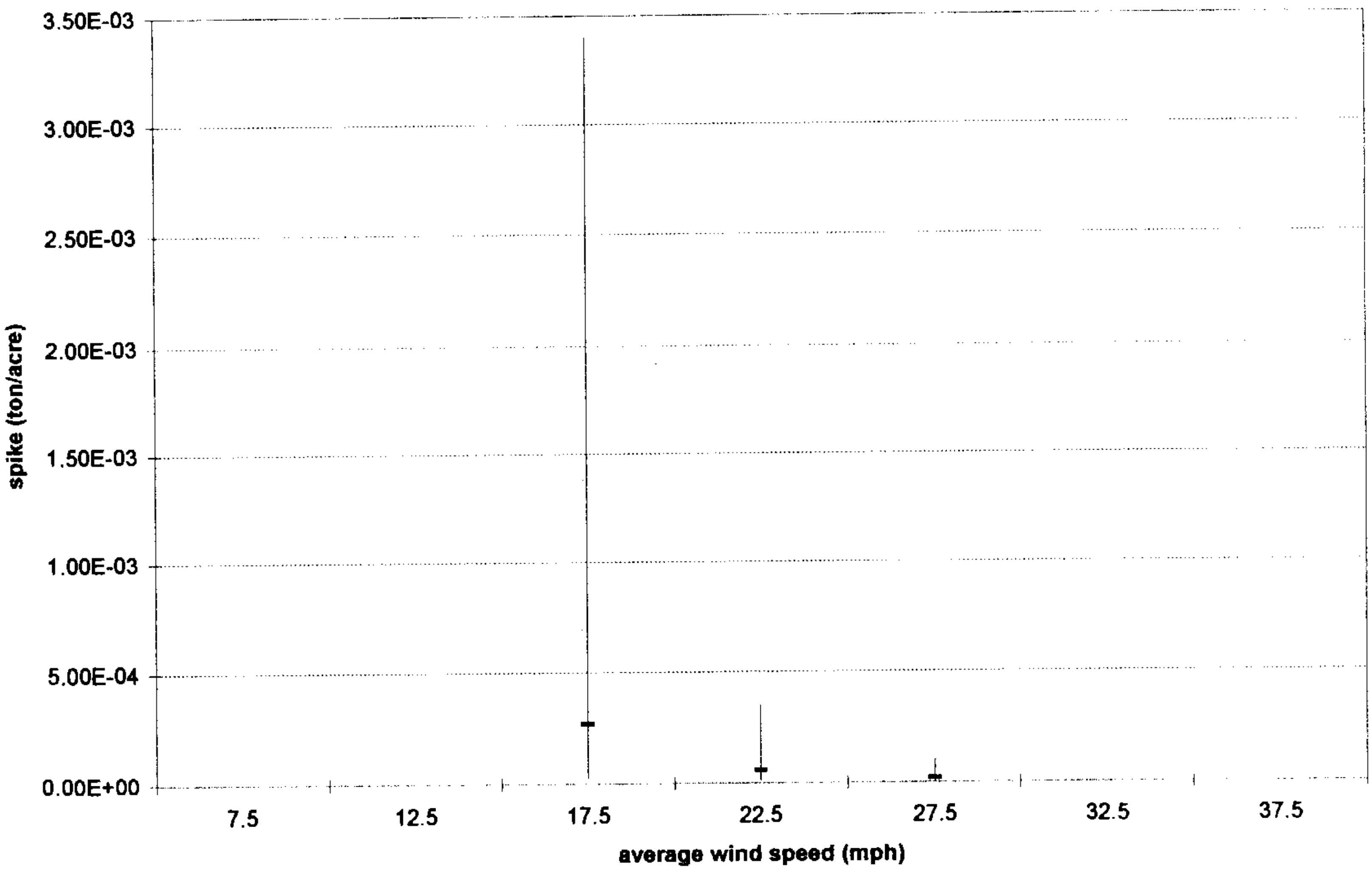


Figure E11 - Phase II - Not Torn Up - Comparison of not spike-corrected to spike-corrected fluxes

Geometric mean +/- 1 standard deviation

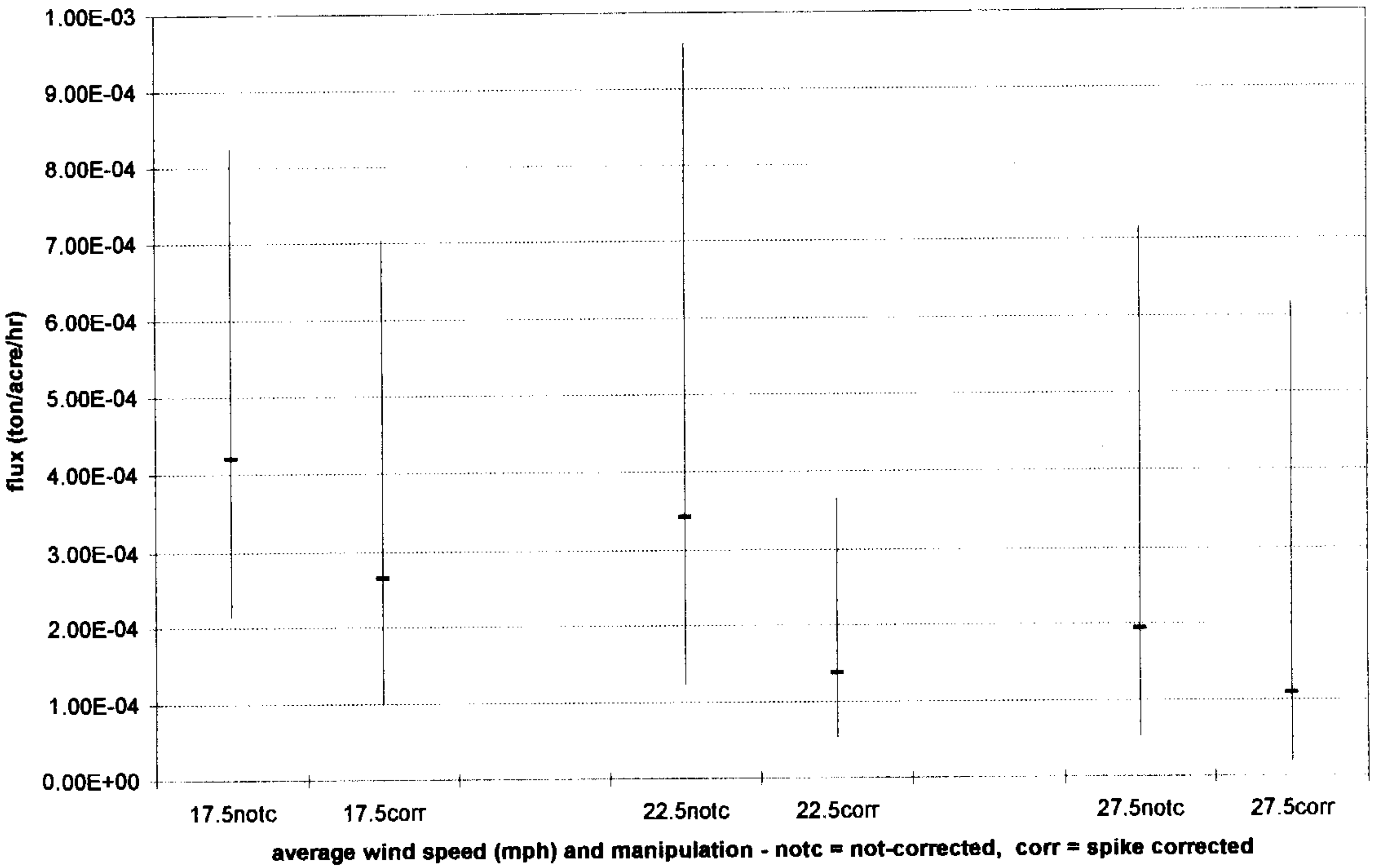
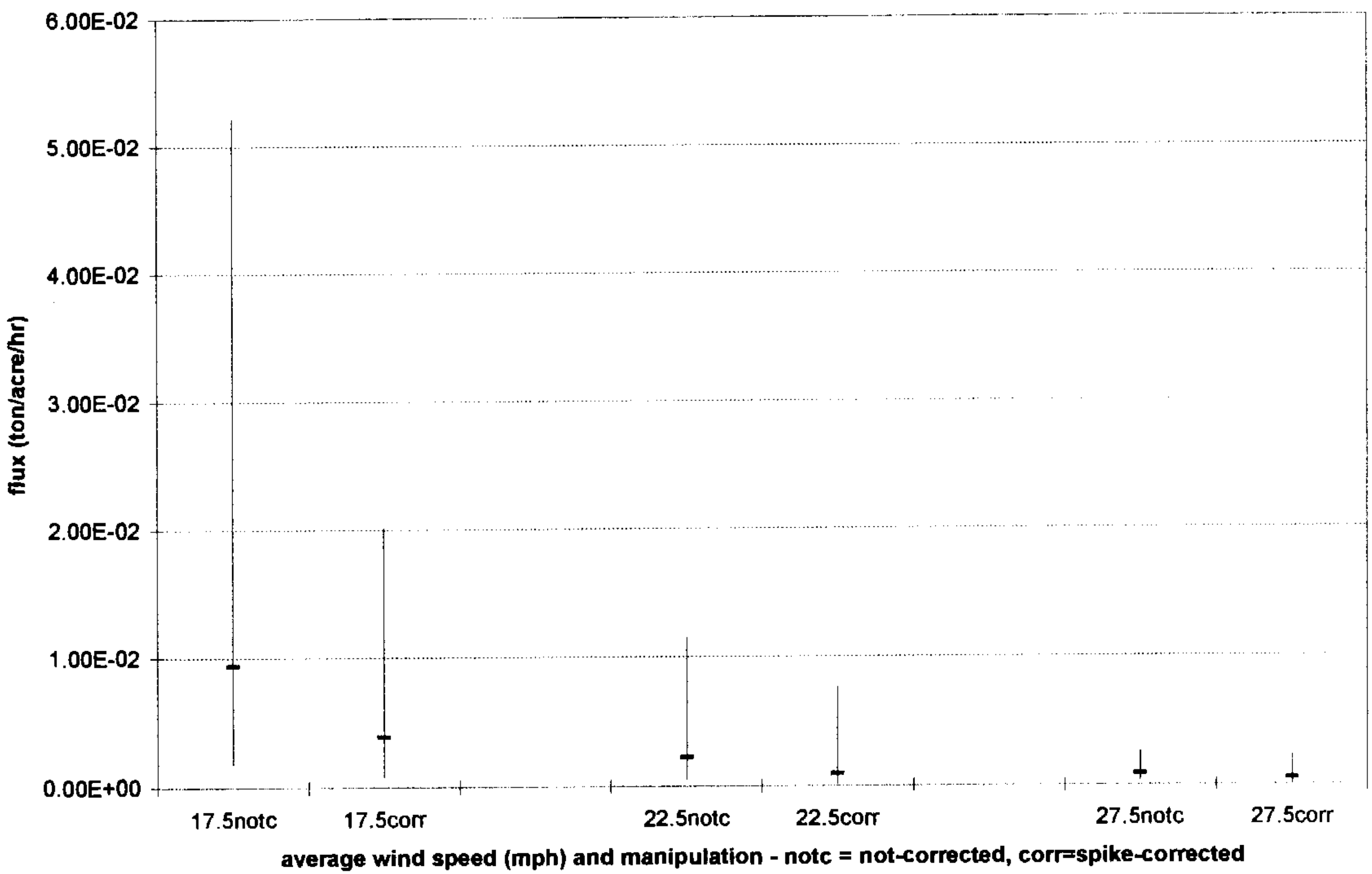


Figure E12 - Phase II - Torn Up - Comparison of not spike-corrected to spike-corrected fluxes

Geometric mean +/- 1 standard deviation



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