

US EPA ARCHIVE DOCUMENT

**EMISSIONS DATA FROM TWO DAIRY FREESTALL BARN
IN WASHINGTON**

Final Report for Site WA5B

of the

National Air Emissions Monitoring Study

submitted to

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1. INTRODUCTION AND OBJECTIVES

1.1. Overview of NAEMS

The primary goals of the National Air Emissions Monitoring Study (NAEMS) were to: 1) quantify aerial pollutant emissions from dairy, pork, egg, and broiler production facilities, 2) provide reliable data for developing and validating emissions models for livestock and poultry production and for comparison with government regulatory thresholds, and 3) promote a national consensus on methods and procedures for measuring emissions from livestock operations. Emissions measurements were conducted at a total of 15 different barn monitoring sites in the continental US.

The NAEMS was managed by Purdue University (Purdue), in its role as Independent Research Contractor (IRC) to the Agricultural Air Research Council. Purdue selected equipment and methodology in consultation with US EPA and subcontracted with other universities to operate the monitoring sites. Washington State University at Pullman (WSU) installed, maintained and calibrated equipment, collected samples, and conducted all other on-site activities. Purdue provided rapid feedback (generally within 2-4 business days) designed to catch aberrations in the data, and later conducted final data processing of the data.

The overall objective of this report is to present the quality-assured measurements of ammonia (NH₃), hydrogen sulfide (H₂S), particulate matter (PM) and volatile organic compounds (VOC's) from two naturally ventilated freestall barns at the Washington dairy farm. The specific objectives of the report are to:

1. Describe the farm, and the monitored buildings,
2. Describe the monitoring methods and quality assurance, and
3. Present tabulated daily averages of emissions.

2. CONFINED ANIMAL FEEDING OPERATION

2.1. Farm

This 5,600-cow Holstein dairy farm (WA5B) was located in Washington State. The main components of the farm, (Figure 1) were constructed between 2002 and 2003. The nearest identifiable off-farm livestock was a small open lot dairy located approximately 0.8 km to the north, a seasonally-used sheep lambing camp 0.4 km to the west, and a calf operation 0.5 km to the west.

The farm had six naturally-ventilated and symmetrically-distributed freestall barns. The barns were oriented east-west and the milking center was oriented north-south. Ten corrals/exercise pens were distributed around the barns. Calf hutches situated in one of the exercise lots housed the newborn and suckling calves. Lactating cows were milked three times daily in a centrally located milking center. The on-site heifer program was limited.

The manure handling system included a sand separating pit, two primary settling ponds, a manure separation pad, two secondary serpentine basins, a secondary lagoon, and dry manure storage containment.

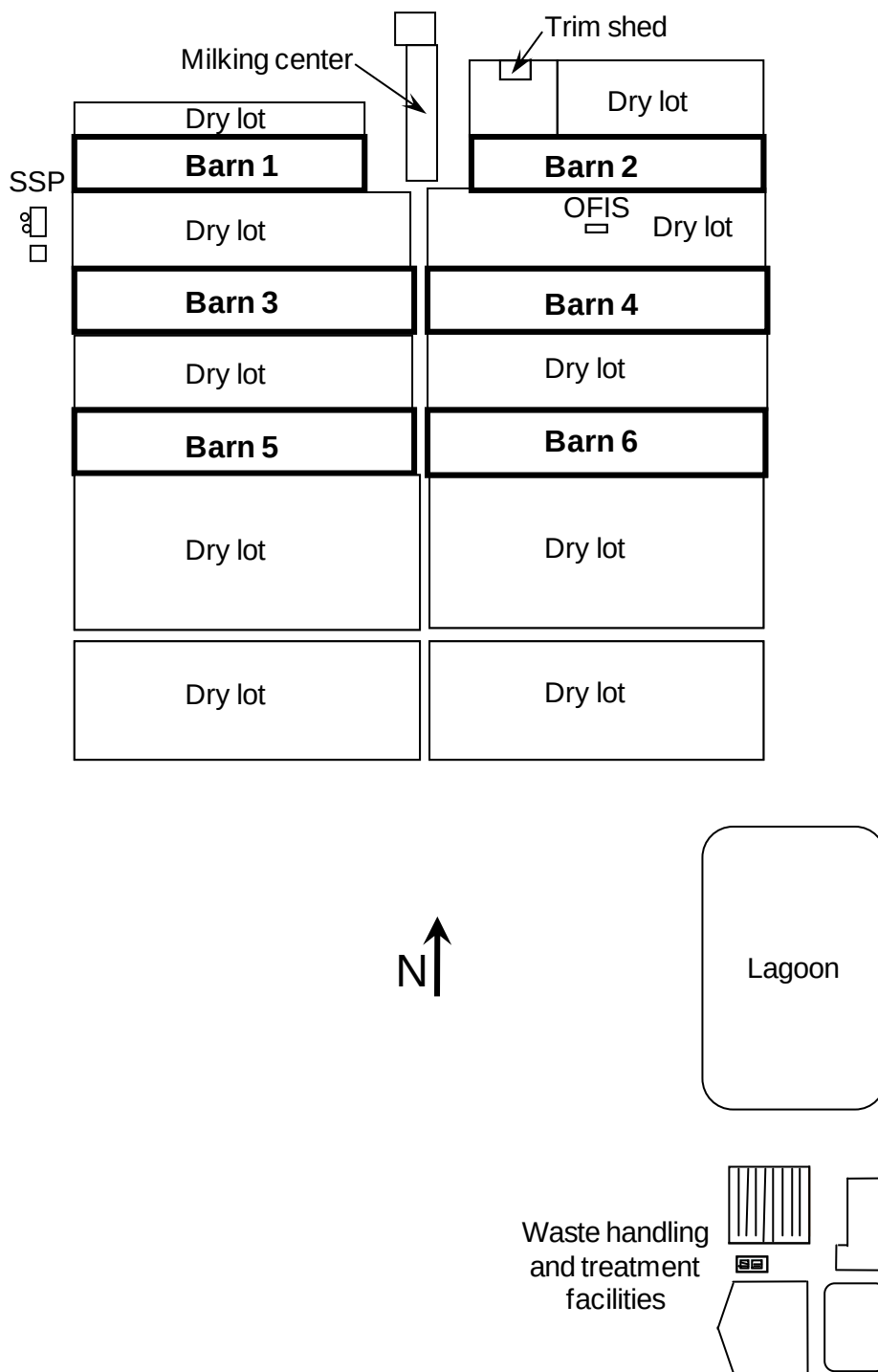


Figure 1. Layout of dairy farm, with locations of monitored buildings (B2 and B4).

2.2. Monitored Buildings

Aerial pollutant emissions were measured from the naturally ventilated freestall barns 2 and 4. Barn 2 was 182.9 m x 31.1 m, and housed 600 cows in four rows of freestalls. Barn 4 was 213.4 m x 39 m, and housed 700 cows in six freestall rows. The west and east sides of the barns were open, with each opening having a rectangular shaped area. Barn 2's end opening was 31.1 m wide and 4.3 m high and that of barn 4 was 39 m wide and 4.3 m high. Barns 2 and 4 were 54.5 m apart, and each barn had its own exercise lot, the dimensions of which were 54.5 m wide and 182.9 m long (barn 2) and 213.4 m long (barn 4).

The exercise lot between barns 1 and 3 contained several rows of calf hutches. The cows were milked three times daily, and therefore each cow spent approximately 20 h in the freestall barn and exercise lot, and 4 h in the milking center.

Feed was delivered, using a truck with an auger mixer, through 6-ft wide concrete feed alleys in each freestall barn's center, and consisted of a mixture of alfalfa hay, winter triticale green chop/silage, grain (corn), and cottonseed meal, with some apple pomace, as dictated by commodity prices and veterinarian/feed specialist recommendations. A standby generator was available to power critical systems during power outages.

Barns 2 and 4 were naturally ventilated. Ventilation air entered the naturally-ventilated freestall barns through the four open walls of the barn, and exited through a continuous open ridge. Each 4.3-m high sidewall (north and south) was open to the wind in the summer, and had two vertical curtain systems, one on top of the other. The one exception to this was the north wall of barn 2, which had no curtains. Each curtain was either fully open or fully closed, and close from top to bottom. The bottom curtain was closed in windy or cold conditions and was always closed first. The top one was closed in cold conditions, and was never closed unless the bottom one was closed. When both curtains were closed, there was a 30-cm opening between the top curtain and the roof. The maximum wall opening height was 2.7 m for the freestall barns. The air exited through a continuous ridge opening that was 1.5 m and 1.2 m wide for barns 2 and 4, respectively.

The milking center was cleaned as needed and used coolant water to flush manure. Manure from the freestall barns was flushed automatically three times daily, and scraped as needed. The effluent was directed, via PVC pipes, to the waste handling and treatment system that included a sand separation pit, two primary settling ponds, a manure separation pad (which includes screen separators and centrifugal solid separators), and a pair of serpentine settling systems, in which each one had five sequential settling cells. Both of the serpentine cells then discharged into a central cell. The liquid effluent from the central cell was directed to the storage lagoon, which had a volume of 9.5×10^7 L. The solid effluent from the sand separation pit, depending on the season and temperature, also was directed to two manure drying ponds, each with 5.7×10^7 L capacities, which were located south of the manure separator pad. The basin east of the settling basins was also used to store dried manure. Dried manure was used for bedding and land application. Liquid manure was applied, via a system of pressurized pipes, to surrounding fields, and was applied using a ground injection rig at agronomic rates.

2.3. Significant Events and Modifications

An excessive snow event occurred on 12/17/08 and necessitated the closing of the sidewall curtains and may have caused low ventilation rates during this event.

3. MONITORING AND SAMPLING METHODS

3.1. General Approach

Equipment installation and preliminary testing began on 6/11/07 and concluded on 9/28/07. The site setup and equipment installation followed an approved site monitoring plan, a quality assurance project plan, and instrument or method-specific standard operating procedures.

The monitoring period began on 9/28/07, and concluded on 9/27/09. Target pollutants were NH_3 , H_2S , PM (PM_{10} , TSP, and $\text{PM}_{2.5}$), and VOC. Appendix A lists the target pollutants, and all measured supporting variables. The monitoring schemes for the two structures are shown in Figure 2 and 3. Table 1 lists the major instruments.

Table 1. Major instrumentation.

Analyzer/Instrument	Serial number
INNOVA 1412 Multi-gas analyzer	710-206
TEI 450i H_2S analyzer	709220679
EnviroNics 4040 Dilutor	3912
TEOM 1	265040701
TEOM 2	265100701
TEI FH 62C14 (Beta Gauge)	E-1297

Table 2 summarizes the sampling locations for the various analytes. There were eleven gas sampling locations (GSLGs) for barns 2 and 4, each with one to four gas sampling probes (Figure 2 and 3). Gas-sampling probes were placed at ventilation openings on north and south endwalls, east and west sidewalls and ridge of each barn. The outdoor ventilation inlet location was located at the 1.5 m above the roof of the OFIS.

3.2. Instrument Shelter

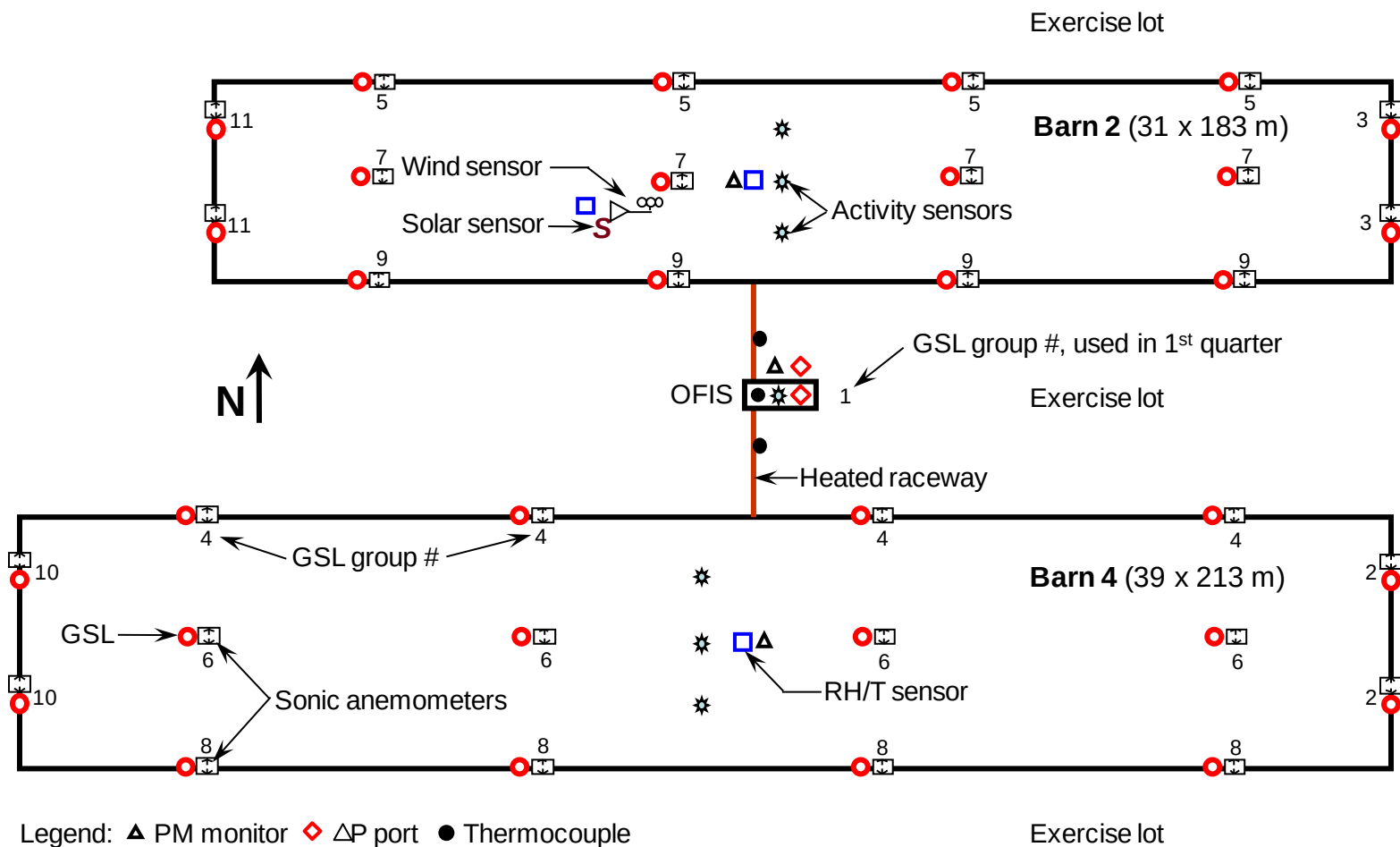
The on-farm instrument shelter (OFIS) was located at the center of the exercise lot between barns 2 and 4. Heated raceways were used to connect the OFIS with each barn, to avoid condensation in the sampling lines during cold weather.

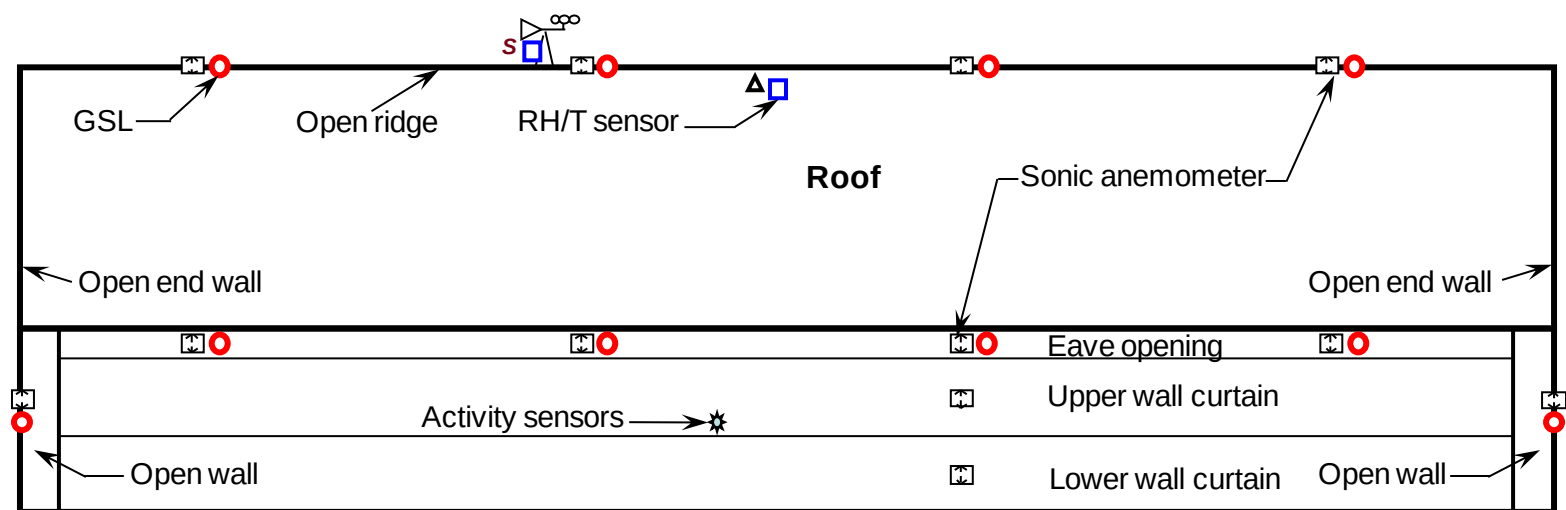
The OFIS was supplied with, single-phase, 120/240-V, (100 A) power by the farm. A copper ground rod was installed at the location of the OFIS and connected to the OFIS ground. The HVAC system of the OFIS maintained inside temperatures within the operating range for the analyzers, and created a positive pressure with a filtered outside air intake to minimize entry of unfiltered outside air. The temperature and differential static pressure in the OFIS were

monitored with a thermocouple near the instrument rack and a pressure sensor, respectively. One set of gas analyzers in the OFIS measured gas concentrations as the gas sampling system (GSS) sequenced through all the gas sampling locations (GSLs). Vacuum pumps and controllers for the PM monitors were located in the OFIS. A personal computer collected all site monitoring data using AIRDAC a data acquisition and control program.

Table 2. Analyte sampling locations.

Analyte	Barn	Sampling locations	# Probes
Gas (NH ₃ , H ₂ S, CO ₂)	2,4	GSLG 1: Inlet	1
	4	GSLG 2: B4 east wall	2
	2	GSLG 3: B2 east wall	2
	4	GSLG 4: B4 north wall	4
	2	GSLG 5: B2 north wall	4
	4	GSLG 6: B4 ridge	4
	2	GSLG 7: B2 ridge	4
	4	GSLG 8: B4 south wall	4
	2	GSLG 9: B2 south wall	4
	4	GSLG 10: B4 west wall	2
	2	GSLG 11: B2 west wall	2
PM (PM _{2.5} , PM ₁₀ , TSP)	2, 4	Ridge: Lengthwise midpoint, centered, 0.5 m below	2
	2, 4	Inlet: 1.8 m above the roof of the OFIS	1
VOC	2, 4	On each TEOM platform near ridge	





Legend: ▲ TEOM S Solar sensor ▷ Wind sensor

Figure 3. Side view of sensor and air sampling locations.

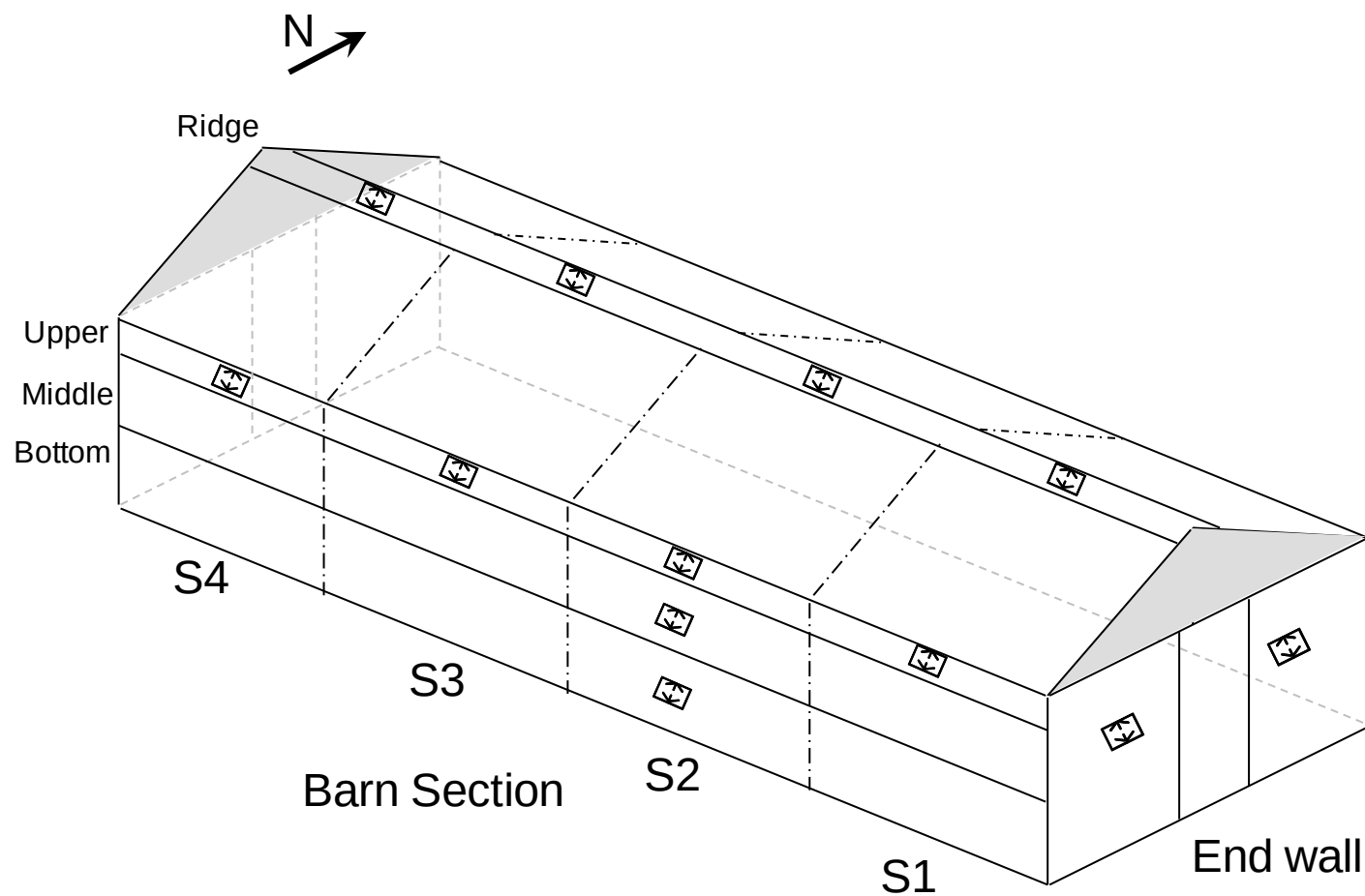


Figure 4. End view of sonic anemometer locations.

3.3. Data Acquisition and Control System

The data acquisition and control system consisted of a personal computer, custom software (AirDAC) written in a commercial programming language (LabVIEW, National Instruments, Austin, TX), distributed I/O hardware (National Instruments FieldPoint modules), and Universal Serial Bus (USB) devices by National Instrument (NI). The NI FieldPoint (FP) modules were selected and configured to acquire data for all the on-line measurement variables (Appendix A).

The 16-channel NI FP-DO-401 digital output module was used to control: 1) sequential switching of multiple gas sampling lines, 2) the raceway heating system, and 3) GSS cooling fan. Serial communication (RS232) was used to acquire data from the multi-gas monitor and calibration variables (calibration time, gas concentration, etc.) from the gas dilutor. Voltage or current analog signals from various analyzers and sensors were connected to FP-AI-112 modules. Type T thermocouples were connected to FP-TC-120 modules. Serial communication (RS485) was used to acquire the digital data from the ultrasonic anemometers during the second year of the study. During the first year the data from the sonic anemometers was acquired using the analog signal of the sonics with the FP-AI-112 modules.

Table 3. Data acquisition hardware configuration.

Manufacturer, model	I/O type	Units	Channels	Notes
NI FP-AI-112	Analog input	3	16	Single-ended, 16-bit
NI FP-TC-120	Thermocouple	1	8	
NI FP-DO-401	Digital output	1	16	2 A at 10-30 VDC
NI USB/RS485 converter	Serial port	1	496	4 channels/sonic

AirDAC averaged the signals (after conversion to engineering units) over 15-s and 60-s intervals and recorded the means into two separate computer files. All real-time data were displayed in tabular and graphic forms for on-site or remote (pcAnywhere, Symantec, Mountain View, CA) viewing (Ni et al., 2009; Ni and Heber, 2010). Measurement alarms, data collection notifications, data files, graphs and statistics of the daily data sets, and modified configuration and fieldnote files were automatically emailed to several recipients after midnight.

3.4. Monitoring and Recording Farm and Building Operation

3.4.1. Animal Husbandry and Building Systems

Infrared motion detectors (activity sensors) were installed to monitor movement of cows and workers in the barns as noted in Figure 2. The farm provided milk production, feed consumption, and pen inventory data.

3.4.2. Thermal Environment

Weather data was collected using a solar radiation-shielded capacitance-type relative humidity and temperature probe (RH/T) (Model RHT-WMV, Novus Automation, Porto Alegre, Brazil), a pyranometer (Model LI-200SL, LI-COR, Lincoln, NE) and a cup anemometer (RM Young, Traverse City, MI), which were mounted on the ridge of barn 2 (Figure 2).

Each sonic was used to measure temperatures in barns 2 and 4.

Thermocouples (TCs) were located in the heated raceways between the barns and the OFIS. Two TCs were located in the OFIS to measure the temperatures of the OFIS and the air-conditioning system. One TC monitored the temperature conditions in the ambient PM monitor enclosure.

3.4.3. Building Airflow

Building airflow was determined by multiplying the upwind speeds supplied by the weather station on the ridge of barn 2 by the upwind opening area.

3.4.4. Biomaterials Sampling Methods and Schedule

All analyses of biomaterials were performed by an independent laboratory (Midwest Laboratories, Omaha, NE).

Daily records of feed consumption were regularly obtained from the producer and daily records of diet constituents were provided by the farm's nutritionist.

Samples of feed, bedding, and manure were taken from each barn. Each sample was analyzed for total solids and total nitrogen. Additionally, the manure was analyzed for ammonia. Milk samples were analyzed for total nitrogen only.

3.5. Particulate Matter Monitoring

Real-time PM monitors (TEOM Model 1400a, Thermo Fisher Scientific, Waltham, MA) continuously sampled exhaust PM. The TEOMs were on elevated platforms underneath the ridge openings at the center of the barn to sample exhaust air (Figures 2 and 3).

A beta attenuation PM monitor (Beta Gauge Model FH62C-14, Thermo Fisher Scientific, Franklin, MA) continuously measured ambient air above the OFIS and was assumed to represent the barn inlet PM concentration.

At any one time, the sampled PM size class at both TEOMs and the Beta gauge was either PM₁₀, PM_{2.5} or TSP. The PM₁₀ inlet heads on the TEOMs and Beta gauge were replaced with PM_{2.5} heads in January 08, July 08, February 09, and July 09, for 21.1, 12.9, 14.0, and 14 d, respectively (Table 5). The TSP inlet heads were placed on the TEOMs for seven, 6-14 d periods. The PM₁₀ concentration was measured at all other times.

Table 4. Sampling schedule for PM₁₀, TSP, and PM_{2.5}.

Time and day, h/m/d		Test duration, d		
Start	Stop	PM10	TSP	PM2.5
9/28/07	1/17/08	111.6		21.1
1/17/08	2/7/08			
2/7/08	4/10/08	62.9		
4/10/08	4/24/08		13.9	
4/24/08	6/12/08	49.1		
6/12/08	6/18/08		6.0	
6/18/08	7/10/08	22.0		
7/10/08	7/23/08			12.9
7/23/08	9/12/08	50.9		
9/12/08	9/18/08		6.0	
9/18/08	11/13/08	56.0		
11/13/08	11/21/08		8.0	
11/21/08	2/12/09	82.9		
2/12/09	2/26/09			14.0
2/26/09	3/4/09		6.1	
3/4/09	4/30/09	57.0		
4/30/09	5/7/09		7.0	
5/7/09	7/8/09	62.1		
7/8/09	7/22/09			14.0
7/22/09	7/30/09	7.9		
7/30/09	8/5/09		6.2	
8/5/09	9/27/09	53.4		
Totals		615.8	53.1	62.1

3.6. Continuous Gas Sampling and Monitoring

Air samples for continuous gas measurements were collected from multiple gas sampling probes with a custom-designed GSS. Each probe was connected to the GSS with Teflon tubing. Tubular raceways between the OFIS and the monitored barns protected the sampling lines and data signal cables. The sampling lines were wrapped with insulation and heated inside the raceways and at other locations vulnerable to cold air to prevent condensation inside the tubes.

There were 16 gas sampling locations (GSLs) per barn. Each GSL was located at a sonic anemometer; specifically, the four sonics in each barn ridge, the two in each endwall (four per barn), and the four in each upper (eave) opening (eight per barn) were paired with GSLs.

The 16 sampling locations were grouped into five GSL groups (GSLGs), such that the individual sampling lines of each sidewall (four lines), endwall (two lines), or ridge (four lines) fed into a single sample. This was accomplished through the use of a Teflon mixing manifold for each

sidewall and ridge GSLG, and a Teflon tee for each endwall. Because the lines joining the sidewall and ridge GSLs to their respective mixing manifolds differed significantly in length, flow restrictors were used to equalize the flow rates in each line; otherwise, higher flow rates in some lines would cause the GSLG to be biased spatially towards the regions of the barn closest to the manifold (i.e. with the shortest lines). The outputs of the mixing manifolds were each drawn to the gas sampling system located in the OFIS.

The probe for sampling ambient air was placed on top of the OFIS. However, this measurement was not used to represent the incoming gas concentrations. Rather, gas concentrations in the wall GSLG samples were treated as “inlet concentrations” when the flow was entering the barn. The exhaust concentration was represented by the ridge concentration.

The barn GSLG's were sampled sequentially for 10 min each. The ambient location was monitored at least twice daily, originally with a 10-min sampling period. The ambient air sampling was abandoned on 1/20/09.

One set of gas analyzers in the OFIS was sequenced through all eleven GSLGs. The gas analyzers included a TE Model 450C fluorescence-based H₂S analyzer. Ammonia and CO₂ was measured with an INNOVA Model 1412 Photoacoustic IR multi-gas monitor.

3.7. VOC Sampling

Grab samples of VOC were collected using methodology based on methods TO-15 and TO-16. Sampling was conducted with 6-L stainless-steel canisters (TO-Can, Restek Corp, Bellefonte, PA), equipped with ¼" bellows valves (Swagelok SS4H) and 207-kPa vacuum gauges. Sampling trains contained flow controllers (Veriflo Model 423XL, Parker-Hannifin Corp., Richmond, CA) with 2- to 4-sccm critical orifices and 7-µm in-line stainless steel filters. Flow controllers were pre-set to a constant flow rate of 3.4 mL min⁻¹. Canister sampling was conducted for 24 h, and canister pressures were recorded at the beginning and end of the sampling periods for the calculation of total sample volumes collected. Sampling was conducted seven times between 5/6/09 and 10/7/09, with duplicate samples typically collected at each location. All canisters were cleaned and passed QC before sample collection.

Canister samples were analyzed at Purdue University's Trace Contaminant Laboratory. The canisters were pressurized to +207 kPa with ultrapure N₂, and transferred to TDS tubes (Carbotrap 300, Supelco, Bellefonte, PA). The pressurized canisters initially yielded sample flows of 50 mL min⁻¹ during sample transfer to tubes. Canister heating was introduced when a canister pressure decreased to 13.8 kPa to ensure maximal transfer of nonvolatile components.

Samples were analyzed on a thermodesorption-gas chromatograph-mass spectrometer (TDS-GC-MS), consisting of a gas chromatograph (Model 6890, Agilent Technologies, Palo Alto, CA) coupled with a Model 5795 mass spectrometer detector (Agilent Model 5795) and equipped with a thermal desorption system (Model TDS-G, Gerstel, Baltimore, MD) and a cooled injection system (Gerstel CIS). The GC-MS passed a leak check prior to analyzing each set of samples. Compounds were separated on a 60 m x 0.25 mm x 1µm column. The detector utilized the full scan mode covering masses from 27-270 Daltons in 8 scans s⁻¹. The MS quad hold temperature was 150°C, and the MS source hold temperature was 230°C. The analytical results were analyzed

by ChemStation, and all integrations were manually checked. This method used an external standard compound for instrument monitoring and QA to avoid losses of low-molecular-weight analytes that would occur when purging solvent used with internal standard(s). All TDS tubes were cleaned with a tube conditioning system (Gerstel TC-2 TDS) for 3.5 h at 350°C prior to each use.

Response curves were generated at both the beginning and the end of the VOC analysis period. The response curves of all chemical standards reach good linearity as 55% of the response curves had $R^2 > 99\%$ and over 98% had $R^2 > 95\%$. Toluene was used as an external standard that was analyzed during each batch of samples to assure quality. The relative bias and standard deviation of 97 toluene checks were -4.3% and 18.8%, respectively. The uncertainty of the mean of duplicate field samples was calculated as 27%, based on the toluene checks.

3.8. Documentation of Quality Assurance

3.8.1. Oversight, Maintenance, and Calibration

Washington State University at Pullman (WSU) personnel visited the site frequently during the monitoring period. Remote checking via the internet was conducted by Purdue on a near-daily basis.

The NAEMS Science Advisor audited the site on 10/31/07. The Environmental Protection Agency (EPA) conducted a site audit on 3/19/09 and 9/30/09.

Various site maintenance and calibration activities were conducted by site personnel (Appendix B). Specific quality assurance tests of the GSS, gas analyzers and other sensors are discussed below.

3.8.2. Gas Sampling System

Two types of GSS leak tests were conducted. The first test examined GSS integrity, by briefly creating a “dead head” against the pump by closing all solenoid valves, while measuring exhaust airflow with a portable rotameter, and recording the leakage flow with the GSS mass flow meter. The second test consisted of monitoring GSS flow and pressure after manually setting AirDAC to sample from a particular GSL and plugging the GSL’s gas sampling probe, which created a GSS manifold vacuum of about -64600 Pa or 0.36 atm. Preliminary tests indicated that GSS flows under dead-head conditions that were 10% or less ($<0.45 \text{ L min}^{-1}$) of the normal GSS flow rate of 4.5 L min^{-1} were indicative of leak-free operation under normal GSS manifold vacuums of -5,000 to -8,000 Pa (0.93-0.96 atm). Leak tests of the GSS were conducted on 10/14/08, 7/15/09, and 7/29/09. The dead-head leakage flows were always significantly less than the 0.45 L min^{-1} threshold. Systematic checking of individual sampling lines was conducted frequently. Data was only invalidated when leaks occurred away from the sampling location. If gas sampling probe filter maintenance eliminated a leak, no data was invalidated since leakage air would be the same as sampled air.

3.8.3. Gas Analyzers

Gas measurements were evaluated using multipoint calibrations and zero and span checks. The gas concentration data output by the analyzers was adjusted to correct for bias introduced by the gas sampling and measurement system.

3.8.3.1. Correction of Ammonia Concentrations

Multipoint calibrations (MPC) were conducted through the challenge line using purified air (Cat. # AI0.0CE-T, CEM zero-grade, Praxair, Indianapolis, IN) and four span concentrations of NH_3 (Cat. # NI-AM5MP-AS, Praxair Primary Standard). Each MPC was conducted with replication (Table 6). The NH_3 was delivered using a 6-port gas dilutor (Model 4040, Environics, Tolland, CT). The minimum and average R^2 values of the MPCs were 0.962 and 0.991, respectively, indicating linearity of the instrument response to standard gas between 0 and 40.7 ppm.

Table 5. Multipoint calibration record and results for the NH_3 measurements.

Date	# of points	Concentration, ppm		R^2
		Minimum	Maximum	
4/24/08	4	9.73	40.7	0.997
6/18/08	4	9.92	40.7	0.999
7/10/08	4	9.94	40.8	0.998
9/2/08	4	8.00	20.0	0.993
10/15/08	5	8.00	20.0	0.962
10/23/08	5	8.00	20.0	0.984
10/29/08	4	8.00	15.0	0.998
2/25/09	4	8.00	15.0	0.999

Table 6. Concentration correction and measurement accuracy for ammonia.

Start/end dates	# of checks		Linear model	Accuracy, % of span			
	Zero	Span		Bias		Precision	
				z	s	z	s
4/24/08 to 9/2/08	10	10	Y = 4.29x - 0.51	0.17	1.30	1.42	11.7
9/2/08 to 1/21/09	6	6	Y = 1.75x + 0.15	-0.28	-11.8	2.57	43.7
1/21/09 to 2/25/09	4	4	Y = 1.28x - 0.05	-0.25	5.12	0.34	11.3
2/25/09 to 3/26/09	4	4	Y = 0.96x - 0.07	-1.68	-6.60	1.47	10.2
3/13/09 to 9/2709	4	4	Y = 1.03x + 0.01	0.79	-0.03	0.60	0.70

Precision checks were conducted periodically using zero and span gases (Z/S checks), delivered via the dilutor through the challenge line, and responses were recorded to monitor changes in system performance over time. Span checks were conducted with 41.6 ppm of NH_3 , except that 4.56 ppm was used in October, 2009.

The average response of the analyzer to the zero and span gas applications was assessed and the results were combined based on changes to the instrument or GSS to create linear correction models. For the purpose of constructing gas correction models, the analyzer responses at the 4.56

ppm concentrations were ratiometrically adjusted to the expected response at 41.6 ppm. The models were used to correct instrument readout data. The measurement accuracy was assessed based on model-corrected zero and span checks.

3.8.3.2. Correction of Hydrogen Sulfide Concentrations

MPC's were conducted through the challenge line ten times (using purified air (Cat. # AIO.OCE-T, Praxair CEM zero air) and three span concentrations (Cat. # NI-HSR1E-AS, Praxair EPA Protocol Standard). Each MPC was conducted with replication. The H₂S was delivered using a 6-port dilutor (Model 040, Environics, Tolland, CT). The R² values of each MPC were 0.991 or above, indicating excellent linearity of instrument response to standard gas between 0 and 4562 ppb.

Precision checks were conducted periodically using zero and span gases (Z/S checks), delivered via the dilutor through the challenge line, and responses were recorded to monitor changes in system performance over time. Span checks were typically conducted with 895 ppb.

Table 7. Concentration correction and measurement accuracy for hydrogen sulfide.

Start/end dates	# of checks		Linear model	Accuracy, % of span			
	Zero	Span		Bias		Precision	
				z	s	z	s
12/13/07-4/24/08	1	1	Y= 1.000x – 0.340	0	0	-	-
4/24/08-4/25/08	1	1	Y= 0.967x - 1.742	0	0	-	-
4/25/08- 9/3/08	10	9	Y= 3.557x +1.389	0.139	-1.305	8.02	804.9

Table 8. Multipoint calibration record and results for the H₂S measurements.

Date	# points	Span concentration, ppb		R ²
		Minimum	Maximum	
4/24/08	4	1140	4562	0.991
6/18/08	4	1139	4562	0.999
7/10/08	4	1140	4572	0.997
9/2/08	2	0	1000	1.000
10/23/08	5	750	1500	0.991
10/29/08	4	750	1500	0.991
2/25/09	4	750	1500	1.000
4/30/09	4	750	1500	0.999
6/17/09	4	750	1500	0.999
6/25/09	4	750	1500	0.999

The average response of the analyzer to the zero and span gas applications was assessed, and the results were combined based on changes to the instrument or GSS to create linear correction models. The models were used to correct instrument readout data. The measurement accuracy was assessed based on model-corrected zero and span checks Table 8.

3.8.3.3. Noise Tests

Analyzer noise tests were conducted to assess the minimum detection limit (MDL) of the gas measurements. The analyzers measured CEM zero air (Praxair Cat. # AIO.OCE-T CEM) continuously for 44 to 52 min after equilibrium of the instrument readout was reached. The MDL was calculated as three times the standard deviation of the data collected during the equilibrated period (Tables 10 and 11).

Table 9. Noise test of gas analyzers with dry air on 10/07/09.

Concentration	Statistical variable				Duration, min	T _{dew} , °C
	Min	Max	SD	MDL		
NH ₃ , ppm	-0.26	0.01	0.05	0.13	44	-110
H ₂ S, ppb	7.0	16.0	0.7	1.5	49	-121

Table 10. Noise test of gas analyzers with humidified air on 10/07/09.

Concentration	Statistical variable				Duration, min	T _{dew} , °C
	Min	Max	SD	MDL		
NH ₃ , ppm	-0.13	0.15	0.05	0.13	59	5.30
CO ₂ , ppm	5.0	19.0	2.7	6.2	53	5.54
H ₂ S, ppb	7.0	10.0	0.7	1.7	58	5.64

3.8.4. Particulate Matter Analyzers

The quality of the exhaust PM data collected by the TEOMs was assessed through mass verifications and flow and leak checks.

Table 11. Quality assurance tests of barn 2 TEOM.

Date	Time since last test, d	Mass error, %	TEOM flows, L·min ⁻¹		Leak test flows, L·min ⁻¹	
			Main	Total	Main	Auxiliary
11/20/07	0	0.68	3.00	17.3	0.05	0.21
7/3/08	226	0.69	3.00	16.7	0.13	0.06
2/5/09	443	1.13	3.00	16.7	0.03	0.14
2/25/10	602	0.50	3.00	16.8	0.06	0.25

The criteria for total and main flows were 16.7±1.0 and 3.0±0.2 L min⁻¹, respectively, and were met on all dates.

The leakage criteria were ≤0.62 and ≤0.15 L min⁻¹ for total and main flows, respectively. All leak and flow tests for barns 2 and 4 TEOMs were acceptable on all dates.

A mass verification and flow calibration of the inlet PM monitor was conducted periodically. The mass verification criteria of <5% was met on all dates and the total flow check criteria of <4% were met on all dates.

Table 12. Quality assurance tests of the barn 4 TEOM.

Date	Time since last test, d	Mass error, %	TEOM flows, L min ⁻¹		Leak test flows, L min ⁻¹	
			Main	Total	Main	Auxiliary
11/20/07	0	1.15	2.99	17.1	0.05	0.45
7/3/08	226	1.06	3.00	16.7	0.14	0.16
2/5/09	443	2.23	2.99	16.6	0.09	0.16
2/25/10	602	0.99	2.99	16.5	0.05	0.11

Table 13. Inlet PM monitoring quality assurance parameters.

Date	Time since last test, d	Mass verification, %	Total flow check, %
11/14/07	0	0.01	-0.06
2/13/08	91	-0.54	-0.06
3/13/09	394	0.97	-0.30
10/15/09	216	-1.88	0.18

3.9. Data Analysis

3.9.1. Software

All emission data processing was conducted using custom software (CAPECAB, Fibre Recovery Systems, Inc, Calgary, AB). Data was carefully inspected and validated. If a datum was invalid for a known reason, the datum was marked (flagged) invalid and all calculations dependent on that datum were also invalid unless a substitution datum was identified. All periods of invalid data of relevant variables that were longer than one day are listed in Appendix D.

If the QA/QC checks described above indicated a measurement bias, the data was corrected prior to calculating emissions. The CAPECAB program provided a robust method to inspect data, invalidate if necessary, and implement various corrections over specified time periods.

3.9.2. Data substitution, validation, correction and uncertainty

3.9.2.1. Environmental Sensors

A solar radiation-shielded RH/temperature probe, solar radiation pyranometer and a wind anemometer was attached to a 1-m aluminum tower located on the ridge of barn 2 near the OFIS. RH/T sensors were placed with the TEOM in each barn.

The ambient temperature sensor produced a noisy signal from 10/27/07 to 3/1/08. The average of the temperatures measured by the NE, NW and SW sonic anemometers was used as a substitute ambient temperature during this period after confirming good agreement during other periods.

The ultrasonic anemometers were used to measure the temperatures at each GSL.

3.9.2.2. Gas Concentrations

Times were specified in the data processing software for gas concentration measurements to stabilize based on gas and sampling location. Linear interpolation of corrected gas concentrations

was used to fill in concentrations for each minute between two valid concentration measurements at a sampling location, up to a specified maximum interpolation interval.

Table 14. Gas concentration data validation and interpolation requirements.

Gas	Exhaust sampling locations		Inlet sampling location	
	Equilibration period, min	Maximum interpolation interval, min	Equilibration period, min	Maximum interpolation interval, min
NH ₃	7	300	7	3000
H ₂ S	7	300	7	3000

Gas and water vapor concentrations, and sample relative humidity, temperature, flow rate, and flow direction were automatically invalidated during all gas analyzer MPCs and Z/S checks, and when sample $Q < 3.8 \text{ L min}^{-1}$. Gas and PM data were invalidated under conditions of calm winds ($< 1 \text{ m/s}$). Gas concentration data was invalidated whenever the GSS failed leak tests.

Standard gas concentrations were calculated on dry and moist bases with Eqns. 3-1 and 3-2, respectively.

$$C'' = \frac{C'}{(1 - W)} \quad (3-1)$$

and

$$C' = \frac{P' \cdot c \cdot M}{R \cdot (273 + T')} \quad (3-2)$$

Where:

- C'' Standard mass concentration, dry basis ($\text{mg d}^{-1}\text{sm}^{-3}$ or $\mu\text{g d}^{-1}\text{sm}^{-3}$)
- C' Standard mass concentration, moist-air basis (mg sm^{-3} or $\mu\text{g sm}^{-3}$)
- P' Standard pressure (1 atm)
- T' Standard temperature (20°C)
- c Volumetric concentration of gas (ppm or ppb)
- M Molecular weight of gas (g mol^{-1})
- R Universal Gas Constant ($0.08206 \text{ L atm mol}^{-1} \text{ }^\circ\text{K}^{-1}$)
- W Humidity ratio

3.9.2.3. PM concentrations

Dry standard PM concentrations were obtained by dividing raw concentrations by the air humidity ratio.

3.9.3. Emission calculations

3.9.3.1. Particulate matter

PM emissions were calculated with Eqn. 3-3.

$$E = \left(Q_o \cdot P_o \cdot \left(\frac{273 + 20}{273 + T_o} \right) \right) \cdot (c'_o - c'_i) \quad (3-3)$$

Where:

- E Net PM emission rate ($\mu\text{g s}^{-1}$)
- Q_o Exhaust airflow rate at T_o ($\text{m}^3 \text{s}^{-1}$)
- P_o Pressure of exhaust air (atm)
- C_o' PM concentration of exhaust air ($\mu\text{g m}^{-3}$)
- C_i' Ambient PM concentration ($\mu\text{g m}^{-3}$)
- T_o Temperature of exhaust air ($^{\circ}\text{C}$)

3.9.3.2.

3.9.3.3. Gases

Stream-specific gas emissions were determined as follows:

$$E = Q_o \cdot \frac{P_o \cdot M}{R \cdot (273 + T_o)} \cdot (c_o - c_i) \quad (3-4)$$

Where:

- E Stream or barn emission rate (mg s^{-1} or $\mu\text{g s}^{-1}$)
- Q_o Stream or barn outlet moist airflow rate at T_o ($\text{m}^3 \text{s}^{-1}$)
- P_o Exhaust air pressure (atm)
- M Gas molecular weight (g mol^{-1})
- R Universal Gas Constant ($0.08206 \text{ L atm/mol}^{-1} \text{ }^{\circ}\text{K}^{-1}$)
- T_o Exhaust air temperature ($^{\circ}\text{C}$)
- c_o Exhaust air concentration (ppm or ppb)
- c_i Ambient or ventilation air inlet concentration (ppm or ppb)

3.9.3.4. Volatile organic compounds

The total VOC concentration was multiplied by average building airflow for the 24-h canister sampling period to yield an average emission rate. If two samples were successfully collected for a building at one sampling event, the average concentration was used in the calculation.

4. RESULTS

4.1. Farm Production Information

The farm production information is presented in Table F1. An average of 514 and 963 cows were in barns 2 and 4.

4.2. Characteristics of Biomaterials

Samples of feed, bedding, and manure were taken from each barn. Each sample was analyzed for total solids and total nitrogen. Additionally, the manure was analyzed for ammonia. Milk samples were analyzed for total nitrogen only.

The solids and total nitrogen concentrations of the manure, feed and incoming bedding are presented in Appendix E. The nitrogen content of the bedding ranged from 0.53 to 1.00% nitrogen (wet-basis). The nitrogen content of the manure ranged from 0.01 to 0.31% nitrogen (wet-basis). The nitrogen content of the feed ranged from 0.95 to 1.97% nitrogen (wet-basis). The nitrogen content of the milk ranged from 0.32 to 0.52% nitrogen (wet-basis).

4.3. Thermal Environment

4.3.1. Ambient Conditions

Average monthly climatic data for the weather station nearest the Washington dairy site is presented in Table 16. According to historical climatic information, daytime average high temperatures range from 3°C in the winter to 31°C in the summer. Average overnight lows range from -7°C in winter to 11°C in summer. Typical prevailing winds for the region are from the west throughout the year.

Table F1 shows the daily average outdoor temperature, relative humidity, wind speed, wind direction, solar radiation and barometric pressure. The ADM outdoor temperature during the study period was 10.1±9.2°C, while the historical annual average for the area was 9.3°C (**Error! Reference source not found.**). The DM temperatures ranged from -11.0°C to 33.2°C (Figure 4).

Table 15. Monthly averages for weather conditions in the area*.

Month	Temperature, °C			Wind speed, km·h ⁻¹	Wind direction
	High	Low	Mean		
January	3	-6	-2	10	W
February	8	-4	2	11	W
March	13	-2	6	14	W
April	18	1	9	14	W
May	22	4	13	14	W
June	27	8	17	14	W
July	31	11	21	13	W
August	30	10	20	13	W
September	26	6	16	13	W
October	18	1	9	11	W
November	9	-3	3	10	W
December	3	-7	-2	9	W
Annual average	17	2	9		

* <http://www.weather.com/outlook/travel/vacationplanner/wxclimatology/monthly/USWA0502>.

4.3.2. Barn Conditions

The daily average inside temperatures and RH in barns 2 and 4 are presented in Table F2.

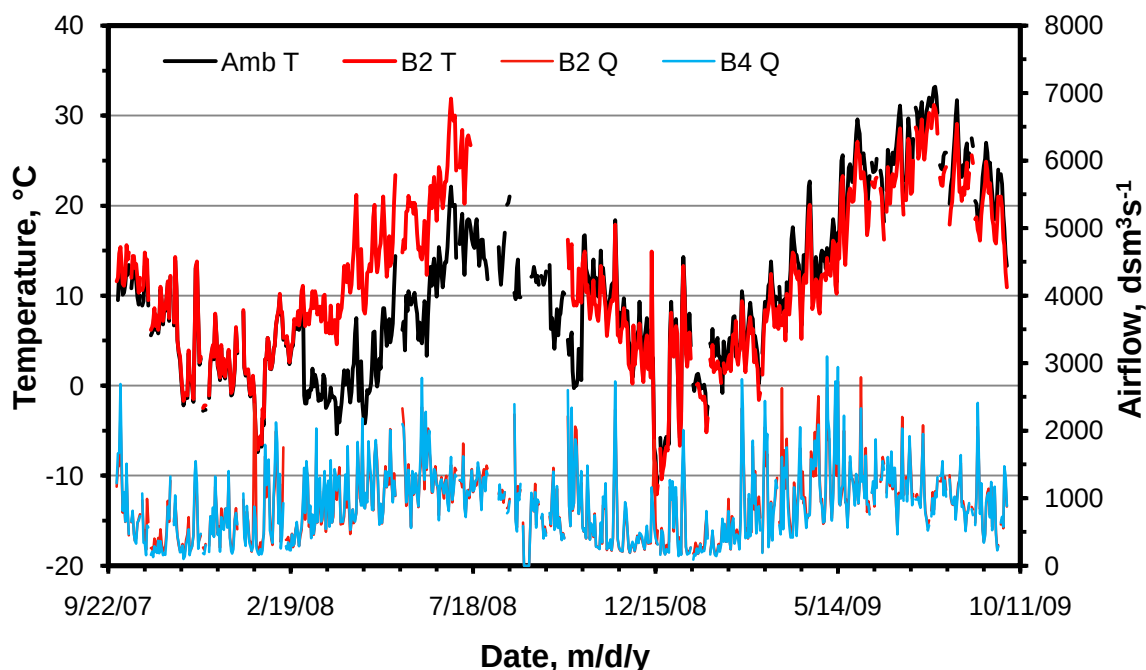


Figure 4. Inlet and exhaust temperatures (T) and airflow rates (Q) for B2 and B4.

4.3.3. Ventilation Rates

The mean wind velocity was $2.58 \pm 1.63 \text{ m} \cdot \text{s}^{-1}$. The wind direction was from the NE, SE, SE and NW for 19.7, 9.1, 33.9 and 37.3% of the time. Northerly winds occurred 57% of the time and southerly winds occurred 43% of the time. The overall average ventilation rates were 886 ± 510 and $883 \pm 543 \text{ dsm}^3 \text{ s}^{-1}$ for B2 and B4, respectively.

4.4. Particulate Matter Concentration and Emission

4.4.1. PM_{10}

The DM inlet PM_{10} concentration ranged from 2 to $487 \mu\text{g dsm}^{-3}$, whereas daily mean barn 2 and 4 PM_{10} exhaust concentrations ranged from 20 to 2040 and 18 to $1520 \mu\text{g dsm}^{-3}$, respectively (Table F3).

The ADM ($\pm$ SD) inlet, barn 2, and barn 4 PM_{10} concentrations were $96 \pm 88 \mu\text{g dsm}^{-3}$, $147 \pm 163 \mu\text{g dsm}^{-3}$ and $216 \pm 237 \mu\text{g dsm}^{-3}$, respectively, based on 449, 518 and 477 valid days of data, respectively.

The overall mean PM_{10} emission rates were $3.59 \pm 6.62 \text{ kg} \cdot \text{d}^{-1}$ ($6.94 \pm 12.8 \text{ g d}^{-1} \text{ cow}^{-1}$) from barn 2 ($n=448$), and $10.0 \pm 15.3 \text{ kg} \cdot \text{d}^{-1}$ ($10.3 \pm 15.9 \text{ g d}^{-1} \text{ cow}^{-1}$) from barn 4 ($n=415$) (Table F4).

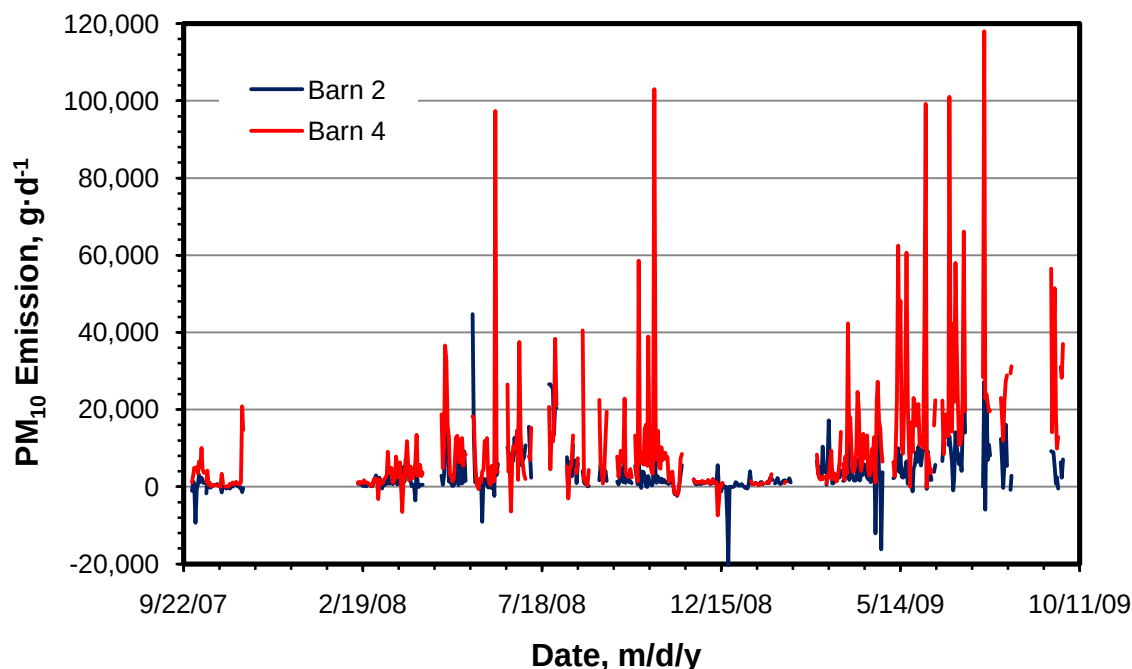


Figure 5. Daily mean PM_{10} emissions.

4.4.2. $PM_{2.5}$

Daily mean concentrations of $PM_{2.5}$ ranged from 13 to 45 $\mu\text{g dsm}^{-3}$ in the inlet air ($n=37$ d), 10 to 88 $\mu\text{g dsm}^{-3}$ in barn 2 exhaust air ($n=64$ d) and from 4 to 91 $\mu\text{g dsm}^{-3}$ in the barn 4 exhaust air ($n=64$ d) (Table F4).

The ADM inlet, barns 2 and 4 $PM_{2.5}$ exhaust concentrations were 22.8 ± 9.0 , 42.7 ± 24.0 and 35.8 ± 23.9 $\mu\text{g dsm}^{-3}$, respectively.

The overall mean $PM_{2.5}$ emission rates were 2720 ± 1804 $\text{g} \cdot \text{d}^{-1}$ (5251 ± 3463 $\text{mg} \cdot \text{d}^{-1} \text{cow}^{-1}$) for barn 2 ($n=37$ d), and 1863 ± 1755 $\text{g} \cdot \text{d}^{-1}$ (1903 ± 1795 $\text{mg} \cdot \text{d}^{-1} \text{cow}^{-1}$) for barn 4 ($n=37$ d).

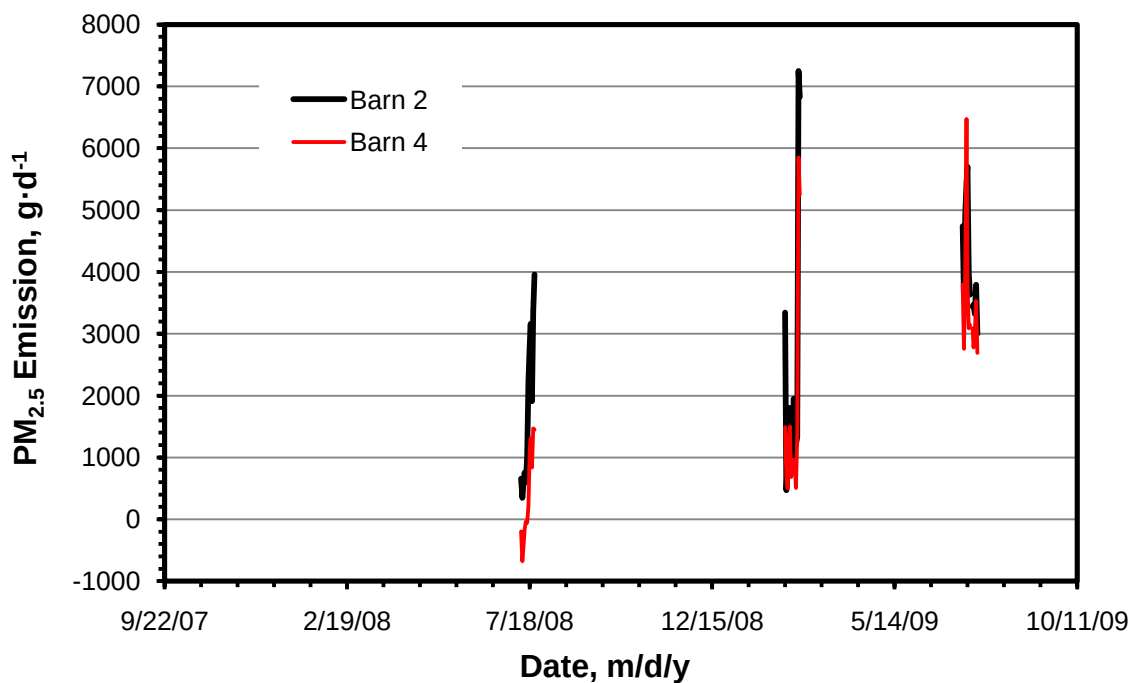


Figure 6. Daily mean $\text{PM}_{2.5}$ emissions.

4.4.3. TSP

Data from the seven TSP measurement periods are shown in Table F5. Daily mean TSP concentrations ranged from 17 to $635 \mu\text{g dsm}^{-3}$ in the inlet air ($n=45$ d), 50 to $1470 \mu\text{g dsm}^{-3}$ in barn 2 exhaust air ($n=52$ d) and from 107 to $2420 \mu\text{g dsm}^{-3}$ in barn 4 exhaust air ($n=52$ d).

The ADM inlet, barn 2, and barn 4 TSP exhaust concentrations were 191 ± 171 , 425 ± 295 and $791 \pm 550 \mu\text{g dsm}^{-3}$, respectively (Table F5).

The TSP emission rates are also shown in Table F5. The overall mean TSP emission rates were $18.8 \pm 24.0 \text{ kg} \cdot \text{d}^{-1}$ ($36.2 \pm 45.8 \text{ g} \cdot \text{d}^{-1} \text{cow}^{-1}$) for barn 2 ($n=45$ d), and $46.9 \pm 66.5 \text{ kg} \cdot \text{d}^{-1}$ ($48.8 \pm 69.6 \text{ g} \cdot \text{d}^{-1} \text{cow}^{-1}$) for barn 4 ($n=45$ d).

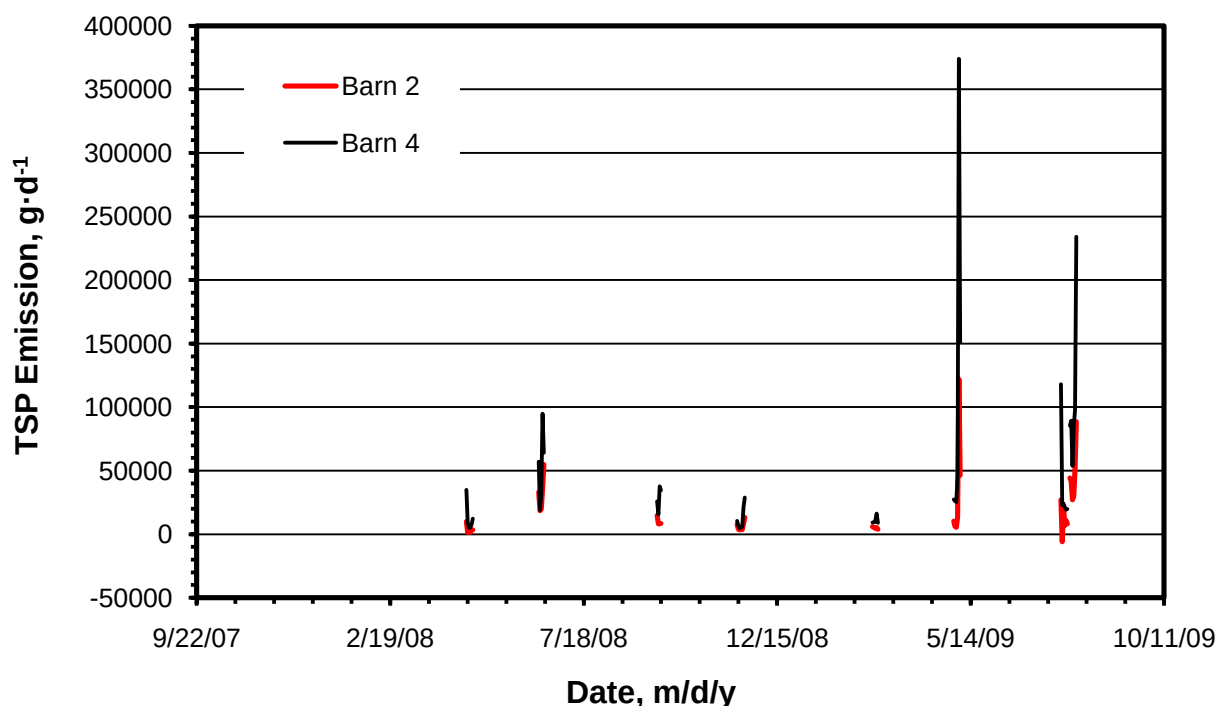


Figure 7. Daily mean TSP emissions.

4.5. VOC Concentration and Emission

The 20 most prevalent VOCs detected in the canister samples accounted for 95.9% of the total quantified mass. The most prevalent compound was n-propanol, which was 36.6% of the total mass of measured VOC (Table 17).

Concentrations of total VOC in exhaust air ranged from 0.17 to 3.17 $\text{mg}\cdot\text{m}^{-3}$ in barn 2, and from 0.60 to 2.41 $\text{mg}\cdot\text{m}^{-3}$ in barn 4 (Table 18). The mean total VOC concentrations were 1.01 ± 1.00 and 1.46 ± 0.70 $\text{mg}\cdot\text{m}^{-3}$ in barns 2 and 4, respectively.

Total VOC emissions ($\text{ng}\cdot\text{s}^{-1}$) during each sampling period were determined by multiplying the mean building airflow rate ($\text{m}^3\cdot\text{s}^{-1}$) by the total mass ($\text{ng}\cdot\text{m}^{-3}$) and converting to $\text{kg}\cdot\text{d}^{-1}$. The VOC emission rate from barns 2 and 4 ranged from 20.8 to 102 $\text{kg}\cdot\text{d}^{-1}$, and from 56.5 to 198 $\text{kg}\cdot\text{d}^{-1}$, respectively. The overall mean VOC emission rate from barn 2 was 52.0 ± 36.3 $\text{kg}\cdot\text{d}^{-1}$. The overall mean VOC emission rate from barn 4 was 102 ± 65.5 $\text{kg}\cdot\text{d}^{-1}$ (Table 18).

Table 16. Average concentration of 20 most prevalent VOCs.

Compound	Concentration, ng·m ⁻³	% of total	Cumulative %
n-Propanol	4.58E+05	36.56	36.56
Ethyl Acetate	2.04E+05	16.29	52.85
iso-propanol	1.68E+05	13.43	66.28
Acetaldehyde	1.20E+05	9.55	75.83
Methanol	1.00E+05	7.99	83.82
n-Propyl acetate	4.09E+04	3.26	87.08
2-butanone	2.37E+04	1.89	88.98
Toluene	1.37E+04	1.10	90.07
phenol	1.08E+04	0.86	90.93
2-butanol	7.40E+03	0.59	91.52
Benzene	7.33E+03	0.58	92.11
Hexanal	6.53E+03	0.52	92.63
Dimethyl sulfide	6.32E+03	0.50	93.13
Acetic Acid	5.89E+03	0.47	93.60
Pentanal	5.32E+03	0.42	94.03
1-butanol	5.23E+03	0.42	94.44
Heptanal	5.19E+03	0.41	94.86
4-methyl-phenol	4.83E+03	0.39	95.24
2-pentanone	4.04E+03	0.32	95.57
Benzaldehyde	3.57E+03	0.28	95.85

Table 17. Emission of total VOC.

Date	# canisters		Concentration, mg·m ⁻³		Airflow, m ³ s ⁻¹		Emission, kg·d ⁻¹	
	B2	B4	B2	B4	B2	B4	B2	B4
5/6/09	2	1	0.17	0.60	2125	1241	30.9	64.6
6/24/09	2	2	0.40	0.63	1577	1661	54.1	89.8
9/3/09	2	2	0.85	2.04	N/A	N/A	N/A	N/A
9/23/09	2	2	0.51	1.82	473	359	20.8	56.5
9/24/09	2	2	0.96	2.41	N/A	N/A	N/A	N/A
9/29/09	2	2	1.03	1.83	1151	1256	102.4	198.1
10/7/09	2	2	3.17	1.24	N/A	N/A	N/A	N/A
Mean	2	1.9	1.01	1.46	1332	1129	52.0	102.2

4.6. Hydrogen Sulfide Concentrations and Emissions

Daily mean inlet and exhaust H_2S concentrations for the entire test are provided in Table F6.

The average daily mean H_2S concentrations were 25.6 ± 27.6 (n=452) ppb in the inlet air, and 28.9 ± 24.1 (n=561) and 32.1 ± 24.2 ppb (n=542) in the exhaust air from barns 2 and 4, respectively.

Daily mean H_2S emissions from barns 2 and 4 are tabulated in Table F7. The ADM H_2S emission rates from barns 2 and 4 were $556 \pm 1738 \text{ g} \cdot \text{d}^{-1}$ (n=116) and $1132 \pm 3488 \text{ g} \cdot \text{d}^{-1}$ (n=104), respectively.

The ADM cow-specific H_2S emission rates from barns 2 and 4 were 1083 ± 3390 (n=116) and 1145 ± 3563 (n=104) $\text{mg} \cdot \text{d}^{-1} \text{ cow}^{-1}$, respectively.

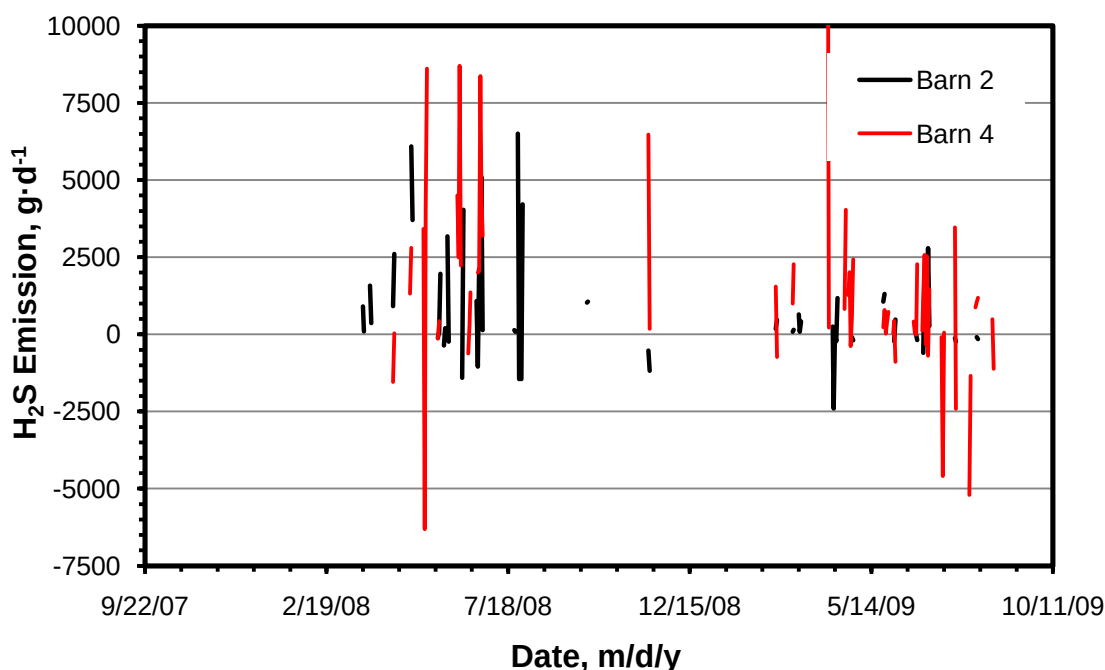


Figure 8. Daily mean H_2S emissions.

4.7. Ammonia Concentration and Emission

Daily mean inlet and exhaust NH_3 concentrations are provided in Table F8.

The average daily mean NH_3 concentrations were 0.74 ± 0.49 (n=411) ppm in the ambient air, and 0.78 ± 0.49 (n=516) and 1.02 ± 0.58 (n=501) ppm in the incoming air to barns 2 and 4, respectively. The average daily mean NH_3 concentrations at the ridge exhaust of barns 2 and 4 were 1.26 ± 0.72 (n=361) and 1.80 ± 0.88 (n=300) ppm in the incoming air to barns 2 and 4, respectively.

The ADM NH_3 emission rates from barns 2 and 4 were $29.1 \pm 21.7 \text{ kg d}^{-1}$ ($n=123$) and $54.7 \pm 31.5 \text{ kg} \cdot \text{d}^{-1}$ ($n=99$), respectively (Table F9).

The ADM cow-specific NH_3 emission rates from barns 2 and 4 were 56.5 ± 42.5 ($n=123$) $\text{g} \cdot \text{d}^{-1} \text{ cow}^{-1}$, and $56.5 \pm 33.0 \text{ g} \cdot \text{d}^{-1} \text{ hd}^{-1}$ ($n=99$).

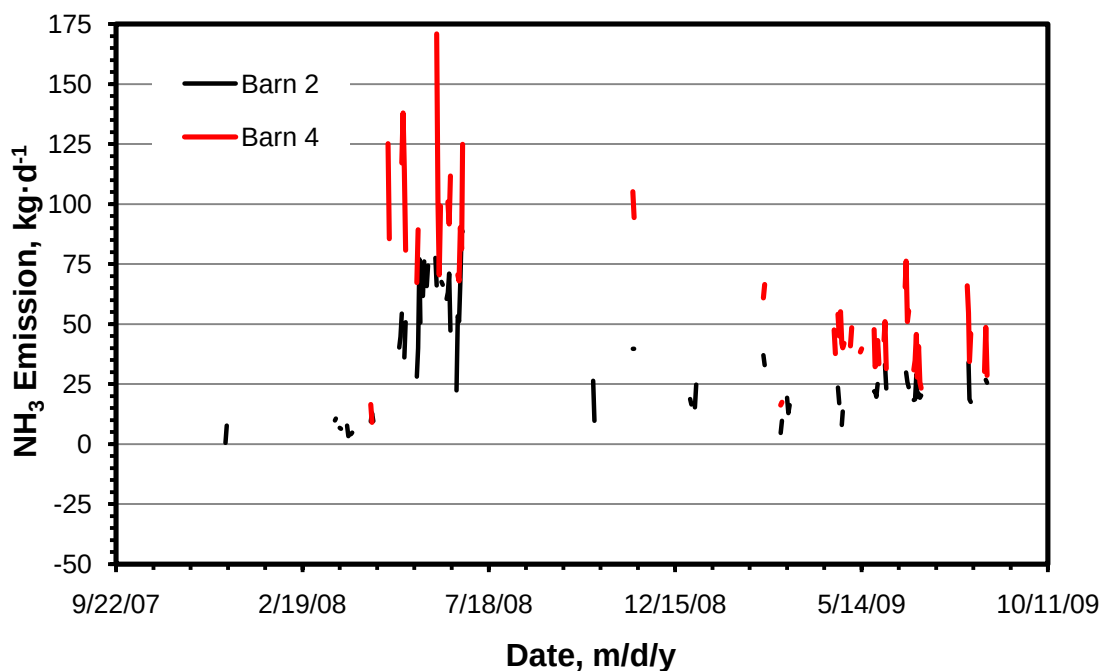


Figure 9. Daily mean NH_3 emissions.

4.8. Emission Data Completeness

Daily completeness data is given in Table F10. The numbers of complete data ($>75\%$ valid required for reporting a daily mean) were calculated for emission measurements conducted from 9/28/09 through 9/27/09.

Table 18. Emissions data completeness (days with $>75\%$ valid emission data collection).

Location	NH_3	H_2S	PM_{10}	$\text{PM}_{2.5}$	TSP
B2	123	116	448	37	45
B4	99	104	415	37	45

4.9. Reconciliation with Data Quality Objectives

The data quality objectives prior to executing the study were to measure gas and PM emissions from naturally-ventilated buildings with total relative uncertainties of 50% and 53%, respectively.

4.9.1. Airflow

The accuracy of the wind anemometer was ± 0.5 m/s for wind speed and $\pm 5^\circ$ for wind direction. Preliminary data from site CA5B comparing the weather station wind measurements with the barn sonics suggested that a positive bias of 20% results when using the wind anemometer instead of the sonic anemometers in the upwind sidewalls. The uncertainty in airflow associated with the anemometer accuracy was calculated as 22%.

4.9.2. Gas Emissions

The bias and precision of NH_3 concentration measurements were derived from the NH_3 zero/span checks as compared with the NH_3 correction models (Table 7). The bias and precision of NH_3 measurements were -4.0% and 5.1% for an overall uncertainty of 11.0%.

The bias and precision of H_2S concentration measurements were derived from the H_2S zero and span checks as compared with the H_2S correction models (Table 8). The bias and precision of H_2S measurements were 1.3% and 1.7% for an overall uncertainty of 3.7%.

Based on these measurement errors calculated for concentrations and airflows, the uncertainties of NH_3 and H_2S emissions from barn 2 were 11.6 and 7.9%, respectively. The uncertainties of NH_3 and H_2S emissions from barn 4 were 15.9% and 13.4%, respectively.

4.9.3. PM Emissions

The precision in PM_{10} , TSP and $\text{PM}_{2.5}$ exhaust concentrations were 2.6, 5.3 and 5.9%, respectively, based on collocation tests of identical TEOMs at Site WA5B. The time-weighted relative biases of the TEOMs were 0.0 and -0.24% for barns 2 and 4 based on the main flow checks. The uncertainties of PM_{10} , TSP and $\text{PM}_{2.5}$ emissions from barn 2 were 48.6, 49.5 and 49.8%, respectively. The uncertainties of PM_{10} , TSP and $\text{PM}_{2.5}$ emissions from barn 4 were 48.6, 49.5, and 49.8%, respectively.

5. SUMMARY

The emissions of NH_3 , H_2S , PM_{10} , TSP, $\text{PM}_{2.5}$ and VOCs from two naturally-ventilated freestall barns at a 5,600-cow dairy farm in Washington were measured during a two-year monitoring study. Manure was flushed from the barns and stored in a lagoon after going through solids separation system. Dried manure solids were used as bedding in the freestalls.

The overall average emission rates from barn 2 were 29.1 kg d^{-1} of NH_3 , 0.556 kg d^{-1} of H_2S , 3.59 kg d^{-1} of PM_{10} , 2.72 kg d^{-1} of $\text{PM}_{2.5}$, 18.8 kg d^{-1} of TSP, and 52.0 kg d^{-1} of total VOC. The overall average emission rates from barn 4 were 54.7 kg d^{-1} of NH_3 , 1.13 kg d^{-1} of H_2S , 10.0 kg d^{-1} of PM_{10} , 1.86 kg d^{-1} of $\text{PM}_{2.5}$, 46.9 kg d^{-1} of TSP, and 102 kg d^{-1} of total VOC.

6. REFERENCES

Ni, J.-Q., A.J. Heber, M.J. Darr, T. T. Lim, C.A. Diehl, and B.W. Bogan. 2009. Air quality monitoring and on-site computer system for livestock and poultry environment studies. Transactions of the ASABE 52(3): 937-947.

Ni, J.-Q. and A.J. Heber. 2010. An on-site computer system for comprehensive agricultural air quality research. Computers and Electronics in Agriculture 71(1):38-49.

7. DEFINITIONS AND ACRONYMS

AirDAC	Air Data Acquisition and Control – computer program
ADM	Average daily mean
B2	Barn 2 (Freestall barn)
B4	Barn 4 (Freestall barn)
CAPECAB	Calculations of Air Pollutant Emissions from Confined Animal Buildings
CO ₂	Carbon dioxide
DM	Daily mean
GC-MS	Gas chromatograph mass spectrometer
GSL	Gas sampling location(s)
GSS	Gas sampling system
H ₂ S	Hydrogen sulfide
MDL	Minimum detection limit
MPC	Multipoint calibration
MS	Mass spectrometer
MUN	Milk urea nitrogen
n	Number or count
NAEMS	National Air Emissions Monitoring Study
NH ₃	Ammonia
Q	Airflow
QA	Quality assurance
QC	Quality control
OFIS	On farm instrument shelter
PM	Particulate matter
RH/T	Relative humidity/temperature
RH	Relative humidity
SD	Standard deviation
TC	Thermocouple
T _{dew}	Dew point temperature
TDS	Thermal desorption system
TDS-GS-MS	Thermodesorption-gas chromatograph mass spectrometer
TEOM	Tapered element oscillating microbalance
TSP	Total suspended particulate
VOC	Volatile organic compounds
Z/S	Zero/span

APPENDIX A. MEASUREMENT VARIABLES.**Table A1. Site measurement variables, instruments and sensors.**

Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
1	Date & time	---				PC clock
2	Smpl loc#	---				LabVIEW
3	Cal gas #	Envionics	Rack			Serial port
4	Cal gas, ppm	Envionics	Rack			Serial port
5	NH3, ppm	Innova 1412	Rack	13 GSLs		Serial port
6	CO2, ppm	Innova 1412	Rack	13 GSLs		Serial port
7	N2O, ppm	Innova 1412	Rack	13 GSLs		Serial port
8	CH4, ppm	Innova 1412	Rack	13 GSLs		Serial port
10	WV, Tdew	Innova 1412	Rack	13 GSLs		Serial port
11	H2S, ppb	H2S analyzer	Rack	13 GSLs	0 - 2000	FP-AI-112-1
12	SO2, ppb	H2S analyzer	Rack	13 GSLs	0 - 2000	FP-AI-112-1
13	Smpl P, Pa	Setra 209 ΔP	GSS	13 GSLs	0 - 14.7 psiv	FP-AI-112-1
14	Smpl Q, L/m	Mass flow	GSS	13 GSLs	0 - 10	FP-AI-112-1
15	Smpl RH, %	Humitter 50Y	GSS	13 GSLs	0 - 100	FP-AI-112-1
16	Smpl T, °C	Humitter 50Y	GSS	13 GSLs	-40 - 60	FP-AI-112-1
17	Smpl dir, %t	Flow direction	GSS	13 GSLs		FP-AI-112-1
18	GSS T, °C	AD 592D T	GSS	GSS	0 - 70	FP-AI-112-1
19	B2 PM, µg/m3	TEOM #1	B2	Middle barn 2 (M8)	-1000 - 9000	FP-AI-112-1
20	B2 Filter, %	TEOM #1	B2		0 - 140	FP-AI-112-1
21	B2 Atm P, atm	TEOM #1	B2		0.8 - 1.3	FP-AI-112-1
22	B4 PM, µg/m3	TEOM #2	B4	Middle B4 (M3)	-1000 - 9000	FP-AI-112-1
23	B4 Filter, %	TEOM #2	B4		0 - 140	FP-AI-112-1
24	Amb PM, µg/m3	Beta Gauge	Amb	Top of OFIS	-1000 - 9000	FP-AI-112-1
26	Lab ΔP, Pa	Setra 260 ΔP sensor	OFIS	Inside & outdoor of OFIS	-100 - 100	FP-AI-112-1
27	Wind D, deg	Wind monitor 05103-5	roof	Roof tower	0 - 360	FP-AI-112-2
28	Wind V, m/s	Wind monitor 05103-5	roof	Roof tower	0 - 60	FP-AI-112-2
29	Solar, W/m2	Solar sensor	roof	Roof tower	0 - 1000	FP-AI-112-2
30	Amb RH, %	NOVUS RHT-WM #1	roof	Roof tower	0 - 100	FP-AI-112-2

Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
31	Amb T, °C	NOVUS RHT-WM #1	roof	Roof tower	-40 - 120	FP-AI-112-2
32	B2M8 RH, %	NOVUS RHT-WM #2	B2M8	At air sampling probe	0 - 100	FP-AI-112-2
33	B2M8 T, °C	NOVUS RHT-WM #2	B2M8	At air sampling probe	-40 - 120	FP-AI-112-2
34	B4M3 RH, %	NOVUS RHT-WM #3	B4M3	At air sampling probe	0 - 100	FP-AI-112-2
35	B4M3 T, °C	NOVUS RHT-WM #3	B4M3	At air sampling probe	-40 - 120	FP-AI-112-2
36	Lab Act, V	Activity sensor #1	OFIS	End wall		FP-AI-112-2
37	B4S act, V	Activity sensor #2	B4 S	Center b/w S wall and alley		FP-AI-112-2
38	B4M act, V	Activity sensor #3	B4 M	Center of barn; middle alley		FP-AI-112-2
39	B4N act, V	Activity sensor #4	B4 N	Center b/w N wall and alley		FP-AI-112-2
40	B2S act, V	Activity sensor #2	B2 S	Center b/w S wall and alley		FP-AI-112-2
41	B2M act, V	Activity sensor #3	B2 M	Center of barn; middle alley		FP-AI-112-2
42	B2N act, V	Activity sensor #4	B2 N	Center b/w N wall and alley		FP-AI-112-2
43	NO, ppm	17 °C	Rack	13 GSLs		FP-AI-112-3
44	NOx, ppm	17 °C	Rack	13 GSLs		FP-AI-112-3
45	NO2, ppm	17 °C	Rack	13 GSLs		FP-AI-112-3
46	NH3, ppm	17 °C	Rack	13 GSLs		FP-AI-112-3
51	2NE U, m/s	81000 sonic	B2	B2 northeast	-25 - 25	RS485 P1
52	2NE V, m/s	81000 sonic	B2	B2 northeast	-25 - 25	RS485 P1
53	2NE W, m/s	81000 sonic	B2	B2 northeast	-25 - 25	RS485 P1
54	2NE T, °C	81000 sonic	B2	B2 northeast	220 - 320	RS485 P1
55	2SE U, m/s	81000 sonic	B2	B2 southeast	-25 - 25	RS485 P1
56	2SE V, m/s	81000 sonic	B2	B2 southeast	-25 - 25	RS485 P1
57	2SE W, m/s	81000 sonic	B2	B2 southeast	-25 - 25	RS485 P1
58	2SE T, °C	81000 sonic	B2	B2 southeast	220 - 320	RS485 P1
59	2NU1 U, m/s	81000 sonic	B2	B2 north upper 1	-25 - 25	RS485 P1
60	2NU1 V, m/s	81000 sonic	B2	B2 north upper 1	-25 - 25	RS485 P1
61	2NU1 W, m/s	81000 sonic	B2	B2 north upper 1	-25 - 25	RS485 P1
62	2NU1 T, °C	81000 sonic	B2	B2 north upper 1	220 - 320	RS485 P1
63	2NU2 U, m/s	81000 sonic	B2	B2 north upper 2	-25 - 25	RS485 P1
64	2NU2 V, m/s	81000 sonic	B2	B2 north upper 2	-25 - 25	RS485 P1

Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
65	2NU2 W, m/s	81000 sonic	B2	B2 north upper 2	-25 - 25	RS485 P1
66	2NU2 T, °C	81000 sonic	B2	B2 north upper 2	220 - 320	RS485 P1
67	2NM U, m/s	81000 sonic	B2	B2 north middle	-25 - 25	RS485 P1
68	2NM V, m/s	81000 sonic	B2	B2 north middle	-25 - 25	RS485 P1
69	2NM W, m/s	81000 sonic	B2	B2 north middle	-25 - 25	RS485 P1
70	2NM T, °C	81000 sonic	B2	B2 north middle	220 - 320	RS485 P1
71	2NB U, m/s	81000 sonic	B2	B2 north bottom	-25 - 25	RS485 P1
72	2NB V, m/s	81000 sonic	B2	B2 north bottom	-25 - 25	RS485 P1
73	2NB W, m/s	81000 sonic	B2	B2 north bottom	-25 - 25	RS485 P1
74	2NB T, °C	81000 sonic	B2	B2 north bottom	220 - 320	RS485 P1
75	2NU3 U, m/s	81000 sonic	B2	B2 north upper 3	-25 - 25	RS485 P1
76	2NU3 V, m/s	81000 sonic	B2	B2 north upper 3	-25 - 25	RS485 P1
77	2NU3 W, m/s	81000 sonic	B2	B2 north upper 3	-25 - 25	RS485 P1
78	2NU3 T, °C	81000 sonic	B2	B2 north upper 3	220 - 320	RS485 P1
79	2NU4 U, m/s	81000 sonic	B2	B2 north upper 4	-25 - 25	RS485 P1
80	2NU4 V, m/s	81000 sonic	B2	B2 north upper 4	-25 - 25	RS485 P1
81	2NU4 W, m/s	81000 sonic	B2	B2 north upper 4	-25 - 25	RS485 P1
82	2NU4 T, °C	81000 sonic	B2	B2 north upper 4	220 - 320	RS485 P1
83	2R1 U, m/s	81000 sonic	B2	B2 ridge 1	-25 - 25	RS485 P2
84	2R1 V, m/s	81000 sonic	B2	B2 ridge 1	-25 - 25	RS485 P2
85	2R1 W, m/s	81000 sonic	B2	B2 ridge 1	-25 - 25	RS485 P2
86	2R1 T, °C	81000 sonic	B2	B2 ridge 1	220 - 320	RS485 P2
87	2R2 U, m/s	81000 sonic	B2	B2 ridge 2	-25 - 25	RS485 P2
88	2R2 V, m/s	81000 sonic	B2	B2 ridge 2	-25 - 25	RS485 P2
89	2R2 W, m/s	81000 sonic	B2	B2 ridge 2	-25 - 25	RS485 P2
90	2R2 T, °C	81000 sonic	B2	B2 ridge 2	220 - 320	RS485 P2
91	2R3 U, m/s	81000 sonic	B2	B2 ridge 3	-25 - 25	RS485 P2
92	2R3 V, m/s	81000 sonic	B2	B2 ridge 3	-25 - 25	RS485 P2
93	2R3 W, m/s	81000 sonic	B2	B2 ridge 3	-25 - 25	RS485 P2
94	2R3 T, °C	81000 sonic	B2	B2 ridge 3	220 - 320	RS485 P2

Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
95	2R4 U, m/s	81000 sonic	B2	B2 ridge 4	-25 - 25	RS485 P2
96	2R4 V, m/s	81000 sonic	B2	B2 ridge 4	-25 - 25	RS485 P2
97	2R4 W, m/s	81000 sonic	B2	B2 ridge 4	-25 - 25	RS485 P2
98	2R4 T, °C	81000 sonic	B2	B2 ridge 4	220 - 320	RS485 P2
99	2SU1 U, m/s	81000 sonic	B2	B2 south upper 1	-25 - 25	RS485 P1
100	2SU1 V, m/s	81000 sonic	B2	B2 south upper 1	-25 - 25	RS485 P1
101	2SU1 W, m/s	81000 sonic	B2	B2 south upper 1	-25 - 25	RS485 P1
102	2SU1 T, °C	81000 sonic	B2	B2 south upper 1	220 - 320	RS485 P1
103	2SU2 U, m/s	81000 sonic	B2	B2 south upper 2	-25 - 25	RS485 P1
104	2SU2 V, m/s	81000 sonic	B2	B2 south upper 2	-25 - 25	RS485 P1
105	2SU2 W, m/s	81000 sonic	B2	B2 south upper 2	-25 - 25	RS485 P1
106	2SU2 T, °C	81000 sonic	B2	B2 south upper 2	220 - 320	RS485 P1
107	2SM U, m/s	81000 sonic	B2	B2 north middle	-25 - 25	RS485 P2
108	2SM V, m/s	81000 sonic	B2	B2 north middle	-25 - 25	RS485 P2
109	2SM W, m/s	81000 sonic	B2	B2 north middle	-25 - 25	RS485 P2
110	2SM T, °C	81000 sonic	B2	B2 north middle	220 - 320	RS485 P2
111	2SB U, m/s	81000 sonic	B2	B2 north bottom	-25 - 25	RS485 P2
112	2SB V, m/s	81000 sonic	B2	B2 north bottom	-25 - 25	RS485 P2
113	2SB W, m/s	81000 sonic	B2	B2 north bottom	-25 - 25	RS485 P2
114	2SB T, °C	81000 sonic	B2	B2 north bottom	220 - 320	RS485 P2
115	2SU3 U, m/s	81000 sonic	B2	B2 south upper 3	-25 - 25	RS485 P2
116	2SU3 V, m/s	81000 sonic	B2	B2 south upper 3	-25 - 25	RS485 P2
117	2SU3 W, m/s	81000 sonic	B2	B2 south upper 3	-25 - 25	RS485 P2
118	2SU3 T, °C	81000 sonic	B2	B2 south upper 3	220 - 320	RS485 P2
119	2SU4 U, m/s	81000 sonic	B2	B2 south upper 4	-25 - 25	RS485 P2
120	2SU4 V, m/s	81000 sonic	B2	B2 south upper 4	-25 - 25	RS485 P2
121	2SU4 W, m/s	81000 sonic	B2	B2 south upper 4	-25 - 25	RS485 P2
122	2SU4 T, °C	81000 sonic	B2	B2 south upper 4	220 - 320	RS485 P2
123	2SW U, m/s	81000 sonic	B2	B2 southwest	-25 - 25	RS485 P2
124	2SW V, m/s	81000 sonic	B2	B2 southwest	-25 - 25	RS485 P2

Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
125	2SW W, m/s	81000 sonic	B2	B2 southwest	-25 - 25	RS485 P2
126	2SW T, °C	81000 sonic	B2	B2 southwest	220 - 320	RS485 P2
127	2NW U, m/s	81000 sonic	B2	B2 northwest	-25 - 25	RS485 P2
128	2NW V, m/s	81000 sonic	B2	B2 northwest	-25 - 25	RS485 P2
129	2NW W, m/s	81000 sonic	B2	B2 northwest	-25 - 25	RS485 P2
130	2NW T, °C	81000 sonic	B2	B2 northwest	220 - 320	RS485 P2
131	4SE U, m/s	81000 sonic	B4	B4 southeast	-25 - 25	RS485 P3
132	4SE V, m/s	81000 sonic	B4	B4 southeast	-25 - 25	RS485 P3
133	4SE W, m/s	81000 sonic	B4	B4 southeast	-25 - 25	RS485 P3
134	4SE T, °C	81000 sonic	B4	B4 southeast	220 - 320	RS485 P3
135	4NE U, m/s	81000 sonic	B4	B4 northeast	-25 - 25	RS485 P3
136	4NE V, m/s	81000 sonic	B4	B4 northeast	-25 - 25	RS485 P3
137	4NE W, m/s	81000 sonic	B4	B4 northeast	-25 - 25	RS485 P3
138	4NE T, °C	81000 sonic	B4	B4 northeast	220 - 320	RS485 P3
139	4NU1 U, m/s	81000 sonic	B4	B4 north upper 1	-25 - 25	RS485 P3
140	4NU1 V, m/s	81000 sonic	B4	B4 north upper 1	-25 - 25	RS485 P3
141	4NU1 W, m/s	81000 sonic	B4	B4 north upper 1	-25 - 25	RS485 P3
142	4NU1 T, °C	81000 sonic	B4	B4 north upper 1	220 - 320	RS485 P3
143	4NU2 U, m/s	81000 sonic	B4	B4 north upper 2	-25 - 25	RS485 P3
144	4NU2 V, m/s	81000 sonic	B4	B4 north upper 2	-25 - 25	RS485 P3
145	4NU2 W, m/s	81000 sonic	B4	B4 north upper 2	-25 - 25	RS485 P3
146	4NU2 T, °C	81000 sonic	B4	B4 north upper 2	220 - 320	RS485 P3
147	4NM U, m/s	81000 sonic	B4	B4 north middle	-25 - 25	RS485 P3
148	4NM V, m/s	81000 sonic	B4	B4 north middle	-25 - 25	RS485 P3
149	4NM W, m/s	81000 sonic	B4	B4 north middle	-25 - 25	RS485 P3
150	4NM T, °C	81000 sonic	B4	B4 north middle	220 - 320	RS485 P3
151	4NB U, m/s	81000 sonic	B4	B4 north bottom	-25 - 25	RS485 P3
152	4NB V, m/s	81000 sonic	B4	B4 north bottom	-25 - 25	RS485 P3
153	4NB W, m/s	81000 sonic	B4	B4 north bottom	-25 - 25	RS485 P3
154	4NB T, °C	81000 sonic	B4	B4 north bottom	220 - 320	RS485 P3

Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
155	4NU3 U, m/s	81000 sonic	B4	B4 north upper 3	-25 - 25	RS485 P3
156	4NU3 V, m/s	81000 sonic	B4	B4 north upper 3	-25 - 25	RS485 P3
157	4NU3 W, m/s	81000 sonic	B4	B4 north upper 3	-25 - 25	RS485 P3
158	4NU3 T, °C	81000 sonic	B4	B4 north upper 3	220 - 320	RS485 P3
159	4NU4 U, m/s	81000 sonic	B4	B4 north upper 4	-25 - 25	RS485 P3
160	4NU4 V, m/s	81000 sonic	B4	B4 north upper 4	-25 - 25	RS485 P3
161	4NU4 W, m/s	81000 sonic	B4	B4 north upper 4	-25 - 25	RS485 P3
162	4NU4 T, °C	81000 sonic	B4	B4 north upper 4	220 - 320	RS485 P3
163	4R1 U, m/s	81000 sonic	B4	B4 ridge 1	-25 - 25	RS485 P4
164	4R1 V, m/s	81000 sonic	B4	B4 ridge 1	-25 - 25	RS485 P4
165	4R1 W, m/s	81000 sonic	B4	B4 ridge 1	-25 - 25	RS485 P4
166	4R1 T, °C	81000 sonic	B4	B4 ridge 1	220 - 320	RS485 P4
167	4R2 U, m/s	81000 sonic	B4	B4 ridge 2	-25 - 25	RS485 P4
168	4R2 V, m/s	81000 sonic	B4	B4 ridge 2	-25 - 25	RS485 P4
169	4R2 W, m/s	81000 sonic	B4	B4 ridge 2	-25 - 25	RS485 P4
170	4R2 T, °C	81000 sonic	B4	B4 ridge 2	220 - 320	RS485 P4
171	4R3 U, m/s	81000 sonic	B4	B4 ridge 3	-25 - 25	RS485 P4
172	4R3 V, m/s	81000 sonic	B4	B4 ridge 3	-25 - 25	RS485 P4
173	4R3 W, m/s	81000 sonic	B4	B4 ridge 3	-25 - 25	RS485 P4
174	4R3 T, °C	81000 sonic	B4	B4 ridge 3	220 - 320	RS485 P4
175	4R4 U, m/s	81000 sonic	B4	B4 ridge 4	-25 - 25	RS485 P4
176	4R4 V, m/s	81000 sonic	B4	B4 ridge 4	-25 - 25	RS485 P4
177	4R4 W, m/s	81000 sonic	B4	B4 ridge 4	-25 - 25	RS485 P4
178	4R4 T, °C	81000 sonic	B4	B4 ridge 4	220 - 320	RS485 P4
179	4SU1 U, m/s	81000 sonic	B4	B4 south upper 1	-25 - 25	RS485 P3
180	4SU1 V, m/s	81000 sonic	B4	B4 south upper 1	-25 - 25	RS485 P3
181	4SU1 W, m/s	81000 sonic	B4	B4 south upper 1	-25 - 25	RS485 P3
182	4SU1 T, °C	81000 sonic	B4	B4 south upper 1	220 - 320	RS485 P3
183	4SU2 U, m/s	81000 sonic	B4	B4 south upper 2	-25 - 25	RS485 P3
184	4SU2 V, m/s	81000 sonic	B4	B4 south upper 2	-25 - 25	RS485 P3

Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
185	4SU2 W, m/s	81000 sonic	B4	B4 south upper 2	-25 - 25	RS485 P3
186	4SU2 T, °C	81000 sonic	B4	B4 south upper 2	220 - 320	RS485 P3
187	4SM U, m/s	81000 sonic	B4	B4 south middle	-25 - 25	RS485 P4
188	4SM V, m/s	81000 sonic	B4	B4 south middle	-25 - 25	RS485 P4
189	4SM W, m/s	81000 sonic	B4	B4 south middle	-25 - 25	RS485 P4
190	4SM T, °C	81000 sonic	B4	B4 south middle	220 - 320	RS485 P4
191	4SB U, m/s	81000 sonic	B4	B4 south bottom	-25 - 25	RS485 P4
192	4SB V, m/s	81000 sonic	B4	B4 south bottom	-25 - 25	RS485 P4
193	4SB W, m/s	81000 sonic	B4	B4 south bottom	-25 - 25	RS485 P4
194	4SB T, °C	81000 sonic	B4	B4 south bottom	220 - 320	RS485 P4
195	4SU3 U, m/s	81000 sonic	B4	B4 south upper 3	-25 - 25	RS485 P4
196	4SU3 V, m/s	81000 sonic	B4	B4 south upper 3	-25 - 25	RS485 P4
197	4SU3 W, m/s	81000 sonic	B4	B4 south upper 3	-25 - 25	RS485 P4
198	4SU3 T, °C	81000 sonic	B4	B4 south upper 3	220 - 320	RS485 P4
199	4SU4 U, m/s	81000 sonic	B4	B4 south upper 4	-25 - 25	RS485 P4
200	4SU4 V, m/s	81000 sonic	B4	B4 south upper 4	-25 - 25	RS485 P4
201	4SU4 W, m/s	81000 sonic	B4	B4 south upper 4	-25 - 25	RS485 P4
202	4SU4 T, °C	81000 sonic	B4	B4 south upper 4	220 - 320	RS485 P4
203	4SW U, m/s	81000 sonic	B4	B4 southwest	-25 - 25	RS485 P4
204	4SW V, m/s	81000 sonic	B4	B4 southwest	-25 - 25	RS485 P4
205	4SW W, m/s	81000 sonic	B4	B4 southwest	-25 - 25	RS485 P4
206	4SW T, °C	81000 sonic	B4	B4 southwest	220 - 320	RS485 P4
207	4NW U, m/s	81000 sonic	B4	B4 northwest	-25 - 25	RS485 P4
208	4NW V, m/s	81000 sonic	B4	B4 northwest	-25 - 25	RS485 P4
209	4NW W, m/s	81000 sonic	B4	B4 northwest	-25 - 25	RS485 P4
210	4NW T, °C	81000 sonic	B4	B4 northwest	220 - 320	RS485 P4
219	OFIS T, °C	TC T type	OFIS	DAC panel		FP-TC-120
220	OFIS T, °C	TC T type	OFIS	OFIS		FP-TC-120
221	HVAC T, °C	TC T type	OFIS	Wall A/C exhaust		FP-TC-120
222	RwyB4 T, °C	TC T type	RwyB4	Rwy b/w OFIS and B4		FP-TC-120

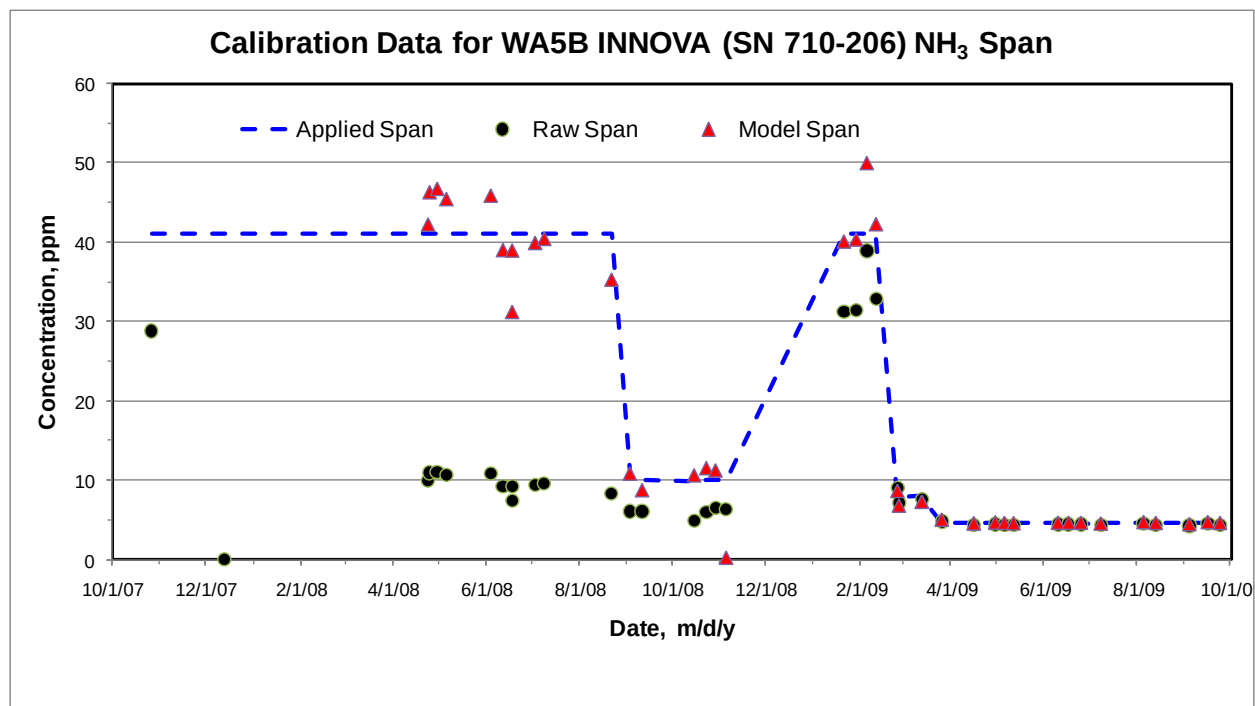
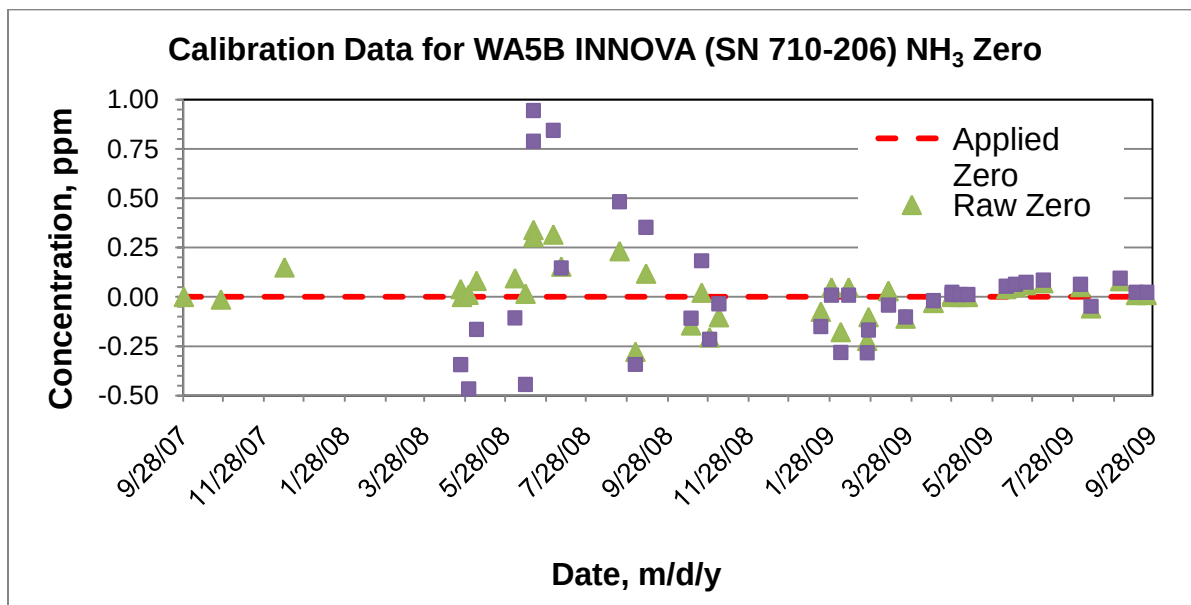
Col#	Data heading	Instrument/sensor	Location	Monitoring/control location	Range/target	DAC item
223	RwyB4 HT, °C	TC T type	RwyB4 HT	Rwy b/w OFIS and B4		FP-TC-120
224	RwyB2 T, °C	TC T type	RwyB2	Rwy b/w OFIS and B2		FP-TC-120
225	RwyB2 HT, °C	TC T type	RwyB2 HT	Rwy b/w OFIS and B2		FP-TC-120

APPENDIX B. RECORD OF MAINTENANCE AND CALIBRATION .

Maintenance and Calibration Tasks	
Category	Times Completed
Environment Sensing and Other	
Clean RH/T probe	27
Calibration check of RH/T probe	5
Calibration check of thermocouples	9
Performance check of weather station	14
Direction verification of wind indicator	4
Clean solar sensor	19
Check solar sensor with collocated sensor	2
Clean motion sensors	21
Air Flow Measurement System	
Fan test events	0
Zero check of pressure sensors	29
Multipoint calibration of pressure sensors	1
Drift and accuracy check of anemometer(s)	27
Particulate Matter Measurement System	
Clean TOEM screens	62
Check/clean TEOM inlet head(s)	49
Replace TEOM filters	24
Verify TEOM mass transducer calibration	4
Leak test of TEOM	9
Verify TEOM flow rate and MFC accuracy	13
Change TEOM in-line filters	5
Check/clean Beta Gauge inlet head	54
Check Beta Gauge airflow	31
Validate Beta Gauge mass w/foil set	8
Calibrate Beta Gauge mass and airflow	7
Gas Measurement System	
Clean/replace GSS membrane filters	14
Leak check of GSS	41
Leak check (all lines)	5
Leak check (selected lines)	10
Replace GSS filters	12
Calibrate GSS pressure and flow sensors	10
Flow calibration/check MFC flow of Environics Dilutor	20
Precision check of Multigas Analyzer (NH ₃)	10
Multipoint calibration of Multigas Analyzer (NH ₃)	41
Precision check of Multigas Analyzer (CO ₂)	15
Multipoint calibration of Multigas Analyzer (CO ₂)	14
Precision check of TEC 450i	41
Multipoint calibration of TEC 450i	5

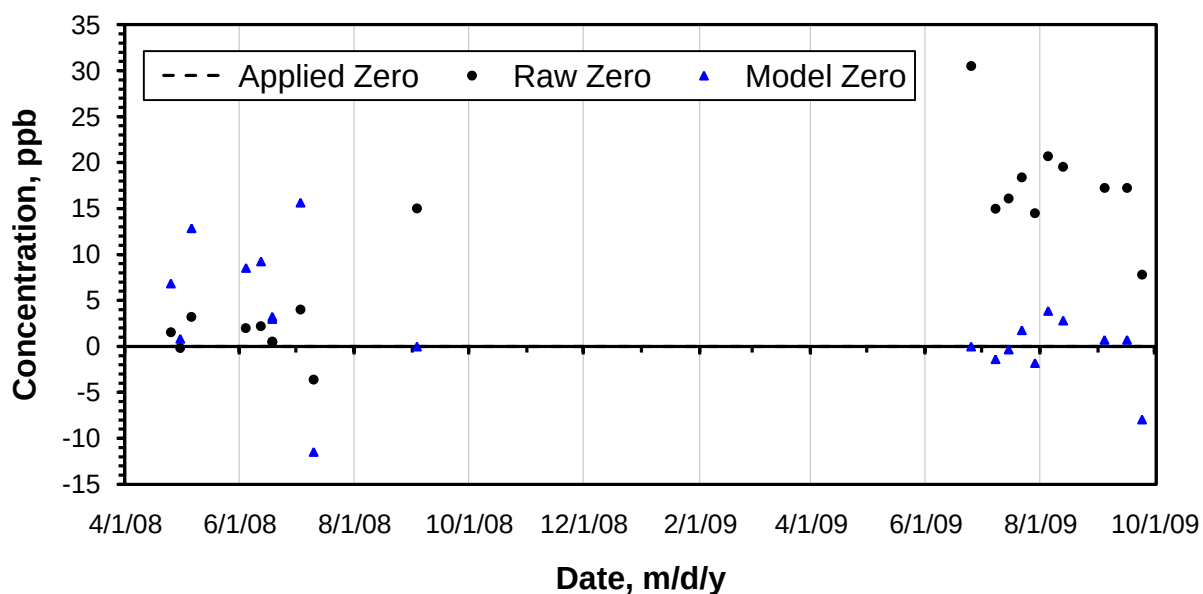
APPENDIX C. GAS ANALYZER CALIBRATIONS.

Ammonia

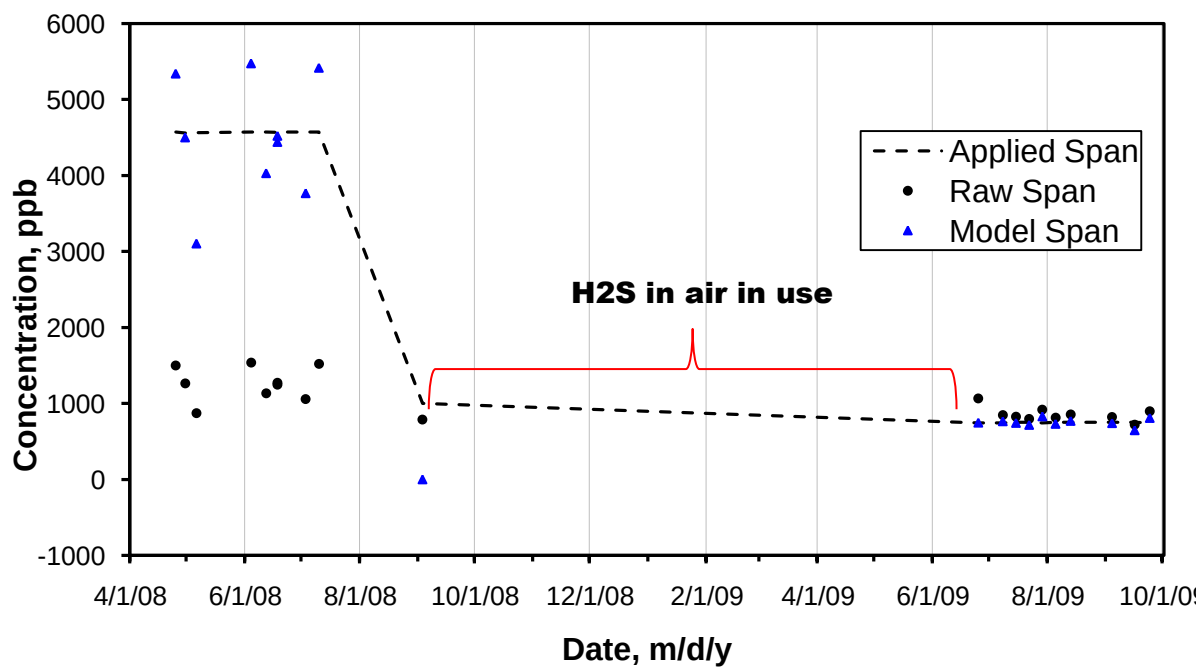


Hydrogen Sulfide

Calibration Data of H₂S Zero Checks at WA5B Site
(INNOVA SN 710-206)



Calibration Data of H₂S Span Checks at WA5B Site
(INNOVA SN 710-206)



APPENDIX D. MAJOR DATA INVALIDATIONS

Variable(s)	Start time	End time	Min.	Comment
4NB WV	1/1/08 0:01	4/1/08 1:53	131153	Out of Range: signal incomparable with other same wall sonics
4R2 T	1/1/08 0:01	4/1/08 1:53	131153	Out of Range
4NB WV	10/4/07 5:02	1/1/08 0:00	127859	Greater than Max: values of wind speed are out of range
B4 R1-4 Elv	7/24/08 13:30	10/5/08 14:31	105182	Change from analog to digital signal
4NB T	10/21/07 11:45	1/1/08 3:31	103187	Out of Range
4R2 T	10/21/07 14:47	1/1/08 3:31	103005	Out of Range
4R1 T	10/21/07 19:00	1/1/08 1:58	102659	Out of Range
4R2 T	10/21/07 19:00	1/1/08 1:58	102659	Out of Range
4R3 T	10/21/07 19:00	1/1/08 1:58	102659	Out of Range
4R2 T	10/21/07 20:59	1/1/08 1:58	102540	Out of Range
B4 R 1-4 WV	11/1/07 17:02	1/2/08 22:56	89635	Lower than Min; signal too low and was different from the other sonics on the same ridge.
4R1 WD	11/1/07 16:42	1/1/08 1:58	86957	Failure
4R1 T	11/1/07 18:41	1/1/08 1:58	86838	Failure
4R1 Elv	11/1/07 20:40	1/1/08 1:58	86719	Failure
B4 R 1-4	11/1/07 20:40	1/1/08 1:58	86719	Failure
4SM T	1/1/08 0:01	2/28/08 17:09	84549	Out of Range- flat and lower than limit
4R4 T	11/4/07 8:35	1/1/08 0:27	83033	Out of Range
WV	7/13/08 15:05	8/22/08 18:48	57824	FN: Failure and repair of INNOVA
4R1 T	1/1/08 0:01	2/8/08 9:04	55264	Lower than Min
CO2-AirDAC	7/17/08 17:45	8/22/08 19:14	51930	Off: INNOVA repair
NH3-AirDAC	7/17/08 23:13	8/22/08 18:37	51565	Off: INNOVA repair
INNOVA	7/9/09 13:52	8/6/09 0:06	39495	INNOVA was sent for factory calibration.
INNOVA	7/9/09 12:44	8/5/09 20:01	39318	INNOVA was sent for factory calibration.
INNOVA	7/9/09 15:01	8/5/09 22:12	39312	INNOVA was sent for factory calibration.
INNOVA	7/9/09 14:29	8/5/09 12:28	38760	INNOVA was sent for factory calibration.
INNOVA	7/9/09 14:29	8/5/09 11:49	38721	INNOVA was sent for factory calibration.
4SM T	3/3/08 16:07	3/28/08 23:49	36463	Out of Range
4NB T	9/28/07 0:01	10/21/07	34140	Out of Range
4SM Elv	12/9/07 6:47	1/1/08 1:58	32832	Systematic Error

Variable(s)	Start time	End time	Min.	Comment
4SM T	12/9/07 10:45	1/1/08 1:58	32594	Systematic Error
4SM WD	12/9/07 10:45	1/1/08 1:58	32594	Failure
4SM WV	12/9/07 12:19	1/1/08 0:35	32417	Failure: FN
INNOVA	9/28/07 0:01	10/19/07 3:27	30447	Off-FN: INNOVA offline
INNOVA	7/16/09 13:13	8/6/09 0:41	29489	INNOVA was sent for factory calibration.
NH3-AirDAC	3/30/09 12:36	4/16/09 13:23	24528	Off: INNOVA down for calibration and reconfiguration
CO2-AirDAC	3/31/09 22:51	4/16/09 8:52	22202	Off Innova arrived after installing new filters
INNOVA	3/31/09 22:51	4/16/09 8:52	22202	INNOVA sent to CAI for calibration
INNOVA	3/31/09 22:51	4/16/09 5:01	21971	INNOVA sent to CAI for calibration
INNOVA	10/3/07 12:18	10/18/07	21534	Systematic Error
TEI 450	10/3/07 12:18	10/18/07	21534	Systematic Error
GSS	10/3/07 12:18	10/18/07	21534	Systematic Error
2SB T	1/27/08 10:19	2/8/08 20:28	17890	Systematic Error
2SM T	1/27/08 10:19	2/8/08 20:28	17890	Systematic Error
B2 SU 1-4 T	1/27/08 10:19	2/8/08 20:28	17890	Systematic Error
4NB T	1/27/08 12:13	2/8/08 18:34	17662	FN: Maintenance
2SM T	1/27/08 13:13	2/8/08 16:40	17488	Systematic Error
GSS T	10/11/07 7:31	10/18/07	10379	FN: GSS maintenance
2NU1 T	3/21/08 14:29	3/28/08 16:21	10193	FN: Maintenance
2NB T	3/21/08 15:12	3/28/08 16:21	10150	FN: Testing sonics
2NU2 T	3/21/08 15:34	3/28/08 16:21	10128	FN: Maintenance
2NM T	3/21/08 15:34	3/28/08 15:16	10063	FN: Maintenance
4NB T	3/22/08 10:54	3/29/08 3:28	9635	Systematic Error FN:Out scale and maintenance
GSS T	10/4/07 8:40	10/10/07	9281	FN: GSS maintenance
4NB WV	9/28/07 0:01	10/4/07 8:39	9159	Lower than Min
4NB Elv	9/28/07 0:01	10/4/07 4:41	8921	Lower than Min
Smpl dir	7/11/08 9:37	7/17/08 11:31	8755	Lower than Min: Negative signal - reverse flow
4NB WV	9/28/07 7:40	10/4/07 5:19	8500	Lower than Min
B2 Atm P	8/28/08 13:27	9/3/08 9:36	8410	Out of Range: lower than normal
B2 ridge	6/4/09 18:53	6/10/09 12:13	8241	Failure: broken wire
B2 wall sonics	6/4/09 19:00	6/10/09 12:05	8226	Off

Variable(s)	Start time	End time	Min.	Comment
B2 Atm P	8/29/09 8:12	9/4/09 0:00	8149	Failure: FN
4NB T	1/10/08 8:06	1/15/08 17:14	7749	Lower than Min
GSS T	9/28/07 7:35	10/3/07 13:56	7582	Off GSS was off
4NE T	1/13/08 13:10	1/18/08 19:09	7560	FN: Maintenance
4SE T	1/13/08 13:10	1/18/08 19:09	7560	FN: Maintenance
4SM T	3/22/08 17:49	3/27/08 19:20	7292	Lower than Min
B4 PM10	11/15/07 14:34	11/20/07 9:33	6900	Systematic Error FN: wrong sensor unit with control unit
B2 PM10	11/15/07 14:41	11/20/07 9:26	6886	Systematic Error
INNOVA	9/28/07 16:05	10/3/07 10:13	6849	Sampling Elsewhere
TEI 450	9/28/07 16:05	10/3/07 10:13	6849	Sampling Elsewhere
GSS	9/28/07 16:05	10/3/07 10:13	6849	Sampling Elsewhere
4NM WV	3/27/08 11:26	4/1/08 0:05	6520	Out of Range
NH3-AirDAC	7/13/08 10:36	7/17/08 23:12	6517	Failure: FN
CO2-AirDAC	7/13/08 15:10	7/17/08 20:04	6055	Failure: FN
CO2-AirDAC	7/13/08 15:14	7/17/08 19:59	6046	Failure: FN
GSS T	11/26/07 9:04	11/30/07	6006	Off-FN: Power failure
GSS	11/26/07 8:56	11/30/07 9:21	5786	Off-FN: GSS off - tripped breaker
Smpl Q	7/25/09 11:43	7/29/09 10:15	5673	Failure FN: Obstruction on the flow restrictor in the GSS and also a leak at the GSS pump.
AirDAC	1/7/08 10:36	1/10/08 12:40	4445	Off: FN AirDAC shut down.
B4 wall sonics	1/7/08 10:43	1/10/08 12:46	4444	Off
B2 PM	1/7/08 10:40	1/10/08 12:37	4438	Data Acquisition: computer was down.
B2 PM	1/7/08 10:45	1/10/08 12:42	4438	Data Acquisition: computer was down.
B4 sonics	1/7/08 10:45	1/10/08 12:28	4424	Off: FN AirDAC was off
2NB WV	1/7/08 10:44	1/10/08 12:24	4421	FN: Computer was down
2NM WV	1/7/08 10:44	1/10/08 12:24	4421	FN: Computer was down
B2 NU1-4 WV	1/7/08 10:44	1/10/08 12:24	4421	FN: Computer was down
B2 Atm P	6/13/09 17:46	6/16/09 12:57	4032	Failure: FN
2R1 T	4/23/08 0:32	4/25/08 10:44	3493	Out of Range: signal did not match the pattern of the other sonics on the same wall.
4NB T	1/13/08 2:56	1/15/08 12:39	3464	Lower than Min
2R2 WD	6/13/08 12:19	6/15/08 21:19	3421	Failure: signal is totally different from the other sonics on the same ridge.
2R1 WV	4/23/08 1:59	4/25/08 10:36	3398	Greater than Max: Definitely higher than all the sonic's WV of all the barn

Variable(s)	Start time	End time	Min.	Comment
2R2 WD	2/1/08 0:04	2/3/08 0:00	2877	Out of Range: signal values are consistently out of range compared to the other three
4R1 Elv	12/16/08 11:29	12/18/08 2:30	2342	Out of Range
4R4 WV	11/14/07 18:20	11/16/07 9:09	2330	Systematic Error: no explanation in FN available.
4R4 Elv	11/14/07 18:21	11/16/07 9:01	2321	Systematic Error
4NB T	1/20/08 3:36	1/21/08 15:40	2165	Lower than Min
H2S-AirDAC	8/28/08 14:17	8/29/08 23:56	2020	Missing Data
4R4 Elv	11/29/07 10:34	11/30/07	1959	Systematic Error
4SU4 T	3/26/08 11:00	3/27/08 19:16	1937	Lower than Min
NH3-AirDAC	4/16/09 13:05	4/17/09 21:13	1929	Systematic Error: Periodic INNOVA peaks after CAI calibration
B2 R 1-4 T	1/27/08 13:05	1/28/08 17:53	1729	Systematic Error
4R4 Elv	12/26/07 16:26	12/27/07	1604	Systematic Error
4NB T	1/1/08 15:12	1/2/08 17:46	1595	Lower than Min
4R1 Elv	1/7/09 14:23	1/8/09 14:45	1463	Out of Range
4R4 WV	12/30/07 10:52	12/31/07	1459	Systematic Error: no explanation in FN available

APPENDIX E. BIOMATERIALS CHARACTERISTICS.

Table E1. Bedding characteristics (mean $\pm$ SD).

Barn	Date	n	Percent (wet weight basis)	
			Nitrogen	Solids
2	6/4/08	3	0.91 $\pm$ 0.02	71.0 $\pm$ 2.53
2	7/31/08	3	0.62 $\pm$ 0.03	79.3 $\pm$ 3.43
2	10/16/08	3	0.72 $\pm$ 0.06	77.3 $\pm$ 2.40
2	4/30/09	3	0.81 $\pm$ 0.05	74.0 $\pm$ 12.3
2	6/24/09	3	0.96 $\pm$ 0.03	86.4 $\pm$ 3.32
2	8/31/09	3	0.69 $\pm$ 0.07	80.4 $\pm$ 3.31
2	9/4/09	3	0.58 $\pm$ 0.08	82.6 $\pm$ 4.01
2	9/29/09	3	0.96 $\pm$ 0.33	68.9 $\pm$ 11.8
4	6/4/08	3	0.89 $\pm$ 0.01	61.7 $\pm$ 2.30
4	7/31/08	3	0.69 $\pm$ 0.05	85.6 $\pm$ 6.26
4	10/16/08	3	0.77 $\pm$ 0.03	80.4 $\pm$ 5.07
4	4/30/09	3	0.84 $\pm$ 0.01	78.8 $\pm$ 1.59
4	6/24/09	3	1.00 $\pm$ 0.04	84.8 $\pm$ 3.22
4	8/31/09	3	0.70 $\pm$ 0.04	83.7 $\pm$ 2.38
4	9/4/09	3	0.53 $\pm$ 0.24	78.8 $\pm$ 3.49
4	9/29/09	3	1.00 $\pm$ 0.51	87.0 $\pm$ 2.78

Table E2. Feed characteristics (mean $\pm$ SD).

Barn	Date	n	Percent (wet weight basis)	
			Nitrogen	Solids
2	6/4/08	3	1.82 $\pm$ 0.23	64.3 $\pm$ 4.94
2	7/31/08	3	1.33 $\pm$ 0.1	54.0 $\pm$ 5.61
2	10/16/08	3	1.38 $\pm$ 0.12	57.2 $\pm$ 1.01
2	4/30/09	3	0.98 $\pm$ 0.08	38.4 $\pm$ 1.96
2	6/24/09	3	1.56 $\pm$ 0.28	60.1 $\pm$ 0.69
2	9/4/09	3	1.23 $\pm$ 0.22	50.2 $\pm$ 1.39
2	9/23/09	3	1.38 $\pm$ 0.38	49.2 $\pm$ 2.40
2	9/29/09	3	1.23 $\pm$ 0.09	47.0 $\pm$ 0.87
4	6/4/08	3	1.97 $\pm$ 0.22	58.6 $\pm$ 2.74
4	7/31/08	3	1.32 $\pm$ 0.06	56.7 $\pm$ 2.59
4	10/16/08	3	1.42 $\pm$ 0.05	55.4 $\pm$ 2.47
4	4/30/09	3	0.95 $\pm$ 0.21	39.7 $\pm$ 0.90
4	6/24/09	3	1.38 $\pm$ 0.18	57.0 $\pm$ 2.93
4	9/4/09	3	1.54 $\pm$ 0.31	50.6 $\pm$ 4.60
4	9/23/09	3	1.57 $\pm$ 0.30	49.8 $\pm$ 1.72
4	9/29/09	3	1.38 $\pm$ 0.13	47.2 $\pm$ 3.29

Table E3. Manure characteristics (mean $\pm$ SD).

Barn	Date	n	pH (SU)	Percent (wet weight basis)		
				Nitrogen	Solids	Ammonia
2	6/4/08	5	7.40 $\pm$ 0.3	0.22 $\pm$ 0.05	3.83 $\pm$ 1.31	0.13 $\pm$ 0.01
2	6/4/08	10	7.34 $\pm$ 0.23	0.26 $\pm$ 0.04	4.33 $\pm$ 1.47	0.13 $\pm$ 0.01
2	7/31/08	2	7.38 $\pm$ 0.00	0.13 $\pm$ 0.00	1.47 $\pm$ 0.06	0.17 $\pm$ 0.01
2	7/31/08	3	7.15 $\pm$ 0.19	0.17 $\pm$ 0.04	3.33 $\pm$ 2.43	0.11 $\pm$ 0.02
2	10/16/08	2	7.84 $\pm$ 0.04	0.24 $\pm$ 0.03	1.54 $\pm$ 0.03	0.10 $\pm$ 0.00
2	10/16/08	3	7.74 $\pm$ 0.15	0.24 $\pm$ 0.04	2.43 $\pm$ 0.86	0.10 $\pm$ 0.01
2	4/30/09	2	7.25 $\pm$ 0.04	0.25 $\pm$ 0.01	3.24 $\pm$ 1.70	0.13 $\pm$ 0.01
2	4/30/09	3	7.19 $\pm$ 0.11	0.24 $\pm$ 0.04	6.15 $\pm$ 0.97	0.13 $\pm$ 0.01
2	6/24/09	2	7.05 $\pm$ 0.01	0.01 $\pm$ 0.01	0.09 $\pm$ 0.00	0.01 $\pm$ 0.00
2	6/24/09	3	6.52 $\pm$ 0.24	0.09 $\pm$ 0.04	2.35 $\pm$ 0.92	0.04 $\pm$ 0.02
2	9/4/09	2	7.61 $\pm$ 0.01	-	2.91 $\pm$ 0.11	0.11 $\pm$ 0.00
2	9/4/09	3	7.50 $\pm$ 0.06	-	5.26 $\pm$ 0.67	0.12 $\pm$ 0.01
2	9/29/09	2	7.56 $\pm$ 0.01	-	3.46 $\pm$ 0.47	0.12 $\pm$ 0.00
2	9/29/09	3	7.31 $\pm$ 0.06	-	5.50 $\pm$ 0.12	0.12 $\pm$ 0.01
4	6/4/08	5	7.35 $\pm$ 0.14	0.22 $\pm$ 0.07	3.44 $\pm$ 0.54	0.13 $\pm$ 0.01
4	6/4/08	12	7.04 $\pm$ 0.20	0.31 $\pm$ 0.03	5.68 $\pm$ 1.19	0.17 $\pm$ 0.03
4	7/31/08	2	7.39 $\pm$ 0.00	0.13 $\pm$ 0.00	1.41 $\pm$ 0.14	0.09 $\pm$ 0.00
4	7/31/08	5	7.05 $\pm$ 0.47	0.20 $\pm$ 0.08	5.30 $\pm$ 3.24	0.14 $\pm$ 0.04
4	10/16/08	2	7.87 $\pm$ 0.03	0.21 $\pm$ 0.01	1.50 $\pm$ 0.10	0.1 $\pm$ 0.00
4	10/16/08	4	7.36 $\pm$ 0.17	0.30 $\pm$ 0.04	4.25 $\pm$ 1.34	0.14 $\pm$ 0.03
4	4/30/09	2	7.52 $\pm$ 0.02	0.20 $\pm$ 0.00	3.60 $\pm$ 0.45	0.12 $\pm$ 0.00
4	4/30/09	4	7.41 $\pm$ 0.03	0.27 $\pm$ 0.03	5.28 $\pm$ 1.64	0.15 $\pm$ 0.02
4	6/24/09	2	7.26 $\pm$ 0.04	0.01 $\pm$ 0.00	0.10 $\pm$ 0.00	0.01 $\pm$ 0.00
4	6/24/09	4	6.50 $\pm$ 0.16	0.14 $\pm$ 0.03	4.08 $\pm$ 0.40	0.07 $\pm$ 0.01
4	9/4/09	2	7.57 $\pm$ 0.04	-	3.06 $\pm$ 0.12	0.11 $\pm$ 0.00
4	9/4/09	3	7.30 $\pm$ 0.09	-	6.95 $\pm$ 0.53	0.16 $\pm$ 0.02
4	9/29/09	2	7.53 $\pm$ 0.01	-	3.72 $\pm$ 0.23	0.12 $\pm$ 0.00
4	9/29/09	4	7.21 $\pm$ 0.13	-	6.41 $\pm$ 1.41	0.17 $\pm$ 0.02

Table E4. Milk characteristics (mean $\pm$ SD).

Barn	Date	n	Percent (wet weight basis)
			Nitrogen
Milk Tank	6/4/08	12	0.41 $\pm$ 0.14
Milk Tank	7/30/08	12	0.35 $\pm$ 0.17
Milk Tank	10/16/08	12	0.32 $\pm$ 0.09
Milk Tank	4/30/09	12	0.52 $\pm$ 0.11
Milk Tank	6/24/09	12	0.38 $\pm$ 0.11
Milk Tank	9/3/09	12	0.36 $\pm$ 0.10
Milk Tank	9/23/09	12	0.51 $\pm$ 0.04
Milk Tank	9/29/09	12	0.44 $\pm$ 0.08

APPENDIX F. DAILY MEANS

Table F1. Weather variables.

Table F1. Daily means (SD) of weather parameters at site WA5B for September, 2007.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1						
2						
3						
4						
5						
6						
7						
8						
9						
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22						
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24						
25						
26						
27						
28						
29	10.6 (4.1)	39.1 (8.2)	2.40 (1.33)	242 (103)	168 (237)	98100 (139)
30	9.5 (0.7)	52.8 (2.1)	3.33 (1.67)	134 (60)	33 (46)	97760 (167)
Avg	10.1	45.9	2.86	188.0	101	97930
n	2	2	2	2	2	2
SD	0.6	6.9	0.47	54.0	68	170
Min	9.5	39.1	2.40	134.0	33	97760
Max	10.6	52.8	3.33	242.0	168	98100

Table F1. Daily means (SD) of weather parameters at site WA5B for October, 2007.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	12.7 (3.0)	43.0 (8.5)	4.33 (2.67)	247 (64)	170 (239)	98230 (345)
2	12.6 (1.6)	45.0 (4.1)	6.14 (2.43)	232 (28)	66 (88)	98090 (425)
3	11.5 (2.6)	39.8 (8.0)	3.97 (2.78)	256 (83)	142 (213)	97620 (105)
4	10.1 (3.2)	44.9 (7.6)	1.71 (1.09)	273 (108)	129 (206)	97520 (78)
5	10.3 (4.6)	40.6 (11.2)	2.79 (1.25)	261 (53)	177 (247)	98090 (188)
6	11.2 (4.4)	40.7 (9.4)	1.43 (1.11)	1 (119)	138 (192)	98530 (70)
7	13.1 (4.4)	44.5 (7.6)	3.90 (3.48)	237 (84)	143 (216)	98260 (192)
8	12.3 (2.7)	41.6 (6.5)	1.78 (1.10)	278 (78)	108 (159)	98070 (183)
9	13.4 (4.3)	41.4 (7.1)	1.04 (0.96)	287 (111)	132 (201)	97330 (238)
10						
11	10.8 (3.6)	44.9 (7.2)	1.60 (1.21)	313 (114)	130 (204)	98240 (285)
12	12.4 (3.1)	47.8 (6.7)	2.17 (1.04)	268 (61)	121 (199)	97670 (93)
13	13.2 (4.2)	46.1 (9.1)	1.14 (0.89)	58 (107)	156 (213)	98180 (115)
14	12.1 (5.0)	45.9 (8.8)	0.86 (0.77)	7 (114)	151 (207)	97980 (228)
15	11.7 (3.6)	47.8 (5.8)	1.37 (1.22)	59 (109)	93 (140)	97240 (232)
16	9.8 (1.9)	48.0 (4.8)	3.01 (1.84)	209 (69)	71 (125)	96910 (91)
17	9.0 (3.6)	44.3 (8.2)	3.19 (2.62)	241 (74)	128 (200)	97430 (359)
18	10.0 (3.3)	49.3 (4.0)	3.52 (2.39)	158 (76)	83 (144)	97210 (413)
19						
20	8.9 (2.0)	44.7 (5.7)	5.02 (2.63)	241 (55)	105 (155)	97880 (511)
21	9.4 (2.8)	47.9 (4.6)	1.66 (1.23)	180 (94)	85 (136)	99490 (199)
22	13.3 (5.0)	45.5 (8.7)	1.62 (1.48)	272 (102)	143 (193)	99500 (89)
23	12.1 (4.6)	48.4 (7.5)	0.76 (0.69)	116 (103)		99140 (325)
24	12.5 (5.4)	43.8 (9.5)	2.84 (3.07)	298 (105)	131 (193)	98480 (243)
25	8.9 (4.0)	36.3 (8.8)	2.65 (1.37)	255 (88)	149 (204)	99380 (143)
26						
27	5.6 (3.7)	41.1 (9.7)	0.80 (0.76)	72 (98)	136 (181)	99340 (207)
28	5.9 (4.4)	44.2 (9.4)	1.00 (0.92)	255 (102)	136 (179)	99050 (164)
29	6.4 (3.5)	47.4 (5.4)	0.62 (0.58)	5 (111)	65 (78)	98560 (152)
30	8.1 (3.4)	39.8 (11.7)	1.41 (0.95)	242 (103)	134 (180)	99160 (224)
31	6.2 (4.1)	43.1 (7.9)	1.04 (0.99)	298 (111)	118 (175)	99160 (207)
Avg	10.5	44.2	2.26	267.0	124	98280
n	28	28	28	28	27	28
SD	2.4	3.1	1.40	97.0	30	752
Min	5.6	36.3	0.62	1.0	65	96910
Max	13.4	49.3	6.14	313.0	177	99500

Table F1. Daily means (SD) of weather parameters at site WA5B for November, 2007.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	7.4 (3.7)	41.0 (11.1)	0.91 (0.82)	61 (105)	119 (174)	99110 (212)
2	5.8 (4.0)	42.5 (9.0)	1.78 (2.46)	148 (105)	104 (157)	99520 (130)
3	6.7 (4.4)	43.2 (8.9)	0.90 (0.72)	266 (107)	106 (155)	99140 (284)
4	10.7 (6.7)	45.5 (7.7)	1.72 (1.31)	191 (99)	113 (164)	98600 (105)
5	9.2 (2.7)	41.5 (10.5)	1.13 (0.80)	249 (100)	105 (163)	98970 (138)
6	6.8 (3.8)	44.9 (9.3)	0.78 (0.72)	86 (106)	97 (151)	98600 (139)
7	8.6 (3.0)	47.1 (8.2)	0.87 (0.86)	75 (105)	77 (127)	98490 (140)
8	8.3 (3.2)	50.6 (4.2)	0.78 (0.56)	65 (94)	67 (103)	98020 (187)
9	9.7 (5.0)	49.8 (4.8)	2.08 (1.71)	116 (93)	98 (157)	97550 (188)
10	11.4 (3.9)	39.6 (13.5)	4.23 (3.08)	232 (74)	88 (150)	97360 (257)
11	7.2 (3.9)	42.3 (8.2)	3.37 (2.96)	210 (81)	98 (150)	98120 (215)
12	12.1 (3.5)	40.5 (5.9)	6.39 (3.87)	193 (75)		97220 (464)
13						
14						
15	6.7 (3.5)	49.9 (4.2)	2.98 (2.82)	162 (98)	47 (69)	97760 (144)
16	13.9 (1.5)	49.3 (3.0)	4.84 (2.50)	223 (60)	43 (57)	97620 (48)
17	10.6 (1.6)	52.1 (2.8)	2.74 (2.23)	255 (94)	43 (49)	97620 (247)
18	5.1 (1.8)	52.2 (1.6)	2.15 (1.08)	249 (78)	27 (14)	98130 (110)
19	3.6 (1.5)	52.7 (0.2)	1.65 (1.38)	183 (77)	59 (64)	98530 (246)
20	2.8 (2.0)	49.9 (4.8)	0.95 (0.69)	232 (93)	101 (130)	99610 (249)
21	0.6 (1.6)	51.6 (2.0)	0.98 (0.84)	266 (101)	79 (110)	99990 (75)
22	-1.0 (1.6)	49.2 (5.8)	1.44 (0.93)	199 (99)	89 (135)	99990 (53)
23	-2.2 (0.7)	52.1 (0.1)	0.50 (0.54)	323 (123)	18 (25)	99740 (221)
24	-1.4 (0.3)	52.2 (0.1)	0.70 (0.64)	358 (114)	17 (22)	99010 (168)
25	-1.2 (0.5)	52.1 (0.1)	1.52 (0.92)	242 (99)	15 (20)	99330 (162)
26	-1.4 (0.5)	52.1 (0.1)	1.97 (2.45)	82 (96)	14 (19)	98830 (690)
27	3.6 (3.3)	46.4 (6.1)	2.56 (1.58)	259 (84)	71 (116)	98820 (503)
28	0.7 (1.5)	52.4 (0.5)	0.76 (0.73)	280 (104)	40 (67)	99210 (518)
29	0.5 (0.7)	52.4 (0.0)	1.23 (0.88)	262 (37)	27 (42)	98770 (198)
30	0.0 (0.9)	52.3 (0.2)	1.36 (1.29)	254 (25)	50 (63)	98310 (351)
Avg	5.2	48.1	1.90	223.0	67	98640
n	28	28	28	28	27	28
SD	4.7	4.4	1.37	78.0	34	779
Min	-2.2	39.6	0.50	61.0	14	97220
Max	13.9	52.7	6.39	358.0	119	99990

Table F1. Daily means (SD) of weather parameters at site WA5B for December, 2007.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	-1.8 (0.8)	52.1 (0.1)	2.21 (2.12)	207 (84)	62 (71)	97130 (232)
2	5.6 (2.3)	51.4 (3.1)	6.71 (3.52)	187 (51)	50 (59)	96970 (119)
3	13.0 (2.6)	51.5 (2.1)	7.58 (5.28)	176 (61)	44 (48)	97370 (265)
4	13.6 (1.9)	47.9 (4.9)	5.77 (2.84)	221 (37)	97 (129)	98640 (268)
5	7.4 (2.0)	50.3 (3.9)	1.23 (0.86)	220 (99)	84 (104)	98410 (288)
6	2.3 (1.1)	52.6 (0.1)	2.02 (1.47)	251 (81)	34 (13)	97730 (114)
7	3.0 (1.0)	52.6 (0.3)	2.29 (1.69)	184 (77)		98090 (231)
8						
9	-2.8 (0.9)	52.0 (0.1)	0.90 (0.78)	48 (109)	43 (26)	99150 (188)
10	-2.6 (0.4)	51.9 (0.6)	0.84 (0.72)	15 (110)	64 (86)	99410 (266)
11	-2.7 (0.6)	52.0 (0.1)	1.50 (1.20)	270 (82)	34 (13)	99430 (219)
12						
13						
14	-1.4 (0.3)	52.1 (0.1)	1.02 (0.69)	9 (116)	35 (19)	99020 (241)
15	2.5 (3.9)	51.6 (1.1)	3.51 (2.65)	222 (78)	65 (73)	98380 (69)
16	3.5 (1.2)	50.5 (3.6)	2.28 (2.04)	143 (76)	61 (75)	97630 (461)
17	4.4 (1.9)	51.4 (2.1)	4.02 (2.53)	184 (68)	52 (43)	97210 (215)
18	2.9 (2.1)	52.5 (0.5)	2.02 (2.75)	277 (105)	38 (21)	96980 (221)
19	7.8 (1.1)	52.3 (1.3)	6.31 (3.27)	207 (54)	40 (28)	96980 (228)
20	5.4 (2.1)	46.3 (6.8)	4.13 (2.77)	254 (57)	87 (113)	97630 (687)
21	2.1 (1.9)	47.9 (6.8)	2.22 (1.79)	166 (88)	87 (114)	99340 (181)
22	1.5 (1.8)	51.9 (1.4)	2.64 (2.57)	152 (88)	37 (26)	98970 (268)
23	0.6 (1.1)	52.4 (0.2)	1.02 (0.84)	93 (100)	43 (25)	98770 (385)
24	4.2 (1.9)	47.1 (5.8)	3.43 (1.89)	242 (65)	95 (113)	99120 (384)
25	1.1 (1.7)	51.7 (1.9)	2.92 (2.08)	149 (69)	49 (51)	98810 (613)
26	2.7 (2.0)	46.8 (6.5)	2.55 (1.36)	237 (69)	75 (94)	98290 (205)
27	0.8 (0.9)	51.9 (1.0)	3.90 (3.37)	135 (75)	43 (26)	97980 (533)
28	1.8 (3.3)	52.5 (0.4)	4.04 (3.76)	237 (82)	72 (87)	97410 (116)
29	2.0 (2.2)	51.0 (3.0)	2.71 (2.51)	209 (87)	56 (63)	97470 (135)
30	3.8 (1.3)	42.6 (5.6)	6.80 (3.32)	255 (27)	95 (114)	98450 (421)
31	1.7 (2.2)	46.4 (6.2)	1.99 (1.46)	128 (80)	97 (116)	99890 (231)
Avg	3.0	50.5	3.16	202.0	61	98240
n	28	28	28	28	27	28
SD	3.9	2.5	1.89	71.0	21	857
Min	-2.8	42.6	0.84	9.0	34	96970
Max	13.6	52.6	7.58	277.0	97	99890

Table F1. Daily means (SD) of weather parameters at site WA5B for January, 2008.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	-1.1 (1.4)	51.5 (1.3)	1.01 (0.65)	271 (96)	68 (74)	99650 (406)
2	-1.0 (0.8)	52.2 (0.2)	0.89 (0.72)	295 (106)	42 (24)	98210 (258)
3	-0.1 (0.8)	52.3 (0.2)	1.19 (0.93)	243 (99)	48 (47)	97010 (437)
4	1.8 (3.4)	50.9 (3.4)	3.21 (4.35)	195 (98)	46 (34)	95160 (627)
5	6.3 (1.3)	46.3 (5.5)	3.70 (2.78)	229 (80)	102 (129)	95920 (408)
6	3.6 (1.5)	49.8 (3.7)	2.97 (2.41)	186 (65)	76 (89)	96690 (207)
7						
8						
9						
10						
11	8.2 (2.5)	48.2 (6.5)	5.14 (3.95)	218 (66)		98180 (312)
12	2.0 (1.4)	51.1 (6.6)	2.06 (1.24)	101 (86)	51 (63)	98590 (295)
13	1.1 (0.8)	51.3 (5.4)	1.51 (0.99)	99 (91)	34 (17)	99460 (77)
14	1.3 (2.1)	51.0 (2.8)	4.42 (3.83)	145 (82)	50 (59)	98560 (556)
15	1.5 (1.6)	42.2 (7.5)	2.89 (3.33)	249 (79)	88 (122)	99670 (342)
16	-0.5 (1.9)	48.6 (5.3)	1.67 (2.01)	208 (97)	91 (124)	99850 (214)
17	-1.2 (2.1)	49.6 (4.1)	1.42 (0.89)	90 (82)	100 (124)	99180 (127)
18	-0.4 (2.6)	51.3 (2.7)	1.04 (1.04)	204 (85)		99380 (224)
19	0.8 (1.5)	51.8 (1.6)	1.37 (1.08)	90 (88)	79 (106)	98220 (388)
20	-1.1 (1.1)	47.2 (6.8)	4.26 (2.51)	45 (72)	59 (51)	98200 (349)
21	-4.8 (1.6)	35.9 (7.1)	3.47 (2.40)	39 (89)	119 (143)	99350 (296)
22	-6.9 (2.5)	46.4 (6.9)	1.28 (0.78)	98 (86)	111 (136)	99770 (79)
23	-7.4 (2.1)	48.0 (5.6)	0.96 (0.89)	106 (91)	107 (125)	99190 (449)
24	-6.6 (2.7)	46.9 (6.7)	0.78 (0.68)	34 (109)	102 (136)	97880 (187)
25	-5.9 (2.4)	48.1 (5.7)	1.22 (1.02)	76 (99)	98 (139)	98450 (122)
26	-6.8 (1.4)	51.4 (0.2)	0.86 (0.64)	63 (101)	29 (37)	97740 (457)
27	-3.6 (1.5)	51.8 (0.1)	1.13 (1.14)	309 (117)	15 (12)	96110 (365)
28	-4.4 (3.7)	46.7 (14.7)	2.48 (3.95)	228 (88)	26 (32)	96910 (475)
29	2.9 (1.2)	47.6 (4.3)	8.74 (2.51)	223 (48)	111 (168)	96900 (249)
30	2.9 (1.8)	46.9 (4.2)	5.72 (3.60)	205 (51)	90 (124)	97560 (220)
31	5.3 (1.0)	47.7 (4.2)	6.83 (3.67)	230 (63)	91 (145)	96800 (156)
Avg	-0.5	48.6	2.68	175.0	73	98100
n	27	27	27	27	25	27
SD	4.1	3.5	2.02	82.0	30	1281
Min	-7.4	35.9	0.78	34.0	15	95160
Max	8.2	52.3	8.74	309.0	119	99850

Table F1. Daily means (SD) of weather parameters at site WA5B for February, 2008.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	4.8 (0.9)	44.7 (6.3)	7.27 (2.95)	245 (32)	104 (156)	97570 (239)
2	1.9 (1.2)	47.9 (9.8)	2.56 (1.31)	85 (88)	35 (29)	96840 (635)
3	1.8 (1.2)	52.0 (0.7)	2.12 (1.10)	253 (52)	62 (77)	96880 (578)
4	2.5 (2.0)	48.2 (6.1)	1.60 (1.32)	196 (80)	110 (165)	98530 (280)
5	4.1 (1.8)	50.7 (2.3)	5.35 (3.84)	225 (66)	46 (80)	98280 (381)
6	4.4 (1.1)	48.1 (3.8)	6.69 (2.59)	225 (34)	73 (118)	98250 (302)
7	6.7 (1.5)	42.4 (6.8)	10.20 (4.69)	243 (37)	139 (178)	97600 (461)
8	7.6 (1.8)	45.6 (5.3)	8.80 (1.98)	212 (36)	120 (156)	98110 (48)
9	8.3 (1.9)	50.8 (2.8)	2.95 (2.53)	144 (83)	66 (70)	98430 (144)
10	10.0 (2.0)	45.2 (6.4)	6.40 (3.33)	231 (41)	81 (104)	98180 (180)
11	7.9 (2.3)	46.3 (6.4)	1.22 (1.00)	72 (108)	95 (122)	98990 (113)
12	7.9 (2.5)	46.9 (5.4)	2.10 (2.06)	283 (105)	92 (120)	98370 (460)
13	5.1 (2.6)	39.5 (6.9)	4.36 (1.91)	264 (68)	145 (191)	98410 (248)
14						
15	4.4 (3.4)	48.1 (6.6)	1.38 (1.08)	123 (99)	114 (168)	98640 (310)
16	5.3 (3.7)	47.6 (7.5)	1.16 (0.77)	65 (108)	139 (172)	98740 (118)
17	3.9 (2.8)	46.4 (8.9)	1.73 (1.09)	93 (87)	154 (191)	99180 (101)
18	2.4 (3.4)	46.4 (7.7)	1.13 (0.99)	68 (106)	159 (193)	98820 (273)
19	3.4 (3.2)	46.2 (8.0)	1.13 (0.83)	76 (101)	149 (191)	98230 (112)
20	4.4 (2.9)	47.9 (6.6)	1.58 (1.34)	86 (83)	141 (180)	98020 (141)
21	4.4 (3.1)	49.2 (5.6)	0.96 (0.78)	251 (98)	114 (150)	97530 (237)
22	6.8 (2.5)	48.7 (6.0)	0.94 (0.91)	71 (97)	150 (193)	97380 (142)
23	6.3 (3.3)	44.2 (9.5)	1.45 (1.40)	43 (112)	171 (210)	97760 (268)
24	6.3 (1.2)	52.2 (1.1)	2.16 (0.84)	268 (60)	83 (102)	97370 (269)
25	7.8 (2.4)	51.2 (2.9)	1.19 (0.89)	56 (108)	105 (142)	99000 (425)
26	6.2 (2.9)	50.5 (3.3)	0.87 (0.82)	79 (90)	126 (154)	99330 (203)
27	7.2 (3.3)	51.8 (2.1)	1.53 (1.41)	188 (89)	116 (165)	98660 (148)
28	10.0 (3.9)	45.0 (9.1)	1.80 (1.20)	123 (91)	162 (213)	98460 (145)
29	10.6 (3.5)	40.1 (14.9)	3.19 (3.01)	203 (88)	102 (126)	97520 (347)
Avg	5.8	47.3	2.99	159.0	112	98180
n	28	28	28	28	28	28
SD	2.4	3.3	2.56	80.0	36	648
Min	1.8	39.5	0.87	43.0	35	96840
Max	10.6	52.2	10.20	283.0	171	99330

Table F1. Daily means (SD) of weather parameters at site WA5B for March, 2008.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	-1.1 (2.8)	37.0 (7.3)	5.03 (2.58)	255 (38)	153 (196)	98270 (493)
2	-2.0 (3.8)	35.5 (9.3)	2.43 (1.62)	211 (70)	186 (227)	99550 (188)
3	-2.0 (3.1)	40.8 (7.1)	5.39 (4.46)	261 (72)	88 (113)	98320 (391)
4	-0.6 (3.9)	33.5 (8.4)	3.73 (1.76)	280 (59)	185 (233)	98680 (236)
5	-1.3 (4.4)	36.5 (9.8)	1.95 (1.74)	175 (94)	197 (236)	99140 (139)
6	-0.4 (4.7)	37.7 (9.9)	2.76 (2.64)	147 (78)	188 (225)	98930 (150)
7	-0.5 (2.7)	45.5 (4.5)	1.04 (0.79)	52 (107)	78 (81)	98590 (197)
8	1.9 (4.8)	41.8 (9.8)	2.30 (2.01)	200 (89)	206 (243)	98580 (129)
9	-0.1 (4.6)	44.2 (9.4)	1.48 (1.35)	86 (97)	168 (224)	98800 (105)
10	1.2 (3.6)	45.9 (6.6)	1.94 (1.26)	75 (93)	111 (153)	98500 (168)
11	0.6 (2.6)	39.0 (8.2)	7.32 (3.45)	247 (39)	201 (243)	98810 (120)
12	-0.3 (3.6)	42.9 (7.4)	1.81 (1.28)	72 (97)	145 (187)	98310 (368)
13	-1.7 (2.1)	49.4 (4.5)	3.35 (2.74)	255 (90)	94 (100)	97370 (92)
14	-1.0 (2.1)	43.9 (6.6)	4.42 (2.55)	222 (55)	112 (149)	97220 (88)
15	-1.6 (3.9)	43.9 (9.6)	1.94 (1.78)	217 (95)	175 (233)	97610 (195)
16	-1.1 (4.3)	38.8 (10.5)	2.16 (1.62)	253 (71)	195 (249)	98440 (194)
17	1.2 (3.9)	40.4 (7.9)	3.53 (2.61)	223 (93)	190 (251)	98310 (167)
18	0.8 (3.7)	43.1 (9.9)	4.85 (3.84)	239 (63)	192 (250)	98130 (187)
19	-2.5 (3.1)	45.3 (6.3)	1.68 (1.56)	220 (99)	127 (153)	98210 (229)
20	-2.2 (2.3)	45.4 (5.7)	3.87 (2.64)	220 (54)	129 (143)	98320 (102)
21	-1.8 (3.3)	35.3 (9.9)	4.21 (1.94)	247 (54)	199 (263)	99380 (425)
22	-1.7 (5.1)	37.3 (10.7)	1.57 (1.22)	297 (107)	198 (256)	99600 (386)
23	-0.2 (3.3)	40.3 (3.1)	5.44 (4.15)	213 (76)	67 (86)	98240 (302)
24	-1.3 (3.8)	34.3 (8.3)	1.78 (1.35)	286 (111)	190 (242)	98550 (147)
25	-1.2 (4.3)	35.4 (9.0)	2.42 (2.08)	225 (94)	195 (258)	98290 (189)
26	-1.3 (2.3)	40.0 (9.1)	4.81 (2.36)	239 (50)	125 (174)	97770 (87)
27	-1.8 (3.3)	30.4 (7.8)	5.02 (2.90)	246 (74)	242 (301)	98630 (218)
28	-5.4 (2.5)	45.2 (8.4)	4.12 (3.93)	165 (92)	133 (192)	97420 (466)
29	-2.5 (3.0)	37.7 (7.3)	3.91 (2.55)	249 (92)	198 (261)	97910 (240)
30	-4.1 (3.0)	43.1 (8.9)	3.08 (1.99)	289 (79)	203 (264)	98200 (150)
31	-2.8 (4.4)	33.3 (10.2)	1.89 (1.39)	216 (95)	219 (277)	98790 (99)
Avg	-1.2	40.1	3.27	231.0	164	98410
n	31	31	31	31	31	31
SD	1.5	4.5	1.50	64.0	45	573
Min	-5.4	30.4	1.04	52.0	67	97220
Max	1.9	49.4	7.32	297.0	242	99600

Table F1. Daily means (SD) of weather parameters at site WA5B for April, 2008.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	-1.9 (4.7)	31.6 (9.9)	1.99 (1.23)	232 (98)	255 (285)	98690 (224)
2	0.0 (4.9)	30.5 (7.8)	1.86 (1.63)	101 (107)	264 (290)	98490 (87)
3	1.7 (5.5)	32.5 (10.2)	2.48 (2.71)	189 (99)	239 (268)	98420 (242)
4	0.1 (2.0)	33.0 (5.3)	5.04 (4.42)	242 (75)	121 (148)	97660 (133)
5	0.5 (3.9)	36.3 (9.2)	3.24 (2.56)	233 (87)	226 (266)	97630 (123)
6	1.7 (3.2)	38.9 (10.9)	6.24 (2.53)	239 (42)	214 (261)	97590 (142)
7	-0.4 (3.5)	37.8 (9.2)	3.53 (3.12)	240 (85)	212 (244)	98130 (78)
8	-1.9 (2.7)	44.4 (6.5)	1.69 (1.52)	166 (79)	145 (153)	97880 (169)
9	-0.7 (4.9)	35.8 (12.1)	2.00 (1.52)	269 (101)	255 (290)	97910 (113)
10	1.9 (4.6)	32.8 (9.2)	2.40 (1.58)	268 (79)	267 (299)	98690 (254)
11	2.4 (5.5)	32.6 (10.0)	2.26 (1.59)	119 (89)	276 (293)	99340 (136)
12	5.8 (6.4)	33.2 (10.1)	1.70 (1.22)	70 (102)	279 (295)	98920 (329)
13	7.5 (5.4)	33.0 (9.7)	2.36 (2.15)	312 (111)	237 (274)	97850 (411)
14	2.5 (3.1)	27.1 (6.1)	5.70 (2.20)	271 (36)	263 (304)	97380 (92)
15	-1.7 (3.8)	31.2 (7.8)	3.67 (2.29)	287 (69)	220 (252)	98060 (233)
16	0.5 (4.9)	35.2 (9.8)	2.41 (1.63)	221 (81)	293 (310)	98800 (124)
17	2.7 (5.9)	33.8 (11.5)	1.90 (1.45)	309 (115)	281 (304)	98330 (328)
18	-2.0 (2.6)	32.9 (7.2)	6.34 (3.22)	254 (29)	241 (291)	97780 (148)
19	-3.7 (3.7)	31.8 (8.1)	1.92 (1.33)	289 (106)	211 (260)	97410 (104)
20	-4.2 (3.2)	34.8 (6.3)	1.81 (1.42)	260 (91)	179 (266)	97800 (173)
21	-3.2 (3.6)	36.0 (7.8)	2.43 (2.07)	262 (103)	172 (208)	98030 (72)
22	-0.5 (3.8)	39.3 (9.7)	2.18 (1.61)	7 (118)	196 (249)	97700 (303)
23	-0.9 (2.9)	40.8 (9.4)	4.45 (2.67)	237 (50)	211 (244)	97400 (182)
24	-0.6 (3.7)	36.4 (9.5)	4.32 (3.04)	266 (82)	232 (297)	98490 (243)
25	0.2 (5.0)	30.7 (10.8)	2.67 (2.07)	267 (100)	295 (330)	98980 (86)
26	2.1 (5.3)	29.5 (11.1)	1.78 (1.39)	43 (110)	297 (328)	99310 (181)
27	5.9 (5.3)	25.7 (6.6)	1.74 (1.72)	50 (107)	224 (242)	98550 (351)
28	6.0 (4.0)	34.9 (6.4)	3.72 (3.00)	266 (93)	267 (304)	97700 (283)
29	1.1 (2.9)	32.6 (7.9)	4.53 (2.54)	277 (61)	252 (303)	97330 (99)
30	-0.1 (4.1)	30.3 (9.7)	3.32 (1.80)	283 (61)	313 (349)	97930 (170)
Avg	0.7	33.8	3.06	261.0	238	98140
n	30	30	30	30	30	30
SD	2.8	3.9	1.38	84.0	45	569
Min	-4.2	25.7	1.69	7.0	121	97330
Max	7.5	44.4	6.34	312.0	313	99340

Table F1. Daily means (SD) of weather parameters at site WA5B for May, 2008.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	0.5 (4.5)	31.7 (9.2)	2.77 (1.52)	140 (77)	327 (337)	98610 (117)
2	3.0 (5.1)	30.0 (9.3)	1.27 (0.98)	334 (124)	250 (266)	98440 (186)
3	1.9 (2.7)	44.6 (6.5)	2.45 (2.47)	269 (97)	133 (163)	98150 (97)
4	6.5 (6.6)	42.7 (9.7)	1.37 (0.86)	272 (97)	327 (337)	98230 (162)
5	8.6 (6.0)	38.6 (12.1)	1.74 (1.45)	332 (126)	287 (296)	97780 (184)
6	8.6 (3.8)	34.7 (8.0)	2.66 (1.58)	285 (104)	265 (306)	97730 (120)
7	6.9 (4.9)	31.7 (10.2)	3.28 (1.98)	292 (74)	324 (345)	97880 (121)
8	4.4 (4.2)	28.4 (7.4)	2.93 (1.78)	283 (85)	330 (346)	98020 (196)
9	5.4 (4.4)	28.5 (7.7)	3.24 (1.51)	220 (85)	332 (347)	98100 (83)
10	7.4 (3.7)	33.0 (5.1)	3.20 (2.19)	242 (83)	188 (216)	97720 (261)
11	4.8 (3.2)	31.3 (8.3)	5.13 (2.29)	282 (48)	321 (349)	97790 (153)
12	5.6 (4.9)	30.8 (8.3)	2.81 (1.75)	217 (88)	336 (347)	98190 (84)
13	6.9 (3.2)	39.3 (8.0)	2.37 (2.11)	320 (117)	180 (183)	98110 (98)
14	10.9 (4.2)	40.2 (7.3)	2.78 (2.39)	302 (100)	219 (252)	98820 (237)
15	14.4 (5.5)	34.7 (10.2)	2.48 (1.47)	10 (111)	347 (345)	99040 (238)
16						
17						
18						
19						
20						
21	6.2 (3.5)	34.3 (7.1)	4.76 (2.20)	303 (43)	277 (314)	97710 (133)
22	7.1 (4.1)	33.4 (7.6)	5.03 (1.52)	290 (67)	244 (314)	97120 (397)
23	3.9 (3.0)	51.4 (3.0)	4.41 (1.60)	261 (72)	110 (135)	96640 (122)
24	10.0 (5.5)	39.5 (11.5)	2.19 (1.19)	265 (89)	314 (345)	97130 (101)
25	8.3 (3.8)	45.9 (9.6)	2.57 (1.28)	321 (111)	213 (256)	97520 (160)
26	10.5 (4.3)	37.7 (11.2)	3.16 (1.36)	311 (117)	296 (340)	97250 (84)
27	9.6 (3.9)	42.2 (10.0)	2.53 (1.20)	258 (93)	249 (311)	97620 (153)
28	9.0 (2.8)	46.4 (8.0)	1.17 (0.89)	312 (119)	180 (236)	97390 (48)
29	9.4 (3.4)	38.0 (10.9)	3.21 (2.44)	247 (75)	258 (298)	97610 (110)
30	9.9 (5.8)	27.7 (8.6)	2.32 (1.18)	97 (104)	364 (357)	98020 (121)
31	10.3 (4.3)	36.2 (9.1)	2.40 (2.34)	285 (95)	271 (300)	97910 (92)
Avg	7.3	36.7	2.85	285.0	267	97870
n	26	26	26	26	26	26
SD	3.1	6.1	1.02	73.0	67	526
Min	0.5	27.7	1.17	10.0	110	96640
Max	14.4	51.4	5.13	334.0	364	99040

Table F1. Daily means (SD) of weather parameters at site WA5B for June, 2008.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	8.9 (4.4)	36.5 (11.1)	3.27 (1.84)	272 (80)	327 (346)	97880 (130)
2	8.0 (4.9)	32.0 (10.9)	2.39 (1.82)	304 (113)	355 (360)	97840 (204)
3	5.1 (2.9)	47.8 (5.8)	2.33 (2.01)	341 (112)	164 (199)	97250 (143)
4	7.0 (5.0)	37.2 (10.0)	3.22 (1.19)	285 (65)	353 (358)	97530 (115)
5	5.1 (2.8)	43.8 (6.6)	4.35 (3.87)	244 (83)	192 (195)	97410 (191)
6	4.7 (2.2)	38.8 (5.3)	8.19 (2.17)	254 (19)	198 (206)	97540 (161)
7	6.9 (5.1)	37.5 (11.1)	3.20 (2.49)	305 (105)	337 (352)	98020 (112)
8	9.4 (5.1)	30.9 (10.0)	3.25 (2.03)	239 (81)	351 (359)	98130 (253)
9	8.7 (3.1)	33.2 (6.0)	6.36 (5.44)	259 (79)	332 (360)	97350 (259)
10	3.3 (2.7)	43.0 (4.8)	3.31 (2.06)	261 (98)	155 (160)	97720 (290)
11	7.8 (4.9)	36.5 (9.6)	4.08 (2.26)	305 (62)	365 (360)	98100 (94)
12	10.7 (5.6)	29.8 (9.3)	4.42 (2.29)	215 (65)	370 (353)	98280 (162)
13	13.2 (4.8)	27.2 (6.3)	3.33 (1.85)	271 (86)	374 (357)	98000 (171)
14	11.1 (5.4)	28.8 (9.9)	2.45 (1.16)	66 (106)	375 (357)	98160 (204)
15	13.1 (5.5)	26.4 (9.3)	2.48 (1.41)	305 (113)	378 (362)	97950 (153)
16	14.1 (5.4)	24.1 (11.6)	3.30 (2.17)	253 (92)	378 (359)	97690 (157)
17	12.0 (4.4)	28.5 (8.4)	3.01 (1.44)	296 (90)	372 (357)	98180 (180)
18	9.9 (5.3)	29.8 (10.6)	2.56 (1.40)	317 (124)	367 (351)	98420 (165)
19	12.0 (5.8)	26.3 (7.4)	2.56 (2.22)	248 (96)	358 (353)	98260 (160)
20	15.4 (6.1)	26.8 (7.1)	1.34 (0.95)	338 (125)	316 (316)	97920 (179)
21	14.2 (3.9)	35.2 (8.3)	2.52 (2.52)	294 (108)	187 (209)	97720 (97)
22	12.6 (4.7)	31.9 (7.9)	2.72 (1.79)	316 (123)	364 (358)	98130 (130)
23	10.9 (4.4)	30.9 (9.4)	2.69 (1.60)	295 (109)	264 (292)	98090 (113)
24	12.4 (5.4)	26.3 (7.7)	2.46 (1.28)	159 (99)	364 (349)	98150 (213)
25	13.7 (4.7)	29.1 (7.9)	2.71 (1.16)	307 (115)	346 (349)	97810 (182)
26	13.7 (4.9)	30.2 (8.0)	2.77 (1.19)	301 (106)	346 (339)	97960 (93)
27	15.4 (5.7)	32.5 (9.6)	1.98 (1.26)	20 (120)	360 (347)	98180 (141)
28	18.4 (6.7)	30.5 (10.3)	1.64 (1.04)	294 (93)	360 (346)	97970 (214)
29	20.9 (6.1)	25.6 (8.6)	2.72 (2.90)	319 (119)	319 (349)	97660 (161)
30	22.1 (4.6)	25.8 (6.6)	3.26 (2.55)	260 (103)	322 (338)	97430 (170)
Avg	11.4	32.1	3.16	288.0	322	97890
n	30	30	30	30	30	30
SD	4.5	5.8	1.31	70.0	68	299
Min	3.3	24.1	1.34	20.0	155	97250
Max	22.1	47.8	8.19	341.0	378	98420

Table F1. Daily means (SD) of weather parameters at site WA5B for July, 2008.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	20.0 (4.3)	34.2 (8.8)	2.19 (1.28)	273 (100)	304 (323)	97490 (102)
2	19.9 (5.1)	32.4 (7.9)	2.58 (1.43)	352 (121)	310 (310)	97440 (220)
3	20.1 (4.1)	33.0 (6.3)	2.97 (1.48)	310 (109)	318 (320)	97020 (134)
4	14.2 (2.7)	39.9 (6.3)	3.12 (1.53)	297 (80)	260 (267)	97420 (138)
5						
6						
7	15.7 (6.1)	27.2 (8.5)	3.10 (1.70)	295 (80)	348 (342)	97980 (110)
8	17.7 (5.1)	24.7 (4.6)	2.90 (1.56)	293 (96)	353 (345)	98150 (192)
9	19.1 (5.8)	25.9 (8.3)	2.80 (1.53)	258 (100)	351 (340)	97670 (294)
10	15.1 (4.3)	27.0 (9.4)	3.31 (2.31)	302 (88)	357 (345)	97670 (243)
11	12.3 (5.6)	24.4 (8.9)	1.74 (1.12)	19 (121)	360 (348)	98610 (164)
12	15.5 (6.9)	24.7 (10.3)	1.39 (1.18)	316 (113)	355 (345)	98380 (218)
13	18.3 (5.5)	23.0 (6.9)	2.35 (1.28)	302 (112)	317 (328)	97870 (261)
14	18.5 (5.1)	24.0 (5.5)	2.23 (1.06)	315 (124)	312 (328)	97580 (155)
15	18.4 (4.6)	23.6 (7.6)	2.19 (1.23)	278 (107)	277 (308)	97630 (107)
16	17.6 (4.0)	25.4 (6.0)	2.47 (1.48)	317 (121)	324 (323)	97910 (100)
17	16.3 (5.0)	24.1 (6.1)	3.22 (1.38)	298 (104)	344 (340)	97840 (209)
18	15.6 (4.9)	24.7 (7.3)	2.53 (1.51)	292 (109)	343 (336)	97790 (141)
19	15.3 (5.0)	27.8 (7.3)	2.43 (1.52)	352 (132)	344 (336)	97640 (190)
20	17.5 (6.4)	24.9 (10.7)	2.51 (1.65)	156 (103)	331 (325)	97490 (154)
21	18.5 (5.4)	25.0 (8.1)	2.81 (1.86)	268 (100)	320 (327)	97430 (202)
22	15.7 (3.9)	33.1 (5.5)	3.73 (1.94)	268 (91)	255 (265)	97520 (128)
23	13.3 (4.9)	32.0 (7.7)	3.42 (1.78)	295 (105)	344 (336)	98040 (105)
24	14.6 (5.4)	32.2 (7.5)	2.23 (1.24)	302 (107)	340 (333)	98210 (131)
25	16.2 (5.9)	30.8 (8.9)	1.82 (1.22)	337 (132)	318 (320)	97910 (187)
26	16.2 (4.5)	28.6 (6.7)	2.99 (1.80)	305 (123)	293 (297)	97840 (134)
27	14.1 (4.1)	34.7 (6.9)	2.69 (1.55)	300 (109)	333 (328)	97900 (92)
28	13.9 (5.6)	30.7 (11.4)	2.24 (1.30)	32 (107)	330 (329)	97980 (202)
29	13.0 (2.8)	34.0 (5.5)	3.52 (2.30)	301 (102)	220 (218)	97880 (57)
30	11.8 (3.8)	31.8 (7.5)	2.95 (1.40)	313 (123)	333 (329)	98150 (152)
31						
Avg	16.2	28.7	2.66	305.0	321	97800
n	28	28	28	28	28	28
SD	2.3	4.4	0.55	78.0	33	327
Min	11.8	23.0	1.39	19.0	220	97020
Max	20.1	39.9	3.73	352.0	360	98610

Table F1. Daily means (SD) of weather parameters at site WA5B for August, 2008.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1						
2						
3						
4						
5						
6						
7						
8	15.4 (4.7)	41.6 (9.1)	2.03 (1.34)	321 (118)	220 (282)	97310 (74)
9	12.9 (3.9)	35.9 (9.6)	3.75 (3.63)	282 (105)	280 (326)	97830 (227)
10	11.2 (4.6)	36.4 (8.8)	1.96 (1.05)	334 (119)	304 (337)	98400 (77)
11	13.1 (6.2)	36.5 (10.4)	2.15 (1.27)	37 (114)	301 (328)	98270 (246)
12	15.3 (5.6)	36.0 (11.6)	2.31 (1.95)	185 (104)	256 (309)	97900 (143)
13	17.0 (4.6)	31.3 (7.3)	2.59 (1.19)	308 (114)	290 (321)	98060 (97)
14						
15	20.1 (5.8)	29.3 (7.9)	1.57 (1.14)	311 (107)	300 (309)	97870 (198)
16	20.3 (6.3)	27.9 (10.0)	1.73 (1.17)	50 (109)	287 (298)	97440 (228)
17	21.0 (4.6)	29.6 (9.3)	2.10 (1.87)	314 (114)	283 (298)	97050 (225)
18						
19						
20						
21	10.3 (3.1)	36.3 (7.7)	5.42 (2.84)	267 (53)	226 (271)	97590 (387)
22	9.6 (5.3)	37.9 (12.0)	1.38 (1.00)	45 (113)	261 (299)	98290 (162)
23	13.1 (6.3)	35.7 (11.5)	1.00 (0.89)	30 (126)	291 (309)	97980 (232)
24	14.0 (5.1)	34.4 (9.9)	2.35 (1.88)	334 (125)	220 (248)	97560 (139)
25	9.8 (3.3)	43.8 (7.8)	2.23 (1.65)	315 (118)	156 (204)	97640 (158)
26	9.8 (4.6)	30.2 (10.4)	2.46 (1.53)	250 (96)	283 (306)	98140 (260)
27						
28						
29						
30						
31						
Avg	14.2	34.9	2.3	225.5	263.9	97820
n	15	15	15	15	15	15
SD	3.9	4.5	1.1	121.6	41.6	375
Min	9.6	27.9	1.0	30.0	156.0	97050
Max	21.0	43.8	5.4	334.0	304.0	98400

Table F1. Daily means (SD) of weather parameters at site WA5B for September, 2008.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1						
2						
3						
4	12.1 (4.6)	26.5 (6.2)	2.59 (1.66)	280 (100)	227 (276)	98360 (103)
5	12.2 (5.7)	35.2 (9.6)	1.96 (1.33)	301 (93)	210 (266)	98180 (117)
6	13.2 (4.5)	35.0 (8.5)	1.86 (1.12)	330 (114)	218 (277)	98180 (138)
7	12.4 (3.6)	31.1 (7.1)	2.12 (1.44)	343 (123)	226 (276)	98320 (98)
8	11.5 (6.1)	30.7 (9.9)	1.22 (0.89)	305 (109)	226 (278)	97820 (382)
9	12.2 (6.1)	29.7 (9.8)	2.13 (1.65)	283 (108)	217 (270)	97230 (199)
10	11.2 (4.9)	28.7 (8.0)	2.10 (1.16)	276 (101)	220 (272)	98100 (145)
11						
12	12.2 (6.6)	32.1 (9.1)	1.57 (1.49)	308 (122)	166 (232)	97570 (175)
13	11.9 (5.2)	29.2 (10.0)	1.84 (1.13)	284 (103)	210 (263)	98250 (148)
14	11.2 (6.2)	31.3 (10.1)	0.79 (0.68)	11 (130)	210 (263)	98460 (100)
15	11.7 (6.3)	29.8 (11.1)	1.11 (0.94)	38 (115)	201 (254)	98340 (220)
16	12.7 (6.1)	30.3 (10.2)	0.96 (0.88)	68 (102)	191 (246)	98010 (180)
17						
18						
19	13.4 (4.0)	31.6 (7.6)	1.61 (1.46)	272 (106)	121 (199)	97540 (129)
20	6.3 (2.1)	52.1 (3.2)	1.58 (0.95)	285 (104)	23 (28)	97580 (94)
21	7.5 (4.0)	42.0 (8.7)	2.54 (1.54)	288 (85)	172 (240)	97830 (91)
22	5.7 (3.3)	37.0 (10.8)	3.17 (1.96)	270 (62)	190 (258)	98330 (242)
23	4.1 (4.8)	38.4 (9.6)	1.13 (0.97)	50 (110)	195 (301)	98710 (251)
24	6.2 (4.6)	38.5 (10.3)	1.29 (1.12)	360 (109)	142 (220)	97920 (229)
25	8.5 (3.6)	40.9 (10.8)	3.37 (3.06)	285 (97)	189 (248)	98000 (242)
26	5.6 (4.7)	45.3 (8.1)	1.25 (0.83)	338 (116)	152 (211)	98410 (158)
27	7.7 (5.9)	40.3 (12.1)	1.42 (0.94)	38 (116)	188 (244)	98430 (92)
28	8.0 (5.7)	38.3 (10.9)	1.06 (0.75)	322 (123)	188 (245)	98720 (120)
29	9.5 (6.0)	33.3 (10.7)	0.77 (0.60)	345 (121)	184 (241)	98470 (211)
30	10.4 (5.8)	31.5 (8.6)	0.98 (0.77)	57 (110)	165 (224)	98280 (116)
Avg	9.9	35.0	1.7	239.0	184.6	98130
n	24	24	24	24	24	24
SD	2.8	6.1	0.7	118.2	44.2	372
Min	4.1	26.5	0.8	11.0	23.0	97230
Max	13.4	52.1	3.4	360.0	227.0	98720

Table F1. Daily means (SD) of weather parameters at site WA5B for October, 2008.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	10.2 (5.0)	37.3 (10.4)	0.85 (0.67)	352 (120)	148 (257)	97930 (254)
2						
3						
4	5.1 (1.7)	46.3 (6.7)	5.87 (3.34)	208 (67)	80 (119)	96490 (443)
5	3.4 (2.8)	44.3 (6.6)	1.90 (1.19)	318 (115)	92 (119)	97820 (201)
6	5.1 (4.1)	48.1 (5.7)	1.36 (1.04)	338 (112)	121 (192)	98280 (138)
7	5.9 (2.7)	33.3 (8.3)	6.03 (3.08)	253 (49)	191 (244)	98720 (449)
8	1.6 (4.5)	35.8 (11.3)	1.69 (1.15)	257 (101)	186 (238)	99180 (295)
9	-0.3 (2.8)	40.1 (7.7)	1.99 (1.60)	268 (101)	88 (118)	98470 (88)
10	0.0 (3.1)	32.0 (9.2)	3.99 (1.97)	294 (121)	185 (241)	98740 (148)
11	0.0 (3.1)	26.4 (4.1)	3.46 (2.10)	318 (127)	180 (231)	98950 (159)
12	0.8 (3.5)	30.7 (6.1)	2.50 (2.09)	174 (86)	114 (158)	99070 (108)
13	4.1 (6.4)	38.9 (7.2)	1.78 (1.69)	316 (118)	163 (213)	99200 (198)
14	3.7 (3.9)	34.9 (11.5)	2.45 (1.31)	285 (99)	141 (194)	99200 (134)
15	0.6 (4.1)	36.3 (8.7)	2.65 (2.17)	171 (87)	152 (201)	98930 (188)
16	11.6 (9.3)	40.5 (8.1)	1.11 (0.89)	347 (127)	171 (215)	98770 (62)
17	16.6 (5.3)	52.3 (12.1)	1.07 (0.90)	294 (113)	171 (191)	98430 (301)
18	16.7 (3.8)	51.0 (11.9)	1.14 (0.81)	287 (108)	122 (120)	98130 (82)
19	13.0 (4.6)	42.8 (10.1)	0.95 (0.75)	309 (113)	173 (197)	98450 (178)
20	12.4 (3.2)	48.0 (8.5)	4.47 (3.84)	255 (84)	118 (149)	98180 (257)
21	12.0 (4.6)	37.4 (10.6)	2.47 (2.11)	209 (102)	181 (202)	99650 (309)
22	10.2 (5.3)	42.6 (11.5)	0.93 (0.82)	62 (105)	175 (202)	99600 (438)
23	10.4 (5.9)	46.3 (11.4)	1.55 (0.81)	75 (104)	160 (189)	98680 (106)
24	11.5 (5.0)	51.7 (12.9)	1.26 (1.05)	247 (101)	151 (168)	98780 (160)
25	14.0 (5.2)	44.5 (13.7)	1.14 (0.89)	263 (104)	139 (157)	99070 (219)
26	11.2 (5.5)	39.2 (17.3)	1.93 (1.10)	275 (87)	164 (182)	99600 (217)
27	12.0 (5.4)	31.3 (8.2)	0.77 (0.69)	60 (103)	159 (178)	99230 (117)
28	10.3 (4.7)	40.1 (8.4)	0.78 (0.84)	12 (123)	130 (141)	98990 (200)
29	9.9 (5.3)	48.2 (11.8)	0.81 (0.62)	4 (113)	145 (162)	98210 (271)
30	11.2 (4.5)	51.8 (10.2)	0.69 (0.73)	22 (119)	108 (121)	97940 (86)
31	15.0 (3.3)	54.9 (10.1)	1.87 (1.58)	73 (104)	98 (119)	98090 (241)
Avg	8.2	41.6	2.05	302.0	145	98650
n	29	29	29	29	29	29
SD	5.3	7.3	1.42	109.0	32	652
Min	-0.3	26.4	0.69	4.0	80	96490
Max	16.7	54.9	6.03	352.0	191	99650

Table F1. Daily means (SD) of weather parameters at site WA5B for November, 2008.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	11.5 (2.3)	78.0 (7.2)	1.14 (0.85)	216 (97)	86 (77)	97780 (363)
2	13.1 (2.7)	64.2 (14.9)	3.61 (2.39)	237 (73)	121 (131)	97370 (258)
3	11.3 (2.2)	65.3 (10.4)	2.65 (1.55)	91 (88)	93 (91)	97140 (555)
4	9.4 (2.2)	64.1 (16.7)	4.76 (3.74)	251 (57)	117 (128)	97020 (672)
5	7.1 (2.6)	64.5 (5.4)	0.80 (0.62)	205 (101)	85 (118)	98590 (183)
6	8.0 (0.9)	80.7 (3.7)	1.08 (1.00)	299 (108)	59 (42)	99030 (94)
7	9.1 (1.1)	79.8 (3.4)	0.94 (0.84)	57 (108)	57 (43)	98830 (213)
8	10.0 (1.5)	83.2 (4.7)	1.15 (1.19)	345 (113)	86 (116)	97700 (278)
9	11.2 (2.8)	77.3 (10.9)	0.72 (0.82)	10 (112)	102 (132)	97500 (44)
10	11.4 (4.2)	64.4 (17.2)	1.24 (1.16)	247 (102)	122 (147)	97900 (172)
11	11.5 (2.2)	69.1 (7.2)	5.18 (2.84)	173 (45)	82 (90)	97800 (168)
12	18.4 (3.0)	62.1 (10.6)	8.91 (3.18)	231 (30)	107 (124)	97430 (112)
13	13.0 (3.3)	46.6 (11.5)	3.54 (1.97)	287 (88)	138 (180)	98710 (624)
14	7.8 (3.9)	56.6 (11.2)	1.22 (0.86)	84 (94)	108 (143)	99960 (103)
15	8.1 (4.5)	62.6 (13.4)	0.86 (0.65)	91 (99)	104 (139)	99330 (314)
16	6.5 (3.3)	72.3 (9.9)	0.75 (0.72)	44 (111)	66 (89)	98820 (54)
17	8.0 (3.6)	73.7 (10.7)	0.65 (0.58)	48 (112)	87 (121)	98640 (141)
18	8.2 (3.4)	76.7 (9.6)	0.63 (0.57)	61 (106)	81 (117)	98590 (133)
19	9.7 (1.7)	52.2 (14.3)	1.99 (0.90)	254 (51)	53 (61)	99030 (120)
20	7.7 (2.2)	59.7 (6.1)	3.13 (2.63)	208 (80)	50 (66)	98310 (267)
21	8.3 (1.9)	55.9 (6.5)	2.67 (1.94)	164 (79)	87 (118)	98710 (455)
22	8.3 (3.8)	54.3 (13.3)	1.59 (0.96)	240 (91)	107 (140)	98540 (292)
23	4.9 (3.8)	64.4 (11.3)	0.79 (0.81)	268 (103)	100 (130)	99140 (101)
24	4.5 (4.1)	67.0 (12.6)	0.61 (0.61)	76 (97)	102 (136)	98850 (124)
25	3.5 (2.8)	76.4 (9.7)	0.82 (0.82)	310 (118)	72 (96)	98620 (67)
26	0.9 (1.5)	84.4 (2.3)	1.20 (1.05)	67 (102)	52 (61)	98970 (124)
27	1.9 (1.5)	82.9 (3.0)	1.06 (0.79)	278 (99)	39 (55)	98710 (96)
28	3.6 (1.0)	80.9 (3.1)	0.73 (0.67)	288 (105)	41 (45)	99160 (92)
29	5.6 (2.9)	77.0 (9.1)	1.24 (0.91)	89 (87)	78 (113)	99190 (77)
30	5.7 (2.0)	82.1 (5.7)	1.28 (0.82)	62 (86)	57 (77)	99120 (226)
Avg	8.3	69.3	1.90	275.0	85	98480
n	30	30	30	30	30	30
SD	3.6	10.3	1.79	98.0	26	716
Min	0.9	46.6	0.61	10.0	39	97020
Max	18.4	84.4	8.91	345.0	138	99960

Table F1. Daily means (SD) of weather parameters at site WA5B for December, 2008.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	6.2 (0.9)	86.0 (1.5)	1.03 (0.71)	299 (111)	38 (36)	97960 (355)
2	9.3 (5.3)	72.2 (15.1)	1.81 (1.77)	73 (100)	101 (132)	98320 (513)
3	5.6 (1.9)	62.3 (17.8)	1.78 (1.14)	94 (83)	53 (60)	99300 (84)
4	4.1 (3.6)	49.3 (11.4)	1.40 (0.96)	121 (78)	98 (129)	99700 (140)
5	2.4 (3.2)	60.4 (9.8)	0.90 (0.77)	27 (113)	75 (112)	99080 (180)
6	5.4 (3.6)	59.9 (11.1)	0.74 (0.60)	250 (103)	89 (127)	98600 (164)
7	6.1 (3.2)	69.5 (4.5)	1.26 (1.17)	173 (100)	34 (35)	97980 (151)
8	7.5 (3.6)	56.1 (10.9)	1.87 (1.13)	222 (79)	87 (121)	98580 (292)
9	3.2 (1.7)	73.8 (3.9)	0.97 (0.77)	283 (105)	42 (54)	99120 (47)
10	6.1 (3.9)	68.1 (12.1)	1.01 (0.75)	241 (97)	89 (119)	99450 (90)
11	2.3 (2.1)	83.2 (4.1)	1.19 (0.92)	86 (86)	54 (63)	99490 (242)
12	2.0 (4.4)	77.2 (13.2)	5.15 (5.66)	245 (79)	37 (57)	96800 (1201)
13	3.1 (3.1)	67.3 (13.6)	4.02 (4.17)	292 (115)	39 (37)	96270 (474)
14	-6.9 (1.2)	68.7 (4.6)	2.81 (1.77)	8 (155)	35 (32)	98000 (330)
15	-7.8 (1.8)	71.9 (5.5)	1.96 (1.22)	296 (105)	27 (19)	98540 (151)
16	-11.0 (2.6)	65.7 (7.8)	1.69 (1.45)	193 (85)	98 (144)	98880 (225)
17	-10.2 (2.3)	74.5 (2.3)	1.51 (1.61)	42 (104)	53 (64)	97600 (452)
18						
19	-5.8 (1.1)	71.6 (6.5)	0.82 (0.73)	79 (99)	53 (58)	98530 (462)
20	-9.6 (1.2)	65.2 (10.5)	2.74 (1.03)	97 (63)	68 (89)	99550 (205)
21	-8.5 (1.9)	84.4 (1.5)	2.41 (2.00)	268 (54)	53 (59)	98070 (598)
22	-7.7 (1.4)	81.7 (2.2)	1.06 (0.99)	76 (104)	62 (75)	97360 (167)
23	-6.2 (1.5)	82.1 (2.1)	0.84 (0.66)	78 (97)	50 (55)	97900 (59)
24	-5.7 (1.1)	82.1 (2.6)	1.26 (0.87)	74 (92)	47 (49)	96830 (654)
25	-6.1 (0.9)	82.9 (3.3)	1.02 (0.76)	264 (85)	44 (46)	96620 (472)
26	-6.5 (2.8)	84.1 (2.4)	0.95 (1.38)	320 (122)	47 (52)	98120 (241)
27	5.5 (5.4)	72.8 (6.3)	6.06 (3.08)	225 (45)	67 (87)	97280 (127)
28	9.3 (1.9)	62.8 (7.7)	4.86 (2.79)	219 (72)	72 (84)	97540 (446)
29	5.5 (1.8)	68.3 (13.7)	5.87 (4.77)	242 (76)	78 (112)	97730 (590)
30	4.6 (1.3)	66.6 (5.3)	2.62 (3.01)	242 (86)	77 (118)	98790 (353)
31	6.8 (2.1)	58.2 (9.2)	5.70 (3.91)	218 (66)	58 (63)	97820 (234)
Avg	0.1	71.0	2.24	243.0	61	98190
n	30	30	30	30	30	30
SD	6.6	9.4	1.65	94.0	21	905
Min	-11.0	49.3	0.74	8.0	27	96270
Max	9.3	86.0	6.06	320.0	101	99700

Table F1. Daily means (SD) of weather parameters at site WA5B for January, 2009.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	7.4 (2.9)	73.0 (9.0)	5.60 (3.62)	212 (64)	50 (55)	96760 (550)
2	3.3 (2.7)	70.9 (14.7)	2.09 (1.52)	255 (85)	101 (132)	96950 (861)
3	-1.5 (3.3)	67.6 (9.4)	0.71 (1.01)	90 (79)	102 (133)	98750 (246)
4	-5.8 (0.6)	81.2 (3.8)	1.90 (2.00)	86 (35)	51 (57)	98400 (707)
5	-2.9 (1.2)	85.2 (1.3)	0.77 (0.86)	266 (95)	48 (51)	97240 (388)
6	8.9 (4.7)	68.9 (9.3)	6.43 (4.84)	218 (67)	70 (93)	97290 (291)
7	14.3 (1.0)	59.9 (3.3)	9.08 (2.79)	225 (21)	81 (172)	97190 (80)
8	10.8 (3.0)	53.4 (7.1)	5.92 (2.51)	255 (28)	82 (143)	97660 (731)
9	4.9 (2.4)	59.7 (7.2)	1.33 (1.18)	208 (86)	85 (115)	99710 (181)
10	3.3 (1.4)	72.8 (3.8)	0.80 (0.85)	268 (100)	40 (40)	99670 (68)
11	4.9 (2.5)	74.6 (6.8)	0.86 (0.91)	256 (101)	69 (81)	99820 (99)
12	8.0 (4.6)	73.6 (12.7)	0.89 (0.79)	251 (102)	98 (126)	99890 (137)
13	4.4 (2.6)	82.1 (6.6)	1.39 (1.40)	118 (96)	74 (88)	99450 (101)
14						
15	0.1 (0.6)	87.8 (1.3)	0.45 (0.52)	16 (132)	36 (27)	100000 (65)
16	-0.6 (0.3)	87.5 (1.0)	0.86 (0.88)	300 (105)	30 (18)	100200 (118)
17	0.5 (0.5)	87.2 (1.2)	0.70 (0.60)	309 (62)	29 (16)	100500 (80)
18	1.2 (0.6)	83.1 (3.3)	1.24 (0.78)	271 (34)	34 (23)	100700 (48)
19	1.3 (0.4)	77.5 (2.0)	0.90 (0.68)	264 (76)	31 (17)	100400 (219)
20	0.6 (0.5)	80.8 (2.6)	1.23 (0.96)	75 (38)	35 (23)	
21	-0.4 (0.5)	79.1 (2.7)	1.55 (0.93)	100 (37)	42 (95)	
22	0.0 (0.6)	76.4 (2.9)	0.93 (0.82)	92 (79)	35 (23)	98780 (118)
23	-0.3 (0.8)	72.9 (3.7)	1.13 (1.07)	39 (121)	40 (32)	99320 (136)
24	0.1 (1.2)	79.6 (4.6)	1.09 (0.82)	318 (100)	65 (72)	98810 (129)
25	-0.8 (1.8)	72.2 (9.5)	1.63 (1.04)	292 (111)	85 (103)	98840 (126)
26	-3.6 (3.3)	58.4 (12.3)	3.97 (3.15)	197 (62)	133 (167)	99540 (179)
27	-2.3 (3.0)	67.1 (6.7)	2.01 (1.54)	170 (87)	79 (97)	98930 (339)
28						
29	4.7 (2.1)	67.7 (6.4)	0.78 (0.73)	241 (105)	79 (84)	99850 (42)
30	4.2 (4.0)	73.3 (11.5)	1.56 (1.65)	124 (90)	116 (149)	99160 (510)
31	6.3 (2.9)	49.9 (9.2)	1.82 (1.30)	232 (83)	107 (137)	99150 (209)
Avg	2.5	73.2	2.06	240.0	66	99000
n	29	29	29	29	29	27
SD	4.5	9.8	2.05	86.0	29	1128
Min	-5.8	49.9	0.45	16.0	29	96760
Max	14.3	87.8	9.08	318.0	133	100700

Table F1. Daily means (SD) of weather parameters at site WA5B for February, 2009.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	3.2 (2.1)	66.4 (5.1)	0.97 (0.82)	321 (109)	63 (66)	99480 (148)
2	3.3 (1.6)	71.9 (6.0)	0.57 (0.58)	290 (110)	61 (64)	99070 (50)
3	4.8 (5.3)	68.1 (17.1)	0.51 (0.51)	297 (113)	136 (170)	98960 (222)
4	5.3 (4.7)	69.4 (14.6)	0.82 (0.80)	62 (106)	125 (159)	98400 (197)
5	3.3 (1.6)	81.7 (4.2)	1.02 (1.21)	24 (113)	56 (61)	97600 (264)
6	3.2 (1.4)	85.3 (2.0)	0.75 (0.56)	298 (112)	59 (65)	97820 (448)
7	2.0 (3.7)	82.7 (9.2)	1.35 (1.38)	68 (96)	100 (131)	98830 (198)
8	-0.8 (2.9)	85.1 (5.2)	2.23 (2.27)	109 (64)	76 (101)	97400 (485)
9	4.9 (4.6)	63.7 (20.2)	1.19 (0.92)	260 (108)	120 (172)	97470 (266)
10	2.4 (1.3)	69.0 (11.5)	2.08 (1.75)	193 (81)	65 (73)	97880 (84)
11	2.9 (1.5)	75.9 (9.6)	1.41 (1.08)	264 (54)	74 (107)	98390 (189)
12	3.3 (1.2)	73.3 (4.2)	1.35 (0.98)	68 (93)	53 (66)	98400 (120)
13	4.3 (2.7)	69.7 (11.0)	2.90 (0.99)	273 (80)	109 (146)	97790 (331)
14	5.3 (2.9)	68.2 (10.1)	1.23 (0.89)	248 (102)	107 (127)	97680 (242)
15	2.8 (1.6)	82.4 (2.3)	0.95 (0.78)	277 (101)	51 (48)	97670 (185)
16	5.2 (1.7)	75.9 (5.4)	2.26 (1.03)	268 (42)	71 (76)	97250 (180)
17	7.6 (3.3)	69.3 (10.6)	2.29 (2.34)	152 (92)	130 (176)	97620 (349)
18	7.7 (5.6)	69.6 (17.8)	1.38 (1.24)	62 (100)	168 (212)	98850 (229)
19	3.2 (1.5)	79.9 (14.2)	1.79 (1.08)	75 (50)	56 (54)	99060 (165)
20	4.6 (2.4)	78.8 (9.6)	1.62 (1.13)	307 (105)	97 (136)	99070 (88)
21	3.7 (1.8)	75.8 (8.3)	1.62 (1.08)	55 (104)	63 (64)	98810 (262)
22	3.8 (2.6)	81.0 (7.5)	0.96 (0.83)	62 (101)	88 (128)	98140 (98)
23	5.3 (1.1)	84.7 (3.6)	2.19 (2.40)	279 (106)	50 (44)	97700 (306)
24	10.5 (2.7)	62.5 (10.1)	8.78 (2.96)	215 (26)	152 (193)	97410 (137)
25	9.5 (2.0)	63.4 (8.2)	7.66 (2.08)	228 (16)	111 (147)	97170 (151)
26	4.4 (2.1)	53.2 (8.8)	4.38 (2.21)	259 (40)	139 (203)	98000 (622)
27	4.2 (4.3)	58.5 (12.4)	1.41 (1.19)	55 (106)	183 (224)	99150 (75)
28	5.1 (3.1)	59.7 (9.7)	1.76 (1.25)	277 (66)	127 (144)	99040 (249)
Avg	4.5	72.3	2.05	298.0	96	98220
n	28	28	28	28	28	28
SD	2.2	8.6	1.89	101.0	38	684
Min	-0.8	53.2	0.51	24.0	50	97170
Max	10.5	85.3	8.78	321.0	183	99480

Table F1. Daily means (SD) of weather parameters at site WA5B for March, 2009.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	6.4 (1.8)	68.9 (11.5)	1.56 (1.17)	270 (75)	69 (78)	98070 (274)
2	7.6 (2.8)	81.0 (4.7)	3.45 (3.57)	112 (79)	102 (141)	97290 (134)
3	9.2 (3.5)	73.4 (20.1)	1.54 (1.40)	82 (99)	120 (167)	97180 (117)
4	7.7 (4.1)	69.8 (14.6)	1.85 (1.50)	229 (74)	185 (236)	97470 (60)
5	7.4 (2.7)	59.8 (10.4)	6.46 (4.29)	262 (81)	139 (196)	97370 (251)
6	4.2 (3.0)	53.7 (13.3)	3.00 (2.27)	196 (80)	201 (254)	98510 (194)
7	5.5 (4.3)	54.6 (14.8)	5.34 (4.43)	272 (89)	209 (251)	97880 (237)
8	4.5 (3.6)	50.1 (13.4)	1.63 (1.32)	241 (88)	179 (208)	97880 (59)
9	3.5 (3.1)	57.7 (12.8)	3.20 (3.02)	247 (82)	154 (183)	97850 (131)
10	0.2 (2.4)	44.2 (12.1)	3.86 (1.82)	83 (68)	206 (248)	98990 (392)
11	1.8 (3.8)	39.1 (8.7)	1.97 (1.07)	73 (78)	222 (260)	99490 (88)
12						
13	3.6 (4.2)	49.8 (9.1)	0.64 (1.00)	66 (105)		98710 (605)
14	6.8 (2.7)	60.7 (6.2)	4.49 (4.30)	195 (83)	57 (43)	97070 (330)
15	9.3 (2.9)	54.2 (8.6)	8.34 (5.16)	221 (53)	213 (264)	96420 (416)
16	8.0 (2.8)	51.5 (8.8)	6.04 (2.96)	213 (54)	210 (264)	97770 (255)
17	8.6 (2.4)	54.4 (8.0)	6.44 (2.84)	225 (43)	147 (186)	98740 (176)
18	11.1 (4.3)	52.4 (12.3)	0.94 (0.94)	73 (107)	177 (220)	99010 (179)
19	11.4 (4.9)	57.8 (11.6)	1.58 (1.67)	123 (101)	149 (189)	98210 (198)
20	13.8 (4.1)	55.1 (13.1)	3.23 (2.86)	225 (84)	220 (254)	97630 (212)
21	11.4 (2.6)	59.3 (10.4)	1.33 (0.99)	95 (97)	113 (148)	97250 (220)
22	10.3 (3.7)	53.6 (15.1)	2.86 (3.04)	274 (97)	171 (211)	97550 (484)
23	8.4 (4.5)	45.8 (15.7)	3.03 (1.88)	246 (72)	220 (271)	98900 (118)
24	9.9 (3.6)	55.8 (14.7)	4.67 (4.03)	239 (79)	142 (164)	98590 (229)
25	9.6 (2.5)	48.0 (6.8)	4.18 (2.94)	279 (91)	134 (164)	97980 (176)
26		36.1 (14.3)	2.11 (1.37)		250 (290)	99000 (202)
27	11.0 (5.1)	40.9 (8.4)	2.20 (1.98)	264 (104)	171 (188)	98480 (221)
28	8.1 (1.8)	66.2 (12.2)	1.71 (1.70)	58 (101)	76 (79)	97520 (582)
29	8.2 (3.5)	45.1 (16.0)	5.42 (2.32)	295 (38)	258 (303)	97770 (548)
30	9.3 (5.3)	42.5 (11.1)	1.81 (1.29)	284 (106)	227 (262)	98700 (149)
31	9.6 (3.2)	43.8 (10.6)	6.02 (4.55)	264 (81)	205 (252)	97750 (316)
Avg	7.8	54.2	3.36	233.0	170	98030
n	29	30	30	29	29	30
SD	3.1	10.2	1.94	79.0	53	707
Min	0.2	36.1	0.64	58.0	57	96420
Max	13.8	81.0	8.34	295.0	258	99490

Table F1. Daily means (SD) of weather parameters at site WA5B for April, 2009.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	5.9 (2.2)	57.2 (10.5)	4.30 (3.51)	200 (66)	105 (118)	97870 (388)
2	11.5 (3.3)	48.7 (14.6)	6.54 (2.88)	262 (41)	246 (293)	96830 (108)
3	10.4 (4.6)	36.5 (10.1)	3.25 (1.92)	282 (86)	248 (303)	97710 (343)
4	10.7 (5.4)	40.1 (11.5)	2.15 (1.59)	45 (103)	279 (312)	98780 (137)
5	12.8 (6.5)	43.5 (14.9)	1.58 (1.44)	60 (104)	268 (298)	98950 (100)
6	16.3 (6.6)	37.2 (12.5)	1.47 (1.27)	88 (102)	280 (312)	98610 (334)
7	17.6 (6.6)	38.9 (13.4)	1.54 (1.48)	15 (115)	261 (300)	97530 (495)
8	15.9 (3.6)	41.0 (7.7)	4.58 (2.57)	263 (35)	193 (221)	96890 (200)
9	14.6 (4.0)	42.5 (8.9)	2.63 (1.58)	236 (105)	210 (252)	97410 (102)
10	14.5 (4.3)	57.5 (14.8)	1.52 (1.16)	266 (96)	224 (262)	97440 (100)
11	13.8 (4.5)	44.5 (13.4)	2.89 (1.62)	259 (77)	272 (310)	97870 (252)
12	13.4 (2.0)	56.6 (4.9)	4.64 (2.50)	202 (41)	90 (116)	98220 (199)
13	10.5 (2.9)	41.4 (9.2)	8.00 (2.65)	252 (15)	295 (337)	98120 (107)
14	6.7 (3.3)	59.6 (8.8)	3.58 (2.28)	271 (65)	228 (277)	97980 (63)
15	11.7 (5.6)	43.7 (16.1)	3.52 (1.62)	286 (99)	284 (322)	98180 (121)
16	14.5 (5.1)	36.8 (11.2)	3.21 (2.18)	168 (85)	280 (304)	98810 (133)
17	14.1 (4.7)	43.4 (9.5)	2.87 (2.57)	288 (101)	201 (257)	98870 (147)
18	14.1 (6.0)	40.9 (15.2)	1.86 (1.30)	31 (114)	283 (307)	99200 (228)
19	18.6 (6.9)	37.1 (10.6)	2.43 (2.25)	161 (91)	287 (309)	98890 (203)
20	22.1 (6.6)	36.1 (12.5)	1.68 (1.54)	69 (111)	310 (329)	98620 (216)
21	22.7 (6.6)	33.1 (11.3)	1.55 (1.14)	299 (117)	312 (332)	98100 (284)
22	17.8 (4.4)	30.9 (7.9)	3.87 (3.11)	300 (94)	217 (214)	97430 (173)
23	10.7 (4.1)	33.0 (6.7)	3.36 (1.71)	302 (104)	285 (322)	97830 (120)
24	12.0 (5.7)	33.1 (11.4)	2.87 (2.42)	290 (111)	318 (336)	98140 (150)
25	12.5 (4.2)	34.3 (8.5)	4.08 (2.39)	288 (69)	313 (338)	97970 (143)
26	14.3 (5.2)	34.6 (10.3)	3.17 (1.57)	244 (88)	314 (342)	98360 (221)
27	13.2 (3.3)	43.8 (7.1)	3.78 (2.61)	352 (124)	197 (215)	97700 (183)
28	10.4 (2.0)	51.3 (13.9)	3.85 (2.29)	7 (153)	202 (224)	97980 (287)
29	9.3 (2.5)	68.0 (10.9)	2.64 (1.27)	299 (72)	108 (122)	98680 (116)
30	14.5 (4.9)	40.7 (15.0)	2.23 (1.32)	310 (112)	316 (351)	98710 (75)
Avg	13.6	42.9	3.19	287.0	247	98120
n	30	30	30	30	30	30
SD	3.7	9.0	1.45	102.0	62	598
Min	5.9	30.9	1.47	7.0	90	96830
Max	22.7	68.0	8.00	352.0	318	99200

Table F1. Daily means (SD) of weather parameters at site WA5B for May, 2009.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	15.0 (6.1)	40.6 (14.9)	1.87 (1.79)	34 (112)	308 (321)	98160 (462)
2	13.9 (2.8)	56.7 (13.8)	1.58 (1.49)	293 (108)	164 (214)	97440 (189)
3	14.8 (4.3)	47.9 (14.6)	1.40 (1.39)	313 (119)	253 (288)	97870 (93)
4	13.0 (2.9)	63.1 (14.5)	2.74 (2.42)	112 (70)	163 (198)	97340 (645)
5	15.3 (2.5)	47.5 (14.7)	8.57 (4.65)	244 (29)	321 (343)	97210 (461)
6	13.8 (2.3)	57.4 (9.8)	5.09 (3.83)	201 (71)	160 (168)	97660 (148)
7	13.9 (3.8)	42.0 (13.6)	5.62 (2.80)	266 (41)	343 (359)	98490 (266)
8	14.8 (5.4)	40.4 (13.4)	2.31 (1.33)	162 (96)	353 (356)	98900 (187)
9	16.6 (6.3)	39.2 (14.5)	1.49 (1.12)	291 (102)	342 (358)	98550 (135)
10	18.5 (5.7)	40.5 (15.3)	2.19 (1.89)	31 (121)	313 (328)	98130 (339)
11	17.6 (3.5)	39.3 (11.8)	4.63 (3.05)	277 (81)	339 (346)	97620 (107)
12	12.5 (2.8)	38.1 (9.8)	8.43 (3.12)	264 (24)	310 (347)	97840 (269)
13	11.5 (3.4)	52.6 (16.1)	3.06 (2.37)	163 (80)	196 (233)	98100 (443)
14	17.0 (3.8)	44.0 (16.9)	7.21 (2.87)	264 (39)	352 (360)	97630 (416)
15	17.0 (6.0)	36.3 (13.8)	2.06 (1.26)	357 (109)	356 (354)	98630 (102)
16	20.7 (7.2)	31.5 (12.4)	2.03 (1.44)	78 (96)	349 (352)	98430 (200)
17	25.0 (6.9)	31.9 (10.6)	2.33 (2.09)	176 (95)	347 (345)	97970 (301)
18	25.6 (5.7)	33.0 (9.0)	2.92 (2.60)	273 (99)	358 (353)	97240 (324)
19	17.3 (3.3)	35.1 (9.5)	7.31 (2.46)	268 (22)	346 (366)	97570 (310)
20	16.1 (5.6)	35.7 (12.4)	1.97 (1.41)	90 (105)	368 (360)	98480 (136)
21	18.2 (6.0)	33.9 (13.1)	1.83 (1.46)	353 (116)	357 (358)	98320 (185)
22	21.4 (6.6)	28.7 (10.0)	1.10 (1.11)	3 (129)	365 (355)	98040 (170)
23	24.2 (6.4)	28.2 (11.4)	2.28 (2.00)	291 (109)	357 (350)	97720 (174)
24	24.6 (5.9)	21.7 (8.0)	4.00 (2.07)	281 (71)	369 (361)	97680 (131)
25	23.7 (5.6)	25.9 (8.5)	3.15 (1.61)	284 (84)	367 (359)	97780 (158)
26	22.6 (4.8)	35.2 (9.5)	2.95 (1.78)	293 (104)	345 (343)	97990 (97)
27	22.9 (5.8)	37.6 (13.7)	2.40 (1.53)	54 (109)	355 (350)	98080 (185)
28	25.4 (6.4)	32.7 (9.9)	1.96 (1.00)	354 (127)	367 (353)	97910 (182)
29	27.9 (6.7)	33.1 (10.5)	2.57 (2.05)	35 (113)	335 (347)	97730 (170)
30	29.6 (5.3)	29.2 (10.4)	2.51 (1.55)	308 (119)	370 (357)	97540 (186)
31	28.7 (5.7)	22.7 (7.8)	1.81 (1.29)	313 (118)	343 (339)	97450 (160)
Avg	19.3	38.1	3.27	304.0	322	97920
n	31	31	31	31	31	31
SD	5.2	9.7	2.06	108.0	63	422
Min	11.5	21.7	1.10	3.0	160	97210
Max	29.6	63.1	8.57	357.0	370	98900

Table F1. Daily means (SD) of weather parameters at site WA5B for June, 2009.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	28.0 (4.4)	24.8 (6.3)	2.76 (1.41)	333 (122)	310 (311)	97500 (95)
2	24.6 (3.3)	32.0 (5.7)	4.37 (2.44)	24 (115)	347 (352)	97880 (163)
3	25.5 (5.2)	30.0 (7.8)	2.50 (1.15)	298 (102)	354 (349)	97850 (160)
4	25.8 (5.2)	36.6 (10.9)	2.59 (3.26)	315 (119)	253 (259)	97410 (207)
5	24.7 (5.1)	53.6 (15.8)	2.13 (1.77)	315 (109)	337 (343)	96920 (336)
6	23.2 (4.6)	45.5 (12.3)	4.11 (1.82)	308 (110)	302 (320)	96890 (199)
7	18.6 (2.9)	64.3 (11.6)	1.85 (1.28)	218 (76)	189 (214)	97540 (87)
8	21.5 (5.1)	51.3 (16.4)	2.18 (1.71)	52 (108)	363 (372)	97480 (143)
9	23.3 (5.3)	42.3 (16.3)	1.56 (1.34)	48 (110)	362 (355)	97390 (160)
10						
11	24.8 (5.2)	36.8 (13.0)	2.39 (1.21)	282 (106)	354 (359)	97430 (131)
12	23.7 (4.5)	44.0 (11.2)	2.71 (2.26)	238 (94)	290 (311)	97460 (116)
13	23.8 (5.2)	47.0 (15.1)	2.06 (2.24)	283 (108)	319 (350)	
14	24.0 (2.9)	45.4 (7.5)	4.26 (1.89)	228 (56)	274 (314)	
15	25.2 (4.9)	40.7 (10.8)	2.73 (1.64)	291 (80)	371 (358)	
16						
17						
18	23.9 (4.7)	35.2 (11.2)	2.91 (1.78)	282 (108)	358 (361)	97700 (272)
19	23.0 (3.6)	43.1 (9.1)	2.86 (1.86)	314 (112)	271 (283)	97320 (78)
20	20.7 (4.8)	39.2 (10.2)	3.54 (1.55)	295 (90)	381 (363)	97320 (216)
21	18.2 (3.7)	40.0 (8.2)	3.08 (2.09)	298 (85)	264 (267)	97570 (150)
22						
23	21.7 (5.9)	34.8 (11.7)	2.11 (1.27)	357 (123)	350 (355)	98000 (286)
24	26.2 (5.6)	29.3 (9.4)	4.24 (3.34)	254 (97)	378 (355)	97390 (196)
25	22.7 (4.4)	36.4 (8.3)	2.92 (2.04)	315 (121)	371 (356)	98070 (170)
26	22.9 (5.4)	30.4 (12.1)	3.05 (1.73)	281 (57)	381 (361)	98340 (94)
27	25.1 (6.3)	23.7 (9.3)	3.48 (2.39)	177 (86)	376 (355)	98440 (298)
28	25.9 (4.8)	28.8 (8.6)	2.84 (1.92)	295 (112)	380 (362)	98160 (193)
29	24.6 (5.5)	24.0 (6.3)	3.40 (2.24)	300 (113)	383 (363)	97940 (216)
30	25.7 (5.7)	22.3 (7.4)	3.47 (2.28)	284 (86)	385 (365)	97920 (124)
Avg	23.7	37.7	2.93	297.0	335	97650
n	26	26	26	26	26	23
SD	2.2	9.9	0.75	86.0	50	395
Min	18.2	22.3	1.56	24.0	189	96890
Max	28.0	64.3	4.37	357.0	385	98440

Table F1. Daily means (SD) of weather parameters at site WA5B for July, 2009.

Day	Temp., °C	RH, %	Wind speed, m·s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	26.5 (6.3)	24.9 (7.5)	2.05 (1.28)	305 (106)	388 (359)	98000 (163)
2	28.0 (7.0)	26.0 (8.9)	0.91 (0.94)	332 (123)	373 (352)	97780 (182)
3	29.8 (6.7)	25.5 (11.5)	1.93 (1.77)	41 (117)	362 (343)	97670 (127)
4	31.1 (5.8)	23.5 (10.0)	2.31 (2.14)	308 (114)	364 (350)	97590 (197)
5	29.4 (4.6)	25.2 (9.2)	2.30 (1.93)	317 (122)	305 (294)	97370 (170)
6	23.5 (3.6)	35.9 (10.8)	4.56 (2.63)	303 (74)	365 (354)	97720 (204)
7	21.3 (5.0)	40.8 (10.8)	1.99 (1.41)	316 (123)	333 (330)	97790 (173)
8						
9	22.8 (5.3)	39.1 (11.4)	2.70 (1.09)	287 (65)	366 (347)	98110 (83)
10	25.7 (5.9)	33.7 (10.9)	1.91 (1.45)	313 (122)	361 (341)	98150 (173)
11	29.7 (6.1)	26.3 (5.9)	2.85 (1.29)	288 (96)	361 (342)	97770 (228)
12	28.0 (5.0)	36.6 (13.1)	4.85 (2.57)	263 (89)	324 (353)	97560 (151)
13	23.2 (4.5)	43.4 (12.7)	2.85 (1.69)	290 (84)	326 (344)	98150 (105)
14	24.0 (6.0)	37.9 (14.8)	1.78 (1.05)	17 (126)	373 (356)	98220 (214)
15	27.4 (6.5)	30.5 (12.1)	1.93 (1.47)	4 (122)	366 (350)	98050 (120)
16						
17	30.9 (5.4)	28.0 (11.0)	2.07 (1.71)	319 (117)	331 (323)	98190 (149)
18	30.3 (4.9)	30.0 (7.2)	2.23 (1.25)	302 (104)	329 (314)	97980 (159)
19	28.0 (5.6)	29.8 (11.8)	2.40 (1.56)	292 (102)	367 (351)	98200 (139)
20	28.1 (5.3)	28.9 (5.9)	1.93 (1.22)	297 (91)	346 (338)	98150 (212)
21	30.5 (6.2)	28.1 (10.8)	1.63 (1.59)	39 (118)	344 (331)	97770 (176)
22	31.5 (5.6)	32.0 (10.3)	3.00 (1.81)	282 (107)	338 (324)	97530 (227)
23	28.8 (4.1)	34.1 (7.4)	4.23 (2.00)	302 (97)	314 (300)	97500 (116)
24	27.3 (4.8)	39.3 (9.2)	2.32 (1.38)	344 (117)	350 (346)	97860 (78)
25	28.1 (5.3)	41.3 (11.0)	1.61 (1.59)	337 (125)	310 (319)	97940 (75)
26	30.5 (5.0)	38.0 (10.6)	1.66 (1.16)	322 (113)	341 (335)	98180 (95)
27	31.2 (5.3)	38.2 (9.6)	1.01 (0.99)	330 (118)	335 (329)	98190 (209)
28	32.0 (5.2)	38.6 (8.9)	1.19 (1.11)	21 (128)	286 (300)	97620 (209)
29						97680 (147)
30	31.0 (5.8)	33.4 (12.1)	1.50 (1.53)	13 (116)	317 (317)	97570 (174)
31	32.0 (6.0)	35.1 (11.9)	2.17 (1.51)	49 (99)	306 (313)	97530 (106)
Avg	28.2	33.0	2.28	325.0	342	97860
n	28	28	28	28	28	29
SD	3.0	5.7	0.93	123.0	25	261
Min	21.3	23.5	0.91	4.0	286	97370
Max	32.0	43.4	4.85	344.0	388	98220

Table F1. Daily means (SD) of weather parameters at site WA5B for August, 2009.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	33.1 (6.2)	34.0 (9.4)	1.53 (1.48)	328 (128)	310 (309)	97470 (197)
2	33.2 (4.5)	23.4 (5.5)	2.35 (1.41)	310 (111)	326 (324)	97380 (188)
3	32.1 (5.1)	28.9 (10.2)	2.30 (1.41)	299 (107)	316 (317)	97320 (136)
4	30.3 (6.2)	24.3 (6.0)	2.78 (2.14)	291 (110)	294 (314)	97430 (117)
5						
6	24.5 (2.3)	36.7 (8.0)	3.67 (2.33)	274 (68)	174 (210)	97220 (62)
7	24.1 (4.6)	40.7 (9.5)	3.71 (1.65)	277 (93)	249 (290)	97520 (180)
8	24.0 (4.6)	41.7 (10.6)	3.52 (2.51)	219 (97)	306 (312)	98070 (125)
9	25.5 (4.5)	42.0 (10.2)	2.03 (1.33)	317 (118)	327 (325)	98030 (154)
10	25.9 (5.4)	41.0 (12.4)	2.91 (2.16)	324 (121)	326 (337)	97970 (111)
11	25.9 (3.9)	45.9 (7.9)	2.11 (1.36)	332 (114)	231 (248)	97970 (63)
12						
13						
14	20.2 (5.0)	41.5 (10.3)	2.71 (1.54)	287 (91)	308 (319)	98220 (91)
15	22.2 (6.0)	39.1 (12.9)	2.22 (1.93)	281 (109)	321 (315)	98250 (157)
16	23.1 (5.8)	39.5 (10.6)	2.18 (1.56)	286 (86)	319 (312)	98300 (100)
17	25.6 (5.4)	36.5 (9.7)	1.81 (1.16)	291 (106)	281 (289)	98350 (162)
18	27.7 (6.6)	34.8 (14.7)	1.93 (1.76)	305 (116)	311 (304)	97850 (277)
19	29.8 (6.4)	34.2 (9.3)	1.50 (1.21)	35 (116)	298 (294)	97430 (138)
20	31.7 (6.6)	35.1 (14.1)	1.97 (1.74)	14 (120)	288 (285)	97330 (141)
21	28.0 (4.8)	35.8 (7.4)	2.48 (1.67)	325 (124)	297 (297)	97800 (137)
22	23.9 (5.0)	39.0 (12.8)	2.63 (1.60)	318 (110)	294 (308)	97910 (324)
23	24.2 (5.0)	32.0 (10.7)	3.99 (1.75)	266 (57)	309 (307)	97690 (122)
24	23.2 (6.1)	35.2 (11.1)	1.84 (1.26)	354 (118)	304 (301)	97840 (207)
25	24.5 (4.6)	31.9 (8.5)	1.81 (1.73)	342 (122)	284 (291)	97850 (107)
26	23.6 (6.4)	37.7 (12.3)	1.68 (1.34)	16 (119)	262 (289)	98140 (108)
27	26.2 (7.2)	33.7 (14.2)	1.10 (0.96)	299 (102)	294 (313)	98360 (140)
28	26.9 (4.5)	29.5 (6.8)	1.82 (1.72)	307 (114)	209 (239)	98090 (124)
29	24.2 (4.3)	42.7 (9.6)	1.55 (0.92)	342 (118)	230 (253)	
30	25.8 (5.4)	41.8 (11.0)	1.82 (1.59)	321 (117)	251 (290)	
31						
Avg	26.3	36.2	2.29	312.0	286	97830
n	27	27	27	27	27	25
SD	3.4	5.4	0.73	93.0	38	351
Min	20.2	23.4	1.10	14.0	174	97220
Max	33.2	45.9	3.99	354.0	327	98360

Table F1. Daily means (SD) of weather parameters at site WA5B for September, 2009.

Day	Temp., °C	RH, %	Wind speed, m s ⁻¹	Wind dir., °	Solar, W m ⁻²	Atm P, Pa
1	27.5 (5.5)	41.9 (11.0)	1.76 (1.19)	311 (118)	261 (285)	
2	26.6 (5.3)	43.7 (12.9)	1.48 (1.20)	24 (119)	245 (267)	
3						
4	20.5 (4.2)	46.1 (8.0)	1.21 (0.88)	307 (107)	181 (211)	97980 (299)
5	20.2 (3.6)	55.6 (16.0)	2.13 (2.22)	311 (111)	192 (229)	97410 (113)
6	18.3 (2.8)	49.6 (10.6)	5.99 (3.29)	240 (58)	198 (245)	97900 (183)
7	18.8 (4.5)	45.6 (11.0)	2.98 (1.30)	270 (92)	266 (295)	98270 (84)
8	18.5 (5.5)	46.6 (14.6)	1.61 (1.31)	37 (117)	257 (289)	98200 (210)
9	20.4 (5.5)	44.5 (12.7)	2.52 (2.64)	186 (100)	197 (236)	98070 (124)
10	23.1 (5.7)	44.6 (14.7)	1.14 (1.05)	344 (117)	252 (275)	98660 (118)
11	24.4 (6.6)	38.9 (15.0)	0.71 (0.76)	303 (111)	246 (268)	98450 (301)
12	25.2 (6.1)	36.2 (9.3)	0.83 (0.72)	345 (126)	238 (259)	97470 (404)
13	27.0 (5.9)	34.3 (9.9)	1.87 (2.03)	265 (108)	234 (254)	96540 (203)
14	25.9 (4.6)	43.0 (11.3)	2.31 (1.27)	322 (120)	228 (256)	97320 (418)
15	23.5 (4.5)	42.1 (7.9)	2.22 (1.10)	70 (92)	218 (243)	98380 (140)
16	24.8 (5.6)	41.7 (12.6)	1.72 (1.90)	332 (128)	218 (243)	98030 (139)
17	22.7 (4.1)	38.4 (13.6)	2.90 (1.41)	285 (101)	234 (257)	98440 (141)
18	21.4 (6.4)	39.1 (12.7)	1.00 (0.84)	360 (124)	227 (248)	98040 (392)
19	19.6 (4.5)	42.8 (7.6)	2.18 (2.21)	352 (120)	116 (134)	97740 (293)
20	18.5 (5.1)	37.4 (10.4)	2.57 (1.39)	259 (97)	225 (247)	99060 (229)
21	18.7 (6.5)	39.9 (14.5)	0.91 (0.99)	28 (118)	219 (241)	99290 (186)
22	21.5 (7.1)	36.0 (12.9)	0.42 (0.49)	349 (129)	211 (232)	98850 (250)
23	24.0 (6.6)	32.6 (9.5)	0.63 (0.74)	56 (112)	203 (222)	98270 (248)
24						
25	23.5 (5.5)	35.7 (9.0)	1.47 (1.19)	282 (89)	200 (220)	98330 (141)
26	22.4 (6.3)	33.1 (13.6)	1.81 (1.88)	297 (107)	194 (214)	98330 (107)
27	18.9 (5.0)	28.2 (7.0)	1.30 (1.07)	272 (96)	195 (214)	98450 (439)
28	17.5 (5.2)	33.1 (10.3)	3.68 (3.93)	219 (95)	169 (185)	96940 (246)
29	14.6 (3.7)	41.2 (8.3)	3.88 (2.70)	276 (92)	173 (202)	97530 (172)
30	13.3 (5.1)	39.4 (11.4)	1.88 (1.24)	261 (80)	189 (217)	98570 (331)
Avg	21.5	40.4	1.97	312.0	214	98100
n	28	28	28	28	28	26
SD	3.6	5.7	1.15	104.0	32	615
Min	13.3	28.2	0.42	24.0	116	96540
Max	27.5	55.6	5.99	360.0	266	99290

Table F2. Building environment and inventory.

Table F2. Daily means (SD) of environmental parameters at site WA5B for September, 2007.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28				512				937
29	11.6 (4.0)	40.8 (6.9)	1170 (670)	512	12.4 (4.0)	39.1 (9.1)	1220 (700)	937
30	12.0 (0.8)	52.0 (2.0)	1460 (816)	512	12.8 (0.8)	52.1 (2.2)	1660 (989)	937
Avg	11.8	46.4	1320	512	12.6	46	1440.0	937
n	2	2	2	3	2	2	2	3
SD	0.2	5.6	144	0	0.2	7	219.00	0
Min	11.6	40.8	1170	512	12.4	39	1220.00	937
Max	12.0	52.0	1460	512	12.8	52	1660.00	937

Table F2. Daily means (SD) of environmental parameters at site WA5B for October, 2007.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	14.7 (2.9)	44.4 (7.4)	1480 (884)	512	15.6 (3.0)	43.3 (9.2)	1670 (965)	937
2	15.4 (1.7)	45.2 (3.6)	2270 (1030)	512	16.1 (1.7)	44.7 (4.1)	2690 (1230)	937
3	13.2 (2.3)	41.4 (6.9)	1290 (870)	512	14.1 (2.3)	40.7 (7.8)	1490 (1060)	937
4	11.3 (2.4)	45.9 (5.3)	786 (559)	512	10.8 (9.5)	43.6 (9.2)	813 (588)	937
5	11.1 (3.4)	42.9 (8.5)	993 (492)	512	11.9 (3.4)	41.3 (11.5)	1090 (525)	937
6	12.1 (3.7)	42.4 (7.4)	646 (466)	512	12.9 (3.7)	40.4 (9.5)	651 (499)	937
7	15.6 (4.8)	45.3 (6.6)	1310 (1160)	512	16.4 (4.8)	44.6 (7.8)	1510 (1380)	937
8	14.0 (2.0)	42.4 (4.9)	732 (415)	512	14.8 (2.0)	42.3 (5.8)	754 (432)	937
9	14.8 (3.6)	43.5 (4.8)	448 (368)	512	15.5 (3.6)	43.0 (6.3)	467 (408)	937
10				512				937
11	12.0 (3.2)	46.2 (4.7)	644 (499)	512	12.8 (3.2)	45.0 (7.0)	653 (499)	937
12	14.4 (2.0)	48.6 (4.4)	768 (434)	512	15.3 (2.0)	48.0 (6.2)	814 (396)	937
13	14.4 (3.0)	48.6 (5.6)	475 (434)	512	15.2 (3.0)	46.7 (8.5)	466 (403)	937
14	13.1 (3.9)	48.4 (5.3)	366 (342)	512	13.8 (3.8)	47.2 (7.8)	366 (333)	937
15	13.5 (3.6)	48.8 (4.3)	405 (386)	512	14.3 (3.5)	48.2 (5.3)	325 (252)	937
16	11.9 (2.0)	48.6 (4.0)	613 (398)	512	12.7 (2.0)	48.5 (4.1)	644 (405)	937
17	10.3 (3.1)	45.5 (6.4)	693 (561)	512	11.0 (3.3)	45.9 (6.7)	666 (559)	937
18	12.0 (3.6)	49.9 (2.8)	759 (466)	512	12.8 (3.6)	49.7 (3.1)	732 (519)	937
19				512				937
20	10.6 (1.9)	45.4 (4.5)	971 (508)	512	11.2 (2.0)	45.5 (4.6)	1070 (577)	937
21	11.1 (2.8)	48.9 (3.0)	527 (517)	512	11.5 (2.8)	48.3 (3.8)	341 (249)	937
22	14.8 (4.2)	47.8 (5.3)	517 (516)	512	15.6 (4.1)	47.7 (5.6)	335 (307)	937
23	13.5 (3.9)	50.2 (3.8)	233 (268)	512	14.3 (3.8)	50.3 (4.2)	154 (143)	937
24	14.0 (4.8)	45.4 (8.0)	988 (1060)	512	15.0 (4.8)	45.1 (8.5)	595 (650)	937
25	9.5 (2.7)	38.4 (6.3)	643 (421)	512	10.4 (2.8)	39.0 (7.1)	566 (300)	937
26				512				937
27	6.2 (3.7)	43.8 (6.7)	259 (290)	512	7.1 (3.6)	43.0 (7.4)	161 (156)	937
28	6.5 (4.4)	45.9 (6.6)	268 (282)	512	7.5 (4.3)	45.9 (6.9)	208 (197)	937
29	7.0 (3.5)	48.3 (3.9)	182 (177)	512	8.0 (3.4)	47.5 (5.0)	126 (122)	937
30	8.6 (3.4)	42.3 (8.9)	399 (301)	512	9.6 (3.4)	42.1 (9.4)	289 (198)	937
31	6.6 (4.2)	45.3 (5.3)	345 (373)	512	7.7 (4.0)	45.0 (6.2)	215 (213)	937
Avg	11.9	45.7	715	512	12.7	45	710.0	937
n	28	28	28	31	28	28	28	31
SD	2.8	2.8	444	0	2.8	3	558.00	0
Min	6.2	38.4	182	512	7.1	39	126.00	937
Max	15.6	50.2	2270	512	16.4	50	2690.00	937

Table F2. Daily means (SD) of environmental parameters at site WA5B for November, 2007.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	7.8 (3.9)	43.1 (8.7)	281 (329)	512	8.5 (3.5)	43.2 (8.9)	188 (177)	937
2	6.2 (4.0)	44.4 (6.9)	411 (460)	512	6.9 (4.4)	44.1 (7.7)	366 (512)	937
3	7.0 (4.5)	45.6 (5.8)	286 (283)	512	8.0 (4.3)	45.4 (6.0)	183 (149)	937
4	11.0 (6.8)	47.3 (5.5)	540 (538)	512	11.7 (6.4)	47.0 (6.4)	361 (274)	937
5	9.6 (2.7)	43.9 (7.3)	313 (259)	512	9.9 (2.8)	44.0 (8.0)	240 (180)	937
6	7.2 (3.8)	46.7 (6.4)	206 (210)	512	7.8 (3.7)	46.6 (6.7)	155 (143)	937
7	8.8 (3.0)	48.4 (4.9)	263 (281)	512	9.4 (2.9)	47.8 (5.5)	178 (177)	937
8	8.5 (3.2)	51.4 (1.6)	275 (287)	512	9.2 (3.1)	50.5 (3.3)	160 (117)	937
9	9.9 (5.0)	50.5 (3.3)	501 (386)	512	10.6 (4.8)	50.1 (4.1)	422 (347)	937
10	11.6 (4.0)	40.7 (11.9)	962 (795)	512	12.1 (4.0)	41.3 (11.6)	876 (648)	937
11	7.5 (3.9)	43.7 (7.2)	648 (517)	512	8.1 (3.9)	43.9 (6.9)	695 (618)	937
12	12.2 (3.5)	41.5 (5.4)	1260 (769)	512	12.6 (3.4)	41.1 (5.2)	1320 (816)	937
13				512				937
14				512				937
15	7.0 (3.5)	50.0 (2.9)	648 (489)	512	7.6 (3.2)	49.3 (3.7)	601 (572)	937
16	14.3 (1.5)	49.5 (2.5)	932 (489)	512	14.6 (1.4)	49.2 (2.8)	1040 (560)	937
17	11.0 (1.6)	51.6 (2.2)	693 (641)	512	11.4 (1.6)	52.0 (2.0)	568 (465)	937
18	5.0 (2.1)	51.8 (1.1)	432 (290)	512	5.6 (2.2)	52.0 (1.4)	440 (225)	937
19	3.8 (1.6)	51.9 (0.2)	302 (242)	512	4.5 (1.6)	52.3 (0.2)	340 (291)	937
20	3.3 (2.1)	51.3 (1.5)	221 (181)	512	3.9 (2.1)	51.5 (1.7)	198 (147)	937
21	1.1 (1.7)	51.8 (0.2)	236 (231)	512	1.7 (1.7)	51.9 (0.4)	203 (185)	937
22	-0.7 (1.6)	50.9 (1.7)	321 (209)	512	0.0 (1.7)	50.9 (2.2)	294 (199)	937
23	-1.7 (0.7)	51.5 (0.1)	142 (129)	512	-0.9 (0.7)	51.9 (0.1)	99 (108)	937
24	-0.9 (0.4)	51.6 (0.0)	203 (223)	512	-0.3 (0.4)	51.9 (0.1)	137 (127)	937
25	-0.8 (0.3)	51.6 (0.0)	380 (284)	512	-0.2 (0.3)	51.9 (0.1)	308 (188)	937
26	-1.1 (0.4)	51.5 (0.1)	464 (456)	512	-0.6 (0.4)	51.9 (0.1)	401 (504)	937
27	3.9 (3.4)	47.6 (4.3)	717 (590)	512	4.4 (3.4)	48.5 (4.2)	537 (332)	937
28	1.1 (1.4)	51.7 (0.4)	212 (233)	512	1.7 (1.4)	52.0 (0.2)	154 (150)	937
29	1.0 (0.3)	51.7 (0.1)	228 (184)	512	1.8 (0.3)	52.0 (0.1)	246 (174)	937
30	0.3 (0.9)	51.6 (0.1)	294 (371)	512	1.0 (1.0)	52.0 (0.1)	282 (266)	937
Avg	5.5	48.7	442	512	6.1	49	392.0	937
n	28	28	28	30	28	28	28	30
SD	4.7	3.6	267	0	4.6	4	287.00	0
Min	-1.7	40.7	142	512	-0.9	41	98.60	937
Max	14.3	51.9	1260	512	14.6	52	1320.00	937

Table F2. Daily means (SD) of environmental parameters at site WA5B for December, 2007.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	-1.5 (0.7)	51.5 (0.1)	442 (407)	512	-0.9 (0.6)	51.9 (0.1)	457 (435)	937
2	5.9 (2.3)	51.0 (2.3)	1160 (593)	512	6.1 (2.3)	51.3 (2.2)	1350 (719)	937
3	13.2 (2.6)	51.6 (1.2)	1380 (878)	512	13.5 (2.5)	51.7 (1.3)	1550 (1090)	937
4	13.8 (2.0)	48.8 (3.5)	1020 (494)	512	14.1 (2.1)	49.5 (3.3)	1220 (599)	937
5	7.6 (2.0)	51.1 (1.8)	337 (284)	512	8.3 (2.0)	51.3 (2.4)	251 (180)	937
6	2.6 (1.2)	51.8 (0.2)	388 (261)	512	3.3 (1.2)	52.1 (0.2)	430 (320)	937
7	3.2 (1.0)	51.8 (0.2)	448 (311)	512	3.9 (1.0)	52.1 (0.4)	474 (346)	937
8				512				937
9	-2.5 (0.9)	51.4 (0.2)	270 (296)	512	-1.6 (1.0)	51.8 (0.2)	181 (162)	937
10	-2.2 (0.4)	51.5 (0.1)	234 (233)	512	-1.0 (0.6)	51.9 (0.1)	168 (148)	937
11	-2.2 (0.5)	51.4 (0.2)	320 (236)	512	-1.1 (0.5)	51.8 (0.1)	302 (250)	937
12				512				937
13				512				937
14	-1.1 (0.4)	51.5 (0.1)	291 (271)	512	0.1 (0.5)	51.9 (0.1)	200 (137)	937
15	2.8 (3.8)	51.3 (0.6)	730 (523)	512	3.8 (3.6)	51.8 (0.5)	729 (565)	937
16	3.8 (1.2)	51.2 (1.3)	485 (447)	512	4.7 (1.2)	51.2 (1.9)	465 (419)	937
17	4.5 (1.9)	50.9 (1.6)	736 (449)	512	5.5 (1.7)	51.4 (1.4)	859 (561)	937
18	3.2 (2.0)	51.8 (0.3)	435 (533)	512	4.2 (1.8)	52.2 (0.2)	424 (595)	937
19	8.0 (1.1)	51.9 (0.7)	1170 (565)	512	8.7 (1.1)	52.2 (0.7)	1320 (704)	937
20	5.6 (2.2)	47.0 (5.3)	879 (715)	512	6.8 (2.3)	48.6 (5.0)	854 (563)	937
21	2.3 (2.0)	49.3 (3.9)	471 (368)	512	3.5 (2.0)	50.0 (3.6)	451 (364)	937
22	1.7 (1.8)	51.5 (0.7)	579 (508)	512	2.7 (1.7)	51.7 (0.9)	545 (525)	937
23	0.9 (1.0)	51.7 (0.1)	265 (279)	512	2.1 (1.0)	52.0 (0.1)	208 (174)	937
24	4.5 (1.9)	48.3 (4.1)	845 (771)	512	5.4 (2.2)	49.7 (3.7)	717 (407)	937
25	1.3 (1.7)	51.3 (1.3)	573 (378)	512	2.1 (1.5)	51.7 (1.1)	599 (430)	937
26	3.0 (2.1)	47.9 (4.7)	567 (437)	512	4.1 (2.2)	49.5 (4.3)	527 (286)	937
27	1.0 (1.0)	51.5 (0.5)	840 (608)	512	1.9 (0.9)	51.9 (0.3)	794 (687)	937
28	2.2 (3.2)	51.8 (0.2)	809 (695)	512	3.2 (3.0)	52.1 (0.2)	852 (805)	937
29	2.2 (2.2)	51.0 (1.8)	602 (575)	512	3.2 (2.2)	51.2 (1.9)	564 (514)	937
30	4.0 (1.4)	44.4 (4.4)	1310 (760)	512	5.0 (1.6)	46.3 (4.6)	1400 (675)	937
31	1.9 (2.3)	48.9 (3.0)	421 (316)	512	2.9 (2.4)	49.7 (3.4)	404 (304)	937
Avg	3.2	50.5	643	512	4.1	51	653.0	937
n	28	28	28	31	28	28	28	31
SD	3.9	1.8	324	0	3.7	1	390.00	0
Min	-2.5	44.4	234	512	-1.6	46	168.00	937
Max	13.8	51.9	1380	512	14.1	52	1550.00	937

Table F2. Daily means (SD) of environmental parameters at site WA5B for January, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	-0.8 (1.5)	51.4 (0.5)	275 (260)	512	0.6 (1.6)	51.7 (0.5)	209 (135)	937
2	-0.6 (0.7)	51.6 (0.1)	229 (221)	512	0.7 (0.9)	51.9 (0.1)	177 (148)	937
3	0.2 (0.8)	51.6 (0.1)	327 (328)	512	1.7 (0.9)	52.0 (0.1)	245 (200)	937
4	2.1 (3.4)	50.9 (2.0)	682 (809)	512	3.5 (3.1)	51.3 (1.9)	662 (922)	937
5	6.5 (1.4)	47.6 (4.0)	851 (629)	512	7.9 (1.5)	48.5 (3.9)	781 (605)	937
6	3.8 (1.5)	50.2 (2.5)	540 (426)	512	5.1 (1.5)	50.7 (2.3)	609 (509)	937
7				512				937
8				512				937
9				512				937
10				512				937
11	8.4 (2.7)	49.1 (4.4)	979 (743)	512	9.8 (2.8)	49.9 (3.9)	1070 (842)	937
12	2.2 (1.5)	51.7 (0.1)	490 (438)	512	3.9 (1.5)	52.1 (0.2)	414 (247)	937
13	1.3 (0.9)	51.7 (0.1)	328 (296)	512	3.1 (0.8)	52.1 (0.1)	292 (194)	937
14	1.7 (2.0)	51.0 (1.7)	804 (717)	512	3.3 (1.6)	51.6 (1.1)	886 (812)	937
15	1.8 (1.7)	46.2 (5.1)	653 (635)	512	3.2 (1.9)	48.3 (4.3)	594 (683)	937
16	-0.2 (1.9)	50.7 (1.6)	358 (355)	512	1.2 (2.1)	51.0 (1.8)	336 (404)	937
17	-1.0 (2.3)	51.4 (0.3)	355 (303)	512	0.9 (2.5)	51.5 (0.6)	285 (181)	937
18	-0.1 (2.6)	51.5 (0.3)	206 (189)	512	1.2 (2.7)	51.9 (0.4)	215 (217)	937
19	1.1 (1.5)	51.7 (0.2)	395 (419)	512	2.7 (1.5)	52.0 (0.3)	276 (219)	937
20	-1.0 (1.1)	47.6 (5.8)	2390 (1920)	512	0.7 (1.3)	46.8 (6.6)	875 (536)	937
21	-4.7 (1.6)	39.1 (6.1)	2100 (1750)	512	-3.1 (1.8)	40.2 (7.2)	701 (482)	937
22	-6.7 (2.5)	49.5 (2.5)	309 (254)	512	-5.2 (2.4)	49.3 (3.4)	260 (161)	937
23	-7.1 (2.2)	49.9 (1.8)	244 (308)	512	-5.6 (2.4)	50.2 (2.1)	191 (176)	937
24	-6.2 (2.7)	49.5 (2.4)	211 (207)	512	-4.6 (2.9)	49.8 (2.7)	157 (143)	937
25	-5.6 (2.4)	50.4 (1.2)	342 (371)	512	-3.9 (2.6)	50.5 (1.9)	242 (202)	937
26	-6.5 (1.5)	50.9 (0.2)	242 (248)	512	-4.6 (1.8)	51.3 (0.2)	169 (126)	937
27	-2.6 (1.3)	51.2 (0.1)	360 (374)	512	-1.0 (0.9)	51.7 (0.1)	227 (238)	937
28	-3.6 (3.1)	51.2 (0.2)	462 (700)	512	-2.4 (2.7)	51.6 (0.2)	525 (847)	937
29	2.9 (1.3)	50.1 (2.2)	1620 (588)	512	4.1 (1.7)	51.2 (1.5)	1790 (541)	802
30	3.0 (1.8)	50.7 (1.7)	1010 (624)	512	4.5 (1.9)	51.5 (1.2)	1190 (766)	804
31	5.3 (1.0)	50.9 (1.6)	1340 (674)	512	6.9 (1.1)	51.4 (1.6)	1440 (788)	806
Avg	-0.2	50.0	671	512	1.3	50	549.0	924
n	27	27	27	31	27	27	27	31
SD	4.0	2.5	568	0	4.0	2	420.00	39
Min	-7.1	39.1	206	512	-5.6	40	157.00	802
Max	8.4	51.7	2390	512	9.8	52	1790.00	937

Table F2. Daily means (SD) of environmental parameters at site WA5B for February, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3\text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3\text{s}^{-1}$	Inv., hd
1	4.8 (0.9)	49.4 (2.1)	1400 (568)	512	6.6 (0.9)	50.1 (2.1)	1570 (669)	808
2	1.9 (1.1)	51.5 (0.5)	777 (602)	512	3.9 (1.2)	51.9 (0.6)	520 (274)	810
3	1.9 (1.3)	51.8 (0.2)	403 (254)	512	3.9 (1.3)	52.1 (0.2)	431 (223)	812
4	2.6 (2.0)	50.4 (2.2)	308 (234)	512	4.4 (2.1)	50.7 (2.5)	336 (278)	814
5	4.1 (1.8)	51.3 (1.1)	1010 (699)	512	5.8 (1.6)	52.0 (0.7)	1090 (789)	816
6	4.4 (1.1)	49.5 (2.7)	1180 (443)	512	6.0 (1.2)	50.2 (2.7)	1410 (541)	818
7	6.7 (1.6)	45.2 (5.4)	1990 (1020)	512	8.4 (1.7)	46.3 (5.2)	2120 (996)	820
8	7.7 (1.9)	48.4 (4.2)	1530 (379)	512	8.5 (1.9)	48.9 (4.0)	1820 (449)	822
9	8.4 (1.9)	51.9 (0.9)	641 (471)	512	9.9 (1.9)	52.0 (1.6)	624 (563)	824
10	10.2 (2.0)	47.3 (5.3)	1210 (648)	512	11.5 (1.9)	48.4 (4.9)	1360 (719)	826
11	8.2 (2.3)	49.6 (3.9)	349 (297)	512	9.9 (2.2)	50.1 (3.9)	252 (215)	828
12	8.2 (2.6)	49.3 (3.3)	577 (564)	512	9.8 (2.6)	50.0 (2.7)	441 (444)	829
13	5.3 (2.6)	42.6 (6.4)	1750 (1700)	512	7.1 (2.8)	30.8 (19.5)	929 (405)	831
14				512				833
15	4.7 (3.5)	50.0 (3.2)	382 (409)	512	6.6 (3.3)	49.8 (4.2)	285 (228)	835
16	5.5 (3.8)	50.2 (3.2)	383 (332)	512	7.3 (3.8)	50.0 (4.1)	238 (166)	837
17	4.1 (3.0)	49.5 (4.1)	425 (369)	512	5.6 (3.1)	48.9 (5.4)	343 (213)	839
18	2.6 (3.4)	50.2 (2.7)	307 (285)	512	4.3 (3.6)	49.7 (3.6)	232 (209)	841
19	3.7 (3.3)	49.7 (3.4)	330 (297)	512	5.3 (3.5)	49.3 (4.3)	226 (176)	843
20	4.6 (2.9)	50.8 (1.9)	474 (561)	512	6.2 (3.0)	50.0 (3.7)	462 (504)	845
21	4.8 (3.4)	51.1 (1.6)	272 (248)	512	6.4 (3.5)	51.0 (2.6)	294 (251)	847
22	7.4 (2.6)	51.6 (1.0)	323 (358)	512	8.7 (2.8)	50.9 (2.9)	319 (323)	849
23	6.9 (3.4)	48.3 (5.2)	532 (552)	512	8.0 (3.3)	47.3 (6.7)	512 (491)	851
24	6.8 (1.3)	52.2 (0.2)	612 (394)	512	8.2 (1.3)	52.4 (0.4)	648 (324)	853
25	8.3 (2.4)	52.1 (0.6)	416 (346)	512	9.4 (2.3)	51.5 (2.6)	413 (316)	855
26	6.7 (2.9)	52.1 (0.3)	290 (347)	512	7.6 (2.7)	51.5 (2.0)	287 (306)	857
27	7.7 (3.2)	52.2 (0.3)	436 (422)	512	8.7 (3.1)	51.9 (1.7)	482 (459)	859
28	10.5 (3.9)	48.7 (5.2)	530 (379)	512	11.4 (3.7)	44.3 (11.8)	569 (383)	861
29	11.1 (3.5)	44.0 (11.2)	838 (741)	512	11.8 (3.3)	45.9 (7.6)	938 (825)	863
Avg	6.1	49.7	703	512	7.5	49	684.0	835
n	28	28	28	29	28	28	28	29
SD	2.5	2.4	473	0	2.2	4	515.00	16
Min	1.9	42.6	272	512	3.9	31	226.00	808
Max	11.1	52.2	1990	512	11.8	52	2120.00	863

Table F2. Daily means (SD) of environmental parameters at site WA5B for March, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	8.4 (2.6)	40.0 (6.6)	1340 (872)	512	9.6 (2.5)	40.3 (7.3)	1450 (785)	865
2	6.6 (3.4)	39.4 (7.9)	682 (446)	512	7.9 (3.1)	38.3 (10.6)	778 (516)	867
3	7.3 (3.3)	43.2 (6.1)	1400 (1160)	512	8.6 (2.9)	42.3 (6.7)	1550 (1220)	869
4	8.0 (3.2)	36.5 (7.4)	1340 (822)	512	9.2 (3.1)	36.0 (9.6)	1320 (664)	871
5	6.8 (4.1)	40.4 (8.0)	575 (472)	512	8.1 (3.8)	38.2 (11.3)	640 (544)	873
6	8.4 (5.2)	41.1 (8.5)	781 (692)	512	9.5 (4.8)	39.0 (11.0)	891 (822)	875
7	8.6 (2.8)	47.8 (3.3)	418 (386)	512	9.9 (2.5)	46.6 (4.2)	404 (334)	877
8	10.5 (3.4)	45.4 (6.8)	681 (551)	512	11.5 (3.2)	42.4 (11.6)	754 (631)	879
9	8.6 (3.8)	47.5 (5.9)	458 (501)	512	9.8 (3.5)	44.0 (10.8)	473 (469)	881
10	10.5 (3.4)	48.5 (4.0)	620 (486)	512	11.6 (3.2)	46.6 (5.9)	625 (444)	882
11	9.7 (2.5)	40.9 (7.4)	1720 (782)	512	10.7 (2.6)	38.9 (10.0)	2030 (920)	884
12	7.9 (3.0)	45.4 (5.2)	637 (460)	512	9.0 (3.0)	43.2 (6.9)	641 (447)	886
13	8.4 (1.7)	50.4 (2.9)	896 (605)	512	9.7 (1.6)	50.2 (3.4)	1010 (737)	888
14	8.8 (1.9)	46.0 (5.7)	1100 (615)	512	9.7 (1.9)	44.8 (7.2)	1300 (735)	890
15	7.1 (3.1)	46.5 (7.0)	610 (547)	512	8.2 (3.0)	44.1 (10.2)	652 (586)	892
16	7.4 (3.5)	41.5 (8.6)	679 (533)	512	8.5 (3.6)	40.1 (10.6)	721 (546)	894
17	9.9 (3.5)	43.4 (6.4)	968 (624)	512	10.8 (3.5)	40.7 (8.6)	1070 (694)	896
18	10.1 (3.5)	44.2 (8.6)	1250 (1030)	512	11.2 (3.5)	42.9 (10.8)	1400 (1070)	898
19	5.9 (2.7)	47.0 (4.5)	500 (431)	512	7.0 (2.5)	44.4 (7.7)	545 (491)	900
20	6.9 (2.4)	46.4 (4.9)	988 (663)	512	7.8 (2.4)	44.8 (6.1)	1170 (796)	902
21	6.6 (3.0)	37.5 (8.8)	1110 (571)	512	7.7 (3.2)	36.5 (10.0)	1260 (586)	904
22	5.8 (4.5)	40.4 (8.7)	590 (609)	512	7.2 (4.3)	38.8 (10.8)	576 (523)	906
23	8.9 (3.8)	42.1 (3.2)	1320 (1010)	512	10.2 (3.5)	41.2 (2.9)	1560 (1200)	908
24	5.8 (2.8)	37.0 (6.5)	637 (490)	512	7.3 (2.7)	35.3 (9.5)	637 (452)	910
25	6.5 (4.3)	37.9 (8.1)	717 (624)	512	7.9 (4.2)	36.4 (9.9)	786 (660)	912
26	7.3 (1.9)	40.9 (7.9)	1280 (706)	512	7.8 (2.1)	40.3 (7.9)	1430 (699)	914
27	5.8 (3.1)	32.5 (7.4)	1170 (685)	512	5.0 (8.0)	31.5 (9.3)	1360 (758)	916
28	4.6 (4.3)	45.9 (7.2)	973 (925)	512	4.1 (2.8)	43.7 (8.4)	1110 (1040)	918
29	9.0 (2.9)	40.3 (6.6)	1230 (880)	512	7.0 (2.9)	38.7 (8.0)	1310 (875)	920
30	7.5 (2.3)	44.3 (7.4)	1460 (1440)	512	5.8 (2.1)	43.5 (8.6)	1330 (1160)	922
31	8.2 (3.8)	36.8 (9.3)	609 (463)	512	6.3 (3.6)	35.9 (10.4)	644 (453)	924
Avg	7.8	42.5	927	512	8.5	41	1010.0	894
n	31	31	31	31	31	31	31	31
SD	1.5	4.2	345	0	1.8	4	398.00	18
Min	4.6	32.5	418	512	4.1	32	404.00	865
Max	10.5	50.4	1720	512	11.6	50	2030.00	924

Table F2. Daily means (SD) of environmental parameters at site WA5B for April, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	8.6 (3.8)	35.7 (8.5)	617 (435)	512	6.5 (4.0)	33.9 (11.1)	651 (418)	926
2	10.5 (4.2)	34.2 (6.5)	621 (501)	512	8.3 (3.9)	32.5 (9.1)	648 (534)	928
3	13.3 (5.9)	35.3 (9.7)	727 (710)	512	10.8 (5.5)	34.6 (10.5)	810 (842)	930
4	12.0 (2.1)	35.7 (5.0)	1140 (983)	512	8.9 (1.6)	35.9 (4.6)	1350 (1170)	932
5	11.5 (3.7)	39.2 (8.1)	860 (601)	512	8.5 (3.0)	38.1 (8.9)	978 (706)	934
6	13.5 (2.8)	39.8 (9.9)	1520 (611)	512	9.9 (2.2)	39.2 (9.9)	1770 (672)	935
7	11.8 (3.9)	39.9 (8.7)	866 (750)	512	9.0 (3.0)	39.3 (8.5)	987 (833)	937
8	10.3 (2.5)	45.8 (5.6)	465 (410)	512	8.2 (2.4)	44.2 (6.4)	528 (476)	939
9	11.2 (4.7)	38.3 (10.5)	642 (488)	512	8.4 (4.3)	37.7 (11.5)	669 (481)	941
10	13.7 (5.0)	36.2 (8.4)	831 (679)	512	10.0 (2.9)	36.1 (9.1)	832 (587)	943
11	15.0 (5.6)	36.1 (9.5)	629 (450)	512	12.8 (5.5)	35.1 (10.3)	696 (489)	945
12	18.3 (6.0)	37.2 (8.7)	680 (637)	512	15.6 (5.7)	35.9 (9.7)	652 (539)	947
13	21.2 (5.5)	36.3 (9.6)	774 (710)	512	17.6 (4.7)	35.7 (10.2)	795 (702)	949
14	15.7 (3.1)	29.8 (5.7)	1720 (898)	512	11.8 (2.8)	29.8 (6.1)	1830 (826)	951
15	10.8 (3.6)	33.4 (7.2)	1370 (1010)	512	7.5 (3.1)	33.3 (7.6)	1350 (891)	953
16	13.1 (4.9)	37.7 (8.5)	999 (716)	512	10.2 (5.2)	36.9 (9.2)	1130 (845)	955
17	15.2 (5.0)	36.8 (10.2)	930 (807)	512	11.7 (4.4)	35.9 (10.8)	890 (708)	957
18	11.4 (2.5)	35.4 (6.6)	1920 (991)	512	7.5 (2.3)	35.4 (7.0)	2180 (1080)	959
19	8.4 (3.3)	34.9 (7.7)	889 (701)	512	6.2 (2.6)	34.5 (7.9)	879 (641)	961
20	8.0 (2.8)	37.3 (5.8)	849 (875)	512	5.2 (2.7)	37.3 (6.4)	848 (754)	962
21	9.1 (3.7)	39.0 (7.4)	1010 (810)	512	6.6 (3.2)	38.4 (7.8)	1080 (897)	963
22	12.5 (3.6)	42.1 (7.9)	987 (845)	512	10.4 (3.7)	40.6 (9.1)	938 (736)	963
23	12.7 (3.2)	42.9 (7.8)	1560 (995)	512	9.3 (2.0)	42.7 (8.1)	1840 (1180)	963
24	13.5 (3.5)	39.2 (8.8)	1420 (1070)	512	9.2 (3.1)	38.8 (9.0)	1520 (1050)	964
25	12.7 (4.1)	33.7 (9.8)	1230 (969)	512	9.9 (4.1)	33.0 (10.4)	1310 (1130)	964
26	14.8 (4.9)	33.2 (10.2)	887 (834)	512	12.4 (4.8)	32.0 (11.1)	827 (706)	965
27	18.7 (4.9)	29.3 (6.6)	818 (809)	512	16.3 (4.7)	28.5 (7.6)	826 (891)	965
28	20.1 (4.0)	37.9 (6.4)	1610 (1380)	512	16.2 (3.5)	37.3 (6.8)	1630 (1310)	965
29	14.5 (2.6)	35.2 (7.2)	1800 (1100)	512	10.8 (2.4)	34.6 (7.3)	1860 (1090)	966
30	12.6 (3.6)	32.3 (8.8)	1560 (1230)	512	9.1 (3.3)	31.9 (9.6)	1460 (988)	966
Avg	13.1	36.7	1060	512	10.2	36	1130.0	951
n	30	30	30	30	30	30	30	30
SD	3.2	3.5	399	0	3.0	3	443.00	13
Min	8.0	29.3	465	512	5.2	29	528.00	926
Max	21.2	45.8	1920	512	17.6	44	2180.00	966

Table F2. Daily means (SD) of environmental parameters at site WA5B for May, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd
1	13.3 (4.6)	34.2 (8.8)	1120 (712)	512	11.3 (4.8)	33.1 (9.1)	1250 (814)	967
2	15.1 (7.3)	32.7 (8.8)	642 (526)	512	11.8 (6.9)	31.9 (9.2)	603 (474)	967
3	15.8 (2.5)	46.0 (5.2)	815 (730)	512	12.4 (2.5)	45.4 (5.7)	918 (874)	968
4	18.4 (4.8)	45.1 (7.3)	624 (437)	512	14.3 (4.2)	44.7 (7.9)	635 (426)	968
5	21.0 (4.8)	40.4 (10.3)	815 (596)	512	15.8 (3.7)	39.1 (11.5)	791 (599)	968
6	18.6 (2.3)	36.2 (7.1)	1140 (667)	512	14.8 (2.8)	35.2 (8.2)	1140 (627)	969
7	15.1 (4.2)	32.6 (9.1)	1470 (1070)	512	13.0 (4.7)	32.3 (9.9)	1400 (901)	969
8	12.1 (3.5)	29.7 (6.4)	1160 (852)	512	11.3 (4.0)	29.4 (7.1)	1170 (769)	970
9	13.5 (3.9)	29.7 (6.8)	1230 (611)	512	12.8 (4.0)	29.2 (7.5)	1390 (735)	970
10	16.6 (3.8)	33.9 (4.7)	1200 (857)	512	15.9 (3.6)	33.6 (5.1)	1330 (951)	970
11	13.3 (2.8)	32.2 (7.5)	2020 (1250)	512	12.8 (2.8)	31.7 (8.2)	2010 (1080)	971
12	13.8 (4.6)	31.6 (7.1)	1230 (820)	512	13.1 (4.7)	31.2 (7.8)	1360 (953)	971
13	15.9 (3.0)	39.9 (7.0)	968 (829)	512	15.1 (2.7)	38.9 (7.1)	938 (777)	972
14	20.4 (3.8)	41.6 (6.4)	1370 (1420)	512	19.0 (3.4)	40.6 (7.1)	1260 (1210)	972
15	23.4 (4.6)	36.6 (8.6)	1030 (671)	512	21.2 (4.0)	36.1 (9.6)	1040 (641)	972
16				512				973
17				512				973
18				512				974
19				512				974
20				512				975
21	14.8 (3.1)	35.0 (6.2)	2330 (1570)	512	13.1 (3.8)	34.3 (6.9)	2100 (1270)	975
22	16.2 (3.8)	34.0 (6.9)	2120 (1210)	512	15.5 (3.7)	33.7 (7.7)	2040 (936)	975
23	15.2 (2.7)	51.6 (1.7)	1470 (767)	512	11.9 (2.1)	51.5 (2.5)	1620 (687)	976
24	19.3 (4.4)	40.8 (9.7)	885 (530)	512	15.6 (4.4)	41.0 (10.1)	938 (550)	976
25	19.4 (3.0)	47.3 (7.2)	1210 (698)	512	15.6 (3.4)	46.7 (8.4)	1150 (602)	977
26	21.1 (3.5)	39.0 (10.2)	1500 (950)	512	18.2 (4.7)	38.1 (11.4)	1420 (764)	977
27	20.2 (2.8)	44.2 (8.1)	970 (578)	512	17.7 (2.9)	43.7 (8.9)	1010 (517)	977
28	19.9 (1.7)	47.5 (6.2)	575 (518)	512	16.0 (2.5)	46.4 (7.8)	557 (460)	978
29	20.3 (3.0)	39.6 (10.2)	1250 (1040)	512	17.5 (3.9)	39.2 (10.5)	1400 (1220)	978
30	19.1 (5.2)	29.6 (7.2)	1050 (593)	512	18.3 (4.7)	29.1 (8.7)	1070 (577)	979
31	20.3 (3.8)	36.8 (8.6)	1090 (874)	512	19.3 (3.3)	36.6 (9.3)	1090 (933)	979
Avg	17.4	38.0	1200	512	15.1	37	1220.0	973
n	26	26	26	31	26	26	26	31
SD	3.0	6.1	424	0	2.7	6	398.00	4
Min	12.1	29.6	575	512	11.3	29	557.00	967
Max	23.4	51.6	2330	512	21.2	52	2100.00	979

Table F2. Daily means (SD) of environmental parameters at site WA5B for June, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	19.5 (3.7)	37.6 (10.2)	1350 (943)	512	18.4 (3.4)	37.4 (10.8)	1370 (851)	979
2	16.9 (4.5)	32.7 (9.4)	1070 (820)	512	16.4 (4.2)	32.4 (10.2)	1020 (720)	980
3	15.1 (2.0)	48.3 (4.7)	864 (721)	512	13.3 (2.2)	47.9 (5.0)	879 (710)	980
4	15.4 (4.1)	38.1 (8.7)	1340 (614)	512	12.9 (4.9)	38.0 (9.4)	1340 (542)	981
5	14.3 (2.5)	43.9 (5.5)	1470 (1150)	512	12.4 (3.2)	43.4 (6.0)	1680 (1380)	981
6	14.0 (2.2)	39.6 (4.8)	2350 (885)	512	13.6 (2.0)	39.5 (5.0)	2780 (1050)	981
7	15.4 (4.5)	37.8 (9.4)	1690 (1580)	512	15.1 (4.2)	37.1 (10.2)	1520 (1320)	982
8	18.3 (5.1)	31.7 (8.8)	1130 (696)	512	17.8 (4.6)	31.8 (9.4)	1270 (775)	982
9	18.0 (3.1)	34.0 (5.5)	1970 (1690)	512	17.7 (2.6)	33.8 (5.4)	2280 (2000)	983
10	12.3 (2.7)	43.4 (4.5)	1420 (1010)	512	11.2 (1.4)	42.5 (4.6)	1450 (950)	983
11	16.6 (4.5)	37.0 (8.6)	2030 (1430)	512	14.5 (5.1)	36.4 (9.3)	1830 (1190)	984
12	20.1 (5.9)	30.4 (8.5)	1720 (1080)	512	18.2 (6.6)	30.3 (9.2)	2000 (1280)	984
13	22.2 (4.4)	28.4 (5.8)	1550 (1120)	512	21.4 (3.6)	28.0 (6.6)	1540 (1010)	984
14	19.7 (4.9)	30.1 (8.5)	1080 (570)	512	19.4 (4.2)	29.5 (9.4)	1110 (563)	985
15	21.4 (4.6)	27.9 (8.3)	1090 (561)	512	20.7 (3.7)	27.7 (8.9)	1090 (586)	985
16	23.2 (5.3)	25.2 (10.9)	1310 (871)	512	22.2 (4.2)	25.0 (11.7)	1430 (959)	986
17	20.7 (3.8)	29.1 (7.5)	1470 (912)	512	20.3 (3.2)	29.0 (8.4)	1390 (744)	986
18	18.3 (4.9)	30.7 (9.2)	1240 (740)	512	18.1 (4.1)	29.7 (9.9)	1190 (652)	986
19	20.9 (5.9)	27.5 (7.0)	1110 (932)	512	20.5 (5.1)	27.2 (7.3)	1180 (1040)	987
20	24.3 (5.9)	28.7 (6.6)	741 (636)	512	22.8 (4.4)	28.4 (7.9)	669 (527)	987
21	23.7 (3.5)	36.6 (7.5)	1160 (1080)	512	21.1 (4.3)	36.1 (8.1)	1230 (1290)	988
22	21.3 (3.9)	33.5 (7.2)	1310 (784)	512	16.9 (5.6)	32.5 (8.2)	1280 (842)	988
23	19.7 (4.2)	31.6 (8.5)	1140 (555)	512	17.4 (4.8)	30.9 (9.3)	1170 (623)	988
24	21.0 (5.0)	27.7 (6.6)	994 (547)	512	20.3 (4.2)	27.2 (7.4)	1070 (604)	989
25	22.6 (4.1)	30.1 (6.9)	1240 (517)	512	21.8 (3.3)	29.0 (8.5)	1200 (470)	989
26	22.7 (4.3)	31.0 (7.2)	1330 (687)	512	21.7 (3.4)	30.3 (8.4)	1270 (568)	990
27	24.4 (5.0)	34.2 (8.1)	989 (671)	512	22.7 (3.6)	32.9 (9.4)	919 (590)	990
28	27.8 (6.2)	31.8 (9.3)	867 (660)	512	24.6 (4.0)	31.6 (10.5)	807 (559)	990
29	30.5 (5.9)	27.3 (8.5)	1340 (1280)	512	26.4 (3.8)	26.4 (9.2)	1370 (1500)	991
30	31.9 (4.3)	27.4 (6.1)	1490 (1050)	512	27.5 (2.3)	27.0 (6.9)	1610 (1280)	991
Avg	20.4	33.1	1330	512	18.9	33	1370.0	985
n	30	30	30	30	30	30	30	30
SD	4.5	5.5	352	0	4.0	6	426.00	4
Min	12.3	25.2	741	512	11.2	25	669.00	979
Max	31.9	48.3	2350	512	27.5	48	2780.00	991

Table F2. Daily means (SD) of environmental parameters at site WA5B for July, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	29.9 (3.7)	35.9 (8.3)	937 (616)	512	25.7 (2.3)	35.2 (9.1)	976 (671)	992
2	29.4 (4.6)	34.2 (6.4)	1150 (667)	512	25.2 (3.3)	33.1 (7.9)	1100 (584)	992
3	30.0 (3.7)	34.4 (5.6)	1450 (887)	512	25.3 (2.5)	33.5 (7.0)	1350 (760)	993
4	23.9 (2.2)	40.7 (5.5)	1410 (856)	512	20.8 (1.6)	39.9 (5.8)	1320 (698)	993
5				512				993
6				512				994
7	24.2 (5.3)	28.4 (7.4)	1260 (563)	512	22.1 (3.9)	27.9 (8.3)	1270 (609)	994
8	26.6 (4.5)	26.2 (4.3)	1260 (529)	512	23.8 (2.9)	25.3 (5.3)	1270 (574)	995
9	28.4 (5.5)	27.4 (7.8)	1160 (635)	512	24.9 (3.5)	26.6 (8.3)	1240 (692)	995
10	24.1 (3.8)	27.8 (9.0)	1810 (1540)	512	22.2 (2.8)	27.6 (9.8)	1620 (1260)	995
11	20.2 (4.9)	25.9 (7.8)	912 (715)	512	19.4 (4.2)	25.6 (9.1)	843 (611)	996
12	23.7 (6.2)	26.1 (9.3)	775 (701)	512	21.6 (4.4)	26.3 (10.7)	720 (643)	996
13	27.4 (5.6)	24.8 (6.8)	1090 (619)	512	24.5 (3.6)	24.1 (7.4)	1110 (661)	997
14	27.8 (5.0)	25.8 (5.3)	1120 (727)	512	24.7 (3.1)	25.0 (6.3)	1040 (571)	997
15	27.3 (3.9)	25.6 (7.4)	1000 (568)	512	24.5 (2.2)	24.8 (7.8)	1040 (590)	997
16	26.7 (3.7)	26.8 (5.6)	1200 (808)	512	24.0 (2.2)	26.0 (6.3)	1130 (689)	998
17		25.3 (5.8)	1430 (563)	512		24.4 (6.8)	1410 (540)	998
18		25.9 (6.6)	1090 (549)	512		25.6 (7.6)	1100 (573)	999
19		29.3 (6.6)	1210 (785)	512		28.3 (7.7)	1130 (698)	999
20		26.3 (9.9)	1180 (802)	512		26.0 (10.5)	1260 (907)	1,000
21		26.6 (7.7)	1190 (731)	512		25.9 (8.1)	1270 (849)	1,000
22		34.3 (4.9)	1460 (771)	512		33.4 (6.2)	1530 (729)	1,000
23		33.0 (6.6)	1380 (637)	512		32.4 (7.5)	1380 (635)	1,001
24		33.1 (6.2)	1090 (537)	512		32.5 (7.5)	1040 (486)	1,001
25		32.1 (8.1)	913 (643)	512		31.1 (9.9)	822 (536)	1,002
26		30.0 (6.1)	1330 (720)	512		28.7 (7.7)	1270 (657)	1,002
27		35.4 (6.1)	1430 (1020)	512		34.8 (6.9)	1310 (826)	1,002
28		32.2 (9.6)	1140 (788)	512		31.5 (10.6)	1100 (695)	1,003
29		35.0 (5.1)	1480 (974)	512		34.4 (5.3)	1400 (843)	1,003
30		32.9 (6.6)	1440 (744)	512		31.8 (8.0)	1350 (640)	1,004
31				512				1,004
Avg	26.4	30.0	1230	512	23.5	29	1190.0	998
n	14	28	28	31	14	28	28	31
SD	2.8	4.2	218	0	1.9	4	205.00	4
Min	20.2	24.8	775	512	19.4	24	720.00	992
Max	30.0	40.7	1810	512	25.7	40	1620.00	1,004

Table F2. Daily means (SD) of environmental parameters at site WA5B for August, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1				512				1,004
2				512				1,005
3				512				1,005
4				512				1,006
5				512				1,006
6				512				1,006
7				512				1,007
8		43.0 (8.1)	1060 (861)	512		42.7 (8.6)	980 (734)	1,007
9		38.2 (9.1)	1130 (892)	512		37.8 (9.1)	1200 (967)	1,008
10		37.8 (7.9)	1050 (694)	512		36.9 (8.5)	974 (578)	1,008
11		38.3 (8.6)	1120 (768)	512		36.8 (9.9)	1050 (699)	1,009
12		37.3 (10.2)	930 (720)	512		36.7 (10.8)	994 (802)	1,009
13		33.4 (6.5)	1090 (477)	512		33.2 (7.4)	1090 (486)	1,009
14				512				1,010
15		32.3 (7.6)	850 (707)	512		31.9 (8.3)	777 (600)	1,010
16		30.6 (9.8)	872 (732)	512		30.0 (10.6)	798 (601)	1,011
17		31.9 (8.7)	987 (659)	512		31.0 (9.3)	954 (676)	1,011
18				512				1,011
19				512				1,012
20				512				1,012
21		37.5 (6.9)	2240 (1170)	512		37.2 (7.5)	2390 (1360)	1,013
22		39.8 (9.9)	692 (597)	512		39.0 (10.8)	643 (510)	1,013
23		37.9 (9.9)	567 (564)	512		36.8 (10.8)	503 (473)	1,013
24		36.2 (9.5)	1180 (841)	512		34.8 (10.3)	1070 (733)	1,014
25		44.2 (6.7)	1040 (921)	512		43.5 (7.4)	970 (787)	1,014
26		31.7 (9.6)	1120 (691)	512		31.0 (10.0)	1210 (786)	1,015
27				512				1,015
28		28.1 (22.1)	638 (677)	512		26.7 (21.5)	585 (597)	1,016
29		0.0 (0.0)	0 (0)	512		0.0 (0.0)	0 (0)	1,016
30		0.0 (0.0)	0 (0)	512		0.0 (0.0)	0 (0)	1,016
31		0.0 (0.0)	0 (0)	512		0.0 (0.0)	0 (0)	1,017
Avg		30.4	871	512		30	852.0	1,011
n		19	19	31		19	19	31
SD		13.8	501	0		14	525.00	4
Min		0.0	0	512		0	0.00	1,004
Max		44.2	2240	512		44	2390.00	1,017

Table F2. Daily means (SD) of environmental parameters at site WA5B for September, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1		0.0 (0.0)	0 (0)	512		0.0 (0.0)	0 (0)	1,017
2		0.0 (0.0)	0 (0)	512		0.0 (0.0)	0 (0)	1,018
3		16.2 (14.9)	496 (604)	512		15.1 (14.6)	465 (537)	1,018
4		28.9 (5.5)	1020 (566)	512		28.1 (6.8)	1080 (660)	1,018
5		36.9 (8.4)	957 (758)	512		36.0 (9.5)	881 (643)	1,019
6		37.5 (7.2)	804 (530)	512		36.0 (9.5)	806 (515)	1,019
7		33.1 (6.6)	1210 (1020)	512		31.4 (9.5)	1090 (809)	1,020
8		33.1 (8.5)	599 (521)	512		31.7 (10.5)	564 (445)	1,020
9		31.6 (9.3)	948 (752)	512		29.7 (10.5)	977 (777)	1,020
10		30.9 (7.1)	908 (593)	512		29.6 (9.4)	942 (608)	1,021
11				512				1,021
12		33.9 (8.2)	707 (604)	512		32.2 (11.8)	694 (591)	1,022
13		31.3 (8.6)	734 (430)	512		29.8 (11.1)	764 (449)	1,022
14		34.0 (9.4)	452 (432)	512		31.6 (12.1)	402 (367)	1,022
15		32.3 (10.2)	578 (523)	512		30.5 (12.8)	537 (468)	1,023
16		33.3 (9.5)	482 (458)	512		31.1 (11.8)	445 (400)	1,023
17				512				1,024
18				512				1,024
19		33.5 (7.1)	729 (654)	512		33.0 (8.0)	779 (760)	1,025
20		51.5 (2.9)	585 (388)	512		51.7 (3.1)	616 (390)	1,025
21		43.0 (7.5)	1100 (881)	512		41.9 (9.5)	1060 (736)	1,025
22		37.6 (9.6)	1450 (1150)	512		36.3 (12.2)	1390 (956)	1,026
23		40.1 (7.4)	567 (587)	512		37.5 (11.0)	529 (501)	1,026
24		39.6 (8.5)	589 (582)	512		38.5 (10.0)	586 (555)	1,027
25		42.0 (9.6)	1140 (949)	512		40.1 (11.8)	1180 (972)	1,027
26		46.5 (6.0)	577 (446)	512		45.3 (7.9)	558 (402)	1,027
27		42.4 (9.8)	714 (495)	512		39.6 (13.7)	701 (506)	1,028
28		40.6 (9.2)	568 (427)	512		37.9 (12.6)	541 (403)	1,028
29		36.6 (9.4)	384 (335)	512		34.3 (12.5)	375 (322)	1,029
30		34.9 (7.6)	479 (396)	512		32.7 (10.7)	468 (412)	1,029
Avg		33.4	695	512		32	683.0	1,023
n		27	27	30		27	27	30
SD		11.4	324	0		11	322.00	4
Min		0.0	0	512		0	0.00	1,017
Max		51.5	1450	512		52	1390.00	1,029

Table F2. Daily means (SD) of environmental parameters at site WA5B for October, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd
1		39.8 (9.4)	412 (366)	512		38.6 (10.9)	399 (337)	1,029
2				512				1,030
3				512				1,030
4	16.2 (1.6)	47.0 (5.5)	2210 (1230)	512	15.7 (2.1)	46.7 (6.4)	2600 (1470)	1,031
5	13.0 (2.5)	45.3 (5.5)	884 (554)	512	13.2 (2.8)	43.8 (7.1)	888 (587)	1,031
6	15.3 (3.8)	49.5 (3.8)	584 (527)	512	15.8 (3.7)	48.2 (5.6)	584 (506)	1,031
7	15.7 (2.7)	35.2 (7.6)	2100 (1030)	512	16.2 (2.7)	34.6 (8.8)	2340 (1190)	1,032
8	9.8 (3.5)	37.9 (9.8)	815 (598)	512	10.2 (3.6)	36.8 (11.4)	837 (625)	1,032
9	8.9 (2.4)	41.1 (6.4)	926 (1080)	512	9.4 (2.3)	40.2 (7.5)	920 (896)	1,033
10	9.3 (3.0)	33.6 (8.6)	2060 (1630)	512	9.7 (3.0)	32.5 (10.6)	1870 (1230)	1,033
11	8.9 (3.1)	28.3 (3.7)	2010 (1620)	512	9.2 (3.2)	27.2 (6.1)	1760 (1250)	1,034
12	9.6 (3.7)	32.8 (5.9)	1130 (994)	512	9.9 (3.6)	32.6 (6.1)	1290 (1180)	1,034
13	13.0 (6.4)	41.5 (4.9)	768 (649)	512	13.4 (6.3)	40.3 (6.9)	765 (676)	1,034
14	12.6 (3.0)	36.9 (9.9)	947 (557)	512	13.0 (3.0)	36.7 (10.5)	973 (533)	1,035
15	9.2 (4.2)	38.0 (7.4)	1230 (1030)	512	9.6 (4.1)	37.4 (8.4)	1400 (1220)	1,035
16	13.6 (3.3)	42.3 (6.6)	587 (502)	512	14.0 (3.2)	39.6 (9.8)	551 (470)	1,036
17	14.5 (4.6)	53.1 (9.1)	502 (422)	512	14.9 (4.4)	52.3 (10.0)	503 (418)	1,036
18	14.9 (2.9)	51.7 (9.9)	551 (429)	512	15.3 (2.9)	51.0 (9.2)	551 (411)	1,036
19	10.4 (3.3)	44.4 (7.6)	399 (343)	512	10.9 (3.2)	44.6 (8.4)	405 (335)	1,037
20	11.2 (3.2)	48.7 (7.2)	1270 (1120)	512	11.7 (3.1)	48.2 (6.9)	1480 (1330)	1,037
21	9.6 (3.2)	39.3 (8.7)	885 (665)	512	10.0 (3.1)	39.2 (9.2)	981 (800)	1,038
22	7.4 (4.0)	44.7 (8.7)	390 (369)	512	7.7 (4.0)	44.5 (9.3)	384 (333)	1,038
23	8.1 (4.9)	47.5 (8.2)	607 (371)	512	8.7 (4.8)	46.7 (8.5)	626 (357)	1,038
24	9.6 (4.4)	51.7 (9.6)	560 (528)	512	10.1 (4.3)	51.5 (10.4)	587 (550)	1,039
25	11.7 (3.7)	46.5 (11.0)	423 (383)	512	13.7 (4.6)	47.0 (10.4)	445 (385)	1,039
26	9.1 (4.3)	40.3 (14.7)	769 (638)	512	12.9 (3.9)	41.8 (15.4)	746 (531)	1,040
27	8.9 (3.7)	36.7 (7.6)	286 (282)	512	12.6 (3.3)	37.5 (8.0)	275 (255)	1,040
28	7.8 (3.9)	42.9 (6.9)	284 (294)	512	11.6 (3.4)	42.8 (7.9)	276 (281)	1,041
29	7.2 (3.8)	50.2 (7.9)	267 (219)	512	11.3 (3.5)	50.2 (8.8)	267 (201)	1,041
30	9.0 (3.9)	52.8 (8.0)	247 (265)	512	12.8 (3.6)	51.9 (8.9)	244 (249)	1,041
31	13.3 (2.5)	55.9 (7.3)	609 (514)	512	16.8 (2.2)	54.8 (7.2)	639 (533)	1,042
Avg	11.0	43.3	852	512	12.2	43	882.0	1,036
n	28	29	29	31	28	29	29	31
SD	2.7	6.8	567	0	2.5	7	609.00	4
Min	7.2	28.3	247	512	7.7	27	244.00	1,029
Max	16.2	55.9	2210	512	16.8	55	2600.00	1,042

Table F2. Daily means (SD) of environmental parameters at site WA5B for November, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	10.4 (1.9)	73.8 (5.1)	327 (258)	512	14.0 (1.8)	72.2 (5.3)	345 (253)	1,042
2	12.1 (2.4)	63.8 (13.5)	893 (540)	512	15.0 (2.2)	63.9 (12.0)	1020 (621)	1,043
3	10.1 (1.7)	64.3 (6.9)	841 (555)	512	13.2 (1.5)	61.9 (7.8)	874 (543)	1,043
4	8.6 (2.1)	63.0 (14.0)	1020 (757)	512	10.7 (3.3)	63.5 (13.6)	1220 (931)	1,043
5	5.5 (2.4)	63.1 (3.6)	230 (184)	512	7.6 (1.2)	62.6 (4.7)	245 (182)	1,044
6	6.9 (0.6)	74.7 (3.3)	304 (309)	504	7.2 (0.6)	73.3 (3.2)	325 (318)	1,021
7	7.9 (0.7)	75.4 (2.3)	265 (240)	504	8.0 (0.8)	72.0 (2.4)	270 (226)	974
8	8.9 (1.0)	78.2 (2.5)	383 (419)	505	9.2 (1.0)	75.6 (4.0)	387 (415)	927
9	9.5 (1.4)	75.0 (5.6)	222 (252)	505	9.8 (1.4)	72.8 (6.7)	229 (249)	880
10	9.4 (3.1)	64.5 (13.0)	402 (386)	505	9.8 (3.1)	63.8 (12.7)	422 (395)	833
11	10.9 (2.3)	68.0 (6.0)	1410 (775)	506	11.1 (2.2)	65.6 (4.9)	1650 (915)	786
12	17.9 (2.8)	62.2 (9.0)	2310 (896)	506	18.0 (2.7)	61.7 (8.4)	2730 (1080)	739
13	11.6 (2.9)	47.2 (10.2)	1370 (1150)	510	11.9 (2.9)	48.2 (10.5)	1310 (930)	770
14	5.6 (2.8)	57.9 (6.5)	388 (339)	519	6.1 (2.7)	57.1 (8.0)	393 (304)	879
15	5.6 (3.0)	63.1 (8.2)	257 (204)	523	6.1 (2.9)	61.6 (8.8)	272 (204)	935
16	4.8 (2.6)	68.8 (6.2)	222 (205)	521	5.4 (2.6)	67.5 (7.0)	232 (210)	938
17	6.1 (2.5)	70.8 (5.9)	214 (209)	520	6.5 (2.4)	69.3 (6.6)	215 (193)	940
18	6.5 (2.8)	73.5 (4.6)	206 (234)	518	6.9 (2.7)	71.9 (6.2)	209 (210)	943
19	8.6 (1.2)	51.4 (11.6)	519 (276)	516	9.1 (1.3)	53.8 (11.8)	589 (275)	945
20	6.7 (2.6)	58.5 (5.5)	811 (667)	514	7.1 (2.5)	58.6 (4.0)	941 (792)	948
21	7.0 (1.8)	56.0 (5.7)	729 (523)	512	7.4 (1.7)	55.4 (5.3)	835 (610)	951
22	6.3 (2.8)	54.6 (10.7)	557 (467)	511	6.8 (2.8)	55.4 (9.9)	559 (402)	953
23	2.4 (2.3)	63.5 (5.9)	251 (254)	509	2.9 (2.4)	64.4 (6.3)	266 (273)	956
24	1.9 (2.9)	66.8 (6.6)	189 (184)	507	2.3 (2.7)	65.1 (7.6)	194 (184)	958
25	1.8 (2.4)	71.4 (6.4)	284 (280)	505	2.3 (2.4)	70.7 (6.9)	289 (276)	961
26	0.2 (2.9)	80.2 (1.1)	336 (313)	504	0.2 (1.4)	78.2 (3.2)	353 (304)	963
27	6.7 (5.1)	77.4 (2.4)	283 (202)	502	1.5 (1.2)	75.8 (4.1)	308 (215)	966
28	2.3 (0.9)	74.2 (2.5)	210 (191)	500	2.9 (1.0)	72.9 (2.6)	222 (195)	968
29	3.9 (2.0)	74.2 (3.7)	308 (255)	498	4.4 (2.0)	71.4 (5.1)	335 (248)	971
30	4.2 (1.6)	77.7 (1.7)	441 (393)	496	4.7 (1.5)	74.0 (3.6)	430 (338)	974
Avg	7.0	67.1	539	509	7.6	66	589.0	943
n	30	30	30	30	30	30	30	30
SD	3.6	8.4	467	7	4.1	7	545.00	77
Min	0.2	47.2	189	496	0.2	48	194.00	739
Max	17.9	80.2	2310	523	18.0	78	2730.00	1,044

Table F2. Daily means (SD) of environmental parameters at site WA5B for December, 2008.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	5.2 (0.6)	79.5 (1.4)	338 (267)	495	5.8 (0.6)	78.5 (2.6)	336 (238)	976
2	6.9 (3.6)	72.4 (8.5)	455 (395)	493	7.3 (3.5)	71.7 (8.7)	485 (411)	979
3	4.3 (1.6)	61.2 (13.7)	421 (258)	492	4.7 (1.6)	60.2 (14.1)	468 (268)	980
4	1.8 (2.2)	51.9 (7.7)	380 (251)	492	2.2 (2.2)	52.9 (8.5)	425 (280)	980
5	0.4 (2.5)	59.5 (7.4)	302 (295)	493	1.1 (2.6)	58.7 (6.8)	303 (272)	980
6	3.2 (2.4)	59.8 (7.5)	236 (229)	493	3.8 (2.4)	60.3 (6.8)	243 (209)	980
7	4.7 (3.2)	67.6 (3.7)	377 (325)	493	5.2 (3.1)	66.2 (3.3)	413 (359)	979
8	5.6 (2.5)	56.8 (7.6)	517 (303)	493	5.9 (2.6)	58.2 (7.6)	590 (348)	979
9	1.8 (1.6)	69.5 (2.3)	326 (323)	494	2.5 (1.7)	69.1 (2.9)	332 (291)	979
10	3.9 (2.9)	66.8 (7.5)	328 (278)	494	4.5 (2.9)	67.3 (7.1)	343 (263)	979
11	0.9 (2.1)	77.9 (1.5)	330 (249)	494	1.5 (1.8)	75.3 (3.6)	352 (259)	979
12	14.9 (12.8)	71.9 (9.7)	972 (1010)	494		73.0 (10.2)	1160 (1240)	979
13	2.0 (3.1)	62.6 (9.3)	1150 (852)	495		63.5 (7.8)	877 (971)	979
14	-8.1 (1.2)	62.1 (4.0)	1860 (1190)	495		61.7 (4.9)	547 (369)	979
15	-8.9 (1.1)	64.6 (5.0)	660 (687)	495		67.2 (4.5)	408 (259)	979
16	-12.1 (1.7)	61.2 (4.8)	319 (263)	495		66.6 (5.1)	349 (303)	978
17	-11.1 (2.1)	69.0 (2.3)	517 (637)	496		70.5 (3.3)	311 (325)	978
18				496				978
19	-7.0 (0.8)	66.9 (5.1)	178 (163)	496		67.1 (5.7)	158 (139)	978
20	-10.4 (1.1)	61.8 (7.5)	558 (356)	496		61.7 (8.6)	526 (188)	978
21	-9.4 (1.3)	70.6 (2.7)	458 (325)	497		74.4 (2.9)	488 (407)	978
22	-8.9 (1.3)	70.2 (4.2)	239 (227)	497		71.1 (2.7)	210 (198)	978
23	-7.4 (0.9)	72.7 (3.3)	169 (128)	497		70.3 (3.2)	162 (133)	978
24	-6.8 (0.6)	74.5 (2.4)	306 (248)	498		71.3 (2.6)	246 (169)	978
25	-7.2 (0.6)	73.1 (2.5)	239 (184)	498		74.8 (2.9)	209 (159)	977
26	-3.7 (9.0)	76.6 (2.4)	360 (606)	498		77.2 (3.2)	194 (287)	977
27	4.3 (5.6)	70.7 (4.6)	1170 (541)	498		71.2 (4.4)	1270 (646)	977
28	8.1 (1.7)	62.8 (6.3)	1000 (586)	499		63.8 (5.4)	972 (572)	977
29	4.5 (1.5)	65.7 (10.7)	1140 (813)	499		66.8 (9.6)	1250 (1020)	977
30	3.2 (0.9)	65.1 (3.1)	506 (540)	499		66.5 (3.5)	555 (651)	977
31	5.8 (2.0)	57.7 (7.6)	1020 (647)	499		59.4 (6.6)	1160 (788)	977
Avg	-0.6	66.7	561	496	4.0	67	511.0	978
n	30	30	30	31	11	30	30	31
SD	7.0	6.5	387	2	2.0	6	328.00	1
Min	-12.1	51.9	169	492	1.1	53	158.00	976
Max	14.9	79.5	1860	499	7.3	79	1270.00	980

Table F2. Daily means (SD) of environmental parameters at site WA5B for January, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	6.6 (2.8)	69.4 (7.1)	1020 (614)	500		69.3 (6.1)	1160 (753)	977
2	5.8 (11.4)	67.4 (10.9)	498 (452)	500		70.7 (9.0)	438 (321)	977
3	-3.5 (1.8)	68.6 (4.7)	159 (213)	500	-2.6 (1.8)	67.4 (4.3)	138 (198)	976
4	-6.7 (0.5)	76.9 (2.8)	419 (505)	500	-2.0 (9.5)	74.0 (3.1)	360 (376)	976
5	-3.9 (1.0)	76.4 (1.4)	169 (196)	501	-2.8 (1.0)	77.3 (1.5)	158 (176)	976
6	7.7 (4.8)	67.8 (7.0)	1160 (834)	501	8.3 (4.6)	67.4 (6.2)	1320 (1030)	976
7	13.3 (2.8)	59.5 (2.9)	1680 (556)	501	9.0 (6.9)	60.5 (3.1)	2010 (656)	976
8	9.6 (3.2)	53.2 (5.9)	1210 (562)	501	3.4 (4.4)	56.7 (5.6)	1240 (531)	976
9	3.5 (1.7)	59.9 (4.9)	278 (257)	502	4.2 (1.9)	63.0 (4.9)	276 (248)	976
10	2.1 (1.1)	69.5 (2.6)	171 (178)	502	3.0 (1.2)	70.3 (3.1)	164 (177)	976
11	3.3 (2.0)	71.9 (3.7)	208 (241)	502	4.1 (2.1)	71.9 (4.0)	178 (195)	975
12	5.9 (3.0)	71.8 (6.1)	214 (197)	502	6.7 (3.1)	72.7 (5.7)	183 (167)	975
13	3.0 (1.9)	77.4 (3.0)	270 (244)	503	3.8 (1.9)	76.7 (3.8)	270 (263)	975
14				503				975
15		79.3 (1.0)	177 (207)	503	-0.9 (1.5)	77.2 (2.3)	89 (103)	975
16		78.1 (1.1)	202 (173)	503	-0.6 (0.5)	78.4 (1.6)	168 (173)	975
17		78.6 (1.1)	341 (357)	504	0.4 (0.6)	78.6 (1.6)	149 (131)	975
18	0.1 (0.5)	75.7 (2.1)	280 (194)	504	1.3 (0.5)	76.3 (2.4)	252 (159)	975
19	0.2 (0.2)	71.6 (1.6)	171 (129)	504	1.0 (0.4)	72.7 (2.2)	177 (137)	975
20	-0.5 (0.4)	76.7 (1.9)	282 (183)	504	0.1 (0.3)	72.2 (1.9)	238 (183)	974
21	-1.3 (0.3)	75.2 (2.3)	330 (206)	505	-0.7 (0.3)	70.8 (1.8)	314 (191)	974
22	-1.2 (0.3)	72.0 (3.3)	227 (208)	505	-0.6 (0.3)	69.3 (2.4)	195 (179)	974
23	-1.6 (0.4)	69.1 (3.4)	274 (246)	505	-0.9 (0.5)	67.3 (2.6)	218 (203)	974
24	-1.2 (0.6)	73.8 (3.2)	238 (178)	505	0.2 (1.6)	72.3 (4.2)	216 (164)	974
25	-2.2 (0.9)	67.1 (6.5)	584 (572)	506	-1.1 (1.0)	67.6 (8.2)	338 (220)	974
26	-5.2 (1.9)	57.7 (7.7)	700 (523)	506	-4.4 (2.0)	60.6 (7.5)	807 (632)	974
27	-3.6 (2.6)	64.5 (5.6)	441 (354)	506	-2.7 (2.6)	65.1 (4.5)	402 (304)	974
28				507				974
29	2.9 (1.6)	66.6 (4.6)	199 (189)	507	3.7 (1.6)	67.3 (4.8)	162 (155)	973
30	2.1 (3.4)	72.7 (5.6)	337 (330)	507	2.8 (3.4)	71.3 (6.2)	331 (367)	973
31	4.5 (2.1)	52.4 (7.4)	501 (374)	507	5.2 (2.2)	55.1 (7.4)	517 (365)	973
Avg	1.5	69.7	439	503	1.4	70	430.0	975
n	26	29	29	31	27	29	29	31
SD	4.8	7.3	367	2	3.5	6	443.00	1
Min	-6.7	52.4	159	500	-4.4	55	89.40	973
Max	13.3	79.3	1680	507	9.0	79	2010.00	977

Table F2. Daily means (SD) of environmental parameters at site WA5B for February, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3\text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3\text{s}^{-1}$	Inv., hd
1	1.5 (1.7)	65.0 (4.0)	286 (249)	508	2.2 (1.7)	63.9 (4.7)	260 (224)	973
2	1.8 (1.1)	68.6 (4.7)	163 (158)	508	2.4 (1.1)	68.3 (4.4)	152 (162)	973
3	1.9 (3.5)	67.8 (10.0)	174 (184)	508	2.5 (3.5)	68.0 (9.8)	142 (141)	973
4	2.7 (2.9)	69.6 (8.0)	241 (230)	508	3.3 (2.9)	67.8 (8.4)	213 (200)	973
5	1.9 (1.7)	76.4 (2.5)	318 (366)	509	2.5 (1.7)	73.6 (3.1)	294 (374)	973
6	1.9 (0.9)	79.6 (1.0)	251 (215)	509	2.6 (0.9)	78.0 (4.3)	205 (157)	973
7	0.3 (2.7)	78.3 (3.2)	367 (388)	509	0.8 (2.7)	75.9 (5.4)	310 (307)	972
8		78.5 (2.6)	632 (623)	509		74.6 (5.3)	694 (744)	972
9	2.5 (2.9)	63.9 (14.1)	366 (268)	510	3.0 (2.7)	62.9 (12.4)	351 (286)	972
10	1.4 (1.3)	65.9 (8.4)	564 (480)	510	1.9 (1.3)	65.0 (8.1)	619 (572)	972
11	1.9 (1.4)	71.1 (6.7)	355 (322)	510	2.4 (1.3)	70.8 (6.6)	358 (283)	975
12	1.9 (0.9)	71.1 (2.9)	443 (381)	511	2.4 (0.8)	67.3 (3.6)	353 (250)	981
13	3.0 (1.9)	66.9 (7.8)	987 (729)	511	3.8 (2.0)	65.7 (9.4)	806 (297)	988
14	3.4 (1.9)	66.7 (7.3)	354 (244)	512	4.0 (1.9)	65.4 (7.8)	341 (261)	994
15	1.6 (1.6)	76.3 (1.6)	239 (191)	513	2.2 (1.7)	74.5 (2.0)	246 (209)	1,000
16	4.2 (1.2)	71.2 (3.3)	732 (510)	513	4.9 (1.3)	70.6 (4.9)	617 (291)	1,007
17	5.7 (2.2)	69.1 (5.9)	636 (628)	514	6.1 (2.2)	66.6 (6.9)	706 (762)	1,013
18	4.7 (3.7)	70.4 (10.2)	375 (315)	514	5.3 (3.7)	67.6 (10.2)	325 (271)	1,019
19	7.2 (8.7)	79.1 (1.2)	483 (302)	515	8.6 (9.3)	75.3 (4.6)	408 (218)	1,026
20	3.1 (1.6)	75.3 (5.1)	532 (405)	516	3.9 (1.5)	70.6 (7.4)	464 (364)	1,032
21	2.3 (1.2)	72.1 (7.1)	462 (302)	516	3.0 (1.3)	69.0 (5.8)	421 (268)	1,038
22	3.9 (5.4)	77.1 (4.4)	299 (290)	517	4.3 (6.0)	72.4 (5.3)	239 (201)	1,045
23	4.2 (0.9)	78.6 (2.0)	729 (644)	517	4.8 (1.0)	75.6 (2.9)	665 (750)	1,051
24	9.4 (2.4)	61.9 (8.3)	2330 (827)	518	9.7 (2.5)	60.8 (7.5)	2760 (986)	1,057
25	8.8 (1.8)	62.3 (6.5)	1960 (602)	519	9.2 (1.8)	61.5 (6.4)	2340 (712)	1,064
26	3.3 (1.7)	52.7 (7.2)	1280 (1070)	519	4.1 (1.7)	54.6 (7.2)	1150 (585)	1,066
27	1.5 (3.1)	60.4 (7.1)	538 (573)	519	2.3 (3.0)	58.0 (10.1)	405 (347)	1,065
28	3.3 (2.8)	58.9 (7.5)	546 (445)	519	4.1 (2.9)	59.2 (8.3)	474 (339)	1,063
Avg	3.3	69.8	594	513	3.9	68	583.0	1,008
n	27	28	28	28	27	28	28	28
SD	2.2	6.8	494	4	2.2	6	592.00	36
Min	0.3	52.7	163	508	0.8	55	142.00	972
Max	9.4	79.6	2330	519	9.7	78	2760.00	1,066

Table F2. Daily means (SD) of environmental parameters at site WA5B for March, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd
1	5.3 (1.5)	65.1 (8.7)	402 (277)	520	6.0 (1.2)	64.9 (8.0)	411 (305)	1,062
2	6.6 (2.8)	77.8 (2.7)	997 (978)	520	7.1 (2.7)	73.0 (3.4)	1060 (1170)	1,060
3	7.6 (2.5)	72.8 (10.2)	489 (477)	520	8.2 (2.5)	69.4 (11.3)	432 (425)	1,059
4	5.8 (3.5)	68.5 (10.3)	497 (383)	520	6.5 (3.4)	63.8 (14.2)	548 (459)	1,057
5	6.3 (2.5)	58.5 (8.2)	1770 (1060)	520	7.0 (2.4)	56.6 (8.7)	1850 (1270)	1,056
6	2.6 (2.5)	54.1 (10.7)	834 (596)	520	3.3 (2.5)	50.9 (13.3)	923 (732)	1,054
7	4.0 (4.1)	55.0 (13.1)	1400 (1320)	521	4.7 (4.0)	53.2 (13.6)	1350 (1140)	1,053
8	2.7 (2.4)	49.8 (10.0)	491 (404)	521	3.4 (2.4)	48.9 (12.8)	478 (387)	1,051
9	1.9 (2.6)	57.0 (10.1)	813 (889)	521	2.6 (2.6)	55.7 (12.2)	850 (852)	1,050
10	-1.6 (1.6)	47.6 (8.6)	1020 (715)	521	-0.9 (1.6)	43.5 (12.7)	881 (416)	1,048
11	-0.8 (2.5)	43.5 (7.2)	708 (570)	521	0.0 (2.5)	38.5 (11.6)	521 (288)	1,046
12				521				1,045
13	1.2 (3.5)	52.6 (6.6)	203 (319)	521	1.9 (3.6)	51.2 (8.0)	188 (307)	1,043
14	5.8 (3.0)	60.3 (5.8)	1240 (1170)	522	6.3 (2.8)	57.9 (5.1)	1430 (1400)	1,042
15	8.4 (2.8)	53.9 (7.7)	2050 (1290)	522	8.8 (2.8)	50.9 (9.5)	2440 (1560)	1,040
16	7.1 (2.6)	51.3 (8.0)	1470 (629)	522	7.6 (2.7)	47.2 (9.8)	1720 (786)	1,039
17	7.8 (2.2)	53.6 (7.3)	1650 (771)	522	8.3 (2.3)	51.7 (7.6)	1950 (926)	1,037
18	8.7 (3.2)	54.2 (9.6)	312 (315)	522	9.5 (3.2)	50.0 (12.5)	271 (289)	1,036
19	9.6 (4.4)	58.6 (9.4)	503 (499)	522	10.3 (4.3)	52.7 (13.2)	481 (525)	1,034
20	12.4 (4.0)	55.5 (12.1)	945 (862)	523	13.0 (3.8)	51.7 (13.3)	928 (836)	1,033
21	9.8 (1.9)	59.0 (7.3)	451 (413)	523	10.4 (1.8)	56.0 (8.2)	374 (285)	1,031
22	8.5 (2.7)	53.8 (13.4)	853 (1020)	523	9.1 (2.7)	50.9 (13.0)	739 (752)	1,030
23	6.5 (3.3)	46.0 (12.8)	904 (566)	523	7.0 (3.4)	44.5 (14.1)	904 (573)	1,028
24	8.5 (3.3)	55.3 (12.4)	1110 (890)	523	9.0 (3.3)	52.7 (11.6)	1270 (1080)	1,027
25	8.2 (1.9)	47.9 (6.0)	1300 (850)	523	8.8 (2.0)	46.8 (6.4)	1150 (760)	1,025
26	6.3 (3.0)	38.3 (12.2)		524	7.0 (3.0)	35.9 (15.3)		1,024
27	8.9 (4.5)	42.5 (6.8)	647 (546)	524	9.5 (4.4)	41.2 (7.9)	601 (510)	1,022
28	6.8 (1.6)	64.7 (10.5)	554 (634)	524	7.4 (1.5)	61.0 (8.8)	461 (453)	1,021
29	6.7 (2.8)	45.0 (13.7)	2630 (2010)	524	7.3 (2.7)	44.1 (15.0)	1610 (878)	1,019
30	6.8 (4.2)	44.2 (9.8)	730 (697)	524	7.4 (4.2)	42.0 (11.8)	539 (399)	1,018
31	8.3 (2.9)	44.8 (10.4)	1710 (1530)	524	8.9 (2.9)	44.0 (9.6)	1450 (1060)	1,016
Avg	6.2	54.4	989	522	6.9	52	959.0	1,039
n	30	30	29	31	30	30	29	31
SD	3.1	9.0	563	1	3.1	9	562.00	14
Min	-1.6	38.3	203	520	-0.9	36	188.00	1,016
Max	12.4	77.8	2630	524	13.0	73	2440.00	1,062

Table F2. Daily means (SD) of environmental parameters at site WA5B for April, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	5.0 (2.2)	56.0 (9.7)	1140 (943)	524	5.4 (2.2)	53.4 (7.3)	1310 (1120)	1,015
2	10.2 (2.8)	48.6 (13.1)	1880 (1020)	525	10.8 (2.9)	47.6 (12.9)	1750 (788)	1,013
3	8.1 (3.0)	37.8 (7.8)	1020 (662)	525	8.8 (3.0)	37.0 (9.9)	874 (522)	1,011
4	7.9 (4.1)	42.8 (9.2)	718 (649)	525	8.5 (4.0)	41.0 (11.9)	597 (448)	1,010
5	10.0 (5.5)	46.2 (12.4)	551 (576)	525	10.5 (5.3)	43.9 (13.6)	415 (360)	1,008
6	13.4 (5.6)	40.9 (11.7)	478 (414)	525	13.9 (5.5)	39.2 (13.2)	421 (367)	1,007
7	14.8 (5.8)	41.7 (11.9)	516 (468)	525	15.3 (5.6)	40.7 (12.8)	415 (363)	1,005
8	14.5 (3.0)	41.8 (7.0)	1230 (745)	526	15.0 (3.1)	42.2 (7.5)	1160 (576)	1,004
9	12.5 (2.8)	43.7 (7.4)	949 (586)	526	13.0 (2.9)	42.1 (8.2)	813 (505)	1,002
10	12.2 (2.7)	57.2 (11.3)	484 (385)	526	12.9 (2.8)	55.4 (11.1)	438 (351)	1,001
11	11.8 (3.4)	45.0 (11.1)	898 (663)	526	12.4 (3.6)	45.4 (12.1)	805 (425)	999
12	12.7 (2.1)	55.8 (4.1)	1200 (646)	526	13.1 (2.1)	54.1 (3.4)	1420 (773)	998
13	9.4 (2.6)	41.6 (8.2)	1740 (622)	526	10.0 (2.7)	41.9 (8.4)	2050 (742)	996
14	5.2 (2.4)	57.6 (6.4)	1200 (1070)	527	5.9 (2.6)	56.5 (5.9)	987 (642)	995
15	9.8 (4.8)	43.7 (14.0)	1390 (937)	527	10.4 (4.7)	42.9 (14.4)	1010 (468)	993
16	12.0 (4.3)	38.9 (9.7)	919 (597)	527	12.4 (4.2)	37.8 (10.8)	983 (708)	992
17	12.3 (4.1)	43.7 (8.1)	1010 (960)	527	12.9 (4.1)	43.5 (8.1)	788 (649)	990
18	11.4 (5.0)	42.4 (12.4)	732 (561)	527	11.9 (4.9)	41.7 (13.4)	559 (400)	989
19	16.5 (6.8)	38.8 (9.2)	704 (587)	527	16.8 (6.6)	38.6 (10.6)	757 (719)	987
20	19.4 (5.8)	38.3 (11.4)	750 (703)	528	19.6 (5.7)	38.1 (12.8)	736 (775)	986
21	20.1 (5.5)	34.3 (10.1)	768 (568)	528	20.3 (5.6)	34.2 (11.6)	746 (539)	984
22	15.8 (3.9)	32.2 (7.9)	1690 (1380)	528	16.3 (3.9)	31.8 (8.4)	1580 (1220)	983
23	8.5 (3.0)	33.6 (5.4)	1510 (1030)	528	9.1 (3.0)	33.1 (6.1)	1430 (844)	981
24	9.3 (4.7)	33.4 (9.9)	1320 (1090)	528	9.8 (4.6)	33.0 (10.3)	1430 (1290)	980
25	10.5 (3.4)	34.9 (7.4)	1980 (1580)	528	11.1 (3.5)	34.5 (8.1)	1850 (1300)	978
26	11.8 (3.8)	35.3 (8.7)	1330 (706)	528	12.2 (3.8)	35.0 (9.2)	1470 (851)	976
27	11.6 (3.0)	44.0 (5.4)	2090 (1840)	529	12.1 (2.9)	41.7 (6.9)	1860 (1490)	975
28	8.8 (1.4)	50.7 (11.3)	2510 (1550)	529	9.4 (1.3)	46.0 (11.4)	2090 (1280)	973
29	8.0 (2.0)	63.9 (8.2)	1290 (842)	529	8.6 (2.0)	62.3 (8.7)	1190 (677)	972
30	11.8 (3.3)	41.8 (12.3)	934 (651)	529	12.3 (3.3)	40.7 (13.0)	955 (631)	970
Avg	11.5	43.6	1160	527	12.0	43	1100.0	992
n	30	30	30	30	30	30	30	30
SD	3.5	7.9	504	1	3.4	7	495.00	13
Min	5.0	32.2	478	524	5.4	32	415.00	970
Max	20.1	63.9	2510	529	20.3	62	2090.00	1,015

Table F2. Daily means (SD) of environmental parameters at site WA5B for May, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd
1	12.3 (5.2)	41.6 (12.0)	988 (1100)	529	12.7 (5.1)	40.8 (13.5)	887 (924)	969
2	12.3 (1.9)	55.0 (10.7)	620 (528)	529	12.7 (1.9)	53.4 (10.7)	638 (540)	967
3	12.4 (3.1)	48.4 (12.4)	652 (602)	530	12.8 (3.1)	47.1 (13.3)	651 (603)	966
4	11.7 (2.9)	62.6 (13.0)	1080 (966)	530	12.0 (2.9)	59.3 (12.2)	1210 (1140)	964
5	14.2 (2.1)	48.1 (13.0)	2640 (1420)	530	14.5 (2.2)	48.0 (12.5)	3100 (1690)	963
6	12.8 (2.3)	56.9 (9.4)	1860 (1200)	530	13.1 (2.3)	55.2 (7.4)	2170 (1450)	962
7	12.4 (3.2)	41.8 (11.7)	1880 (1040)	530	12.8 (3.3)	42.0 (12.1)	1990 (961)	962
8	12.2 (4.2)	41.2 (10.7)	997 (647)	530	12.5 (4.2)	40.4 (12.0)	1080 (699)	961
9	14.0 (5.0)	39.7 (12.3)	697 (641)	530	14.4 (5.0)	39.8 (13.1)	665 (546)	961
10	16.1 (4.9)	41.2 (12.5)	1070 (1020)	529	16.4 (4.8)	40.0 (13.5)	990 (886)	961
11	15.9 (3.0)	39.5 (10.7)	1490 (969)	529	16.4 (3.1)	39.8 (10.9)	1570 (976)	961
12	11.2 (2.4)	38.1 (8.8)	2460 (1200)	529	11.6 (2.5)	38.2 (9.2)	2730 (1150)	961
13	10.2 (3.6)	51.1 (15.5)	1330 (1040)	529	10.5 (3.6)	49.2 (14.0)	1510 (1240)	960
14	15.7 (3.0)	44.0 (15.5)	2730 (1250)	529	16.0 (3.2)	43.7 (15.9)	2940 (1370)	960
15	14.1 (4.7)	37.3 (11.6)	921 (647)	529	14.5 (4.7)	37.2 (12.5)	930 (644)	960
16	17.9 (6.3)	32.9 (10.3)	892 (757)	529	18.2 (6.2)	32.9 (11.8)	894 (719)	960
17	22.5 (6.3)	32.8 (9.2)	1030 (899)	529	22.6 (6.3)	33.0 (10.8)	1140 (1060)	960
18	23.3 (4.9)	33.8 (7.8)	1160 (1040)	528	23.4 (4.9)	34.2 (9.2)	1190 (1050)	959
19	15.8 (2.7)	34.9 (8.4)	2000 (919)	528	16.2 (2.9)	35.5 (9.0)	2220 (920)	959
20	13.4 (4.5)	35.8 (10.3)	935 (719)	528	13.7 (4.6)	35.4 (11.4)	956 (754)	959
21	15.6 (5.1)	34.0 (10.8)	985 (933)	528	15.9 (5.1)	33.5 (12.3)	899 (773)	959
22	18.4 (5.4)	30.0 (8.9)	639 (708)	528	18.7 (5.4)	29.9 (10.1)	562 (593)	959
23	21.3 (4.8)	29.0 (9.9)	972 (694)	528	21.4 (4.9)	29.5 (11.0)	1010 (794)	958
24	21.9 (4.4)	22.7 (7.3)	1540 (721)	528	22.1 (4.5)	22.6 (8.0)	1620 (799)	958
25	21.1 (4.3)	26.4 (7.5)	1290 (555)	528	21.4 (4.4)	26.4 (8.1)	1330 (603)	958
26	20.4 (3.9)	35.1 (8.0)	1290 (754)	528	20.3 (4.5)	34.8 (8.9)	1280 (703)	958
27	20.5 (5.2)	38.0 (11.7)	1210 (852)	527	20.7 (5.1)	36.4 (12.8)	1150 (772)	958
28	22.9 (5.4)	33.3 (8.5)	960 (614)	527	23.1 (5.3)	32.8 (10.0)	891 (506)	957
29	25.7 (6.0)	34.1 (9.1)	1350 (1040)	527	25.8 (5.9)	33.3 (10.7)	1360 (1150)	957
30	27.1 (4.3)	30.0 (9.9)	1170 (619)	527	27.3 (4.3)	29.2 (10.9)	1140 (632)	957
31	25.7 (4.7)	24.2 (7.5)	915 (610)	527	25.8 (4.8)	24.0 (8.4)	920 (674)	957
Avg	17.1	38.5	1280	529	17.4	38	1340.0	960
n	31	31	31	31	31	31	31	31
SD	4.8	9.2	552	1	4.7	9	658.00	3
Min	10.2	22.7	620	527	10.5	23	562.00	957
Max	27.1	62.6	2730	530	27.3	59	3100.00	969

Table F2. Daily means (SD) of environmental parameters at site WA5B for June, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	25.6 (3.3)	26.1 (5.8)	1280 (744)	527	25.8 (3.4)	25.2 (7.2)	1200 (607)	957
2	23.0 (2.8)	33.2 (4.8)	2790 (1660)	527	23.2 (2.8)	29.5 (5.7)	2330 (1360)	956
3	23.3 (4.2)	30.3 (6.8)	1320 (805)	527	23.5 (4.3)	30.2 (8.4)	1240 (634)	956
4	23.7 (4.2)	36.9 (9.9)	1260 (1450)	526	23.9 (4.3)	37.1 (11.0)	1320 (1720)	956
5	22.8 (4.0)	52.6 (13.7)	1030 (767)	526	23.0 (4.0)	52.9 (14.5)	1000 (814)	956
6	21.3 (3.5)	45.1 (10.8)	1740 (1040)	526	22.0 (3.6)	44.2 (10.5)	1630 (839)	956
7	16.7 (1.9)	61.0 (8.1)	796 (604)	526	17.7 (1.8)	60.1 (9.1)	903 (706)	955
8	17.7 (6.3)	51.5 (12.7)	957 (778)	526	19.4 (3.8)	50.3 (14.1)	907 (692)	955
9	20.4 (4.0)	43.0 (13.1)	830 (821)	526	20.9 (4.1)	42.0 (14.7)	756 (700)	955
10				526				955
11	22.6 (3.9)	36.9 (11.4)	1080 (625)	526		37.3 (12.6)	1080 (581)	955
12	22.2 (3.8)	43.6 (9.8)	1140 (1080)	525		43.4 (10.7)	1250 (1230)	954
13	22.0 (4.7)	46.4 (13.0)	875 (873)	525		45.9 (13.3)	907 (917)	954
14	23.0 (2.6)	45.4 (6.8)	1620 (905)	525		45.0 (7.5)	1870 (1070)	954
15	23.1 (3.7)	40.9 (9.4)	1160 (699)	525		40.8 (10.2)	1150 (689)	954
16				525				954
17				525				953
18	21.9 (3.9)	35.1 (10.1)	1240 (796)	525	22.2 (3.9)	34.9 (11.1)	1280 (796)	953
19	21.0 (2.7)	43.6 (8.6)	1370 (1040)	525	21.4 (2.8)	42.7 (8.4)	1270 (882)	953
20	18.6 (3.5)	38.6 (8.8)	1610 (843)	525	18.9 (3.6)	38.7 (9.6)	1550 (686)	953
21	16.2 (2.8)	39.4 (6.9)	1510 (1230)	524	16.6 (2.9)	39.0 (7.6)	1420 (1050)	953
22				524				952
23	19.3 (5.2)	35.3 (9.7)	1080 (752)	524	19.5 (5.1)	34.7 (11.3)	1010 (653)	952
24	24.3 (5.5)	30.4 (9.1)	1490 (1140)	524	24.5 (5.6)	30.3 (9.8)	1610 (1260)	952
25	20.3 (3.5)	36.7 (7.4)	1310 (790)	524	20.6 (3.6)	36.4 (8.3)	1280 (791)	952
26	20.2 (4.0)	30.7 (10.7)	1180 (611)	524	20.6 (4.1)	31.3 (11.3)	1220 (647)	952
27	22.9 (6.0)	24.4 (8.8)	1460 (1050)	524	23.0 (6.0)	24.2 (9.1)	1690 (1260)	951
28	23.5 (3.6)	29.5 (7.5)	1130 (661)	524	23.7 (3.7)	29.3 (8.6)	1170 (721)	951
29	22.1 (4.7)	24.8 (5.6)	1430 (715)	523	22.4 (4.6)	24.2 (6.8)	1450 (812)	951
30	22.7 (4.0)	23.3 (6.6)	1350 (733)	523	23.0 (4.1)	23.4 (7.1)	1450 (877)	951
Avg	21.6	37.9	1310	525	21.7	37	1300.0	954
n	26	26	26	30	21	26	26	30
SD	2.3	9.2	381	1	2.3	9	335.00	2
Min	16.2	23.3	796	523	16.6	23	756.00	951
Max	25.6	61.0	2790	527	25.8	60	2330.00	957

Table F2. Daily means (SD) of environmental parameters at site WA5B for July, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3\text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3\text{s}^{-1}$	Inv., hd
1	23.3 (4.7)	26.1 (6.5)	886 (489)	523	23.6 (4.8)	26.4 (7.2)	881 (500)	951
2	24.9 (5.9)	27.6 (8.6)	522 (594)	523	25.1 (6.0)	27.8 (9.6)	464 (506)	950
3	27.3 (6.2)	27.0 (10.9)	1080 (1010)	523	27.3 (6.2)	26.5 (12.4)	1020 (962)	950
4	28.6 (5.3)	24.6 (9.6)	1000 (901)	523	28.8 (5.3)	24.3 (10.3)	1040 (939)	950
5	26.9 (4.1)	26.2 (8.5)	1070 (891)	523	27.1 (4.2)	25.8 (8.7)	995 (777)	950
6	21.7 (3.0)	35.4 (9.4)	2200 (1410)	523	22.0 (3.1)	35.4 (9.7)	2030 (1210)	950
7	19.0 (4.2)	39.7 (9.3)	1040 (775)	522	19.3 (4.2)	39.5 (10.2)	962 (680)	949
8				522				949
9	20.6 (4.2)	38.5 (9.8)	1310 (629)	522	20.9 (4.3)	38.8 (10.5)	1260 (524)	949
10	23.3 (5.2)	34.1 (9.9)	1050 (952)	522	23.5 (5.1)	34.0 (11.1)	949 (782)	949
11	27.4 (5.2)	27.5 (5.4)	1360 (854)	522	27.5 (5.3)	27.4 (6.3)	1300 (681)	949
12	26.5 (4.3)	37.2 (12.2)	1800 (1010)	522	26.8 (4.5)	36.8 (12.3)	1920 (1050)	948
13	21.3 (3.6)	43.0 (11.5)	1460 (1060)	522	21.7 (3.7)	42.9 (11.9)	1370 (898)	948
14	21.5 (5.3)	37.9 (12.9)	988 (691)	522	21.7 (5.3)	37.3 (13.5)	896 (569)	948
15	25.0 (5.8)	31.2 (10.7)	1060 (879)	522	25.0 (5.7)	30.4 (12.2)	993 (806)	948
16				521				947
17	28.7 (5.1)	29.1 (10.2)	1020 (952)	521	28.8 (5.1)	28.8 (11.1)	979 (841)	947
18	28.2 (4.1)	31.2 (7.0)	1060 (714)	521	28.4 (4.0)	31.2 (8.1)	980 (587)	947
19	25.2 (4.1)	30.3 (10.5)	972 (588)	521	25.4 (4.1)	30.6 (11.7)	1010 (626)	947
20	25.6 (4.6)	29.9 (5.8)	983 (680)	521	25.8 (4.6)	30.2 (6.0)	923 (595)	947
21	27.8 (5.6)	29.9 (10.5)	896 (880)	521	28.0 (5.5)	28.9 (11.4)	858 (857)	946
22	29.6 (5.1)	32.8 (9.2)	1380 (876)	521	29.7 (5.0)	32.4 (10.4)	1410 (897)	946
23	27.0 (3.1)	34.3 (6.6)	2080 (1310)	521	27.2 (3.2)	33.9 (7.8)	1950 (1070)	946
24	25.1 (3.8)	39.9 (7.3)	1130 (757)	520	25.3 (3.8)	39.5 (8.6)	1090 (664)	946
25	26.1 (5.0)	41.6 (9.8)	817 (817)	520	26.4 (4.9)	40.8 (11.0)	782 (822)	946
26	28.0 (3.6)	39.2 (9.2)	693 (517)	520	28.2 (3.6)	39.6 (9.7)	682 (481)	945
27	29.0 (4.4)	39.6 (9.0)	589 (642)	520	29.2 (4.4)	39.5 (9.6)	521 (535)	945
28	30.3 (4.8)	40.0 (8.5)	670 (708)	520	30.5 (4.8)	38.9 (10.5)	595 (602)	945
29				520				945
30	28.6 (4.9)	35.2 (10.7)	812 (942)	520	28.7 (4.8)	34.4 (12.2)	727 (798)	945
31	29.9 (5.4)	36.9 (10.7)	1090 (919)	520	30.0 (5.3)	35.6 (11.2)	1000 (762)	944
Avg	26.0	33.8	1110	521	26.1	34	1060.0	947
n	28	28	28	31	28	28	28	31
SD	3.0	5.3	390	1	2.9	5	384.00	2
Min	19.0	24.6	522	520	19.3	24	464.00	944
Max	30.3	43.0	2200	523	30.5	43	2030.00	951

Table F2. Daily means (SD) of environmental parameters at site WA5B for August, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd	Temp., °C	RH, %	Airflow, $\text{dsm}^3 \text{s}^{-1}$	Inv., hd
1	31.2 (6.0)	35.2 (8.7)	827 (827)	519	31.3 (5.9)	34.5 (9.9)	762 (728)	944
2	30.8 (3.8)	24.7 (5.0)	1100 (589)	519	30.9 (3.8)	24.5 (5.6)	1080 (605)	944
3	30.0 (4.3)	30.1 (9.5)	1040 (686)	519	30.1 (4.4)	30.0 (10.1)	1010 (608)	944
4	28.0 (5.8)	25.8 (5.3)	1270 (924)	519	28.1 (5.7)	25.0 (5.9)	1310 (1020)	944
5				519				943
6	23.1 (1.8)	37.1 (7.3)	1250 (813)	519	23.4 (1.9)	37.6 (7.2)	1330 (867)	943
7	22.3 (3.5)	41.1 (7.8)	1250 (653)	519	22.6 (3.5)	40.7 (8.8)	1330 (671)	943
8	22.2 (4.2)	42.0 (9.0)	1430 (1020)	519	22.4 (4.1)	40.9 (9.8)	1550 (1150)	943
9	23.5 (3.9)	42.3 (9.2)	1120 (832)	519	23.7 (3.9)	41.8 (9.6)	1040 (699)	943
10	24.0 (5.0)	41.7 (11.6)	1310 (845)	518	24.2 (5.0)	40.5 (11.5)	1260 (792)	942
11	24.3 (3.3)	46.0 (7.1)	1120 (813)	518	24.6 (3.4)	45.6 (7.9)	1020 (688)	942
12				518				942
13				518				942
14	17.9 (3.8)	41.0 (8.5)	1340 (997)	518	18.3 (3.8)	41.0 (9.0)	1280 (825)	942
15	19.6 (5.0)	39.4 (11.4)	995 (740)	518	19.8 (5.1)	38.7 (11.8)	1030 (801)	941
16	20.4 (4.4)	39.9 (8.5)	906 (599)	518	20.7 (4.4)	40.5 (9.0)	915 (603)	941
17	22.8 (4.4)	37.8 (8.7)	900 (602)	518	23.1 (4.4)	38.2 (9.0)	907 (646)	941
18	25.1 (5.9)	35.6 (13.3)	1010 (852)	517	25.2 (5.8)	35.4 (14.1)	1020 (977)	941
19	27.1 (5.7)	36.5 (8.5)	755 (716)	517	27.3 (5.6)	35.8 (9.6)	682 (597)	941
20	29.1 (5.8)	37.3 (13.3)	1000 (877)	517	29.1 (5.7)	36.3 (14.1)	917 (789)	940
21	25.7 (3.9)	37.1 (6.6)	1210 (832)	517	25.8 (4.0)	36.2 (8.0)	1140 (739)	940
22	21.5 (4.2)	39.5 (11.4)	1270 (796)	517	21.7 (4.1)	38.6 (13.1)	1290 (872)	940
23	21.7 (3.4)	32.6 (9.4)	1520 (632)	517	22.0 (3.5)	32.7 (9.9)	1640 (685)	940
24	20.5 (5.2)	36.1 (9.3)	931 (769)	517	20.7 (5.1)	35.6 (10.7)	868 (653)	940
25	22.0 (4.1)	33.6 (8.6)	956 (955)	517	22.2 (4.2)	32.6 (9.2)	888 (850)	939
26	21.2 (5.7)	38.5 (10.4)	842 (808)	516	21.4 (5.7)	37.6 (12.0)	783 (690)	939
27	23.2 (6.2)	35.5 (13.2)	541 (499)	516	23.6 (6.2)	35.6 (13.5)	510 (453)	939
28	24.8 (4.4)	31.6 (6.8)	768 (758)	516	24.9 (4.3)	31.5 (7.6)	795 (852)	939
29	21.9 (3.2)	43.9 (8.4)	804 (505)	516	22.1 (3.3)	42.9 (9.5)	781 (478)	939
30	23.6 (4.3)	42.9 (10.1)	905 (760)	516	23.9 (4.3)	41.9 (10.9)	928 (883)	938
31				516				938
Avg	24.0	37.2	1050	518	24.2	37	1040.0	941
n	27	27	27	31	27	27	27	31
SD	3.4	5.0	228	1	3.3	5	261.00	2
Min	17.9	24.7	541	516	18.3	25	510.00	938
Max	31.2	46.0	1520	519	31.3	46	1640.00	944

Table F2. Daily means (SD) of environmental parameters at site WA5B for September, 2009.

Day	Barn 2				Barn 4			
	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd	Temp., °C	RH, %	Airflow, dsm ³ s ⁻¹	Inv., hd
1	25.6 (4.9)	43.5 (10.3)	872 (662)	516	25.8 (4.9)	41.9 (10.9)	836 (583)	938
2	24.7 (4.8)	45.1 (11.3)	833 (808)	516	24.9 (4.7)	43.1 (13.2)	746 (668)	938
3				516				938
4	18.5 (3.7)	45.8 (6.8)	634 (514)	515	18.8 (3.6)	45.8 (7.2)	601 (460)	937
5	18.7 (2.7)	55.0 (13.4)	1080 (1280)	515	19.1 (2.8)	54.1 (12.9)	999 (1100)	937
6	17.3 (2.7)	49.1 (9.7)	2060 (1090)	515	17.6 (2.7)	49.0 (9.2)	2410 (1310)	937
7	16.8 (3.2)	45.2 (9.3)	1450 (628)	515	17.1 (3.3)	44.0 (11.5)	1490 (679)	937
8	16.1 (4.9)	47.2 (12.0)	837 (854)	515	16.4 (4.7)	44.7 (14.6)	766 (715)	937
9	18.9 (5.4)	44.4 (11.5)	1090 (1210)	515	19.5 (5.6)	43.3 (12.3)	1220 (1430)	936
10	20.4 (4.5)	46.0 (12.4)	539 (521)	515	20.6 (4.4)	43.5 (15.2)	538 (510)	936
11	21.5 (5.2)	41.0 (13.7)	354 (418)	515	21.7 (5.2)	39.7 (15.4)	339 (393)	936
12	22.6 (5.2)	38.2 (8.9)	472 (423)	514	22.8 (5.2)	36.7 (11.7)	437 (395)	936
13	24.9 (5.6)	36.4 (10.3)	865 (911)	514	25.0 (5.5)	34.8 (12.7)	936 (1070)	936
14	23.9 (3.5)	44.1 (10.5)	1080 (551)	514	24.1 (3.5)	41.1 (13.6)	1040 (502)	935
15	21.4 (3.9)	44.0 (7.0)	1140 (745)	514	21.5 (3.9)	40.5 (10.1)	1080 (595)	935
16	22.5 (4.8)	43.2 (11.8)	746 (700)	512	22.8 (4.8)	40.5 (14.4)	715 (698)	937
17	20.5 (2.8)	38.8 (12.0)	1180 (622)	512	20.8 (2.7)	36.7 (15.1)	1240 (685)	937
18	18.6 (5.3)	40.4 (11.2)	577 (537)	512	18.8 (5.2)	37.2 (14.9)	522 (457)	937
19	17.8 (4.2)	43.8 (6.6)	853 (826)	512	18.2 (4.1)	42.3 (7.0)	817 (757)	937
20	16.1 (3.7)	38.1 (8.5)	1090 (639)	512	16.4 (3.8)	35.5 (12.4)	1170 (716)	937
21	15.8 (5.3)	41.4 (11.9)	486 (584)	512	16.1 (5.2)	38.0 (15.4)	446 (506)	937
22	18.3 (5.5)	38.7 (11.9)	245 (296)	512	18.4 (5.5)	36.0 (15.3)	224 (272)	937
23	21.0 (5.7)	36.1 (9.7)	303 (359)	512	21.3 (5.6)	33.7 (12.9)	282 (334)	937
24				512				937
25	21.0 (4.2)	37.0 (7.8)	609 (444)	512	21.3 (4.2)	34.9 (11.7)	638 (484)	937
26	19.8 (5.1)	34.9 (13.1)	688 (651)	512	20.1 (5.1)	32.7 (14.5)	725 (709)	937
27	16.3 (3.8)	29.8 (6.1)	554 (485)	512	16.6 (3.9)	28.1 (9.4)	574 (482)	937
28	15.6 (5.0)	34.9 (10.1)	1300 (1290)	512	15.9 (4.9)	33.8 (11.2)	1470 (1530)	937
29	12.6 (3.0)	41.4 (7.0)	1210 (752)	512	13.0 (3.0)	39.8 (8.9)	1330 (881)	937
30	10.9 (3.8)	40.9 (7.1)	877 (673)	512	11.3 (4.0)	42.4 (10.7)	884 (602)	937
Avg	19.2	41.6	858	513	19.5	40	874.0	937
n	28	28	28	30	28	28	28	30
SD	3.5	5.0	385	1	3.5	5	451.00	1
Min	10.9	29.8	245	512	11.3	28	224.00	935
Max	25.6	55.0	2060	516	25.8	54	2410.00	938

Table F3. PM10 concentrations and emissions.

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for September, 2007.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29	40 (49)	39 (14)	54 (27)	-1080 (7600)	-191 (1340)	-2110 (14800)	1140 (6770)	138 (815)	1220 (7230)
30	11 (8)	23 (5)	34 (14)	1330 (1300)	235 (229)	2610 (2540)	3030 (2530)	365 (305)	3230 (2710)
Avg	26	31	44	126	22	246	2090	251	2230
n	2	2	2	2	2	2	2	2	2
SD	14.6	7.8	10.4	1210.0	213.0	2360.0	943.0	114.0	1010.0
Min	11	23	34	-1080	-191	-2110	1140	138	1220
Max	40	39	54	1330	235	2610	3030	365	3230

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for October, 2007.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	35 (21)	44 (23)	68 (36)	856 (2580)	151 (454)	1670 (5030)	4950 (6250)	596 (753)	5290 (6670)
2	88 (96)	54 (27)	111 (96)	-9360 (25500)	-1650 (4490)	-18300 (49800)	4780 (22500)	575 (2710)	5100 (24000)
3	47 (29)	47 (18)	95 (42)	-662 (4310)	-117 (760)	-1290 (8420)	5080 (7660)	611 (922)	5420 (8180)
4	36 (20)	50 (25)	87 (40)	771 (2200)	136 (388)	1510 (4300)	3430 (3770)	412 (453)	3660 (4020)
5	41 (20)	75 (133)	142 (288)	3110 (16400)	547 (2890)	6070 (32100)	6460 (12600)	777 (1520)	6890 (13500)
6	30 (13)	57 (33)	121 (56)	1210 (1610)	214 (284)	2370 (3150)	5080 (5210)	612 (627)	5420 (5560)
7	52 (37)	83 (37)	142 (69)	2370 (6820)	419 (1200)	4640 (13300)	10100 (17100)	1210 (2060)	10700 (18300)
8	56 (20)	89 (48)	135 (65)	1690 (3090)	298 (545)	3310 (6030)	4670 (4900)	562 (590)	4990 (5230)
9	78 (35)	116 (73)	166 (72)	960 (2720)	169 (479)	1880 (5310)	3560 (5110)	428 (615)	3800 (5450)
10									
11	95 (73)	85 (54)	136 (60)	-1690 (6460)	-298 (1140)	-3300 (12600)	1250 (5890)	151 (709)	1340 (6290)
12	41 (20)	68 (41)	97 (64)	1690 (2850)	297 (502)	3290 (5560)	4200 (5120)	505 (616)	4480 (5470)
13	24 (9)	34 (17)	40 (38)	257 (882)	45 (155)	502 (1720)	521 (2300)	63 (277)	556 (2450)
14	40 (21)	39 (21)	55 (96)	-233 (1290)	-41 (227)	-455 (2520)	1020 (6070)	123 (731)	1090 (6480)
15	47 (23)	43 (24)	55 (38)	-175 (1180)	-31 (207)	-342 (2300)	129 (1310)	16 (157)	138 (1390)
16	12 (6)	22 (19)	26 (39)	303 (1160)	53 (204)	592 (2260)	358 (2680)	43 (323)	382 (2860)
17	15 (7)	22 (14)	25 (31)	275 (1020)	49 (179)	537 (1990)	394 (1840)	48 (221)	421 (1960)
18	12 (7)	21 (13)	23 (30)	517 (1240)	91 (218)	1010 (2420)	424 (1910)	51 (231)	452 (2040)
19									
20	10 (7)	20 (11)	20 (26)	680 (1200)	120 (212)	1330 (2350)	483 (2310)	58 (278)	515 (2460)
21	10 (7)	23 (16)	21 (31)	471 (929)	83 (164)	920 (1810)	218 (1010)	26 (121)	233 (1080)
22	23 (10)	34 (24)	31 (38)	517 (1760)	91 (310)	1010 (3440)	91 (1550)	11 (187)	97 (1660)
23	31 (28)	33 (21)	32 (35)	83 (600)	15 (106)	162 (1170)	-35 (711)	-4 (86)	-37 (759)
24	49 (60)	42 (68)	65 (128)	-1440 (15700)	-254 (2770)	-2820 (30700)	3380 (20600)	406 (2480)	3600 (22000)
25	26 (16)	30 (20)	52 (56)	49 (1690)	9 (298)	96 (3300)	913 (2190)	110 (263)	974 (2330)
26									
27	29 (14)	30 (20)	36 (40)	-24 (621)	-4 (109)	-47 (1210)	109 (865)	13 (104)	116 (924)
28	53 (38)	38 (22)	56 (57)	-434 (1020)	-77 (181)	-848 (2000)	88 (1370)	11 (165)	94 (1470)
29	60 (26)	44 (25)	56 (50)	-329 (728)	-58 (128)	-642 (1420)	-24 (736)	-3 (89)	-26 (786)
30	40 (23)	40 (39)	49 (51)	-35 (1460)	-6 (257)	-69 (2850)	117 (1620)	14 (195)	125 (1730)
31	57 (57)	48 (49)	76 (96)	-458 (4290)	-81 (757)	-895 (8390)	765 (5770)	92 (694)	817 (6160)
Avg	41	48	72	35	6	68	2230	269	2380
n	28	28	28	28	28	28	28	28	28
SD	21.8	23.3	43.0	2070.0	364.0	4040.0	2560.0	308.0	2730.0
Min	10	20	20	-9360	-1650	-18300	-35	-4	-37
Max	95	116	166	3110	547	6070	10100	1210	10700

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for November, 2007.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1		62 (37)	125 (77)						
2	97 (122)	102 (106)	153 (118)	46 (5250)	8 (925)	90 (10200)	1130 (7100)	136 (854)	1200 (7570)
3	54 (30)	69 (44)	90 (64)	323 (1760)	57 (310)	631 (3430)	487 (1200)	59 (144)	520 (1280)
4	40 (23)	55 (55)	72 (66)	443 (2140)	78 (377)	866 (4180)	697 (2300)	84 (277)	744 (2450)
5	29 (19)	56 (43)	88 (97)	629 (1210)	111 (213)	1230 (2360)	1250 (2590)	151 (312)	1340 (2770)
6	49 (29)	65 (55)	105 (80)	188 (905)	33 (160)	368 (1770)	858 (2600)	103 (314)	916 (2780)
7	56 (21)	72 (39)	113 (64)	224 (1160)	40 (205)	438 (2270)	818 (1850)	98 (223)	873 (1980)
8	72 (27)	70 (31)	121 (69)	-183 (1270)	-32 (223)	-358 (2470)	610 (1190)	73 (143)	651 (1270)
9	65 (50)	65 (51)	99 (86)	-259 (2720)	-46 (479)	-506 (5310)	1100 (4170)	133 (501)	1180 (4450)
10	115 (181)	108 (234)	240 (718)	-1410 (34700)	-248 (6110)	-2750 (67700)	20800 (132000)	2500 (15900)	22200 (141000)
11	40 (49)	45 (32)	147 (454)	-374 (4690)	-66 (828)	-731 (9170)	14700 (79900)	1770 (9610)	15700 (85200)
12		313 (634)	979 (1950)						
13									
14									
15									
16									
17									
18									
19									
20									
21		36 (22)	37 (37)						
22		39 (18)	42 (35)						
23			44 (29)						
24		49 (24)	42 (29)						
25		35 (19)	32 (29)						
26			27 (29)						
27		32 (27)	32 (50)						
28		34 (23)	30 (37)						
29		22 (9)	21 (16)						
30		25 (14)	24 (22)						
Avg	62	68	121	-37	-7	-72	4240	511	4530
n	10	20	22	10	10	10	10	10	10
SD	25.6	60.6	195.0	547.0	96.4	1070.0	6890.0	829.0	7350.0
Min	29	22	21	-1410	-248	-2750	487	59	520
Max	115	313	979	629	111	1230	20800	2500	22200

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for December, 2007.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1			26 (32)						
2		20 (17)	24 (48)						
3		24 (16)	23 (46)						
4		22 (18)	21 (54)						
5		33 (24)	37 (47)						
6		23 (18)	23 (29)						
7		22 (18)	25 (38)						
8									
9									
10			32 (32)						
11									
12									
13									
14		28 (6)	27 (11)						
15		22 (3)	27 (20)						
16		28 (13)	30 (11)						
17		25 (7)	31 (14)						
18		26 (6)	27 (22)						
19		21 (7)	25 (9)						
20		40 (24)	55 (30)						
21		42 (26)	56 (24)						
22		34 (16)	40 (15)						
23		30 (8)	36 (12)						
24		27 (8)	35 (13)						
25		24 (8)	29 (13)						
26		33 (13)	44 (16)						
27		31 (58)	37 (26)						
28		24 (8)	28 (14)						
29		29 (13)	31 (14)						
30		39 (25)	37 (17)						
31		47 (64)	40 (17)						
Avg	0	29	33	0	0	0	0	0	0
n		24	26						
SD		7.2	8.9						
Min		20	21						
Max		47	56						

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for January, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1			38 (15)						
2		52 (45)	48 (22)						
3									
4		32 (35)	29 (17)						
5		23 (10)	28 (20)						
6		26 (11)	28 (18)						
7									
8									
9									
10									
11		28 (12)	35 (23)						
12		24 (8)	24 (18)						
13		20 (5)	18 (14)						
14		21 (8)	18 (22)						
15		39 (21)	38 (24)						
16		34 (17)	33 (18)						
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
Avg	0	30	31	0	0	0	0	0	0
n		10	11						
SD		9.2	8.6						
Min		20	18						
Max		52	48						

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for February, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8		36 (30)	51 (41)						
9		36 (23)	38 (28)						
10		37 (22)	42 (32)						
11		50 (32)	65 (37)						
12		50 (38)	57 (31)						
13		46 (22)	67 (29)						
14									
15	31 (19)	58 (39)	83 (39)	797 (1750)	140 (308)	1560 (3420)	1190 (1550)	144 (187)	1430 (1860)
16	22 (10)	50 (75)	58 (34)	771 (2750)	136 (485)	1510 (5380)	695 (894)	84 (108)	830 (1070)
17	15 (10)	35 (22)	57 (44)	744 (1580)	131 (279)	1450 (3090)	1260 (1830)	151 (220)	1500 (2180)
18	24 (15)	44 (31)	66 (40)	487 (1140)	86 (201)	951 (2220)	902 (1460)	109 (175)	1070 (1730)
19	31 (25)	43 (30)	83 (71)	231 (807)	41 (142)	451 (1580)	994 (1680)	120 (202)	1180 (1990)
20	34 (11)	46 (23)	81 (41)	256 (1870)	45 (330)	500 (3650)	1720 (3770)	207 (453)	2040 (4450)
21	42 (23)	55 (39)	83 (40)	186 (856)	33 (151)	363 (1670)	1000 (1570)	121 (189)	1180 (1850)
22	27 (8)	34 (16)	70 (63)	77 (749)	14 (132)	149 (1460)	1110 (3800)	133 (458)	1300 (4480)
23	24 (16)	37 (41)	46 (54)	612 (4040)	108 (712)	1190 (7890)	1030 (4400)	124 (530)	1210 (5170)
24	11 (6)	23 (10)	26 (17)	607 (717)	107 (126)	1190 (1400)	808 (1210)	97 (145)	947 (1410)
25	9 (4)	21 (13)	23 (42)	317 (610)	56 (108)	620 (1190)	357 (2250)	43 (271)	418 (2630)
26	14 (5)	25 (15)	27 (44)	205 (601)	36 (106)	401 (1170)	305 (2430)	37 (292)	356 (2830)
27	20 (12)	27 (18)	31 (34)	90 (817)	16 (144)	175 (1600)	252 (2000)	30 (241)	293 (2330)
28	2 (6)	27 (16)	35 (50)	1110 (1340)	195 (236)	2160 (2610)	1520 (3420)	183 (412)	1770 (3980)
29	41 (55)	64 (68)	68 (68)	1950 (10600)	344 (1880)	3810 (20800)	2170 (10700)	262 (1290)	2520 (12400)
Avg	23	40	55	562	99	1100	1020	123	1200
n	15	21	21	15	15	15	15	15	15
SD	11.2	11.7	19.5	473.0	83.4	924.0	509.0	61.2	593.0
Min	2	21	23	77	14	149	252	30	293
Max	42	64	83	1950	344	3810	2170	262	2520

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for March, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	27 (25)	51 (30)	45 (25)	2930 (4390)	516 (774)	5720 (8580)	2140 (3940)	258 (474)	2480 (4560)
2	20 (13)	40 (19)	41 (18)	991 (1090)	175 (192)	1940 (2130)	1400 (1830)	169 (220)	1620 (2110)
3	93 (166)	99 (151)	88 (105)	533 (23200)	94 (4080)	1040 (45200)	-3170 (22700)	-382 (2730)	-3650 (26100)
4	32 (36)	54 (83)	52 (47)	2360 (6020)	417 (1060)	4620 (11800)	1950 (3780)	235 (455)	2240 (4340)
5	34 (21)	54 (36)	57 (24)	736 (1420)	130 (250)	1440 (2770)	1280 (1930)	154 (232)	1460 (2210)
6	77 (83)	85 (75)	104 (71)	-455 (7140)	-80 (1260)	-888 (14000)	815 (8340)	98 (1000)	932 (9540)
7	53 (34)	65 (29)	96 (59)	235 (1410)	41 (248)	459 (2750)	1020 (1970)	123 (237)	1170 (2250)
8	15 (10)	28 (10)	48 (23)	492 (776)	87 (137)	961 (1520)	1990 (2160)	240 (261)	2270 (2460)
9	19 (11)	39 (17)	73 (44)	579 (1120)	102 (197)	1130 (2180)	2320 (3860)	279 (465)	2630 (4390)
10	25 (13)	42 (18)	83 (35)	829 (1610)	146 (283)	1620 (3140)	3180 (3550)	383 (427)	3600 (4020)
11	55 (52)	78 (63)	109 (68)	3990 (9910)	703 (1750)	7790 (19400)	9040 (11700)	1090 (1410)	10200 (13200)
12	31 (15)	47 (21)	105 (44)	798 (1440)	141 (254)	1560 (2820)	3740 (3180)	450 (382)	4220 (3580)
13	9 (5)	27 (13)	53 (29)	1480 (2240)	260 (395)	2880 (4380)	3530 (3390)	425 (408)	3970 (3810)
14	9 (5)	27 (11)	60 (35)	1640 (1680)	290 (297)	3210 (3290)	4960 (4110)	597 (495)	5570 (4620)
15	10 (7)	26 (12)	33 (23)	699 (1050)	123 (186)	1370 (2060)	991 (1670)	119 (201)	1110 (1870)
16	14 (9)	31 (16)	39 (27)	969 (1410)	171 (249)	1890 (2750)	1300 (1990)	156 (239)	1450 (2220)
17	24 (19)	41 (26)	60 (35)	1560 (2980)	276 (526)	3050 (5830)	3000 (3990)	361 (480)	3340 (4450)
18	73 (144)	132 (270)	162 (284)	2320 (33000)	408 (5810)	4520 (64400)	7810 (46100)	940 (5550)	8700 (51300)
19	30 (18)	49 (28)	85 (39)	600 (1630)	106 (287)	1170 (3180)	2420 (3190)	292 (384)	2690 (3540)
20	32 (20)	50 (31)	83 (43)	1540 (4190)	272 (738)	3010 (8170)	4350 (5870)	523 (706)	4820 (6500)
21	31 (23)	48 (27)	85 (51)	1870 (3450)	329 (608)	3650 (6740)	6320 (6750)	760 (813)	6990 (7470)
22	32 (23)	47 (28)	58 (40)	484 (1970)	85 (348)	945 (3860)	1170 (3330)	141 (401)	1290 (3680)
23	127 (145)	152 (251)	117 (158)	5100 (50300)	899 (8870)	9960 (98300)	-6520 (39800)	-785 (4790)	-7180 (43800)
24	46 (25)	70 (52)	75 (56)	1080 (3230)	190 (568)	2100 (6300)	1360 (3790)	163 (456)	1490 (4160)
25	66 (49)	88 (65)	110 (78)	1500 (9060)	264 (1600)	2920 (17700)	3410 (10400)	410 (1260)	3730 (11500)
26	68 (65)	113 (132)	116 (87)	7090 (26000)	1250 (4590)	13800 (50800)	6260 (17400)	754 (2090)	6850 (19000)
27	69 (42)	108 (97)	171 (105)	3670 (7370)	647 (1300)	7170 (14400)	11800 (13900)	1420 (1670)	12900 (15200)
28	118 (197)	155 (245)	199 (265)	5090 (56600)	897 (9970)	9940 (110000)	4770 (68800)	575 (8280)	5200 (74900)
29	47 (38)	63 (51)	65 (57)	1940 (6730)	341 (1190)	3780 (13100)	1620 (8380)	194 (1010)	1760 (9120)
30	30 (24)	41 (26)	67 (89)	1500 (6940)	264 (1220)	2930 (13600)	5270 (16200)	634 (1950)	5710 (17500)
31	38 (25)	47 (36)	87 (159)	140 (2670)	25 (470)	273 (5210)	2230 (7820)	268 (941)	2410 (8470)
Avg	44	64	85	1750	309	3420	2960	356	3290
n	31	31	31	31	31	31	31	31	31
SD	29.8	35.3	38.6	1650.0	291.0	3230.0	3290.0	396.0	3640.0
Min	9	26	33	-455	-80	-888	-6520	-785	-7180
Max	127	155	199	7090	1250	13800	11800	1420	12900

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for April, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	46 (37)	64 (71)	88 (74)	526 (2390)	93 (421)	1030 (4660)	2270 (4810)	273 (578)	2450 (5190)
2	58 (37)	81 (62)	133 (101)	425 (2970)	75 (524)	830 (5810)	3330 (6550)	401 (788)	3590 (7050)
3	217 (255)	196 (232)	315 (292)	-3520 (27200)	-621 (4790)	-6880 (53000)	6190 (37600)	745 (4530)	6660 (40500)
4	150 (146)	187 (247)	292 (259)	4840 (48800)	853 (8600)	9450 (95200)	13500 (56100)	1620 (6760)	14500 (60200)
5	36 (26)	48 (31)	74 (75)	302 (3000)	53 (528)	590 (5850)	2790 (6390)	336 (769)	2990 (6840)
6	41 (42)	39 (32)	76 (75)	-92 (5940)	-16 (1050)	-180 (11600)	5260 (10900)	634 (1310)	5630 (11700)
7	51 (37)	64 (59)	116 (88)	550 (4060)	97 (716)	1070 (7930)	5670 (10100)	683 (1220)	6050 (10800)
8	48 (31)	64 (46)	107 (90)	415 (3390)	73 (598)	810 (6630)	2750 (7590)	331 (914)	2930 (8080)
9	42 (28)	57 (42)	111 (98)	515 (2900)	91 (512)	1010 (5670)	3660 (8110)	440 (976)	3880 (8610)
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25	60 (50)	93 (91)	222 (268)	2880 (11500)	508 (2020)	5630 (22400)	18800 (35100)	2260 (4220)	19500 (36400)
26	67 (45)	111 (110)	206 (292)	493 (8330)	87 (1470)	962 (16300)	4790 (23000)	577 (2770)	4970 (23900)
27	73 (47)	149 (123)	292 (341)	3090 (6610)	544 (1170)	6030 (12900)	10400 (29200)	1260 (3510)	10800 (30200)
28	149 (171)	261 (369)	369 (430)	23800 (113000)	4190 (19900)	46400 (220000)	36600 (111000)	4400 (13400)	37900 (115000)
29	103 (86)	159 (203)	277 (371)	11600 (46800)	2040 (8240)	22600 (91300)	32600 (90100)	3920 (10900)	33700 (93300)
30	70 (44)	145 (119)	224 (255)	10600 (23200)	1870 (4090)	20700 (45300)	15900 (32900)	1920 (3960)	16500 (34100)
Avg	81	114	193	3760	662	7330	11000	1320	11500
n	15	15	15	15	15	15	15	15	15
SD	50.3	63.4	95.6	6600.0	1160.0	12900.0	10500.0	1260.0	10800.0
Min	36	39	74	-3520	-621	-6880	2270	273	2450
Max	217	261	369	23800	4190	46400	36600	4400	37900

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for May, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	81 (67)	111 (97)	225 (117)	1330 (11000)	234 (1940)	2590 (21500)	12900 (18600)	1550 (2230)	13400 (19200)
2	74 (69)	126 (119)	157 (113)	2080 (7710)	367 (1360)	4070 (15100)	3250 (7110)	391 (856)	3360 (7360)
3	41 (21)	76 (95)	94 (54)	979 (5710)	173 (1010)	1910 (11100)	2780 (4100)	335 (494)	2880 (4240)
4	19 (11)	37 (69)	49 (33)	204 (3770)	36 (665)	398 (7370)	1340 (1940)	162 (234)	1390 (2000)
5	31 (15)	45 (94)	67 (38)	400 (7680)	71 (1350)	781 (15000)	2060 (2750)	248 (331)	2130 (2840)
6	61 (37)	74 (56)	119 (74)	1050 (6350)	185 (1120)	2050 (12400)	5490 (9300)	661 (1120)	5670 (9600)
7	69 (61)	117 (105)	164 (116)	9520 (25700)	1680 (4530)	18600 (50200)	12700 (21100)	1530 (2540)	13100 (21700)
8	76 (45)	101 (55)	227 (122)	2650 (7520)	466 (1330)	5170 (14700)	13200 (15300)	1590 (1840)	13600 (15800)
9	74 (48)	85 (45)	189 (108)	415 (7000)	73 (1230)	811 (13700)	11900 (15800)	1430 (1900)	12300 (16200)
10	112 (78)	125 (89)	168 (94)	1270 (12000)	224 (2110)	2480 (23400)	6350 (16000)	764 (1920)	6540 (16400)
11	95 (78)	130 (126)	156 (136)	9760 (37600)	1720 (6640)	19100 (73500)	10700 (36000)	1290 (4340)	11000 (37100)
12	63 (31)	76 (32)	159 (98)	821 (4330)	145 (763)	1600 (8450)	12600 (19300)	1520 (2320)	13000 (19900)
13	80 (86)	106 (168)	189 (107)	1250 (20600)	221 (3640)	2450 (40300)	5450 (13900)	656 (1680)	5610 (14300)
14	79 (60)	120 (95)	200 (95)	9110 (28000)	1610 (4940)	17800 (54800)	8630 (16300)	1040 (1960)	8880 (16800)
15	56 (18)	86 (54)	170 (109)	1560 (3350)	275 (590)	3040 (6540)	8290 (8890)	998 (1070)	8530 (9140)
16									
17									
18									
19									
20									
21	65 (43)	203 (255)	185 (118)	44700 (104000)	7870 (18300)	87300 (203000)	18300 (21400)	2210 (2570)	18800 (21900)
22	83 (51)	134 (99)	202 (123)	12900 (29400)	2270 (5190)	25100 (57500)	17500 (18100)	2100 (2180)	17900 (18600)
23	26 (14)	38 (24)	82 (95)	1110 (2560)	196 (451)	2170 (5000)	6590 (12200)	793 (1470)	6750 (12500)
24	20 (12)	36 (30)	47 (115)	1120 (3000)	198 (528)	2200 (5850)	1510 (9220)	182 (1110)	1550 (9450)
25	23 (20)	27 (36)	35 (105)	460 (4490)	81 (791)	899 (8760)	281 (10300)	34 (1240)	287 (10500)
26	38 (20)	39 (46)	45 (119)	275 (6360)	49 (1120)	538 (12400)	-604 (13500)	-73 (1630)	-619 (13900)
27	28 (12)	39 (33)	69 (116)	612 (2500)	108 (441)	1200 (4890)	2130 (10500)	257 (1270)	2180 (10800)
28	41 (27)	53 (54)	77 (122)	726 (3460)	128 (610)	1420 (6760)	1150 (6870)	138 (827)	1170 (7030)
29	93 (147)	60 (55)	129 (180)	-9080 (33300)	-1600 (5860)	-17700 (65000)	3840 (43300)	462 (5210)	3920 (44200)
30	57 (29)	82 (85)	125 (156)	2120 (8650)	374 (1520)	4150 (16900)	4450 (13300)	535 (1600)	4540 (13600)
31	101 (87)	121 (101)	216 (208)	708 (15900)	125 (2790)	1380 (31000)	11900 (31200)	1430 (3760)	12100 (31900)
Avg	61	86	136	3770	664	7360	7100	855	7310
n	26	26	26	26	26	26	26	26	26
SD	26.4	41.4	60.6	9140.0	1610.0	17900.0	5340.0	643.0	5490.0
Min	19	27	35	-9080	-1600	-17700	-604	-73	-619
Max	112	203	227	44700	7870	87300	18300	2210	18800

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for June, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	63 (38)	60 (59)	144 (160)	898 (12600)	158 (2220)	1750 (24600)	9500 (23400)	1140 (2820)	9690 (23900)
2	78 (49)	105 (110)	225 (213)	2110 (9240)	372 (1630)	4120 (18000)	12600 (25800)	1520 (3100)	12900 (26300)
3	41 (48)	50 (86)	159 (246)	-192 (7780)	-34 (1370)	-375 (15200)	2060 (20000)	248 (2400)	2100 (20400)
4	17 (11)	34 (36)	29 (75)	1930 (5200)	340 (917)	3770 (10200)	807 (7680)	97 (925)	822 (7840)
5	42 (57)	58 (65)	61 (40)	-19 (12900)	-3 (2270)	-38 (25100)	486 (11800)	59 (1420)	496 (12000)
6	55 (49)	55 (44)	76 (58)	-357 (11400)	-63 (2020)	-697 (22400)	5430 (20000)	654 (2410)	5530 (20400)
7	25 (17)	49 (46)	39 (26)	4150 (10800)	732 (1900)	8110 (21100)	1410 (5250)	170 (632)	1440 (5350)
8	57 (55)	41 (54)	65 (62)	-2410 (7800)	-425 (1380)	-4710 (15200)	1470 (9530)	177 (1150)	1490 (9700)
9	262 (319)	313 (686)	504 (841)	19500 (214000)	3430 (37700)	38100 (418000)	97400 (291000)	11700 (35100)	99100 (296000)
10	33 (43)	51 (55)	67 (53)	2990 (12200)	526 (2150)	5830 (23800)	4010 (10000)	483 (1210)	4080 (10200)
11	47 (30)	75 (60)	76 (37)	5920 (14500)	1040 (2560)	11600 (28400)	3810 (6900)	459 (830)	3880 (7010)
12									
13									
14									
15									
16									
17									
18									
19	150 (130)	287 (236)	404 (320)	10200 (25400)	1790 (4480)	19900 (49600)	26500 (52100)	3190 (6270)	26900 (52800)
20	153 (92)	313 (250)	312 (346)	8680 (16300)	1530 (2870)	17000 (31800)	3950 (16500)	476 (1990)	4000 (16700)
21	104 (99)	165 (178)	169 (359)	4210 (18900)	743 (3330)	8230 (36900)	5210 (45300)	627 (5460)	5270 (45900)
22	76 (95)	140 (480)	73 (202)	1480 (14100)	262 (2480)	2900 (27400)	-6450 (32300)	-776 (3880)	-6530 (32700)
23	81 (43)	178 (193)	178 (237)	8910 (18000)	1570 (3180)	17400 (35200)	7440 (23800)	896 (2860)	7530 (24000)
24	81 (40)	162 (123)	222 (240)	6670 (13700)	1180 (2420)	13000 (26800)	10500 (21300)	1270 (2570)	10600 (21600)
25	138 (131)	259 (287)	255 (245)	12700 (29600)	2230 (5210)	24700 (57800)	10400 (26300)	1250 (3170)	10500 (26600)
26	146 (123)	234 (194)	260 (227)	10100 (27200)	1780 (4800)	19800 (53200)	9720 (24800)	1170 (2990)	9820 (25100)
27	108 (43)	241 (188)	311 (679)	10000 (17000)	1760 (2990)	19500 (33100)	14500 (67000)	1750 (8070)	14600 (67700)
28	102 (73)	198 (172)	169 (286)	7140 (14300)	1260 (2530)	13900 (28000)	1790 (20000)	216 (2410)	1810 (20200)
29	121 (117)	354 (745)	434 (1120)	23100 (178000)	4070 (31400)	45100 (348000)	37500 (304000)	4510 (36600)	37800 (307000)
30	152 (140)	218 (200)	260 (328)	7410 (37100)	1310 (6540)	14500 (72400)	13500 (55200)	1630 (6650)	13700 (55700)
Avg	93	158	195	6310	1110	12300	11900	1430	12100
n	23	23	23	23	23	23	23	23	23
SD	55.5	101.0	130.0	6130.0	1080.0	12000.0	20300.0	2450.0	20700.0
Min	17	34	29	-2410	-425	-4710	-6450	-776	-6530
Max	262	354	504	23100	4070	45100	97400	11700	99100

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for July, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	145 (59)	225 (214)	280 (302)	5560 (20400)	980 (3600)	10900 (39900)	8020 (20700)	965 (2490)	8080 (20900)
2	168 (71)	249 (211)	261 (339)	6950 (23100)	1230 (4060)	13600 (45000)	5850 (36800)	704 (4440)	5890 (37100)
3	155 (130)	225 (198)	216 (284)	7680 (32700)	1350 (5760)	15000 (63800)	3200 (34000)	385 (4090)	3220 (34200)
4	144 (186)	209 (139)	171 (101)	10700 (33000)	1890 (5810)	20900 (64400)	1980 (19600)	239 (2360)	2000 (19700)
5									
6									
7	91 (43)	239 (225)	175 (125)	15500 (27900)	2740 (4920)	30400 (54500)	7920 (10800)	953 (1290)	7960 (10800)
8	176 (114)	275 (237)	255 (177)	7520 (26200)	1330 (4610)	14700 (51100)	6890 (15900)	829 (1910)	6930 (16000)
9	170 (90)	195 (194)	331 (159)	2360 (17700)	416 (3120)	4610 (34500)	15300 (22900)	1850 (2760)	15400 (23000)
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24	147 (66)	347 (281)	354 (233)	26600 (43600)	4680 (7680)	51900 (85100)	20700 (24600)	2500 (2960)	20700 (24500)
25	179 (88)	401 (327)	327 (254)	26600 (51300)	4690 (9040)	51900 (100000)	4530 (15800)	545 (1900)	4520 (15800)
26	155 (119)	300 (279)	237 (247)	25900 (71200)	4570 (12600)	50600 (139000)	13900 (71300)	1670 (8580)	13800 (71200)
27	107 (56)	216 (188)	199 (134)	25400 (56800)	4480 (10000)	49600 (111000)	11700 (18500)	1400 (2230)	11600 (18500)
28	143 (82)	253 (188)	294 (193)	13500 (30300)	2380 (5350)	26400 (59300)	14800 (23400)	1780 (2820)	14800 (23300)
29	207 (178)	319 (283)	463 (393)	20700 (75400)	3640 (13300)	40400 (147000)	38300 (94200)	4610 (11300)	38200 (93800)
30	168 (152)	280 (221)	396 (463)	20400 (30500)	3600 (5370)	39900 (59500)	21200 (25300)	2550 (3050)	21100 (25200)
31									
Avg	154	267	283	15400	2710	30000	12400	1500	12400
n	14	14	14	14	14	14	14	14	14
SD	28.1	56.4	81.8	8450.0	1490.0	16500.0	9270.0	1120.0	9230.0
Min	91	195	171	2360	416	4610	1980	239	2000
Max	207	401	463	26600	4690	51900	38300	4610	38200

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for August, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8	150 (114)	224 (185)	269 (363)	7650 (22400)	1350 (3940)	14900 (43700)	5290 (32200)	637 (3880)	5250 (32000)
9	86 (102)	97 (69)	106 (90)	-2030 (14900)	-359 (2630)	-3970 (29100)	-3030 (19300)	-364 (2330)	-3000 (19200)
10	52 (37)	124 (157)	109 (84)	5750 (9720)	1010 (1710)	11200 (19000)	4250 (8070)	512 (972)	4220 (8000)
11	96 (59)	160 (104)	169 (99)	6610 (14700)	1160 (2590)	12900 (28700)	5250 (11300)	632 (1360)	5200 (11200)
12	150 (127)	203 (178)	258 (199)	2660 (11500)	468 (2040)	5190 (22600)	7260 (15900)	873 (1920)	7190 (15800)
13	105 (76)	220 (166)	275 (208)	10800 (17700)	1900 (3120)	21100 (34600)	13300 (12500)	1610 (1500)	13200 (12400)
14									
15	154 (98)	237 (192)	270 (239)	6810 (15700)	1200 (2780)	13300 (30800)	4540 (12300)	546 (1480)	4490 (12200)
16	218 (184)	249 (225)	286 (301)	922 (19100)	162 (3370)	1800 (37400)	3520 (22800)	424 (2750)	3480 (22600)
17	173 (172)	223 (209)	238 (292)	6060 (20700)	1070 (3650)	11800 (40500)	7370 (34700)	887 (4180)	7290 (34400)
18									
19									
20									
21	76 (36)	104 (110)	238 (200)	4110 (23700)	725 (4180)	8030 (46300)	40500 (60800)	4870 (7320)	40000 (60100)
22	58 (41)	99 (107)	120 (166)	1200 (7200)	212 (1270)	2350 (14100)	1970 (11600)	237 (1390)	1950 (11400)
23	59 (25)	91 (141)	108 (187)	797 (8500)	141 (1500)	1560 (16600)	1310 (10900)	157 (1310)	1290 (10700)
24	81 (63)	112 (163)	125 (198)	2070 (19100)	365 (3370)	4050 (37400)	1250 (23700)	151 (2860)	1240 (23400)
25	55 (32)	79 (114)	105 (163)	105 (20500)	19 (3620)	205 (40100)	378 (25300)	46 (3050)	373 (25000)
26	86 (61)	108 (169)	156 (216)	226 (19000)	40 (3340)	441 (37100)	4330 (25800)	521 (3110)	4270 (25500)
27									
28									
29									
30									
31									
Avg	106	155	189	3580	631	6990	6500	782	6430
n	15	15	15	15	15	15	15	15	15
SD	48.6	60.8	71.3	3440.0	606.0	6720.0	9770.0	1180.0	9650.0
Min	52	79	105	-2030	-359	-3970	-3030	-364	-3000
Max	218	249	286	10800	1900	21100	40500	4870	40000

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for September, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4	135 (64)	176 (102)	388 (192)	1650 (7220)	290 (1270)	3220 (14100)	22500 (25400)	2710 (3060)	22100 (24900)
5	122 (77)	193 (167)	253 (211)	5440 (13500)	958 (2390)	10600 (26400)	5460 (10200)	657 (1230)	5360 (10000)
6	81 (50)	121 (84)	154 (122)	2290 (4420)	404 (780)	4480 (8640)	3890 (9410)	468 (1130)	3820 (9230)
7	124 (83)	148 (104)	175 (135)	3130 (14300)	552 (2530)	6120 (28000)	895 (12400)	108 (1490)	878 (12100)
8	142 (83)	179 (130)	245 (149)	1750 (6700)	309 (1180)	3420 (13100)	3080 (6200)	371 (747)	3020 (6080)
9	167 (90)	204 (184)	338 (187)	4120 (28600)	726 (5050)	8050 (55900)	11900 (18000)	1430 (2160)	11700 (17600)
10	163 (105)	210 (143)	430 (251)	1500 (11200)	264 (1980)	2920 (22000)	19400 (22500)	2330 (2710)	19000 (22100)
11									
12									
13									
14									
15									
16									
17									
18									
19	223 (86)	267 (235)	394 (241)	1350 (14400)	237 (2540)	2630 (28200)	7830 (16800)	943 (2030)	7640 (16400)
20	46 (24)	77 (101)	100 (44)	644 (5500)	114 (969)	1260 (10700)	2510 (2690)	303 (323)	2450 (2620)
21	32 (14)	57 (97)	92 (35)	1650 (12000)	291 (2120)	3220 (23500)	5150 (4450)	620 (535)	5020 (4340)
22	71 (51)	108 (115)	157 (70)	4840 (19800)	853 (3480)	9450 (38600)	9330 (10100)	1120 (1220)	9100 (9840)
23	62 (36)	108 (106)	227 (206)	1670 (8800)	294 (1550)	3260 (17200)	6530 (12400)	786 (1500)	6360 (12100)
24	92 (33)	127 (46)	249 (96)	1200 (2300)	211 (405)	2340 (4490)	7200 (8760)	867 (1050)	7010 (8530)
25	157 (179)	239 (335)	421 (409)	6910 (35600)	1220 (6270)	13500 (69500)	22800 (49400)	2750 (5950)	22200 (48100)
26	74 (48)	103 (49)	174 (142)	1060 (2310)	186 (407)	2060 (4510)	3890 (7480)	468 (901)	3790 (7280)
27	64 (32)	94 (39)	117 (79)	1610 (3330)	283 (587)	3140 (6510)	2920 (7530)	351 (906)	2840 (7330)
28	85 (45)	121 (102)	141 (95)	2200 (7790)	389 (1370)	4300 (15200)	2480 (6650)	298 (801)	2410 (6470)
29	100 (73)	137 (91)	188 (153)	1200 (3140)	211 (554)	2340 (6140)	2560 (6660)	309 (802)	2490 (6470)
30	101 (59)	140 (73)	221 (147)	1430 (3270)	252 (576)	2800 (6380)	4600 (8450)	554 (1020)	4470 (8210)
Avg	107	148	235	2400	423	4690	7630	918	7450
n	19	19	19	19	19	19	19	19	19
SD	47.2	54.7	107.0	1660.0	293.0	3240.0	6590.0	794.0	6450.0
Min	32	57	92	644	114	1260	895	108	878
Max	223	267	430	6910	1220	13500	22800	2750	22200

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for October, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{dsm}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-2}$
1	142 (77)	188 (150)	247 (131)	901 (4700)	159 (829)	1760 (9180)	2400 (4640)	289 (559)	2340 (4510)
2									
3									
4	38 (29)	69 (24)	94 (74)	5400 (7780)	952 (1370)	10500 (15200)	13300 (20200)	1600 (2430)	12900 (19600)
5	38 (18)	81 (38)	99 (94)	3060 (3560)	539 (628)	5970 (6960)	3230 (5430)	388 (654)	3130 (5270)
6	55 (61)	82 (25)	105 (64)	645 (5050)	114 (889)	1260 (9860)	1360 (5060)	164 (609)	1320 (4910)
7	144 (97)	183 (127)	384 (371)	6740 (25600)	1190 (4520)	13200 (50000)	58600 (103000)	7050 (12400)	56700 (99600)
8	63 (40)	109 (55)	161 (136)	2590 (4890)	456 (861)	5050 (9540)	6220 (12000)	749 (1450)	6030 (11700)
9	86 (61)	113 (45)	201 (103)	-335 (13900)	-59 (2450)	-655 (27200)	8830 (16900)	1060 (2040)	8550 (16400)
10	77 (29)	108 (38)	148 (90)	3900 (11400)	687 (2010)	7620 (22300)	8230 (14400)	991 (1740)	7970 (14000)
11	78 (36)	112 (50)	134 (106)	3810 (11100)	672 (1960)	7440 (21700)	5770 (16400)	695 (1970)	5590 (15800)
12	78 (42)	115 (46)	185 (125)	2760 (4880)	486 (860)	5390 (9530)	15000 (24100)	1800 (2900)	14500 (23300)
13	127 (112)	139 (75)	274 (504)	118 (11200)	21 (1970)	230 (21800)	16100 (92000)	1930 (11100)	15500 (88900)
14	136 (147)	123 (60)	186 (128)	-20 (11500)	-4 (2030)	-40 (22500)	5450 (17300)	656 (2090)	5260 (16700)
15	144 (83)	169 (99)	345 (259)	2750 (12100)	485 (2130)	5370 (23600)	38900 (67600)	4680 (8140)	37500 (65300)
16	121 (80)	146 (78)	291 (145)	1080 (3240)	191 (571)	2120 (6320)	7600 (8350)	915 (1000)	7340 (8060)
17	106 (47)	135 (69)	230 (163)	499 (3660)	88 (645)	975 (7140)	4980 (13800)	600 (1660)	4810 (13300)
18	101 (57)	111 (69)	172 (94)	318 (4010)	56 (707)	621 (7840)	3530 (6240)	425 (751)	3400 (6020)
19	73 (38)	121 (111)	183 (89)	1300 (3570)	229 (629)	2540 (6970)	3410 (4040)	411 (486)	3290 (3890)
20	226 (259)	528 (1290)	747 (1470)	43700 (307000)	7700 (54100)	85300 (599000)	103000 (452000)	12400 (54500)	99400 (436000)
21	87 (42)	133 (86)	277 (107)	1960 (5370)	346 (947)	3830 (10500)	15300 (16300)	1850 (1960)	14800 (15700)
22	123 (73)	166 (111)	347 (220)	989 (3800)	174 (669)	1930 (7410)	6980 (10300)	841 (1240)	6730 (9940)
23	105 (33)	160 (139)	379 (210)	2690 (9370)	474 (1650)	5250 (18300)	14500 (16900)	1750 (2030)	14000 (16200)
24	133 (63)	181 (138)	270 (144)	1430 (4710)	251 (831)	2790 (9200)	5250 (7160)	632 (862)	5050 (6890)
25	118 (57)	159 (96)	256 (147)	1220 (5070)	215 (893)	2380 (9900)	4690 (7130)	564 (859)	4510 (6860)
26	95 (43)	139 (91)	271 (162)	2060 (7060)	362 (1240)	4020 (13800)	10200 (11900)	1230 (1430)	9820 (11400)
27	130 (77)	206 (98)	436 (184)	1120 (3190)	198 (562)	2200 (6230)	6920 (8770)	833 (1060)	6650 (8440)
28	163 (95)	222 (125)	470 (178)	1780 (4270)	314 (752)	3480 (8340)	7410 (9470)	892 (1140)	7120 (9100)
29	168 (103)	229 (129)	536 (343)	1210 (2690)	213 (474)	2360 (5250)	8800 (11100)	1060 (1340)	8450 (10700)
30	166 (91)	219 (127)	476 (194)	983 (2620)	173 (462)	1920 (5120)	7200 (9750)	867 (1170)	6910 (9360)
31	105 (36)	144 (65)	278 (159)	1280 (3260)	226 (575)	2500 (6380)	7750 (10100)	934 (1210)	7440 (9670)
Avg	111	158	282	3310	583	6460	13800	1660	13300
n	29	29	29	29	29	29	29	29	29
SD	41.5	81.3	145.0	7790.0	1370.0	15200.0	20300.0	2450.0	19600.0
Min	38	69	94	-335	-59	-655	1360	164	1320
Max	226	528	747	43700	7700	85300	103000	12400	99400

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for November, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	69 (38)	90 (30)	111 (49)	712 (1320)	126 (233)	1390 (2580)	1280 (1960)	154 (236)	1220 (1880)
2	33 (22)	53 (18)	69 (52)	1320 (2310)	233 (408)	2580 (4520)	2610 (5240)	314 (631)	2510 (5030)
3	33 (13)	70 (33)	84 (56)	2550 (3210)	450 (566)	4980 (6270)	3350 (5430)	403 (653)	3210 (5200)
4	33 (12)	61 (19)	76 (41)	2040 (2030)	360 (358)	3990 (3970)	3890 (5740)	469 (691)	3730 (5500)
5	73 (51)	69 (23)	90 (46)	-127 (1290)	-22 (228)	-248 (2520)	202 (1780)	24 (215)	194 (1710)
6	134 (24)	63 (13)	79 (31)	-1920 (2150)	-339 (379)	-3810 (4260)	-1590 (2520)	-192 (303)	-1560 (2490)
7	134 (5)	66 (14)	74 (30)	-1590 (1530)	-281 (269)	-3160 (3020)	-1450 (1650)	-174 (199)	-1480 (1690)
8	131 (5)	62 (14)	68 (34)	-2380 (2810)	-419 (496)	-4710 (5570)	-2200 (3250)	-264 (391)	-2370 (3510)
9	129 (7)	60 (17)	66 (35)	-1340 (1600)	-236 (282)	-2650 (3170)	-1270 (1710)	-152 (205)	-1440 (1940)
10	72 (49)	63 (26)	67 (51)	436 (1880)	77 (332)	863 (3720)	477 (3000)	57 (361)	592 (3630)
11	29 (11)	54 (14)	76 (106)	2980 (2560)	526 (450)	5900 (5050)	7280 (26100)	876 (3140)	9260 (33000)
12	31 (17)	60 (17)	71 (33)	5560 (4280)	979 (754)	11000 (8460)	8520 (7720)	1030 (930)	11500 (10300)
13									
14									
15									
16									
17									
18									
19									
20									
21									
22	39 (15)	82 (40)	90 (81)	1850 (2840)	327 (500)	3630 (5550)	1960 (5260)	236 (634)	2060 (5520)
23	33 (9)	75 (39)	82 (51)	821 (1570)	145 (277)	1610 (3090)	1160 (1960)	140 (236)	1210 (2050)
24	40 (15)	84 (46)	96 (64)	630 (1180)	111 (209)	1240 (2330)	911 (1530)	110 (184)	951 (1590)
25	37 (9)	75 (29)	103 (192)	817 (1070)	144 (189)	1620 (2120)	1290 (3250)	155 (391)	1340 (3380)
26	23 (4)	54 (21)	58 (44)	808 (1030)	142 (181)	1610 (2040)	1070 (2000)	128 (240)	1110 (2070)
27	22 (4)	59 (16)	69 (32)	832 (662)	147 (117)	1660 (1320)	1260 (1310)	152 (157)	1300 (1350)
28	27 (4)	68 (23)	81 (41)	651 (694)	115 (122)	1300 (1390)	990 (1270)	119 (153)	1020 (1310)
29	34 (9)	71 (20)	85 (40)	909 (963)	160 (170)	1820 (1930)	1490 (1880)	179 (226)	1530 (1930)
30	32 (7)	61 (22)	69 (43)	1020 (1180)	179 (209)	2050 (2390)	1330 (2140)	160 (258)	1360 (2200)
Avg	56	67	79	790	139	1550	1550	187	1770
n	21	21	21	21	21	21	21	21	21
SD	39.3	9.8	12.9	1720.0	304.0	3400.0	2550.0	307.0	3190.0
Min	22	53	58	-2380	-419	-4710	-2200	-264	-2370
Max	134	90	111	5560	979	11000	8520	1030	11500

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for December, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	21 (6)	53 (17)	57 (30)	915 (953)	161 (168)	1850 (1930)	997 (1270)	120 (153)	1020 (1300)
2	29 (19)	64 (50)	65 (59)	1100 (3150)	194 (555)	2230 (6390)	1090 (3310)	131 (398)	1110 (3380)
3	31 (14)	63 (33)	63 (43)	1150 (1870)	203 (329)	2340 (3790)	1190 (2090)	143 (251)	1210 (2130)
4	36 (11)	72 (30)	83 (19)	1250 (1320)	220 (232)	2530 (2670)	1760 (1370)	212 (165)	1800 (1400)
5	38 (17)	74 (28)	77 (21)	958 (1160)	169 (204)	1950 (2350)	1100 (1170)	132 (141)	1120 (1200)
6	44 (12)	77 (23)	80 (22)	698 (844)	123 (149)	1420 (1710)	734 (698)	88 (84)	749 (712)
7	39 (15)	68 (22)	76 (22)	845 (809)	149 (143)	1710 (1640)	1230 (1140)	148 (137)	1260 (1160)
8	26 (11)	64 (31)	68 (18)	1530 (1340)	269 (237)	3100 (2720)	2000 (1270)	240 (153)	2040 (1300)
9	33 (12)	71 (22)	72 (20)	1040 (1070)	183 (188)	2110 (2160)	1070 (983)	128 (118)	1090 (1000)
10	43 (19)	79 (32)	86 (33)	997 (1120)	176 (197)	2020 (2260)	1180 (1270)	142 (152)	1200 (1290)
11	28 (7)	62 (13)	67 (19)	975 (889)	172 (157)	1970 (1800)	1180 (1040)	142 (125)	1200 (1060)
12	90 (147)	162 (322)	91 (106)	5580 (53100)	983 (9360)	11300 (107000)	-7470 (28100)	-900 (3380)	-7630 (28700)
13	64 (124)	84 (94)	81 (34)	-855 (13900)	-151 (2450)	-1730 (28200)	-3650 (26500)	-440 (3190)	-3730 (27100)
14	71 (44)	74 (13)	87 (25)	-474 (9310)	-84 (1640)	-959 (18800)	469 (2790)	57 (336)	480 (2850)
15	92 (85)	69 (13)	79 (22)	-1220 (8580)	-215 (1510)	-2470 (17300)	26 (3010)	3 (362)	27 (3070)
16	37 (8)	67 (26)	72 (22)	761 (878)	134 (155)	1540 (1770)	1010 (1180)	122 (142)	1030 (1200)
17	46 (31)	56 (32)		-176 (4320)	-31 (761)	-355 (8710)			
18									
19	28 (5)	31 (0)		34 (95)	6 (17)	69 (191)			
20	152 (230)	30 (0)		-8260 (24000)	-1460 (4230)	-16600 (48300)			
21	300 (353)	30 (0)		-20300 (32900)	-3580 (5810)	-40900 (66300)			
22	27 (5)	30 (0)		40 (174)	7 (31)	80 (349)			
23	33 (6)	30 (0)		-50 (120)	-9 (21)	-101 (240)			
24	32 (7)	29 (0)		-66 (276)	-12 (49)	-132 (554)			
25	31 (7)	29 (0)		-24 (171)	-4 (30)	-49 (343)			
26	28 (11)	29 (0)		118 (652)	21 (115)	236 (1310)			
27	20 (11)	29 (0)		1190 (1350)	210 (238)	2390 (2710)			
28	18 (5)	29 (0)		965 (724)	170 (128)	1940 (1450)			
29	22 (11)	29 (0)		419 (2250)	74 (396)	841 (4500)			
30	24 (5)	28 (1)		296 (450)	52 (79)	594 (901)			
31	22 (7)	27 (0)		345 (981)	61 (173)	691 (1970)			
Avg	50	55	75	-342	-60	-683	244	29	249
n	30	30	16	30	30	30	16	16	16
SD	53.9	28.4	9.3	4190.0	739.0	8450.0	2340.0	281.0	2390.0
Min	18	27	57	-20300	-3580	-40900	-7470	-900	-7630
Max	300	162	91	5580	983	11300	2000	240	2040

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for January, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	19 (5)	26 (0)		669 (612)	118 (108)	1340 (1220)			
2	18 (5)	25 (0)		255 (323)	45 (57)	511 (646)			
3	22 (5)	23 (1)		28 (140)	5 (25)	56 (280)			
4	23 (9)	22 (0)		-271 (1080)	-48 (190)	-542 (2160)			
5	25 (4)	21 (0)		-57 (130)	-10 (23)	-113 (260)			
6	25 (19)	21 (0)		-466 (2710)	-82 (478)	-930 (5410)			
7	19 (5)	26 (9)		676 (1390)	119 (245)	1350 (2770)			
8	19 (8)	57 (23)		3970 (3110)	700 (547)	7920 (6190)			
9	25 (7)	79 (23)	85 (18)	1300 (1320)	228 (233)	2580 (2640)	1450 (1400)	175 (168)	1490 (1430)
10	29 (7)	76 (13)	77 (12)	710 (724)	125 (128)	1420 (1440)	690 (766)	83 (92)	708 (785)
11	33 (9)	76 (12)	80 (14)	778 (941)	137 (166)	1550 (1870)	710 (772)	86 (93)	728 (791)
12	28 (8)	74 (20)	77 (17)	872 (992)	154 (175)	1740 (1970)	751 (713)	91 (86)	770 (731)
13	22 (8)	66 (13)	68 (20)	1030 (936)	181 (165)	2040 (1860)	964 (918)	116 (110)	989 (941)
14									
15	16 (4)	63 (34)	59 (7)	696 (885)	123 (156)	1380 (1760)	349 (401)	42 (48)	358 (412)
16	15 (4)	57 (8)	61 (10)	756 (666)	133 (117)	1500 (1320)	705 (747)	85 (90)	723 (766)
17	17 (4)	59 (7)	62 (7)	1200 (1220)	212 (215)	2390 (2430)	608 (544)	73 (66)	624 (558)
18	17 (4)	62 (8)	62 (8)	1170 (887)	206 (156)	2320 (1760)	1010 (649)	122 (78)	1040 (666)
19	17 (5)	63 (9)	64 (8)	717 (544)	126 (96)	1420 (1080)	749 (612)	90 (74)	768 (628)
20									
21									
22	17 (5)	66 (8)	81 (11)	979 (902)	173 (159)	1940 (1790)	1140 (1070)	137 (129)	1170 (1100)
23	22 (6)	77 (18)	82 (11)	1380 (1300)	244 (229)	2740 (2580)	1160 (1050)	139 (127)	1190 (1080)
24	20 (5)	65 (7)	77 (7)	955 (738)	168 (130)	1890 (1460)	1060 (761)	127 (92)	1080 (782)
25	20 (4)	65 (9)	79 (8)	2360 (2390)	415 (420)	4660 (4720)	1770 (1150)	214 (139)	1820 (1190)
26	34 (37)	72 (23)	86 (20)	2120 (3020)	374 (533)	4190 (5970)	3250 (3990)	391 (480)	3330 (4100)
27	28 (8)	77 (20)		1770 (1420)	312 (250)	3500 (2800)			
28									
29	26 (8)	75 (11)	85 (12)	850 (785)	150 (138)	1680 (1550)	827 (774)	100 (93)	849 (795)
30	25 (7)	72 (13)		1390 (1370)	245 (242)	2740 (2700)			
31	20 (6)	72 (21)		2240 (1850)	396 (326)	4420 (3650)			
Avg	22	57	74	1040	183	2060	1070	129	1100
n	27	27	16	27	27	27	16	16	16
SD	5.0	20.8	9.5	892.0	157.0	1770.0	652.0	78.5	670.0
Min	15	21	59	-466	-82	-930	349	42	358
Max	34	79	86	3970	700	7920	3250	391	3330

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for February, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-2}$
1	26 (7)	77 (35)		1320 (1620)	233 (286)	2610 (3190)			
2	30 (8)	83 (26)		735 (760)	130 (134)	1450 (1500)			
3	33 (7)	84 (22)		806 (1100)	142 (194)	1590 (2170)			
4	35 (8)	86 (34)		1210 (2140)	214 (377)	2380 (4210)			
5	34 (12)	86 (20)		1550 (2350)	273 (414)	3050 (4610)			
6	26 (17)	85 (92)	79 (11)	1670 (4900)	295 (864)	3290 (9630)	950 (856)	114 (103)	977 (880)
7	18 (5)	61 (6)	67 (7)	1440 (1640)	254 (290)	2830 (3230)	1340 (1340)	162 (162)	1380 (1380)
8	16 (4)								
9	20 (4)	66 (18)		1480 (1270)	260 (223)	2890 (2490)			
10	18 (4)	66 (20)		2210 (2440)	389 (430)	4320 (4790)			
11	20 (7)	63 (76)		1070 (3830)	189 (674)	2100 (7490)			
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
Avg	25	76	73	1350	238	2650	1150	138	1180
n	11	10	2	10	10	10	2	2	2
SD	6.7	10.1	6.0	409.0	72.1	801.0	197.0	23.7	202.0
Min	16	61	67	735	130	1450	950	114	977
Max	35	86	79	2210	389	4320	1340	162	1380

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for March, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5	24 (11)	68 (144)	77 (44)	6570 (27000)	1160 (4750)	12600 (51800)	8320 (8360)	1000 (1010)	7880 (7920)
6	24 (8)	82 (192)	73 (39)	3230 (16500)	569 (2900)	6200 (31600)	3500 (4220)	421 (507)	3320 (4000)
7	36 (29)	74 (154)	68 (38)	5120 (24200)	903 (4270)	9840 (46500)	2300 (6440)	277 (776)	2190 (6120)
8	22 (7)	79 (183)	70 (47)	2560 (8790)	451 (1550)	4910 (16900)	1860 (3000)	223 (361)	1770 (2850)
9	34 (16)	81 (166)	75 (38)	3160 (15600)	557 (2740)	6070 (29900)	2550 (5090)	308 (612)	2430 (4850)
10	96 (100)	184 (290)	129 (99)	10400 (33600)	1830 (5920)	19900 (64500)	1950 (5290)	235 (636)	1860 (5040)
11	40 (25)	86 (227)	95 (47)	3760 (19400)	664 (3430)	7220 (37300)	2630 (2890)	316 (347)	2510 (2760)
12									
13	70 (73)	127 (431)	122 (62)	494 (17600)	87 (3100)	947 (33800)	838 (2090)	101 (251)	804 (2000)
14	46 (18)	96 (220)	81 (45)	5300 (36200)	934 (6390)	10200 (69400)	3130 (7180)	377 (864)	3010 (6890)
15	85 (144)	154 (345)	111 (118)	17200 (77700)	3040 (13700)	33000 (149000)	2380 (37800)	286 (4550)	2280 (36400)
16	52 (38)	85 (168)	99 (69)	3760 (20300)	663 (3570)	7210 (38800)	6490 (9960)	781 (1200)	6250 (9580)
17	51 (35)	89 (96)	108 (63)	5760 (14600)	1020 (2570)	11000 (28000)	9320 (11900)	1120 (1430)	8980 (11400)
18	56 (22)	96 (54)	141 (55)	897 (2520)	158 (443)	1720 (4820)	1930 (3190)	232 (383)	1860 (3080)
19	62 (28)	95 (36)	152 (68)	938 (2440)	165 (430)	1800 (4670)	3570 (5540)	430 (666)	3450 (5350)
20	66 (48)	103 (56)	125 (73)	2550 (6400)	449 (1130)	4880 (12200)	3320 (7570)	400 (911)	3220 (7330)
21	42 (21)	83 (48)	84 (67)	1480 (2650)	261 (467)	2830 (5070)	1320 (2780)	159 (335)	1280 (2700)
22	47 (56)	77 (62)	78 (83)	1860 (11800)	327 (2080)	3550 (22600)	1540 (11400)	186 (1380)	1500 (11100)
23	38 (22)	72 (21)	89 (84)	2700 (3320)	476 (585)	5170 (6350)	3590 (5510)	432 (664)	3490 (5360)
24	52 (32)	85 (40)	113 (66)	2430 (4690)	428 (826)	4640 (8960)	6780 (8720)	816 (1050)	6610 (8500)
25	48 (16)	84 (36)	216 (772)	4140 (6700)	730 (1180)	7910 (12800)	14200 (51200)	1700 (6170)	13800 (50000)
26									
27	85 (58)	110 (54)	194 (143)	1560 (3820)	274 (674)	2970 (7300)	5880 (8480)	708 (1020)	5750 (8290)
28	40 (34)	81 (48)	102 (74)	1590 (1930)	281 (340)	3040 (3680)	1780 (2190)	214 (264)	1740 (2150)
29	36 (34)	70 (15)	96 (41)	5730 (12900)	1010 (2270)	10900 (24600)	7840 (6610)	944 (796)	7700 (6490)
30	41 (15)	81 (23)	116 (59)	2780 (5630)	490 (993)	5300 (10700)	3340 (3540)	402 (426)	3280 (3480)
31	212 (300)	297 (511)	445 (667)	11400 (94700)	2010 (16700)	21700 (181000)	42300 (121000)	5090 (14600)	41600 (119000)
Avg	56	102	122	4290	757	8220	5700	687	5540
n	25	25	25	25	25	25	25	25	25
SD	36.9	47.6	75.1	3740.0	659.0	7160.0	8070.0	971.0	7940.0
Min	22	68	68	494	87	947	838	101	804
Max	212	297	445	17200	3040	33000	42300	5090	41600

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for April, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	70 (55)	98 (45)	199 (115)	1750 (7590)	308 (1340)	3330 (14500)	11900 (16600)	1440 (1990)	11800 (16300)
2	98 (85)	126 (74)	231 (130)	3470 (13800)	611 (2430)	6610 (26300)	18000 (15200)	2170 (1830)	17800 (15000)
3	54 (26)	103 (46)	178 (104)	4190 (5770)	738 (1020)	7980 (11000)	9470 (10500)	1140 (1260)	9360 (10300)
4	59 (27)	103 (49)	140 (97)	2500 (4530)	441 (799)	4770 (8630)	3840 (4730)	463 (570)	3810 (4690)
5	69 (43)	107 (61)	195 (214)	1590 (3570)	280 (629)	3020 (6790)	4010 (9570)	483 (1150)	3980 (9490)
6	81 (45)	133 (78)	249 (147)	1590 (2940)	280 (518)	3020 (5600)	5330 (7490)	642 (902)	5300 (7440)
7	109 (86)	152 (116)	366 (288)	1730 (6470)	305 (1140)	3290 (12300)	9140 (13700)	1100 (1650)	9100 (13600)
8	130 (125)	182 (166)	422 (202)	6900 (26500)	1220 (4670)	13100 (50400)	24600 (28000)	2960 (3370)	24500 (27900)
9	83 (42)	132 (83)	385 (189)	3800 (6450)	670 (1140)	7230 (12300)	19900 (16200)	2390 (1950)	19800 (16100)
10	39 (29)	85 (57)	289 (183)	1600 (2520)	282 (445)	3040 (4800)	7790 (9920)	937 (1190)	7780 (9910)
11	38 (16)	76 (31)	101 (96)	3050 (4730)	538 (833)	5800 (8980)	4060 (8230)	489 (990)	4070 (8230)
12	38 (13)	70 (23)	94 (71)	2980 (2950)	526 (519)	5670 (5600)	5900 (11500)	710 (1390)	5910 (11500)
13	85 (76)	112 (67)	171 (121)	4430 (10200)	782 (1800)	8420 (19400)	13700 (19900)	1650 (2400)	13800 (20000)
14	50 (20)	95 (51)	157 (117)	5790 (14000)	1020 (2470)	11000 (26700)	7440 (8730)	895 (1050)	7480 (8780)
15	68 (34)	100 (38)	178 (137)	3250 (6820)	573 (1200)	6170 (12900)	8470 (13000)	1020 (1560)	8530 (13100)
16	112 (57)	147 (94)	287 (178)	2430 (6930)	429 (1220)	4620 (13100)	13300 (17000)	1600 (2040)	13400 (17100)
17	114 (91)	163 (158)	237 (370)	1950 (23000)	343 (4060)	3690 (43700)	4550 (28000)	548 (3370)	4600 (28200)
18	91 (73)	137 (132)	138 (107)	2360 (6540)	415 (1150)	4470 (12400)	2850 (10100)	343 (1220)	2880 (10300)
19	92 (34)	124 (38)	165 (90)	1150 (2940)	203 (517)	2180 (5570)	3840 (7640)	462 (920)	3890 (7750)
20	117 (87)	161 (161)	255 (212)	1660 (6230)	292 (1100)	3140 (11800)	9700 (20800)	1170 (2500)	9850 (21100)
21	178 (141)	239 (182)	284 (249)	3580 (11700)	631 (2060)	6780 (22100)	8300 (20700)	999 (2500)	8440 (21100)
22	270 (224)	329 (288)	387 (331)	9780 (69000)	1720 (12200)	18500 (131000)	12900 (61100)	1550 (7350)	13100 (62200)
23	298 (246)	210 (104)	351 (214)	-12100 (41900)	-2140 (7380)	-23000 (79300)	1140 (42600)	138 (5130)	1170 (43500)
24	127 (63)	187 (132)	271 (168)	6750 (27000)	1190 (4760)	12800 (51100)	22100 (39600)	2660 (4760)	22500 (40400)
25	131 (99)	240 (249)	316 (433)	19800 (35800)	3490 (6320)	37500 (67800)	27200 (59700)	3280 (7190)	27900 (61100)
26	100 (59)	146 (96)	223 (128)	3880 (8240)	684 (1450)	7340 (15600)	17200 (19800)	2070 (2390)	17600 (20300)
27	198 (134)	229 (201)	327 (185)	3650 (57500)	643 (10100)	6900 (109000)	15100 (44900)	1820 (5400)	15500 (46000)
28	188 (192)	140 (91)	247 (238)	-16200 (67400)	-2860 (11900)	-30600 (128000)	9950 (74300)	1200 (8940)	10200 (76300)
29	33 (13)	71 (30)	111 (75)	3780 (3760)	667 (662)	7150 (7100)	6480 (6820)	780 (821)	6670 (7020)
30									
Avg	108	145	240	2790	493	5310	10600	1280	10700
n	29	29	29	29	29	29	29	29	29
SD	64.2	58.9	89.4	5830.0	1030.0	11000.0	6690.0	805.0	6770.0
Min	33	70	94	-16200	-2860	-30600	1140	138	1170
Max	298	329	422	19800	3490	37500	27200	3280	27900

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for May, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8	56 (32)	86 (27)	129 (77)	2220 (3780)	392 (666)	4200 (7130)	6380 (8870)	768 (1070)	6640 (9230)
9	68 (36)	108 (44)	130 (75)	2410 (4740)	425 (836)	4550 (8950)	2650 (4700)	319 (566)	2750 (4890)
10	73 (35)	127 (113)	209 (174)	5910 (22400)	1040 (3950)	11200 (42300)	8920 (15200)	1070 (1830)	9280 (15800)
11	86 (53)	128 (68)	262 (147)	5750 (11000)	1010 (1940)	10900 (20800)	22700 (21900)	2740 (2640)	23700 (22800)
12	224 (224)	279 (354)	509 (382)	10000 (103000)	1770 (18200)	19000 (195000)	62500 (107000)	7520 (12900)	65000 (111000)
13	94 (72)	143 (116)	333 (243)	3820 (15800)	672 (2790)	7210 (29900)	33400 (45400)	4020 (5470)	34800 (47300)
14	112 (89)	136 (75)	306 (163)	8140 (21900)	1430 (3870)	15400 (41500)	48200 (50700)	5810 (6110)	50200 (52800)
15	80 (35)	132 (84)	221 (178)	2590 (3590)	456 (632)	4890 (6780)	10300 (15100)	1230 (1820)	10700 (15700)
16	95 (53)	122 (52)	234 (150)	2390 (5920)	422 (1040)	4520 (11200)	8600 (12100)	1030 (1460)	8960 (12600)
17	127 (72)	151 (55)	305 (177)	2490 (4310)	439 (761)	4710 (8160)	18500 (25400)	2220 (3060)	19200 (26400)
18	162 (102)	208 (131)	456 (303)	4740 (21200)	835 (3740)	8960 (40100)	26000 (49000)	3130 (5900)	27100 (51100)
19	222 (198)	260 (196)	576 (294)	6590 (40400)	1160 (7110)	12500 (76400)	60600 (56500)	7300 (6800)	63200 (58900)
20	157 (171)	201 (215)	444 (291)	734 (18100)	129 (3190)	1390 (34200)	21300 (35400)	2570 (4270)	22200 (36900)
21	137 (68)	222 (180)	389 (312)	4480 (8670)	789 (1530)	8470 (16400)	11700 (20200)	1410 (2430)	12200 (21100)
22	156 (83)	245 (158)	253 (270)	2630 (6360)	464 (1120)	4980 (12000)	3 (12400)	0 (1490)	3 (12900)
23	108 (69)	168 (139)	258 (397)	2270 (10100)	400 (1780)	4300 (19100)	16700 (52800)	2010 (6350)	17500 (55000)
24	171 (195)	171 (142)	254 (274)	-1200 (29600)	-212 (5220)	-2280 (56100)	9000 (29200)	1080 (3520)	9390 (30500)
25	185 (175)	225 (137)	363 (354)	4710 (17500)	830 (3090)	8930 (33200)	23000 (40300)	2770 (4850)	24000 (42100)
26	166 (85)	220 (93)	371 (312)	5660 (16700)	997 (2940)	10700 (31600)	21500 (42400)	2590 (5100)	22500 (44300)
27	147 (51)	242 (157)	362 (272)	8930 (17600)	1570 (3100)	16900 (33300)	15900 (30500)	1910 (3670)	16600 (31800)
28	166 (73)	269 (174)	454 (394)	6380 (13200)	1130 (2330)	12100 (25100)	17700 (29500)	2130 (3550)	18500 (30800)
29	213 (97)	321 (216)	431 (324)	10400 (31400)	1840 (5540)	19800 (59600)	21400 (48800)	2580 (5880)	22400 (51000)
30	165 (125)	252 (251)	309 (436)	8560 (29300)	1510 (5170)	16200 (55600)	10800 (34000)	1300 (4100)	11300 (35600)
31	152 (87)	254 (189)	399 (440)	5500 (13900)	970 (2450)	10400 (26400)	13100 (30400)	1580 (3660)	13700 (31700)
Avg	138	195	332	4840	853	9160	20500	2460	21300
n	24	24	24	24	24	24	24	24	24
SD	47.8	62.6	111.0	2910.0	514.0	5520.0	15900.0	1920.0	16600.0
Min	56	86	129	-1200	-212	-2280	3	0	3
Max	224	321	576	10400	1840	19800	62500	7520	65000

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for June, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	252 (194)	306 (271)	404 (420)	7490 (44300)	1320 (7810)	14200 (84100)	11600 (56300)	1400 (6770)	12100 (58800)
2	279 (116)	367 (243)	420 (320)	10800 (61400)	1900 (10800)	20400 (117000)	10100 (41600)	1220 (5000)	10600 (43500)
3	240 (139)	336 (293)	668 (571)	9490 (37200)	1670 (6560)	18000 (70700)	40800 (76800)	4910 (9250)	42700 (80400)
4	267 (215)	473 (1110)	705 (1260)	61200 (441000)	10800 (77800)	116000 (838000)	99200 (591000)	11900 (71100)	104000 (618000)
5	84 (143)	95 (148)	127 (456)	-547 (17100)	-97 (3020)	-1040 (32500)	-138 (28000)	-17 (3370)	-145 (29300)
6	81 (43)	133 (140)	165 (334)	9050 (28900)	1600 (5090)	17200 (54900)	8640 (70500)	1040 (8480)	9040 (73700)
7	51 (18)	82 (88)	153 (612)	1740 (6440)	307 (1130)	3310 (12200)	6050 (42800)	728 (5150)	6330 (44800)
8	66 (76)	95 (135)	117 (298)	2980 (23700)	525 (4170)	5670 (45000)	3490 (26200)	420 (3150)	3660 (27400)
9	100 (86)	149 (168)	200 (318)	1760 (16500)	310 (2910)	3350 (31400)	4360 (26000)	525 (3130)	4570 (27200)
10									
11	126 (85)	173 (67)	293 (414)	3850 (9440)	679 (1660)	7320 (18000)	15900 (68100)	1920 (8200)	16700 (71400)
12	175 (177)	226 (222)	354 (599)	5640 (57100)	994 (10100)	10700 (109000)	22400 (114000)	2700 (13800)	23500 (120000)
13									
14									
15									
16									
17									
18	152 (103)	232 (173)	357 (430)	6690 (14900)	1180 (2620)	12700 (28300)	22300 (54700)	2680 (6590)	23300 (57400)
19	104 (78)	218 (119)	217 (165)	12800 (17400)	2250 (3060)	24300 (33100)	8380 (15700)	1010 (1890)	8790 (16500)
20	81 (40)	171 (131)	184 (155)	12500 (19000)	2200 (3350)	23800 (36200)	13300 (26200)	1600 (3150)	13900 (27500)
21	98 (84)	209 (162)	220 (251)	18800 (55800)	3320 (9840)	35900 (106000)	18600 (89100)	2240 (10700)	19500 (93600)
22									
23	136 (64)	256 (149)	315 (188)	10900 (18700)	1910 (3290)	20700 (35600)	13100 (15300)	1580 (1840)	13800 (16100)
24	337 (200)	468 (576)	924 (1330)	13100 (79300)	2300 (14000)	24900 (151000)	101000 (292000)	12200 (35200)	106000 (307000)
25	155 (93)	266 (164)	393 (436)	9900 (24000)	1740 (4220)	18900 (45700)	25000 (64900)	3010 (7810)	26200 (68100)
26	138 (127)	245 (219)	344 (419)	6540 (18300)	1150 (3230)	12500 (35000)	14300 (29200)	1720 (3520)	15000 (30700)
27	267 (193)	291 (187)	519 (721)	-977 (22400)	-172 (3940)	-1870 (42700)	42200 (126000)	5080 (15100)	44400 (132000)
28	229 (205)	324 (299)	471 (415)	2440 (39400)	430 (6950)	4660 (75300)	22000 (42700)	2650 (5140)	23100 (44900)
29	212 (105)	375 (249)	896 (1750)	14100 (24400)	2490 (4300)	26900 (46600)	58000 (153000)	6980 (18400)	61000 (161000)
30	196 (102)	340 (227)	549 (421)	10300 (18300)	1820 (3220)	19700 (34900)	35500 (40400)	4280 (4870)	37400 (42500)
Avg	166	254	391	10000	1770	19100	25900	3120	27200
n	23	23	23	23	23	23	23	23	23
SD	78.8	108.0	226.0	12000.0	2110.0	22800.0	26700.0	3210.0	28000.0
Min	51	82	117	-977	-172	-1870	-138	-17	-145
Max	337	473	924	61200	10800	116000	101000	12200	106000

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for July, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	224 (121)	387 (241)	660 (586)	8300 (20600)	1460 (3630)	15900 (39300)	23600 (34400)	2840 (4140)	24800 (36200)
2	339 (241)	574 (484)	784 (694)	5840 (18700)	1030 (3290)	11200 (35700)	10900 (37400)	1320 (4500)	11500 (39300)
3	377 (234)	493 (395)	695 (681)	8440 (32900)	1490 (5810)	16100 (63000)	10900 (34000)	1310 (4100)	11400 (35800)
4	266 (196)	338 (387)	456 (522)	4080 (42700)	719 (7520)	7800 (81600)	13400 (56800)	1610 (6830)	14100 (59800)
5	217 (163)	381 (477)	610 (721)	13900 (63000)	2450 (11100)	26600 (120000)	22600 (56800)	2730 (6840)	23800 (59800)
6	199 (151)	407 (571)	620 (812)	30900 (78800)	5440 (13900)	59100 (151000)	66100 (175000)	7950 (21000)	69600 (184000)
7	174 (81)	338 (312)	480 (375)	14000 (31900)	2470 (5630)	26800 (61100)	19600 (32700)	2350 (3940)	20600 (34500)
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22	248 (241)	264 (219)	427 (395)	35 (26000)	6 (4570)	67 (49800)	28400 (42100)	3420 (5060)	30000 (44500)
23	309 (195)	408 (280)	1010 (710)	27200 (74400)	4790 (13100)	52200 (143000)	118000 (170000)	14200 (20400)	125000 (180000)
24	362 (264)	352 (267)	640 (392)	-5960 (42500)	-1050 (7490)	-11400 (81600)	22900 (31900)	2750 (3840)	24200 (33700)
25	372 (268)	602 (663)	670 (450)	21400 (95600)	3770 (16900)	41100 (184000)	24000 (96900)	2890 (11700)	25400 (102000)
26	255 (172)	427 (432)	687 (489)	6870 (20700)	1210 (3640)	13200 (39800)	21400 (32500)	2570 (3920)	22600 (34400)
27	388 (244)	640 (568)	913 (582)	10800 (24600)	1910 (4340)	20800 (47300)	19400 (38400)	2340 (4620)	20600 (40600)
28	468 (247)	670 (707)	948 (553)	8100 (32600)	1430 (5750)	15600 (62800)	19800 (37200)	2390 (4470)	21000 (39300)
29									
30									
31									
Avg	299.9	448.6	685.7	10993.2	1937.5	21076.2	30071.4	3619.3	31757.1
n	14	14	14	14	14	14	14	14	14
SD	86	126	178	10022	1765	19200	28603	3441	30285
Min	174	264	427	-5960	-1050	-11400	10900	1310	11400
Max	468	670	1010	30900	5440	59100	118000	14200	125000

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for August, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-2}$
1									
2									
3									
4									
5									
6	429 (269)	532 (440)	683 (397)	12400 (47700)	2180 (8410)	23900 (91900)	23000 (45100)	2770 (5430)	24400 (47800)
7	307 (182)	360 (258)	478 (253)	5910 (37300)	1040 (6580)	11400 (72000)	17200 (32600)	2070 (3920)	18300 (34600)
8	295 (204)	327 (245)	468 (288)	-265 (38700)	-47 (6830)	-510 (74700)	12000 (47100)	1440 (5670)	12700 (49900)
9	286 (197)	385 (373)	586 (424)	5860 (25100)	1030 (4430)	11300 (48400)	22100 (33200)	2660 (3990)	23500 (35200)
10	324 (230)	471 (440)	648 (381)	16100 (51300)	2830 (9040)	31000 (99000)	27300 (58500)	3280 (7040)	29000 (62100)
11	326 (201)	382 (339)	706 (422)	5410 (48900)	953 (8620)	10400 (94300)	28900 (49400)	3480 (5950)	30600 (52400)
12									
13									
14	237 (132)	290 (173)	554 (308)	-775 (27500)	-137 (4850)	-1500 (53100)	29400 (44900)	3540 (5400)	31200 (47700)
15	306 (123)	332 (215)	662 (417)	2820 (22600)	497 (3990)	5450 (43700)	31200 (49900)	3750 (6010)	33100 (53000)
16		423 (386)	744 (422)						
17		544 (407)	1210 (1350)						
18		560 (435)	1040 (783)						
19		806 (948)	1260 (946)						
20		690 (691)	1120 (1030)						
21		739 (1080)	981 (1480)						
22		2040 (2070)	591 (555)						
23									
24									
25									
26									
27									
28									
29									
30									
31									
Avg	313.8	592.1	782.1	5932.5	1043.3	11430.0	23887.5	2873.8	25350.0
n	8	15	15	8	8	8	8	8	8
SD	54	430	267	5838	1026	11245	6662	802	7063
Min	237	290	468	-775	-137	-1500	12000	1440	12700
Max	429	2040	1260	16100	2830	31000	31200	3750	33100

Table F3. Daily means (SD) of PM10 concentrations and emissions at site WA5B for September, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4		485 (293)							
5		332 (272)							
6		333 (535)							
7		252 (210)							
8		319 (242)							
9		659 (702)							
10		408 (376)							
11		529 (445)							
12		391 (390)							
13		452 (364)							
14		342 (240)							
15		397 (330)							
16		589 (683)							
17	305 (157)	445 (283)	878 (488)	9270 (24200)	1630 (4270)	18100 (47300)	56500 (54500)	6800 (6560)	60300 (58100)
18	381 (212)	624 (475)	860 (607)	9030 (20900)	1590 (3680)	17600 (40800)	14100 (21000)	1700 (2530)	15000 (22400)
19	307 (235)	419 (439)	818 (601)	9020 (40300)	1590 (7110)	17600 (78700)	35800 (86600)	4310 (10400)	38200 (92400)
20	234 (147)	318 (276)	754 (502)	5290 (19600)	932 (3460)	10300 (38300)	51400 (56500)	6180 (6800)	54800 (60300)
21	440 (292)	540 (481)	1090 (581)	806 (13200)	142 (2320)	1570 (25700)	18500 (27300)	2230 (3290)	19800 (29200)
22	427 (284)	718 (627)	1270 (818)	2410 (11000)	425 (1940)	4710 (21500)	9910 (15500)	1190 (1860)	10600 (16500)
23	487 (300)	563 (486)	1520 (1220)	-508 (8250)	-90 (1450)	-992 (16100)	12900 (17700)	1550 (2130)	13800 (18900)
24									
25	317 (194)	595 (659)	951 (693)	6290 (21600)	1110 (3810)	12300 (42200)	31000 (34500)	3730 (4150)	33100 (36800)
26	313 (185)	418 (389)	902 (469)	2330 (26000)	410 (4580)	4540 (50700)	28200 (40800)	3400 (4920)	30100 (43600)
27	339 (204)	522 (485)	1210 (713)	7070 (33900)	1250 (5970)	13800 (66200)	37000 (43500)	4450 (5230)	39500 (46400)
28									
29									
30									
Avg	355	463	1025	5101	899	9953	29531	3554	31520
n	10	23	10	10	10	10	10	10	10
SD	77	124	242	3626	639	7076	16076	1934	17143
Min	234	252	754	-508	-90	-992	9910	1190	10600
Max	487	718	1520	9270	1630	18100	56500	6800	60300

Table F4. PM2.5 concentrations and emissions.

Table F4. Daily means (SD) of PM2.5 concentrations and emissions at site WA5B for January, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18		20 (9)	15 (17)						
19		21 (9)	16 (17)						
20		13 (9)	6 (17)						
21		16 (12)	10 (20)						
22		19 (9)	13 (14)						
23		18 (7)	13 (14)						
24		21 (8)	15 (14)						
25		23 (8)	18 (17)						
26		24 (7)	20 (12)						
27		25 (11)	19 (14)						
28		15 (10)	7 (12)						
29		10 (8)	4 (18)						
30		13 (7)	7 (17)						
31		12 (6)	6 (14)						
Avg	0	18	12	0	0	0	0	0	0
n		14	14						
SD		4.6	5.2						
Min		10	4						
Max		25	20						

Table F4. Daily means (SD) of PM_{2.5} concentrations and emissions at site WA5B for February, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1		13 (7)	8 (12)						
2		13 (6)	6 (16)						
3		14 (6)	9 (9)						
4		16 (9)	12 (19)						
5		12 (8)	6 (16)						
6		13 (6)	8 (13)						
7		17 (11)	15 (21)						
8		36 (30)	51 (41)						
9		36 (23)	38 (28)						
10		37 (22)	42 (32)						
11		50 (32)	65 (37)						
12		50 (38)	57 (31)						
13		46 (22)	67 (29)						
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
Avg		27.1	29.5						
n		13	13						
SD		15.5	24.2						
Min		11.8	6.3						
Max		50.2	67.4						

Table F4. Daily means (SD) of PM2.5 concentrations and emissions at site WA5B for July, 2008.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11	14 (7)	28 (54)	19 (70)	659 (4030)	116 (711)	1290 (7870)	-195 (5440)	-24 (655)	-196 (5460)
12	14 (8)	28 (59)	19 (80)	348 (4130)	61 (728)	679 (8070)	-676 (5440)	-81 (655)	-679 (5460)
13	13 (9)	25 (64)	16 (82)	604 (5270)	107 (928)	1180 (10300)	-401 (6730)	-48 (811)	-403 (6760)
14	18 (14)	27 (69)	19 (83)	757 (7120)	133 (1260)	1480 (13900)	-167 (7010)	-20 (843)	-167 (7030)
15	17 (15)	26 (70)	21 (84)	607 (7320)	107 (1290)	1190 (14300)	-38 (7440)	-5 (895)	-38 (7460)
16	14 (10)	28 (54)	18 (59)	1020 (5320)	180 (937)	2000 (10400)	-57 (5090)	-7 (613)	-57 (5110)
17	19 (15)	33 (54)	19 (57)	2230 (8550)	394 (1510)	4360 (16700)	217 (7630)	26 (919)	217 (7650)
18	17 (7)	51 (55)	35 (62)	2820 (5250)	497 (926)	5500 (10300)	1120 (5860)	135 (705)	1120 (5870)
19	24 (21)	57 (64)	41 (68)	3160 (7340)	558 (1290)	6180 (14300)	1310 (5810)	158 (700)	1310 (5820)
20	23 (9)	47 (46)	36 (53)	1910 (4740)	336 (835)	3720 (9250)	837 (5460)	101 (658)	838 (5470)
21	32 (23)	65 (71)	50 (78)	3370 (7820)	594 (1380)	6580 (15300)	1470 (7610)	177 (916)	1470 (7610)
22	20 (9)	47 (32)	34 (42)	3960 (7040)	699 (1240)	7740 (13800)	1450 (5600)	174 (674)	1450 (5590)
23									
24									
25									
26									
27									
28									
29									
30									
31									
Avg	19	39	27	1790	315	3490	406	49	405
n	12	12	12	12	12	12	12	12	12
SD	5.3	13.6	10.9	1230.0	217.0	2400.0	747.0	89.9	747.0
Min	13	25	16	348	61	679	-676	-81	-679
Max	32	65	50	3960	699	7740	1470	177	1470

Table F4. Daily means (SD) of PM2.5 concentrations and emissions at site WA5B for February, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{dsm}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13	17 (4)	53 (125)	38 (5)	3340 (11900)	589 (2090)	6540 (23200)	1490 (694)	180 (84)	1510 (702)
14	16 (4)	53 (219)	40 (5)	469 (8050)	83 (1420)	916 (15700)	711 (579)	86 (70)	715 (583)
15	17 (4)	69 (465)	40 (3)	925 (13500)	163 (2390)	1800 (26400)	503 (429)	61 (52)	502 (428)
16	16 (4)	59 (382)	39 (3)	1750 (27500)	308 (4840)	3410 (53500)	1240 (611)	149 (74)	1230 (605)
17	17 (4)	52 (247)	43 (5)	1800 (17700)	318 (3120)	3510 (34400)	1500 (1710)	181 (206)	1480 (1690)
18	20 (5)	86 (419)	45 (5)	1200 (17700)	211 (3130)	2330 (34500)	682 (582)	82 (70)	668 (570)
19	17 (4)	50 (288)	43 (7)	841 (15300)	148 (2690)	1630 (29700)	888 (498)	107 (60)	866 (487)
20	19 (4)	63 (258)	44 (4)	1950 (17700)	344 (3110)	3780 (34300)	963 (737)	116 (89)	933 (713)
21	18 (4)	52 (171)	42 (5)	1250 (8650)	220 (1530)	2420 (16800)	927 (706)	112 (85)	893 (681)
22	19 (5)	56 (99)	44 (5)	1210 (4620)	213 (814)	2340 (8940)	509 (457)	61 (55)	487 (437)
23	16 (4)	48 (145)	40 (6)	1330 (13700)	235 (2420)	2570 (26500)	1360 (1590)	164 (192)	1300 (1510)
24	13 (4)	50 (141)	38 (4)	7250 (29800)	1280 (5260)	14000 (57600)	5850 (2180)	704 (263)	5530 (2070)
25	13 (4)	51 (150)	40 (5)	6830 (26500)	1200 (4670)	13200 (51100)	5250 (1740)	631 (209)	4930 (1630)
26									
27									
28									
Avg	17	57	41	2320	409	4490	1680	203	1620
n	13	13	13	13	13	13	13	13	13
SD	2.0	10.2	2.1	2120.0	374.0	4090.0	1680.0	203.0	1580.0
Min	13	48	38	469	83	916	503	61	487
Max	20	86	45	7250	1280	14000	5850	704	5530

Table F4. Daily means (SD) of PM2.5 concentrations and emissions at site WA5B for July, 2009.

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9	25 (12)	69 (7)	62 (12)	4740 (2880)	836 (508)	9090 (5510)	3800 (2270)	457 (273)	4000 (2390)
10	29 (11)	73 (12)	68 (23)	3590 (3250)	632 (573)	6870 (6230)	2760 (3140)	332 (378)	2900 (3310)
11	29 (9)	73 (13)	65 (18)	4920 (3550)	867 (625)	9430 (6790)	3970 (3690)	478 (444)	4180 (3890)
12	39 (14)	77 (13)	78 (31)	5450 (4130)	960 (728)	10400 (7910)	6470 (7570)	779 (912)	6830 (7990)
13	23 (8)	70 (10)	59 (8)	5700 (4400)	1000 (776)	10900 (8440)	3850 (2530)	464 (304)	4060 (2660)
14	30 (9)	78 (16)	72 (16)	3980 (3210)	702 (566)	7630 (6150)	3090 (2400)	373 (289)	3270 (2530)
15	35 (8)	80 (14)	75 (32)	3630 (3140)	640 (554)	6970 (6030)	3140 (5340)	378 (643)	3310 (5640)
16									
17	39 (12)	82 (17)	78 (35)	3440 (3470)	606 (611)	6590 (6650)	3090 (5350)	372 (644)	3260 (5650)
18	37 (15)	78 (15)	73 (22)	3470 (2910)	613 (513)	6670 (5580)	2780 (2710)	334 (326)	2930 (2860)
19	28 (11)	72 (12)	66 (18)	3320 (2280)	585 (402)	6370 (4380)	3030 (2300)	365 (276)	3200 (2420)
20	41 (18)	88 (22)	91 (69)	3790 (2890)	668 (509)	7280 (5550)	3530 (6340)	425 (763)	3730 (6700)
21	45 (11)	88 (15)	86 (24)	3000 (3120)	528 (550)	5750 (5990)	2690 (3190)	324 (385)	2840 (3380)
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
Avg	33	77	73	4090	720	7830	3520	423	3710
n	12	12	12	12	12	12	12	12	12
SD	6.6	6.3	9.2	852.0	150.0	1630.0	987.0	119.0	1040.0
Min	23	69	59	3000	528	5750	2690	324	2840
Max	45	88	91	5700	1000	10900	6470	779	6830

Table F5. TSP concentrations and emissions.

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for April, 2008

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11		515 (360)	1090 (789)						
12		340 (285)	567 (307)						
13		353 (236)	866 (462)						
14		482 (335)	1060 (617)						
15		565 (512)	1620 (1310)						
16		386 (264)	1140 (629)						
17		317 (436)	765 (702)						
18	284 (192)	312 (369)	446 (426)	9920 (79700)	1750 (14000)	19400 (156000)	35000 (106000)	4220 (12800)	36500 (111000)
19	72 (47)	88 (90)	172 (434)	1470 (10200)	259 (1810)	2870 (20000)	9290 (59300)	1120 (7140)	9660 (61700)
20	86 (88)	93 (98)	134 (241)	1640 (21700)	289 (3830)	3200 (42500)	4820 (36100)	580 (4350)	5010 (37500)
21	86 (41)	100 (78)	146 (192)	1410 (9760)	249 (1720)	2760 (19100)	5160 (26200)	621 (3160)	5360 (27200)
22	78 (46)	111 (92)	180 (199)	3120 (12500)	550 (2210)	6090 (24400)	7520 (22800)	905 (2750)	7810 (23700)
23	30 (12)	50 (58)	107 (154)	3400 (9410)	599 (1660)	6630 (18400)	12300 (26400)	1480 (3180)	12800 (27400)
24									
25									
26									
27									
28									
29									
30									
Avg	106	286	638	3490	616	6820	12400	1490	12900
n	6	13	13	6	6	6	6	6	6
SD	82.0	172.0	473.0	2980.0	525.0	5820.0	10500.0	1260.0	10900.0
Min	30	50	107	1410	249	2760	4820	580	5010
Max	284	565	1620	9920	1750	19400	35000	4220	36500

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for June, 2008

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13	112 (62)	379 (271)	634 (429)	33100 (44000)	5840 (7750)	64700 (85900)	57100 (64500)	6880 (7760)	58000 (65500)
14	65 (21)	274 (270)	293 (179)	18500 (30200)	3250 (5320)	36000 (58900)	19000 (16300)	2290 (1970)	19300 (16600)
15	98 (86)	328 (261)	461 (347)	19700 (24500)	3470 (4320)	38400 (47800)	32000 (33800)	3850 (4070)	32400 (34300)
16	213 (190)	532 (449)	911 (571)	35600 (73700)	6270 (13000)	69500 (144000)	94700 (118000)	11400 (14200)	96100 (119000)
17	145 (87)	591 (685)	732 (537)	54800 (87400)	9670 (15400)	107000 (171000)	64100 (90100)	7710 (10800)	65000 (91400)
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
Avg	126	421	606	32300	5700	63100	53400	6430	54200
n	5	5	5	5	5	5	5	5	5
SD	50.6	121.0	214.0	13200.0	2330.0	25800.0	26400.0	3170.0	26700.0
Min	65	274	293	18500	3250	36000	19000	2290	19300
Max	213	591	911	54800	9670	107000	94700	11400	96100

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for September, 2008

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13	169 (107)	392 (263)	624 (367)	14700 (24300)	2590 (4280)	28700 (47500)	25800 (24400)	3110 (2930)	25200 (23800)
14	255 (177)	450 (371)	865 (543)	8330 (22700)	1470 (4010)	16300 (44400)	15400 (20000)	1860 (2400)	15100 (19500)
15	316 (213)	522 (544)	1440 (940)	8200 (23200)	1450 (4090)	16000 (45300)	37600 (48600)	4530 (5850)	36800 (47500)
16	317 (221)	614 (482)	1720 (1120)	8570 (18000)	1510 (3180)	16700 (35200)	34700 (38600)	4180 (4650)	33900 (37700)
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
Avg	264	494	1160	9940	1750	19400	28400	3420	27800
n	4	4	4	4	4	4	4	4	4
SD	60.3	83.1	438.0	2730.0	482.0	5340.0	8650.0	1040.0	8450.0
Min	169	392	624	8200	1450	16000	15400	1860	15100
Max	317	614	1720	14700	2590	28700	37600	4530	36800

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for November, 2008

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14	58 (25)	346 (274)	415 (229)	7610 (9460)	1340 (1670)	14600 (18200)	10400 (9770)	1250 (1180)	11900 (11200)
15	46 (16)	221 (117)	333 (134)	3820 (4410)	673 (778)	7300 (8430)	6570 (5600)	791 (674)	7030 (5990)
16	47 (10)	237 (128)	308 (129)	3390 (3770)	597 (664)	6490 (7220)	4900 (4710)	590 (567)	5220 (5030)
17	57 (17)	319 (290)	361 (132)	4520 (7710)	796 (1360)	8690 (14800)	5190 (4910)	625 (591)	5520 (5220)
18	70 (18)	310 (145)	408 (187)	3650 (3830)	643 (674)	7040 (7390)	5590 (6010)	673 (723)	5920 (6370)
19	65 (33)	277 (187)	500 (211)	8240 (8230)	1450 (1450)	16000 (15900)	21200 (13200)	2560 (1590)	22500 (14000)
20	62 (28)	273 (154)	489 (200)	13200 (20000)	2330 (3520)	25800 (38900)	28800 (26800)	3460 (3220)	30300 (28200)
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
Avg	58	283	402	6350	1120	12300	11800	1420	12600
n	7	7	7	7	7	7	7	7	7
SD	8.4	41.8	68.3	3350.0	591.0	6540.0	8750.0	1050.0	9190.0
Min	46	221	308	3390	597	6490	4900	590	5220
Max	70	346	500	13200	2330	25800	28800	3460	30300

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for February, 2009

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-2}$
1									
2									
3									
4									
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6									
7									
8									
9									
10									
11									
12									
13									
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16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27	35 (11)	208 (258)	325 (156)	5980 (12200)	1050 (2150)	11500 (23500)	9320 (8660)	1120 (1040)	8750 (8130)
28	37 (15)	176 (209)	263 (79)	5380 (12000)	948 (2120)	10300 (23200)	9380 (7180)	1130 (864)	8820 (6760)
Avg	36	192	294	5680	1000	10900	9350	1130	8790
n	2	2	2	2	2	2	2	2	2
SD	1.2	16.1	31.3	300.0	53.0	580.0	31.5	3.8	36.4
Min	35	176	263	5380	948	10300	9320	1120	8750
Max	37	208	325	5980	1050	11500	9380	1130	8820

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for March, 2009

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	27 (8)	165 (205)	308 (83)	4640 (10800)	818 (1910)	8930 (20800)	9650 (7550)	1160 (909)	9090 (7110)
2	21 (7)	105 (132)	243 (106)	5070 (11300)	893 (2000)	9750 (21800)	16200 (20900)	1950 (2520)	15300 (19700)
3	17 (5)	106 (180)	289 (106)	3830 (9980)	675 (1760)	7360 (19200)	8920 (7600)	1070 (915)	8420 (7180)
4									
5									
6									
7									
8									
9									
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12									
13									
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26									
27									
28									
29									
30									
31									
Avg	22	125	280	4510	795	8680	11600	1400	10900
n	3	3	3	3	3	3	3	3	3
SD	3.8	27.9	27.6	513.0	90.4	988.0	3270.0	394.0	3090.0
Min	17	105	243	3830	675	7360	8920	1070	8420
Max	27	165	308	5070	893	9750	16200	1950	15300

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for May, 2009

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	125 (58)	431 (399)	813 (659)	10300 (19100)	1820 (3360)	19500 (36000)	27400 (30200)	3300 (3630)	28300 (31200)
2	98 (70)	299 (318)	689 (624)	6300 (7790)	1110 (1370)	11900 (14700)	26100 (55500)	3140 (6680)	26900 (57400)
3	49 (17)	163 (128)	548 (385)	5390 (8740)	950 (1540)	10200 (16500)	25400 (33300)	3060 (4010)	26300 (34500)
4	66 (39)	254 (217)	634 (426)	13400 (27100)	2370 (4770)	25300 (51100)	46200 (68700)	5560 (8270)	47900 (71200)
5	116 (100)	488 (631)	1160 (1220)	122000 (254000)	21600 (44700)	231000 (479000)	374000 (634000)	45000 (76300)	389000 (659000)
6	69 (43)	303 (284)	787 (626)	46400 (88300)	8170 (15600)	87500 (167000)	151000 (266000)	18200 (32100)	157000 (277000)
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9									
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18									
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25									
26									
27									
28									
29									
30									
31									
Avg	87	323	771	34000	6000	64200	108000	13000	113000
n	6	6	6	6	6	6	6	6	6
SD	27.7	108.0	194.0	41900.0	7380.0	79000.0	127000.0	15300.0	132000.0
Min	49	163	548	5390	950	10200	25400	3060	26300
Max	125	488	1160	122000	21600	231000	374000	45000	389000

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for July, 2009

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1									
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21									
22									
23	309 (195)	408 (280)	1010 (710)	27200 (74400)	4790 (13100)	52200 (143000)	118000 (170000)	14200 (20400)	125000 (180000)
24	362 (264)	352 (267)	640 (392)	-5960 (42500)	-1050 (7490)	-11400 (81600)	22900 (31900)	2750 (3840)	24200 (33700)
25	372 (268)	602 (663)	670 (450)	21400 (95600)	3770 (16900)	41100 (184000)	24000 (96900)	2890 (11700)	25400 (102000)
26	255 (172)	427 (432)	687 (489)	6870 (20700)	1210 (3640)	13200 (39800)	21400 (32500)	2570 (3920)	22600 (34400)
27	388 (244)	640 (568)	913 (582)	10800 (24600)	1910 (4340)	20800 (47300)	19400 (38400)	2340 (4620)	20600 (40600)
28	468 (247)	670 (707)	948 (553)	8100 (32600)	1430 (5750)	15600 (62800)	19800 (37200)	2390 (4470)	21000 (39300)
29									
30	395 (146)	772 (674)	1340 (1050)	44200 (100000)	7790 (17700)	85000 (193000)	85500 (123000)	10300 (14800)	90600 (130000)
31	591 (266)	1110 (1070)	2010 (1350)	41600 (129000)	7330 (22700)	80100 (248000)	89300 (98600)	10800 (11900)	94600 (104000)
Avg	393	622	1030	19300	3400	37100	50100	6030	53000
n	8	8	8	8	8	8	8	8	8
SD	95.2	229.0	429.0	16500.0	2900.0	31700.0	38000.0	4580.0	40200.0
Min	255	352	640	-5960	-1050	-11400	19400	2340	20600
Max	591	1110	2010	44200	7790	85000	118000	14200	125000

Table F5. Daily means (SD) of TSP concentrations and emissions at site WA5B for August, 2009

Day	Concentration, $\mu\text{g}\cdot\text{d}\cdot\text{m}^{-3}$			Barn 2			Barn 4		
	Inlet	Barn 2	Barn 4	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\cdot\text{hd}^{-2}$
1	511 (256)	1120 (1140)	1790 (1420)	27100 (64800)	4790 (11400)	52300 (125000)	53800 (68500)	6480 (8240)	57000 (72500)
2	404 (243)	821 (773)	1720 (1340)	29800 (54900)	5250 (9680)	57300 (106000)	84600 (87900)	10200 (10600)	89600 (93200)
3	496 (224)	1220 (1130)	2120 (1630)	51800 (99800)	9120 (17600)	99700 (192000)	97900 (105000)	11800 (12600)	104000 (111000)
4	635 (271)	1470 (1610)	2420 (2050)	88500 (258000)	15600 (45500)	170000 (497000)	234000 (519000)	28200 (62500)	248000 (550000)
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7									
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21									
22									
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24									
25									
26									
27									
28									
29									
30									
31									
Avg	511	1160	2020	49300	8690	94900	118000	14200	125000
n	4	4	4	4	4	4	4	4	4
SD	82.2	231.0	280.0	24600.0	4330.0	47300.0	69100.0	8320.0	73300.0
Min	404	821	1720	27100	4790	52300	53800	6480	57000
Max	635	1470	2420	88500	15600	170000	234000	28200	248000

Table F6. Hydrogen sulfide concentrations.Table F6. Daily means (SD) of H₂S concentrations at site WA5B for October, 2007.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20			3.2 (3.5)	4.6 (4.9)	8.7 (11.6)	12.4 (16.5)				
21			7.3 (5.0)	10.3 (7.1)	9.1 (10.4)	12.9 (14.8)				
22			13.1 (12.6)	18.7 (17.9)	22.7 (20.2)	32.4 (28.7)				
23					32.5 (38.9)	51.9 (57.1)	43.8 (62.5)	70.6 (92.5)		
24	217.0 (61.2)	309.0 (87.1)	5.3 (4.4)	7.5 (6.2)	13.8 (15.9)	19.6 (22.7)	97.0 (191.0)	138.0 (271.0)		
25	176.0 (182.0)	260.0 (259.0)								
26										
27			19.3 (14.8)	27.5 (21.1)	29.4 (34.4)	41.8 (48.8)				
28			11.8 (12.3)	16.8 (17.4)	26.6 (34.3)	37.9 (48.8)				
29			9.3 (9.8)	13.3 (13.9)	16.8 (16.8)	23.9 (23.9)	20.2 (21.2)	28.7 (30.2)		
30			10.9 (39.9)	15.5 (56.7)						
31										
Avg	197.0	284.0	10.0	14.3	20.0	29.1	53.7	79.1		
n	2	2	8	8	8	8	3	3	0	0
SD	20.3	24.5	4.7	6.7	8.6	13.4	32.1	45.0		
Min	176.0	260.0	3.2	4.6	8.7	12.4	20.2	28.7		
Max	217	309	19.3	27.5	32.5	51.9	97.0	138.0		

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for November, 2007.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1										
2										
3					14.5 (12.9)	20.6 (18.3)				
4			9.1 (6.7)	12.9 (9.6)	18.7 (18.9)	26.7 (26.9)				
5			23.3 (31.4)	33.1 (44.7)	33.8 (47.2)	48.1 (67.1)				
6	36.6 (78.4)	52.0 (111.0)	36.6 (44.2)	52.0 (62.9)						
7	35.6 (40.2)	50.6 (57.2)	15.5 (11.2)	22.0 (16.0)	57.4 (61.3)	81.7 (87.2)				
8	129.0 (396.0)	183.0 (563.0)	17.6 (15.0)	25.1 (21.3)	15.6 (17.1)	22.2 (24.4)				
9	73.7 (198.0)	105.0 (282.0)	10.0 (11.2)	14.2 (15.9)	10.1 (5.9)	14.4 (8.3)				
10	17.9 (31.0)	25.4 (44.0)	8.4 (11.7)	11.9 (16.6)	16.1 (17.4)	23.0 (24.7)				
11	17.1 (20.3)	24.2 (28.9)	32.5 (34.7)	46.2 (49.3)	14.9 (14.7)	21.2 (20.9)				
12	5.5 (5.6)	9.0 (8.3)	4.5 (4.4)	6.4 (6.2)	13.1 (22.0)	18.6 (31.3)				
13	14.5 (15.9)									
14	37.5 (33.7)									
15	17.6 (20.3)	25.1 (28.8)	28.0 (33.9)	39.8 (48.2)			26.9 (29.9)	38.3 (42.4)		
16	23.5 (27.7)	33.5 (39.4)	4.9 (6.4)	6.9 (9.2)	14.8 (20.0)	21.1 (28.5)	7.3 (6.1)	10.4 (8.6)		
17	5.0 (2.0)	7.1 (2.9)	6.2 (3.1)	8.8 (4.4)	22.3 (30.8)	31.8 (43.8)	31.3 (47.0)	44.5 (66.9)		
18	4.1 (3.1)	5.8 (4.5)	11.4 (25.3)	16.2 (36.0)	12.5 (23.9)	17.8 (34.0)				
19	3.0 (0.9)	4.3 (1.2)	11.9 (22.0)	16.9 (31.3)	2.9 (1.6)	4.1 (2.2)				
20	8.4 (5.9)	11.9 (8.3)	9.2 (10.0)	13.1 (14.3)						
21			9.6 (10.2)	13.7 (14.5)						
22			5.3 (9.1)		4.8 (2.8)	6.0 (3.6)	7.7 (10.4)	12.1 (16.1)		
23			7.1 (7.2)		4.4 (3.1)	6.4 (4.4)				
24			5.2 (10.8)	7.4 (15.3)	3.9 (1.8)	5.5 (2.6)				
25			11.5 (17.9)	16.7 (25.7)	3.8 (2.6)	5.5 (3.7)				
26										
27										
28										
29										
30										
Avg	28.6	41.3	13.4	20.2	15.5	22.0	18.3	26.3		
n	15	13	20	18	17	17	4	4	0	0
SD	32.3	48.8	9.2	13.4	13.0	18.5	10.9	15.2		
Min	3.0	4.3	4.5	6.4	2.9	4.1	7.3	10.4		
Max	129	183	36.6	52.0	57.4	81.7	31.3	44.5		

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for December, 2007.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	3.7 (2.7)	5.2 (3.9)	9.9 (22.0)		14.2 (35.3)	20.3 (51.1)			29.2 (25.3)	41.6 (36.0)
2	4.3 (4.2)	6.1 (6.0)	23.8 (33.5)	31.7 (44.7)	30.9 (47.7)	43.8 (67.7)				
3	3.4 (2.2)	4.9 (3.1)	3.1 (1.8)	4.4 (2.6)	3.6 (2.3)	5.1 (3.3)				
4	2.5 (1.2)	3.6 (1.7)	4.5 (3.8)	6.4 (5.4)	2.6 (0.8)	3.7 (1.1)	3.2 (1.3)	4.6 (1.8)		
5	12.9 (13.4)	18.3 (19.1)	6.8 (7.1)	9.7 (10.0)	11.2 (12.3)	15.9 (17.5)				
6	3.7 (3.7)	5.2 (5.3)	8.2 (6.4)	11.7 (9.1)	14.8 (19.1)	21.0 (27.1)				
7	4.9 (3.2)	6.2 (3.9)	6.4 (3.9)	8.9 (5.7)	6.4 (5.0)	8.7 (7.1)				
8	12.9 (5.5)									
9	2.3 (0.4)	3.3 (0.6)	4.9 (4.8)				7.2 (4.3)			
10	2.1 (0.7)	3.0 (1.0)	9.9 (11.1)							
11	4.1 (3.1)	5.8 (4.5)								
12	4.7 (2.1)									
13	2.7 (1.1)									
14	1.1 (1.2)	1.6 (1.7)	2.9 (4.3)							
15	5.4 (5.4)	7.6 (7.6)	48.6 (94.0)		7.2 (12.3)	10.5 (17.8)				
16	13.9 (12.6)	19.7 (18.0)	17.5 (17.0)	24.9 (24.1)	38.5 (63.9)	54.8 (90.9)	55.2 (88.5)	78.5 (126.0)		
17	4.2 (3.9)	6.0 (5.5)	57.6 (154.0)	81.8 (219.0)	16.3 (17.0)	23.2 (24.2)	8.1 (9.3)	11.5 (13.2)		
18	5.7 (7.3)	8.1 (10.4)	15.8 (16.8)	22.4 (23.9)	45.6 (103.0)	64.8 (146.0)				
19	2.5 (1.6)	3.5 (2.3)	30.7 (48.6)	43.6 (69.1)	10.9 (7.3)	15.5 (10.4)	5.2 (4.5)	7.4 (6.5)		
20	4.0 (4.9)	5.7 (6.9)	7.9 (6.0)	11.3 (8.5)	19.0 (26.8)	27.0 (38.1)				
21	3.6 (2.8)	5.1 (4.0)	91.5 (124.0)	130.0 (176.0)						
22	4.8 (2.9)	6.9 (4.1)								
23	7.7 (7.8)	11.0 (11.0)			9.9 (20.1)	14.0 (28.5)	10.2 (10.4)	14.5 (14.8)		
24	3.5 (3.5)	5.0 (4.9)	18.4 (49.6)	26.1 (70.5)	44.8 (56.2)	63.7 (79.9)				
25	3.8 (2.8)	5.4 (3.9)	7.4 (30.1)	11.4 (45.0)	7.0 (8.9)	9.9 (12.8)	14.7 (13.1)	22.4 (19.0)		
26	3.7 (4.4)	5.2 (6.3)	39.7 (45.3)	56.4 (64.3)	51.4 (76.9)	73.0 (109.0)				
27	5.0 (5.0)	7.2 (7.0)	95.8 (242.0)	143.0 (351.0)						
28	3.6 (2.3)	5.2 (3.3)			16.3 (18.7)	23.1 (26.5)	29.9 (48.1)	42.5 (68.3)		
29	3.5 (1.5)	5.0 (2.2)	9.1 (7.9)	12.9 (11.4)	20.9 (32.5)	29.6 (46.4)				
30	3.7 (2.6)	5.2 (3.7)	5.9 (5.4)	8.4 (7.7)	19.0 (28.5)	27.0 (40.4)				
31	4.4 (5.7)	6.2 (8.1)	3.0 (10.8)	4.3 (15.8)	16.4 (17.4)	23.3 (24.7)	8.4 (6.9)	11.9 (9.7)		
Avg	4.8	6.5	22.1	34.2	19.4	27.5	15.8	24.2	1	1
n	31	28	24	19	21	21	9	8		
SD	3	3.9	26.0	40.2	14.1	20.0	15.8	23.3		
Min	1.1	1.6	2.9	4.3	2.6	3.7	3.2	4.6		
Max	13.9	19.7	95.8	143.0	51.4	73.0	55.2	78.5		

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for January, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	3.6 (3.1)	5.1 (4.4)	6.9 (10.7)		10.0 (18.4)	14.2 (26.2)				
2	5.9 (4.7)	8.3 (6.7)	4.0 (4.1)		13.4 (19.6)					
3	4.1 (3.1)	5.8 (4.4)	10.7 (15.8)							
4	2.9 (1.8)	4.1 (2.5)	4.7 (5.1)	6.6 (7.2)						
5	3.3 (2.4)	4.7 (3.4)	7.8 (13.7)	11.1 (19.4)						
6	7.8 (6.2)	11.1 (8.7)	9.0 (8.8)	12.8 (12.5)	12.5 (13.5)	17.8 (19.3)				
7										
8										
9										
10										
11	1.7 (0.6)	2.3 (1.0)								
12	1.9 (1.1)	2.7 (1.6)	39.8 (68.3)	56.5 (97.1)	12.9 (28.6)	18.3 (40.7)				
13	3.1 (3.0)	4.4 (4.2)	4.9 (19.6)	6.9 (27.8)	62.1 (99.0)	88.3 (141.0)				
14	35.4 (55.4)	50.4 (78.8)	100.0 (124.0)	142.0 (176.0)	52.9 (98.4)	75.1 (140.0)				
15	3.9 (4.3)	5.6 (6.1)	7.0 (8.8)	9.9 (12.4)	11.3 (13.0)	16.0 (18.6)				
16	10.7 (6.1)	15.2 (8.7)	90.6 (234.0)	129.0 (333.0)	26.7 (45.5)	38.1 (64.6)				
17	5.5 (8.5)	7.7 (12.0)	41.9 (81.9)	62.1 (122.0)	11.6 (22.6)	16.5 (32.1)				
18	8.1 (5.7)	13.6 (7.9)								
19	6.7 (8.4)	9.6 (11.9)	9.7 (34.3)	13.7 (48.7)						
20	3.5 (6.8)	4.9 (9.7)	1.1 (1.0)	1.7 (1.5)	29.9 (57.7)	42.7 (82.2)				
21	1.0 (0.7)	1.4 (1.0)	1.4 (1.5)	2.0 (2.2)	5.3 (7.1)	7.8 (10.4)				
22	2.5 (2.7)	3.6 (3.8)	3.9 (5.1)	5.8 (7.5)	3.5 (7.0)	5.1 (10.4)				
23	1.4 (0.7)	1.9 (1.0)	45.2 (75.7)	66.9 (112.0)	8.5 (9.0)	12.6 (13.3)				
24	1.8 (1.1)	2.5 (1.6)	8.5 (13.7)	12.6 (20.4)	49.0 (57.3)	72.3 (84.8)				
25	1.8 (1.5)	2.5 (2.1)			24.4 (31.3)	36.3 (46.6)				
26	2.8 (2.5)	4.0 (3.5)	2.5 (1.7)	3.7 (2.5)	4.5 (9.6)	6.6 (14.3)				
27	2.0 (1.0)	2.9 (1.5)	7.0 (7.8)	10.3 (11.6)	14.5 (17.0)	21.1 (25.2)	28.3 (40.4)	41.9 (60.1)		
28	6.2 (5.3)	8.7 (7.5)								
29	5.8 (7.3)	8.2 (10.3)	17.1 (24.9)	24.3 (35.4)	19.9 (39.6)	28.3 (56.3)				
30	8.7 (13.8)	12.4 (19.6)	14.7 (13.5)	20.9 (19.1)	21.2 (53.9)	30.2 (76.7)				
31	8.8 (17.9)	12.5 (25.4)	23.9 (31.1)	34.0 (44.2)						
Avg	5.6	8.0	20.1	31.7	20.7	30.4				
n	27	27	23	20	19	18	1	1	0	0
SD	6.4	9.2	26.4	39.7	16.5	24.1				
Min	1.0	1.4	1.1	1.7	3.5	5.1				
Max	35.4	50.4	100.0	142.0	62.1	88.3				

Table F6. Daily means (SD) of H2S concentrations at site WA5B for February, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	5.8 (7.2)	8.3 (10.2)	6.1 (8.3)	8.7 (11.7)	16.9 (28.7)	24.0 (40.9)				
2	3.2 (4.1)	4.6 (5.9)	5.4 (3.4)	7.7 (4.9)	5.2 (4.7)	7.3 (6.6)				
3	5.1 (4.3)	7.2 (6.1)	17.0 (23.6)	24.2 (33.5)	10.2 (9.3)	14.4 (13.2)				
4	3.6 (2.8)	5.1 (4.0)	26.4 (27.7)	37.5 (39.3)	21.2 (15.7)	30.1 (22.3)				
5	2.2 (1.4)	3.1 (2.0)	11.4 (9.7)	16.1 (13.8)	32.2 (59.2)	45.7 (84.2)				
6	8.0 (10.2)	11.4 (14.4)	15.1 (18.1)	21.5 (25.7)	16.5 (19.8)	23.5 (28.2)				
7	1.4 (2.2)	2.0 (3.1)	1.7 (1.9)	2.4 (2.7)	2.9 (5.3)	4.2 (7.6)				
8	4.7 (4.6)	6.7 (6.6)	11.8 (24.5)	16.9 (35.0)	8.2 (11.1)	11.8 (15.8)				
9	1.6 (1.1)	2.3 (1.5)								
10	2.5 (1.0)	3.6 (1.4)	3.8 (3.0)	5.5 (4.3)	6.6 (9.4)	9.4 (13.4)				
11	3.3 (2.4)	4.7 (3.4)	4.6 (8.1)	6.6 (11.6)	6.5 (19.1)	9.3 (27.2)				
12	5.0 (4.5)	7.0 (6.4)	31.6 (48.8)	44.9 (69.4)	10.8 (15.4)	15.4 (21.9)				
13	3.9 (3.5)	5.5 (4.9)	4.1 (3.9)	5.9 (5.6)	19.5 (36.1)	27.7 (51.3)				
14	10.0 (9.7)									
15	2.5 (2.4)	3.5 (3.5)	13.8 (15.2)	19.7 (21.6)	15.8 (20.7)	22.5 (29.4)				
16	12.1 (11.3)	17.2 (16.1)								
17	1.3 (0.8)	1.8 (1.1)			3.4 (3.9)	4.8 (5.6)				
18	2.7 (1.3)	3.9 (1.8)	19.3 (39.2)	27.4 (55.7)	7.1 (9.5)	10.0 (13.4)				
19	4.6 (5.6)	6.6 (8.0)	3.6 (19.1)	5.2 (27.2)	11.0 (16.3)	15.7 (23.2)				
20	3.1 (2.1)	4.4 (3.0)	10.7 (14.6)	15.2 (20.7)	4.3 (9.6)	6.1 (13.6)				
21	2.5 (1.5)	3.6 (2.2)			6.8 (4.8)	9.9 (6.9)				
22	4.0 (3.7)	5.7 (5.3)	4.6 (3.8)	6.5 (5.4)						
23	1.8 (1.7)	2.5 (2.5)	6.9 (8.9)	9.8 (12.6)	8.9 (11.7)	12.7 (16.6)	5.1 (4.6)	7.3 (6.5)		
24	3.8 (3.1)	5.5 (4.3)	5.7 (6.4)	8.1 (9.2)	6.4 (9.9)	9.1 (14.0)	7.8 (21.0)	11.1 (29.9)		
25	3.1 (4.3)	4.4 (6.1)			6.7 (9.7)	9.5 (13.8)				
26	15.9 (16.5)	22.7 (23.5)	5.7 (6.4)	8.1 (9.1)	8.4 (9.2)	12.0 (13.0)				
27	5.2 (7.3)	7.4 (10.4)	22.7 (30.7)	32.3 (43.7)	6.4 (6.7)	9.2 (9.6)				
28	8.2 (10.3)	11.7 (14.6)	12.1 (17.8)	17.2 (25.2)	2.7 (1.9)	3.9 (2.7)				
29	2.1 (0.8)	3.0 (1.1)	11.1 (11.6)	15.8 (16.6)	7.5 (10.7)	10.8 (15.4)				
Avg	4.6	6.3	11.1	15.8	10.1	14.4	6.5	9.2		
n	29	28	23	23	25	25	2	2	0	0
SD	3.3	4.6	7.7	11.0	6.7	9.5	1.4	1.9		
Min	1.3	1.8	1.7	2.4	2.7	3.9	5.1	7.3		
Max	15.9	22.7	31.6	44.9	32.2	45.7	7.8	11.1		

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for March, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	1.8 (1.0)	2.5 (1.4)	2.3 (1.8)	3.3 (2.5)	2.7 (1.9)	3.8 (2.6)				
2	6.9 (5.8)	9.8 (8.2)	6.4 (6.5)	9.0 (9.2)						
3	2.3 (1.8)	3.2 (2.6)	2.0 (4.2)	2.8 (6.0)	4.7 (10.9)	6.7 (15.5)				
4	1.8 (2.0)	2.5 (2.8)	1.3 (1.2)	1.8 (1.8)	2.2 (1.7)	3.1 (2.5)				
5	2.1 (1.3)	3.0 (1.8)	5.6 (4.8)	7.9 (6.8)						
6	3.8 (2.7)	5.4 (3.8)	8.5 (11.1)	12.0 (15.7)	17.5 (18.6)	24.9 (26.5)				
7	2.5 (1.7)	3.5 (2.4)	5.5 (4.4)	7.7 (6.2)	4.2 (3.0)	5.9 (4.2)				
8	5.7 (6.3)	8.1 (9.0)	3.6 (6.0)	5.1 (8.5)	7.2 (8.1)	10.2 (11.4)				
9	3.1 (2.8)	4.5 (4.0)	12.0 (19.2)	17.0 (27.2)	7.0 (9.0)	10.0 (12.8)				
10	2.4 (2.9)	3.4 (4.1)	12.1 (19.3)	17.1 (27.4)						
11	1.4 (0.9)	1.9 (1.3)	3.5 (4.3)	5.0 (6.1)	3.3 (6.4)	4.7 (9.1)				
12	1.8 (1.9)	2.7 (2.7)	4.3 (3.2)	5.6 (4.1)						
13	2.3 (1.3)	3.2 (1.9)	2.5 (1.4)	3.6 (1.9)	3.6 (3.2)	5.1 (4.6)				
14	2.4 (1.6)	3.5 (2.2)	4.7 (6.3)	6.7 (9.0)	5.9 (10.7)	8.3 (15.2)	11.1 (14.1)	15.8 (20.1)		
15	2.4 (1.2)	3.4 (1.7)	11.6 (8.5)	16.5 (12.1)	8.0 (6.7)	11.4 (9.5)	17.3 (34.1)	24.5 (48.4)		
16	3.2 (1.3)	4.6 (1.8)	8.3 (7.9)	11.8 (11.3)	4.1 (3.1)	5.8 (4.4)	8.4 (10.7)	11.9 (15.2)		
17	2.3 (0.9)	3.2 (1.3)	6.2 (7.8)	8.8 (11.1)	4.4 (5.9)	6.3 (8.3)	14.8 (15.5)	21.0 (22.1)		
18	5.0 (5.5)	7.1 (7.8)	6.7 (7.0)	9.6 (10.0)	3.5 (3.0)	5.0 (4.3)				
19	3.3 (2.4)	4.7 (3.5)			4.6 (3.7)	6.6 (5.2)	21.1 (39.6)	29.9 (56.3)		
20	3.7 (3.5)	5.2 (5.0)	2.8 (2.0)	4.0 (2.8)	4.5 (4.0)	6.3 (5.6)	11.0 (15.6)	15.6 (22.2)		
21	1.5 (0.9)	2.2 (1.3)	2.5 (1.9)	3.5 (2.7)	2.4 (1.7)	3.4 (2.3)	7.3 (15.2)	10.4 (21.6)		
22	1.4 (0.5)	2.1 (0.8)			2.6 (2.4)	3.7 (3.4)	10.5 (13.2)	14.9 (18.7)		
23	1.4 (0.6)	2.0 (0.8)	6.8 (8.4)	9.7 (12.0)	3.6 (3.0)	5.2 (4.2)				
24	5.1 (8.6)	7.3 (12.2)	8.7 (16.4)	12.4 (23.3)	4.8 (9.7)	6.8 (13.7)	6.0 (7.4)	8.6 (10.5)		
25	2.0 (2.5)	2.8 (3.6)			3.7 (3.5)	5.2 (5.0)	9.9 (16.5)	14.0 (23.5)		
26	1.4 (0.7)	2.0 (1.0)	4.9 (4.9)	6.9 (6.9)	1.9 (1.6)	2.7 (2.3)	14.0 (22.2)	19.9 (31.5)		
27	2.1 (2.4)	3.0 (3.4)	2.4 (14.2)	3.4 (20.4)	3.2 (2.8)	4.4 (4.0)	5.0 (4.4)	7.2 (6.3)		
28	3.9 (5.3)	5.6 (7.5)	7.8 (8.3)	11.0 (11.7)	1.9 (2.1)	2.7 (2.9)	11.7 (11.5)	16.6 (16.3)		
29	1.8 (2.0)	2.6 (2.8)					8.6 (14.8)	12.2 (21.0)		
30	1.0 (0.8)	1.4 (1.1)	3.8 (3.7)	5.4 (5.2)	4.7 (8.8)	6.7 (12.4)	3.4 (6.9)	4.9 (9.8)		
31	5.2 (4.7)	7.4 (6.7)					16.1 (30.0)	22.8 (42.6)		
Avg	2.8	4.0	5.6	8.0	4.6	6.6	11.0	15.6		
n	31	31	26	26	25	25	16	16	0	0
SD	1.5	2.1	3.1	4.4	3.1	4.3	4.6	6.5		
Min	1.0	1.4	1.3	1.8	1.9	2.7	3.4	4.9		
Max	6.9	9.8	12.1	17.1	17.5	24.9	21.1	29.9		

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for April, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	6.1 (9.8)	8.6 (13.9)	3.0 (2.6)	4.3 (3.7)			3.7 (5.0)	5.2 (7.1)	7.4 (13.6)	10.5 (19.3)
2	7.6 (7.5)	10.7 (10.6)					11.1 (11.9)	15.8 (16.9)	6.8 (6.5)	9.7 (9.2)
3	5.0 (2.8)	7.0 (3.9)	8.3 (8.9)	11.8 (12.7)			5.5 (3.2)	7.8 (4.6)	17.5 (33.2)	24.9 (47.1)
4	10.0 (6.7)	14.2 (9.5)	8.8 (10.7)	12.4 (15.2)	5.1 (6.7)	7.2 (9.5)	10.0 (17.2)	14.2 (24.3)	6.5 (4.9)	9.2 (6.9)
5	10.3 (11.5)	14.6 (16.3)			6.8 (9.6)	9.7 (13.6)	11.1 (13.7)	15.7 (19.4)	23.0 (38.4)	32.7 (54.5)
6	3.4 (4.4)	4.8 (6.2)	3.4 (1.5)	4.8 (2.2)	4.5 (4.6)	6.4 (6.5)	11.8 (28.5)	16.8 (40.4)	3.3 (2.8)	4.7 (4.0)
7	6.0 (9.6)	8.6 (13.7)	22.6 (24.0)	32.1 (34.1)	14.2 (15.2)	20.2 (21.6)	13.6 (16.0)	19.3 (22.7)	20.7 (25.4)	29.4 (36.1)
8	14.3 (16.6)	20.3 (23.6)	9.3 (18.8)	13.1 (26.7)	14.2 (8.8)	20.1 (12.5)	38.2 (56.0)	54.2 (79.5)	11.2 (12.4)	15.8 (17.5)
9	1.8 (0.8)	2.5 (1.1)	18.4 (27.1)	26.1 (38.5)	21.3 (45.6)	30.2 (64.8)	9.3 (11.3)	13.2 (16.0)	32.8 (60.5)	46.6 (85.9)
10	3.3 (2.7)	4.7 (3.8)	9.0 (11.9)	12.7 (16.8)	6.8 (4.9)	9.6 (7.0)	40.1 (89.8)	57.0 (128.0)	13.4 (19.1)	19.0 (27.1)
11	6.3 (6.1)	8.9 (8.7)	4.0 (3.5)	5.7 (4.9)	6.8 (8.1)	9.6 (11.5)	6.3 (14.0)	9.0 (19.9)	21.5 (33.6)	30.5 (47.7)
12	12.0 (13.1)	17.0 (18.6)					35.8 (53.8)	50.8 (76.4)	12.2 (12.0)	17.3 (17.1)
13	15.0 (9.1)	21.3 (13.0)	17.4 (15.2)	24.7 (21.6)	28.7 (48.6)	40.9 (69.1)	31.5 (28.6)	44.8 (40.6)	44.2 (84.1)	62.9 (120.0)
14	7.0 (6.3)	10.0 (9.0)	9.8 (11.6)	13.9 (16.4)	10.9 (19.5)	15.5 (27.7)	17.4 (21.2)	24.8 (30.1)	4.3 (2.3)	6.1 (3.3)
15	5.8 (3.5)	8.2 (5.0)	5.3 (3.9)	7.6 (5.6)	17.4 (24.0)	24.7 (34.1)	40.1 (93.4)	56.9 (132.0)	17.1 (25.5)	24.3 (36.2)
16	12.3 (10.1)	17.4 (14.4)	4.0 (3.6)	5.7 (5.1)			21.8 (44.1)	31.0 (62.6)	3.8 (2.1)	5.4 (3.0)
17	5.9 (6.6)	8.3 (9.3)	9.2 (13.0)	13.1 (18.5)			4.2 (7.0)	5.9 (9.9)	7.6 (6.7)	10.8 (9.5)
18	7.2 (7.4)	10.2 (10.5)	4.1 (3.7)	5.8 (5.2)	2.9 (2.1)	4.1 (2.9)	6.7 (10.3)	9.6 (14.6)	5.1 (5.1)	7.2 (7.3)
19	4.2 (5.7)	6.0 (8.1)					5.0 (4.5)	7.2 (6.4)	25.2 (53.7)	35.8 (76.3)
20	7.9 (9.3)	11.1 (13.2)	4.1 (3.6)	5.8 (5.1)	4.3 (3.1)	6.1 (4.4)	10.1 (14.6)	14.3 (20.7)	12.1 (14.9)	17.1 (21.2)
21	2.6 (4.8)	3.7 (6.9)			4.7 (4.2)	6.7 (6.0)	10.8 (9.0)	15.3 (12.7)	15.8 (19.1)	22.5 (27.1)
22	9.2 (8.6)	13.1 (12.2)	7.6 (11.7)	10.8 (16.7)	8.5 (12.2)	12.0 (17.3)	15.8 (24.1)	22.4 (34.2)	5.6 (6.0)	8.0 (8.5)
23	0.9 (0.9)	1.3 (1.3)	5.6 (5.0)	7.9 (7.0)	10.0 (13.3)	14.2 (18.9)	3.7 (3.1)	5.3 (4.4)	13.4 (26.5)	19.0 (37.7)
24	6.9 (5.3)	9.8 (7.5)								
25	21.0 (18.9)	29.7 (26.8)								
26	35.4 (33.2)	50.2 (47.1)	16.9 (21.3)	24.0 (30.2)	32.8 (38.6)	46.6 (54.8)	201.0 (520.0)	286.0 (738.0)	87.3 (159.0)	124.0 (225.0)
27	23.0 (21.9)	32.6 (31.1)	24.9 (24.8)	35.4 (35.2)	32.7 (31.6)	46.4 (44.9)	42.8 (49.5)	60.8 (70.2)	129.0 (325.0)	184.0 (462.0)
28	9.9 (5.3)	14.1 (7.6)	22.7 (24.6)	32.3 (35.0)	25.0 (24.3)	35.5 (34.5)	65.3 (137.0)	92.8 (194.0)	78.7 (141.0)	112.0 (200.0)
29	10.2 (5.9)	14.4 (8.4)	15.2 (9.9)	21.6 (14.0)	22.1 (15.1)	31.3 (21.5)	60.1 (130.0)	85.4 (184.0)	26.0 (32.6)	36.9 (46.3)
30	27.6 (26.6)	39.2 (37.8)	14.0 (11.2)	19.9 (15.8)	50.1 (56.5)	71.2 (80.2)	62.4 (147.0)	88.6 (209.0)	70.0 (101.0)	99.3 (144.0)
Avg	9.9	14.1	10.8	15.3	15.7	22.3	28.4	40.3	25.8	36.6
n	30	30	23	23	21	21	28	28	28	28
SD	7.7	10.9	6.7	9.5	12.2	17.3	38.1	54.1	29.6	42.0
Min	0.9	1.3	3.0	4.3	2.9	4.1	3.7	5.2	3.3	4.7
Max	35.4	50.2	24.9	35.4	50.1	71.2	201.0	286.0	129.0	184.0

Table F6. Daily means (SD) of H2S concentrations at site WA5B for May, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1										
2										
3										
4										
5										
6										
7	9.7 (3.2)	13.8 (4.6)	28.3 (32.2)	40.2 (45.8)	21.1 (17.6)	30.0 (24.9)	22.3 (30.8)	31.7 (43.7)	30.9 (45.8)	43.9 (65.1)
8	18.5 (13.8)	26.3 (19.5)			16.1 (11.0)	22.9 (15.6)	11.7 (6.3)	16.6 (8.9)	15.1 (12.0)	21.4 (17.1)
9	10.5 (7.0)	14.9 (9.9)	9.4 (11.6)	13.4 (16.5)	16.3 (14.0)	23.2 (19.9)	20.3 (32.5)	28.9 (46.2)	45.8 (92.8)	65.0 (132.0)
10	12.0 (5.0)	17.0 (7.0)			89.7 (102.0)	127.0 (146.0)	46.0 (62.0)	65.4 (88.2)	56.5 (68.2)	80.2 (96.9)
11	25.8 (33.8)	36.7 (48.0)	23.4 (32.0)	33.3 (45.4)	19.7 (18.0)	28.0 (25.6)	36.6 (70.3)	51.9 (99.8)	39.4 (51.1)	56.0 (72.6)
12	7.2 (5.9)	10.2 (8.3)	24.0 (26.9)	34.1 (38.3)	18.4 (16.7)	26.1 (23.7)	16.9 (9.0)	23.9 (12.8)	41.0 (67.6)	58.3 (96.1)
13	14.3 (10.2)	20.3 (14.4)			27.0 (41.6)	38.3 (59.1)	114.0 (294.0)	161.0 (418.0)	31.7 (29.5)	45.1 (41.9)
14	44.5 (58.7)	63.3 (83.5)	18.4 (14.2)	26.2 (20.2)	68.1 (89.9)	96.8 (128.0)	13.0 (5.8)	18.5 (8.2)	29.1 (23.5)	41.4 (33.5)
15	14.2 (10.3)	20.2 (14.7)	14.9 (13.5)	21.2 (19.2)	18.3 (19.0)	26.1 (27.0)	69.1 (178.0)	98.3 (254.0)	17.0 (18.1)	24.2 (25.8)
16										
17										
18										
19										
20										
21	6.8 (2.4)	9.7 (3.3)	7.7 (2.6)	10.9 (3.7)	9.7 (6.7)	13.8 (9.4)	7.5 (3.0)	10.6 (4.2)	11.3 (8.4)	16.0 (11.9)
22	7.7 (4.4)	10.9 (6.2)	7.9 (4.5)	11.3 (6.4)	13.2 (14.9)	18.8 (21.2)	7.5 (2.2)	10.7 (3.2)	13.8 (5.8)	19.6 (8.3)
23	8.9 (2.4)	12.6 (3.4)	12.0 (6.6)	17.1 (9.3)	11.6 (6.8)	16.5 (9.6)	22.5 (38.8)	32.0 (55.2)		
24	9.6 (3.9)	13.7 (5.5)			41.5 (46.0)	59.0 (65.4)	14.8 (13.1)	21.1 (18.6)		
25	18.9 (29.1)	26.8 (41.3)	14.9 (19.5)	21.2 (27.7)	22.9 (26.3)	32.6 (37.4)	10.8 (4.0)	15.3 (5.7)		
26	14.4 (11.7)	20.5 (16.6)	13.3 (7.8)	19.0 (11.1)	32.5 (72.0)	46.3 (102.0)	9.9 (2.3)	14.1 (3.3)		
27	9.5 (2.6)	13.5 (3.7)	9.1 (5.2)	13.0 (7.4)	14.9 (19.1)	21.2 (27.2)	9.9 (3.7)	14.0 (5.2)	15.2 (4.7)	21.6 (6.7)
28	12.0 (4.0)	17.1 (5.6)	23.4 (30.5)	33.3 (43.4)	13.5 (5.1)	19.3 (7.3)	12.8 (3.2)	18.2 (4.5)		
29	7.1 (1.8)	10.1 (2.6)	10.6 (7.8)	15.1 (11.1)	23.1 (25.2)	32.8 (35.9)	36.1 (66.7)	51.4 (94.8)	16.2 (12.5)	23.0 (17.8)
30	18.0 (21.3)	25.5 (30.3)	8.4 (6.9)	11.9 (9.7)	26.2 (67.5)	37.2 (95.9)	6.7 (2.1)	9.6 (3.0)	33.5 (74.7)	47.6 (106.0)
31	10.7 (6.6)	15.2 (9.4)	12.9 (7.6)	18.4 (10.9)	20.3 (19.3)	28.8 (27.5)	11.5 (3.1)	16.3 (4.5)	19.2 (15.7)	27.2 (22.3)
Avg	14.0	19.9	14.9	21.2	26.2	37.3	25.0	35.5	27.7	39.4
n	20	20	16	16	20	20	20	20	15	15
SD	8.5	12	6.4	9.1	19.3	27.4	25.5	36.2	13.2	18.8
Min	6.8	9.7	7.7	10.9	9.7	13.8	6.7	9.6	11.3	16.0
Max	44.5	63.3	28.3	40.2	89.7	127.0	114.0	161.0	56.5	80.2

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for June, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	6.7 (2.3)	9.5 (3.3)	18.1 (17.4)	25.8 (24.7)	43.4 (73.4)	61.7 (104.0)	9.8 (5.0)	13.9 (7.1)	48.2 (104.0)	68.5 (148.0)
2	14.4 (17.0)	20.4 (24.1)	18.1 (28.4)	25.7 (40.3)	12.1 (12.2)	17.2 (17.3)	44.8 (70.3)	63.6 (99.8)	14.3 (7.9)	20.3 (11.2)
3	6.9 (2.7)	9.8 (3.9)	39.0 (96.7)	55.4 (137.0)	23.9 (31.8)	33.9 (45.2)	9.9 (3.2)	14.1 (4.5)	56.9 (133.0)	80.9 (189.0)
4	7.2 (5.8)	10.3 (8.2)	5.8 (2.3)	8.2 (3.3)	7.8 (2.1)	11.1 (3.0)	8.8 (4.1)	12.5 (5.8)		
5	37.2 (46.2)	52.9 (65.7)	17.4 (31.6)	24.8 (44.9)	20.1 (24.0)	28.5 (34.2)	28.0 (35.3)	39.8 (50.1)		
6	10.9 (5.6)	15.5 (7.9)	14.2 (10.7)	20.1 (15.2)	7.4 (3.1)	10.5 (4.5)	8.8 (3.6)	12.5 (5.1)	20.9 (43.1)	29.7 (61.2)
7	17.5 (14.4)	24.9 (20.5)	11.5 (15.8)	16.4 (22.4)	33.3 (68.2)	47.3 (96.8)	22.5 (33.9)	32.0 (48.2)	25.7 (23.7)	36.6 (33.6)
8	6.9 (5.5)	9.8 (7.9)	29.8 (28.4)	42.4 (40.3)	19.4 (21.7)	27.6 (30.8)	15.0 (11.8)	21.4 (16.8)	46.1 (84.7)	65.5 (120.0)
9	18.0 (12.9)	25.6 (18.4)	14.2 (9.8)	20.1 (14.0)	29.7 (45.3)	42.2 (64.4)	27.2 (34.1)	38.7 (48.4)	35.9 (54.7)	51.0 (77.7)
10	11.3 (12.5)	16.1 (17.8)	23.0 (20.0)	32.6 (28.4)			14.3 (10.0)	20.4 (14.3)	26.7 (26.7)	38.0 (37.9)
11	19.1 (11.4)	27.1 (16.2)	7.9 (2.2)	11.2 (3.1)	11.3 (10.8)	16.1 (15.3)	39.3 (63.4)	55.8 (90.0)		
12	7.8 (2.8)	11.1 (3.9)	13.7 (9.0)	19.5 (12.8)			16.1 (16.9)	22.9 (23.9)	18.9 (18.0)	26.8 (25.6)
13	6.8 (4.5)	9.6 (6.4)	10.1 (5.8)	14.3 (8.2)	8.8 (6.7)	12.5 (9.5)	8.7 (2.8)	12.3 (4.0)	12.8 (8.3)	18.2 (11.8)
14	6.6 (1.5)	9.3 (2.1)	7.8 (5.0)	11.1 (7.1)			52.5 (132.0)	74.6 (187.0)	11.4 (8.3)	16.2 (11.8)
15	14.2 (14.0)	20.2 (19.8)	12.4 (13.1)	17.6 (18.6)	19.5 (19.0)	27.7 (27.0)	9.1 (4.8)	13.0 (6.8)	16.2 (9.0)	23.0 (12.8)
16	11.1 (14.0)	15.7 (19.9)	10.6 (9.1)	15.1 (12.9)	28.4 (45.0)	40.4 (64.0)	78.6 (191.0)	112.0 (271.0)	15.5 (10.4)	22.0 (14.7)
17	6.2 (2.5)	8.8 (3.6)	10.4 (12.0)	14.8 (17.1)	10.2 (8.6)	14.5 (12.2)	8.8 (5.4)	12.6 (7.7)	17.9 (16.9)	25.5 (24.0)
18	7.2 (3.8)	10.2 (5.3)					31.0 (54.4)	44.0 (77.3)	15.1 (7.3)	21.5 (10.3)
19	13.0 (5.7)	18.4 (8.1)	20.1 (14.7)	28.6 (20.8)	31.1 (33.3)	44.1 (47.3)	30.9 (45.9)	44.0 (65.2)	54.9 (85.5)	77.9 (121.0)
20	19.5 (20.5)	27.8 (29.2)	20.2 (39.1)	28.7 (55.5)	62.3 (76.3)	88.5 (108.0)	129.0 (313.0)	184.0 (445.0)	69.5 (65.8)	98.7 (93.5)
21	19.0 (25.5)	27.0 (36.2)	52.5 (99.6)	74.7 (142.0)	38.9 (41.9)	55.3 (59.6)	53.4 (69.9)	76.0 (99.4)	54.9 (86.4)	78.1 (123.0)
22	5.0 (2.2)	7.2 (3.1)	12.7 (11.2)	18.0 (15.9)	15.2 (17.4)	21.6 (24.7)	23.5 (42.1)	33.4 (59.8)		
23	18.6 (15.4)	26.5 (21.8)	21.0 (21.2)	29.8 (30.1)	42.4 (78.3)	60.3 (111.0)	14.8 (9.6)	21.0 (13.7)	23.2 (38.7)	33.0 (55.1)
24	19.3 (26.8)	27.4 (38.1)	12.3 (8.4)	17.5 (11.9)	18.0 (21.7)	25.6 (30.9)	25.1 (38.1)	35.7 (54.2)	77.3 (173.0)	110.0 (247.0)
25	20.3 (18.9)	28.9 (26.8)	11.0 (7.1)	15.7 (10.1)	34.6 (48.8)	49.1 (69.3)	14.3 (18.9)	20.3 (26.9)	87.3 (214.0)	124.0 (304.0)
26	8.8 (7.9)	12.5 (11.2)	16.8 (18.7)	24.0 (26.7)	17.3 (23.4)	24.6 (33.3)	52.8 (116.0)	75.0 (165.0)	82.1 (191.0)	117.0 (271.0)
27	16.2 (9.8)	23.1 (13.9)	22.9 (26.9)	32.6 (38.2)	31.5 (42.2)	44.8 (60.0)	16.9 (12.2)	24.0 (17.4)	40.6 (65.6)	57.8 (93.3)
28	17.0 (11.3)	24.2 (16.1)	20.2 (14.7)	28.8 (20.9)	26.4 (21.9)	37.6 (31.2)	123.0 (286.0)	175.0 (407.0)	110.0 (161.0)	156.0 (229.0)
29	30.5 (30.4)	43.4 (43.2)	34.8 (57.0)	49.6 (81.1)	23.9 (21.8)	34.1 (31.0)	29.6 (39.8)	42.1 (56.5)	42.3 (44.9)	60.2 (63.9)
30	15.5 (11.1)	22.0 (15.8)	12.5 (10.1)	17.8 (14.4)	18.3 (20.4)	26.0 (29.0)	69.3 (157.0)	98.6 (223.0)	50.3 (96.9)	71.6 (138.0)
Avg	14.0	19.8	18.0	25.5	24.4	34.7	33.9	48.1	41.3	58.8
n	30	30	29	29	26	26	30	30	26	26
SD	7.3	10.4	10.0	14.3	12.8	18.2	30.7	43.7	26.3	37.4
Min	5.0	7.2	5.8	8.2	7.4	10.5	8.7	12.3	11.4	16.2
Max	37.2	52.9	52.5	74.7	62.3	88.5	129.0	184.0	110.0	156.0

Table F6. Daily means (SD) of H2S concentrations at site WA5B for July, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	26.0 (11.2)	37.1 (15.9)	23.5 (21.6)	33.5 (30.8)	40.1 (26.5)	57.1 (37.8)				
2	16.8 (16.8)	23.9 (23.9)			22.4 (23.4)	31.9 (33.3)				
3	21.5 (15.4)	30.6 (22.0)	16.7 (19.6)	23.8 (27.9)	34.7 (43.2)	49.4 (61.5)				
4	10.7 (5.0)	15.2 (7.2)	12.6 (10.5)	17.9 (14.9)	34.2 (52.6)	48.6 (74.9)				
5	121.0 (42.0)									
6	34.9 (25.7)									
7	22.0 (29.1)	31.3 (41.4)	9.8 (5.7)	14.0 (8.1)	13.3 (10.9)	18.9 (15.5)				
8	10.0 (5.0)	14.2 (7.0)	20.5 (21.9)	29.1 (31.2)	17.2 (22.8)	24.5 (32.5)				
9	15.9 (13.8)	22.6 (19.6)	22.1 (20.2)	31.4 (28.7)	19.3 (24.6)	27.5 (35.0)				
10	48.4 (47.5)	68.8 (67.6)	42.1 (53.3)	59.9 (75.8)	9.4 (9.7)	13.4 (13.7)				
11	8.4 (3.4)	11.9 (4.9)	50.6 (66.9)	71.9 (95.0)	48.4 (78.4)	68.8 (111.0)				
12	33.6 (52.6)	47.7 (74.8)	78.1 (103.0)	111.0 (146.0)	71.6 (87.8)	102.0 (125.0)				
13	54.2 (39.1)	77.1 (55.6)	44.8 (36.4)	63.7 (51.8)	37.3 (34.3)	53.0 (48.7)				
14	60.5 (82.2)	86.0 (117.0)			67.3 (82.9)	95.7 (118.0)				
15	49.3 (37.2)	70.1 (53.0)	52.1 (71.0)	74.1 (101.0)	44.4 (39.9)	63.1 (56.7)				
16	9.7 (5.1)	13.8 (7.3)	27.0 (32.0)	38.3 (45.5)	25.5 (32.9)	36.3 (46.8)				
17	33.3 (19.2)	47.3 (27.4)	32.7 (26.9)	46.5 (38.4)	29.8 (29.4)	42.5 (41.9)				
18	48.0 (15.8)	68.3 (22.4)	47.7 (13.9)	67.9 (19.7)	75.9 (64.2)	108.0 (91.2)				
19	98.8 (66.3)	141.0 (94.3)	143.0 (244.0)	204.0 (347.0)	76.6 (55.9)	109.0 (79.6)				
20	57.5 (28.4)	81.7 (40.3)	71.2 (81.0)	101.0 (115.0)	61.7 (22.7)	87.7 (32.3)				
21	67.1 (18.2)	95.4 (25.8)	78.9 (46.3)	112.0 (65.8)	64.5 (48.4)	91.7 (68.9)				
22	54.9 (20.9)	78.1 (29.7)	47.7 (9.9)	67.9 (14.1)	80.5 (67.3)	115.0 (95.8)				
23	55.1 (25.1)	78.4 (35.7)	47.0 (11.3)	66.9 (16.1)	53.8 (14.4)	76.5 (20.4)	47.5 (6.7)	67.5 (9.6)		
24	65.5 (21.1)	93.1 (30.0)	70.7 (39.0)	101.0 (55.5)	79.9 (48.4)	114.0 (68.9)	71.8 (26.1)	102.0 (37.2)		
25	121.0 (30.9)	173.0 (44.0)	114.0 (21.9)	162.0 (31.2)			124.0 (34.6)	176.0 (49.1)		
26	106.0 (19.5)	151.0 (27.7)	104.0 (17.0)	148.0 (24.2)	143.0 (112.0)	203.0 (159.0)	135.0 (68.0)	192.0 (96.7)		
27	139.0 (44.7)	197.0 (63.6)	111.0 (20.8)	157.0 (29.6)	118.0 (25.0)	168.0 (35.5)	100.0 (8.1)	143.0 (11.4)		
28	126.0 (50.2)	180.0 (71.3)	113.0 (28.8)	161.0 (40.9)	113.0 (18.8)	161.0 (26.7)	133.0 (45.8)	189.0 (65.2)		
29	130.0 (37.0)	185.0 (52.7)	121.0 (36.9)	173.0 (52.4)	111.0 (19.3)	158.0 (27.5)	115.0 (18.9)	163.0 (26.8)		
30	99.5 (5.1)	141.0 (7.3)	105.0 (52.7)	150.0 (74.8)	133.0 (69.8)	189.0 (99.3)	118.0 (26.6)	167.0 (37.8)		
31	97.4 (0.8)									
Avg	59.5	80.7	61.8	87.9	60.2	85.6	105.0	150.0		
n	31	28	26	26	27	27	8	8	0	0
SD	40.3	56.5	38.1	54.2	36.9	52.5	29.0	41.2		
Min	8.4	11.9	9.8	14.0	9.4	13.4	47.5	67.5		
Max	139	197	143.0	204.0	143.0	203.0	135.0	192.0		

Table F6. Daily means (SD) of H2S concentrations at site WA5B for August, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	98.7 (3.3)									
2										
3										
4										
5										
6										
7	73.7 (17.2)									
8	81.9 (4.1)	117.0 (5.9)	87.6 (10.7)	125.0 (15.2)	90.2 (9.8)	128.0 (13.9)				
9	80.0 (3.4)	114.0 (4.8)	86.5 (10.4)	123.0 (14.7)	92.8 (25.5)	132.0 (36.3)				
10	80.4 (2.9)	114.0 (4.2)	88.3 (10.3)	126.0 (14.7)	109.0 (40.8)	155.0 (58.1)				
11	88.7 (8.9)	126.0 (12.6)	87.5 (76.6)	124.0 (109.0)	89.0 (25.5)	127.0 (36.2)				
12	85.3 (4.6)	121.0 (6.5)	127.0 (78.8)	180.0 (112.0)	152.0 (125.0)	216.0 (178.0)				
13	88.0 (7.3)	125.0 (10.3)	101.0 (41.2)	143.0 (58.6)	92.1 (12.0)	131.0 (17.1)				
14	122.0 (31.0)									
15	95.2 (25.7)	136.0 (36.6)	109.0 (52.5)	155.0 (74.7)	99.2 (71.3)	141.0 (101.0)				
16	72.6 (10.2)	103.0 (14.5)	114.0 (76.6)	163.0 (109.0)	121.0 (80.3)	172.0 (114.0)				
17	121.0 (55.6)	172.0 (79.1)	131.0 (104.0)	186.0 (147.0)	112.0 (72.4)	160.0 (103.0)				
18	67.1 (6.8)									
19	63.0 (0.3)									
20	62.1 (2.1)									
21	59.4 (2.8)	84.4 (3.9)	72.6 (21.7)	103.0 (30.8)	62.8 (4.0)	89.2 (5.7)				
22	94.7 (50.2)	138.0 (73.6)								
23	91.1 (44.9)	130.0 (63.9)	118.0 (154.0)	167.0 (219.0)	89.7 (40.3)	128.0 (57.4)				
24	71.7 (11.2)	102.0 (16.0)	88.3 (44.5)	126.0 (63.3)	93.1 (46.9)	132.0 (66.8)				
25	63.6 (6.1)	90.5 (8.7)					68.4 (11.1)	97.3 (15.8)		
26	67.3 (14.9)	95.6 (21.1)								
27										
28										
29										
30										
31										
Avg	82.2	118.0	101.0	143.0	100.0	143.0				
n	21	15	12	12	12	12	1	1	0	0
SD	17.2	21.3	17.7	25.3	20.9	29.8				
Min	59.4	84.4	72.6	103.0	62.8	89.2				
Max	122	172	131.0	186.0	152.0	216.0				

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for September, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1										
2										
3										
4	33.9 (2.3)	48.1 (3.2)	35.4 (4.6)	50.4 (6.6)	35.4 (3.4)	50.3 (4.9)	36.2 (5.6)	51.5 (7.9)		
5	34.2 (1.7)	48.6 (2.5)	35.1 (2.3)	49.9 (3.3)	35.5 (1.6)	50.4 (2.3)	35.2 (1.6)	50.0 (2.3)		
6	35.1 (3.5)	49.9 (4.9)	42.0 (17.0)	59.8 (24.2)	37.7 (6.6)	53.7 (9.4)	36.1 (6.1)	51.3 (8.7)		
7	40.3 (9.3)	57.2 (13.2)	45.6 (17.9)	64.9 (25.4)	49.6 (21.6)	70.5 (30.7)	42.4 (13.8)	60.3 (19.6)		
8	45.0 (21.9)	63.9 (31.1)	42.9 (10.5)	61.0 (14.9)	46.7 (12.1)	66.4 (17.2)	46.6 (17.2)	66.2 (24.4)		
9	41.3 (14.4)	58.6 (20.5)	52.7 (25.9)	75.0 (36.8)	52.5 (19.4)	74.6 (27.5)	43.3 (10.7)	61.5 (15.3)		
10	37.9 (6.0)	53.8 (8.5)	43.2 (9.2)	61.3 (13.0)	53.1 (17.8)	75.4 (25.2)	45.2 (18.7)	64.3 (26.6)		
11	38.5 (1.6)									
12	54.6 (32.5)	79.4 (47.9)	57.3 (33.2)	84.4 (48.4)	76.9 (60.1)	116.0 (87.8)	64.0 (42.9)	94.6 (62.6)		
13	38.7 (11.7)	55.0 (16.6)	39.3 (9.2)	55.8 (13.1)	42.7 (14.4)	60.7 (20.5)	45.7 (18.9)	64.9 (26.8)		
14	71.8 (54.6)	102.0 (77.6)	68.9 (38.3)	97.9 (54.4)	72.8 (35.5)	103.0 (50.5)	52.7 (23.5)	75.0 (33.3)		
15	52.7 (29.5)	74.9 (41.9)	72.8 (48.8)	103.0 (69.3)	84.4 (60.4)	120.0 (85.9)	57.6 (39.3)	81.8 (55.9)		
16	66.2 (50.3)	94.0 (71.5)	60.7 (34.0)	86.2 (48.4)	64.3 (37.4)	91.4 (53.1)	48.6 (15.1)	69.1 (21.4)		
17	51.1 (34.6)									
18	35.7 (2.4)									
19	38.8 (5.1)	55.1 (7.3)	47.9 (17.6)	68.1 (25.0)	44.9 (10.4)	63.8 (14.8)	53.6 (14.3)	76.2 (20.4)		
20	35.4 (2.5)	50.3 (3.6)	38.5 (4.1)	54.7 (5.8)	39.9 (5.4)	56.8 (7.7)	67.4 (50.0)	95.9 (71.1)		
21	35.5 (3.6)	50.4 (5.1)	38.2 (7.0)	54.3 (10.0)	43.7 (16.6)	62.1 (23.6)	49.7 (20.6)	70.6 (29.2)		
22	37.1 (6.5)	52.7 (9.2)	37.5 (7.7)	53.2 (10.9)	42.3 (16.1)	60.1 (22.9)	47.0 (20.9)	66.8 (29.7)		
23	38.9 (9.6)	55.5 (13.8)	42.1 (17.8)	60.2 (25.6)	43.5 (15.0)	62.3 (21.5)	50.1 (15.4)	70.9 (21.9)		
24	38.6 (9.9)	54.9 (14.1)	43.6 (8.9)	61.9 (12.6)	43.4 (9.9)	61.7 (14.1)	43.6 (12.2)	61.8 (17.2)		
25	39.3 (7.0)	55.8 (10.0)	53.8 (16.2)	76.5 (23.1)	51.6 (26.3)	73.4 (37.5)	41.5 (6.8)	58.9 (9.7)		
26	38.7 (13.0)	54.9 (18.5)	44.0 (16.5)	62.6 (23.5)	37.2 (4.4)	52.9 (6.2)	36.6 (2.9)	52.1 (4.1)		
27	38.6 (5.9)	54.9 (8.4)	42.8 (7.2)	60.8 (10.2)	42.2 (7.1)	60.0 (10.1)	45.5 (10.9)	64.7 (15.5)		
28	45.7 (14.8)	64.9 (21.0)	51.0 (13.4)	72.5 (19.0)	59.4 (27.5)	84.4 (39.0)	61.4 (44.8)	87.3 (63.6)		
29	51.9 (29.0)	73.7 (41.2)	64.6 (26.9)	91.8 (38.3)	62.3 (32.3)	88.6 (46.0)	76.3 (61.4)	108.0 (87.3)		
30	45.2 (20.9)	64.3 (29.7)	60.9 (37.7)	86.6 (53.6)	48.9 (17.7)	69.5 (25.1)	48.8 (14.6)	69.4 (20.7)		
Avg	43.0	61.4	48.4	68.9	50.5	72.0	49.0	69.7		
n	27	24	24	24	24	24	24	24	0	0
SD	9.4	13.8	10.6	15.2	13.0	19.1	10.1	14.6		
Min	33.9	48.1	35.1	49.9	35.4	50.3	35.2	50.0		
Max	71.8	102	72.8	103.0	84.4	120.0	76.3	108.0		

Table F6. Daily means (SD) of H2S concentrations at site WA5B for October, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	38.3 (4.5)	54.8 (6.4)	46.4 (13.6)	66.9 (19.4)	53.5 (21.5)	77.2 (31.0)				
2	42.7 (9.5)									
3	44.7 (1.8)									
4	43.8 (1.0)	62.2 (1.4)	44.9 (1.5)	63.8 (2.1)	46.5 (5.1)	66.1 (7.3)	45.4 (3.1)	64.6 (4.4)		
5	45.1 (4.7)	64.0 (6.7)			52.5 (12.6)	74.6 (17.8)	46.9 (2.9)	66.6 (4.1)		
6	48.8 (7.5)	69.4 (10.7)	50.2 (18.0)	71.4 (25.6)	52.5 (8.5)	74.6 (12.0)	49.5 (2.9)	70.4 (4.2)	51.8 (11.1)	73.6 (15.7)
7	45.5 (2.7)	64.6 (3.9)	49.2 (7.9)	69.8 (11.2)	48.2 (10.8)	68.5 (15.4)				
8	55.3 (11.1)	78.5 (15.8)								
9	45.3 (4.5)	64.3 (6.3)	50.0 (8.6)	71.0 (12.2)	56.7 (17.5)	80.6 (24.8)	51.2 (14.2)	72.7 (20.2)	47.1 (4.7)	66.9 (6.7)
10	43.5 (2.7)	61.7 (3.9)			43.7 (2.7)	62.1 (3.8)			43.6 (1.9)	61.9 (2.7)
11	43.8 (2.2)	62.2 (3.2)	50.9 (13.9)	72.3 (19.8)	56.7 (21.2)	80.5 (30.1)				
12	47.8 (5.8)	67.8 (8.3)	84.0 (73.1)	119.0 (104.0)	47.2 (4.6)	67.1 (6.5)	49.5 (9.7)	70.3 (13.8)	45.8 (2.7)	65.1 (3.9)
13	53.4 (14.9)	75.8 (21.1)	66.9 (32.1)	95.1 (45.5)	87.1 (77.1)	124.0 (110.0)			52.1 (10.5)	74.0 (14.9)
14	47.5 (4.2)	67.4 (6.0)								
15	44.5 (20.3)	63.2 (28.8)			68.3 (58.7)	96.9 (83.3)				
16	28.6 (11.5)	41.1 (16.9)	69.5 (71.9)	104.0 (105.0)	48.5 (37.0)	70.0 (53.8)	42.4 (29.6)	60.4 (42.2)	26.3 (9.6)	
17	27.7 (9.8)	39.5 (13.9)	48.8 (29.2)	69.6 (41.6)			37.0 (16.9)	52.9 (24.1)	53.1 (37.7)	75.8 (53.9)
18	47.8 (41.1)	68.1 (58.5)	38.2 (18.7)	54.5 (26.7)	60.5 (56.5)	86.3 (80.8)	50.7 (26.8)	72.3 (38.2)	51.9 (37.0)	74.1 (52.8)
19	26.4 (10.5)	37.5 (15.0)	34.0 (18.5)	48.4 (26.3)	105.0 (90.1)	149.0 (128.0)	33.9 (16.2)	48.3 (23.0)	37.8 (14.0)	53.8 (19.9)
20	27.2 (11.5)	38.7 (16.4)	35.4 (13.5)	50.4 (19.3)	36.0 (19.8)	51.3 (28.2)				
21	23.5 (4.6)	33.4 (6.5)	37.1 (20.3)	52.8 (28.9)	23.8 (5.5)	33.9 (7.9)				
22	47.6 (49.8)	67.8 (70.9)	79.9 (67.1)	114.0 (95.5)	43.1 (25.4)	61.4 (36.1)				
23	29.2 (16.0)	41.5 (22.8)			32.7 (18.8)	46.7 (26.9)				
24	25.1 (10.1)	35.7 (14.3)	24.9 (3.3)	35.5 (4.7)	36.9 (20.6)	52.6 (29.3)	40.4 (20.4)	57.6 (29.0)	34.6 (17.1)	49.4 (24.4)
25	27.0 (11.2)	38.4 (15.9)	40.2 (21.5)	57.3 (30.6)	104.0 (139.0)	148.0 (199.0)	47.9 (37.4)	68.2 (53.2)	58.0 (44.4)	82.6 (63.4)
26	23.1 (5.1)	32.8 (7.3)	25.7 (18.7)	36.6 (26.6)			29.7 (17.2)	42.2 (24.5)	39.6 (32.6)	56.4 (46.5)
27	32.6 (19.5)	46.3 (27.7)	52.5 (45.8)	74.7 (65.2)			49.3 (31.1)	70.1 (44.3)	51.5 (41.5)	73.3 (59.0)
28	34.8 (19.6)	49.5 (27.8)	50.8 (33.7)	72.3 (48.0)	40.2 (36.3)	57.1 (51.6)			36.5 (14.1)	51.9 (20.1)
29	32.3 (21.4)	45.9 (30.4)								
30	31.6 (11.9)	45.0 (16.9)	58.2 (38.1)	83.0 (54.3)	76.8 (67.3)	109.0 (96.1)	58.0 (28.4)	82.7 (40.4)	39.3 (15.9)	56.1 (22.6)
31	29.2 (9.3)	41.6 (13.2)	36.1 (46.5)	51.5 (66.4)	54.1 (44.6)	77.2 (63.5)	34.0 (12.3)	48.5 (17.6)	25.3 (3.2)	36.1 (4.6)
Avg	38.2	53.8	48.8	69.7	55.4	78.9	44.4	63.2	43.4	63.4
n	31	29	22	22	23	23	15	15	16	15
SD	9.6	13.8	15.2	21.9	20.3	28.9	7.6	10.9	9.4	12.2
Min	23.1	32.8	24.9	35.5	23.8	33.9	29.7	42.2	25.3	36.1
Max	55.3	78.5	84.0	119.0	105.0	149.0	58.0	82.7	58.0	82.6

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for November, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	31.9 (21.9)	45.5 (31.2)	46.7 (39.8)	66.7 (56.8)	51.9 (51.3)	74.2 (73.3)			28.6 (14.2)	40.9 (20.3)
2	23.9 (5.0)	34.1 (7.1)	40.3 (25.9)	57.6 (36.8)	80.9 (88.9)	115.0 (127.0)				
3	22.0 (6.0)	31.4 (8.6)	28.7 (12.3)	40.9 (17.5)	68.5 (85.5)	97.7 (122.0)			25.1 (8.2)	35.8 (11.7)
4	20.0 (3.0)	28.5 (4.2)	25.5 (6.3)	36.4 (9.0)	71.8 (90.5)	103.0 (129.0)				
5	24.9 (11.1)	35.5 (15.9)	25.1 (11.6)	35.8 (16.5)						
6	22.2 (3.3)	31.6 (4.7)	27.8 (12.7)	39.6 (18.0)	53.8 (58.6)	76.8 (83.6)	29.4 (11.5)	41.9 (16.5)	130.0 (123.0)	185.0 (175.0)
7	21.0 (2.9)	29.9 (4.1)	22.2 (2.2)	31.7 (3.2)			38.5 (10.9)	54.9 (15.6)	177.0 (143.0)	252.0 (204.0)
8	23.3 (4.5)	33.2 (6.5)			35.9 (38.1)	51.3 (54.3)	28.7 (5.0)	41.0 (7.2)	192.0 (172.0)	274.0 (246.0)
9	33.7 (18.5)	48.0 (26.4)					49.2 (12.8)	70.3 (18.3)	126.0 (120.0)	180.0 (172.0)
10	28.2 (10.5)	40.2 (14.9)	51.3 (41.2)	73.2 (58.8)			36.5 (11.3)	52.0 (16.2)	172.0 (145.0)	245.0 (207.0)
11	27.8 (11.1)	39.7 (15.9)	38.8 (15.6)	55.3 (22.2)	41.9 (11.5)	59.8 (16.4)	38.9 (11.1)	55.6 (15.9)	108.0 (97.6)	154.0 (139.0)
12	21.1 (7.3)	30.2 (10.5)	26.8 (6.8)	38.3 (9.8)	35.1 (24.1)	50.3 (34.5)	21.5 (4.0)	30.8 (5.7)	31.9 (16.6)	45.6 (23.7)
13	21.4 (3.0)	30.5 (4.3)	27.7 (11.9)	39.6 (16.9)	26.1 (17.2)	37.3 (24.7)				
14	38.6 (27.4)	54.9 (39.0)	27.8 (16.0)	39.5 (22.7)	24.8 (11.6)	35.3 (16.5)	51.0 (23.4)	72.6 (33.3)	62.9 (66.0)	89.5 (93.9)
15	27.7 (13.4)	39.5 (19.1)	30.8 (17.7)	43.8 (25.1)	26.1 (12.5)	37.2 (17.8)	86.6 (137.0)	123.0 (195.0)	106.0 (142.0)	150.0 (202.0)
16	22.4 (3.1)	31.9 (4.4)			29.4 (9.8)	41.9 (13.9)	45.2 (14.8)	64.4 (21.0)	86.6 (122.0)	123.0 (174.0)
17	22.5 (4.5)	32.0 (6.4)	76.4 (121.0)	109.0 (173.0)	39.5 (34.9)	56.3 (49.7)	131.0 (205.0)	186.0 (293.0)	86.9 (110.0)	124.0 (156.0)
18	20.7 (3.8)	29.6 (5.3)	35.0 (13.3)	49.9 (19.0)	36.6 (14.6)	52.2 (20.7)	92.1 (127.0)	131.0 (181.0)	69.5 (65.4)	99.0 (93.3)
19	20.8 (4.6)	29.6 (6.6)	36.4 (20.6)	51.8 (29.4)	55.1 (69.6)	78.4 (99.0)	32.0 (34.4)	45.6 (48.9)	64.4 (94.3)	91.7 (134.0)
20	28.8 (13.7)	41.0 (19.4)	28.6 (8.6)	40.7 (12.3)	50.8 (70.4)	72.3 (100.0)			51.6 (42.3)	73.5 (60.2)
21	27.1 (8.0)	38.5 (11.4)	42.2 (38.0)	60.1 (54.1)	32.5 (17.7)	46.2 (25.2)			159.0 (250.0)	227.0 (357.0)
22	49.8 (31.3)	70.8 (44.6)	39.6 (22.8)	56.3 (32.4)			56.6 (37.1)	80.5 (52.8)	119.0 (112.0)	170.0 (160.0)
23	41.7 (35.0)	59.4 (49.7)	35.9 (20.7)	51.1 (29.5)	35.7 (31.8)	50.8 (45.2)	60.3 (61.3)	85.8 (87.2)	71.8 (101.0)	102.0 (144.0)
24	24.9 (7.3)	35.5 (10.4)	36.3 (17.1)	51.6 (24.3)	36.8 (22.0)	52.3 (31.3)	101.0 (112.0)	144.0 (159.0)	110.0 (134.0)	156.0 (191.0)
25	21.1 (4.0)	30.0 (5.6)	29.3 (12.3)	41.7 (17.5)	26.7 (19.7)	37.9 (28.0)	142.0 (206.0)	201.0 (293.0)	72.0 (57.3)	102.0 (81.5)
26	35.5 (29.0)	50.4 (41.3)	29.8 (11.9)	42.4 (16.9)	33.8 (25.6)	48.0 (36.4)	136.0 (218.0)	193.0 (310.0)	78.8 (81.1)	112.0 (115.0)
27	23.4 (7.6)	33.3 (10.7)	45.1 (43.9)	64.2 (62.5)	28.8 (8.9)	41.0 (12.7)	51.8 (62.7)	73.7 (89.3)	85.0 (162.0)	121.0 (231.0)
28	23.3 (6.4)	33.1 (9.1)	33.5 (32.9)	47.7 (46.9)			109.0 (245.0)	155.0 (349.0)	36.0 (14.3)	51.3 (20.4)
29	20.8 (8.1)	29.6 (11.5)	113.0 (162.0)	160.0 (231.0)	66.3 (82.0)	94.5 (117.0)	96.1 (104.0)	137.0 (149.0)	73.0 (95.7)	104.0 (136.0)
30	23.5 (9.6)	33.5 (13.7)	28.5 (25.7)	40.6 (36.6)	22.4 (7.9)	31.9 (11.2)	52.0 (77.3)	74.0 (110.0)	39.0 (20.0)	55.6 (28.5)
Avg	26.5	37.7	38.1	54.3	42.1	60.1	67.5	96.1	90.8	129.0
n	30	30	27	27	24	24	22	22	26	26
SD	7	10	18.1	25.8	16.2	23.1	36.6	52.1	46.1	65.8
Min	20.0	28.5	22.2	31.7	22.4	31.9	21.5	30.8	25.1	35.8
Max	49.8	70.8	113.0	160.0	80.9	115.0	142.0	201.0	192.0	274.0

Table F6. Daily means (SD) of H2S concentrations at site WA5B for December, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	33.7 (15.5)	47.9 (22.1)					37.5 (14.3)	53.5 (20.4)	67.3 (95.5)	96.0 (136.0)
2	23.5 (8.1)	33.5 (11.6)					136.0 (350.0)	194.0 (499.0)	39.8 (24.9)	56.8 (35.5)
3	24.2 (11.4)	34.4 (16.2)	54.9 (79.8)	78.3 (114.0)	33.5 (27.7)	47.6 (39.4)	60.5 (108.0)	86.2 (154.0)	75.8 (106.0)	108.0 (151.0)
4	28.2 (11.5)	40.1 (16.3)	35.3 (21.5)	50.2 (30.6)	24.3 (28.8)	34.5 (41.0)	40.2 (58.0)	57.2 (82.4)	39.5 (25.0)	56.1 (35.6)
5	19.9 (1.5)	28.2 (2.2)	26.6 (12.1)	37.8 (17.2)	23.4 (7.6)	33.3 (10.8)	33.9 (14.8)	48.3 (21.1)	58.1 (65.6)	82.7 (93.3)
6	41.4 (40.0)	58.9 (56.9)	74.9 (96.0)	107.0 (137.0)	36.2 (23.3)	51.5 (33.2)	102.0 (205.0)	145.0 (291.0)	41.2 (24.1)	58.6 (34.3)
7	36.5 (14.8)	52.0 (21.0)			76.4 (50.0)	109.0 (71.1)	63.8 (81.3)	90.8 (116.0)	218.0 (210.0)	310.0 (299.0)
8	27.5 (7.6)	39.1 (10.8)	28.3 (15.0)	40.2 (21.4)	44.1 (41.6)	62.7 (59.2)	174.0 (340.0)	248.0 (484.0)	42.5 (20.5)	60.5 (29.2)
9	50.3 (31.2)	71.5 (44.4)	41.6 (43.6)	59.2 (61.9)	41.8 (24.6)	59.5 (34.9)	43.0 (95.0)	61.1 (135.0)	60.4 (57.8)	86.0 (82.3)
10	46.1 (33.2)	65.6 (47.2)			31.6 (14.2)	45.0 (20.2)	62.7 (49.9)	89.3 (71.0)	56.1 (20.2)	79.9 (28.7)
11	35.2 (19.3)	50.0 (27.4)	48.3 (42.8)	68.8 (60.9)	21.9 (17.6)	31.2 (25.0)	34.4 (25.8)	49.0 (36.8)	71.3 (73.7)	101.0 (105.0)
12	25.3 (11.0)	36.0 (15.6)			51.1 (62.2)	72.7 (88.5)	33.2 (27.1)	47.2 (38.5)	42.2 (31.7)	60.0 (45.2)
13	21.5 (5.9)	30.6 (8.4)	22.7 (10.5)	32.3 (15.0)			21.5 (7.5)	30.6 (10.7)	53.1 (55.5)	75.6 (79.0)
14	18.0 (1.4)	25.5 (2.0)	18.0 (1.8)	25.5 (2.6)	23.1 (7.8)	32.8 (11.1)	22.7 (13.4)	32.2 (19.1)		
15	17.7 (0.8)	25.2 (1.1)	22.0 (5.6)	31.2 (7.9)	30.1 (24.4)	42.8 (34.8)	32.4 (28.9)	45.7 (41.1)	38.2 (18.8)	54.2 (26.9)
16	22.0 (4.8)	31.2 (6.8)	25.9 (7.3)	36.7 (10.3)	36.8 (28.0)	52.3 (39.8)	36.7 (30.8)	52.0 (43.7)		
17	18.6 (1.4)	26.5 (1.9)	23.1 (5.2)	32.8 (7.3)	22.0 (4.9)	31.3 (6.9)	36.3 (23.7)	51.6 (33.7)		
18	19.1 (1.4)									
19	19.5 (1.5)	27.7 (2.1)	24.9 (9.5)	35.3 (13.5)	25.8 (18.2)	36.7 (25.9)	84.3 (72.3)	120.0 (103.0)	35.7 (35.4)	50.7 (50.3)
20	18.3 (0.8)	26.0 (1.1)	37.2 (57.7)	52.9 (81.9)	26.2 (20.9)	37.2 (29.7)	56.1 (32.0)	79.6 (45.4)	40.2 (10.7)	57.1 (15.2)
21	22.4 (4.9)	31.8 (6.9)	32.1 (11.2)	45.5 (15.9)	63.3 (61.9)	90.0 (87.9)	66.5 (63.6)	94.4 (90.3)		
22	22.9 (3.3)	32.6 (4.7)	51.2 (61.8)	72.6 (87.8)	35.2 (24.6)	49.9 (35.0)	59.6 (28.8)	84.6 (40.9)	51.9 (18.1)	73.7 (25.7)
23	23.3 (5.5)	33.0 (7.8)	64.7 (59.7)	91.9 (84.8)	26.6 (8.9)	37.8 (12.6)	70.3 (40.0)	99.8 (56.8)	128.0 (243.0)	181.0 (346.0)
24	20.5 (1.5)	29.1 (2.1)	59.0 (81.6)	83.8 (116.0)	23.8 (11.5)	33.8 (16.3)			94.0 (128.0)	134.0 (182.0)
25	20.3 (1.6)	28.9 (2.3)	108.0 (136.0)	153.0 (193.0)	57.3 (43.6)	81.5 (61.9)	65.1 (33.5)	92.5 (47.6)	99.3 (152.0)	141.0 (216.0)
26	24.0 (5.4)	34.0 (7.6)	95.0 (159.0)	135.0 (226.0)						
27	23.8 (5.0)	33.9 (7.2)	31.9 (18.0)	45.4 (25.6)	44.7 (41.7)	63.7 (59.5)	44.9 (21.9)	63.9 (31.1)		
28	31.5 (7.5)	44.9 (10.6)	80.4 (78.0)	114.0 (111.0)	38.3 (18.8)	54.6 (26.8)				
29	20.9 (2.2)	29.7 (3.1)	118.0 (181.0)	166.0 (256.0)	41.9 (33.6)	59.7 (47.8)				
30	24.2 (6.5)	34.4 (9.3)	35.0 (22.9)	49.9 (32.6)	51.7 (57.3)	72.9 (81.1)	85.3 (99.0)	122.0 (141.0)	52.2 (29.5)	74.4 (42.0)
31	22.3 (4.8)	31.8 (6.8)	39.2 (15.7)	55.8 (22.4)	41.9 (30.6)	59.7 (43.5)				
Avg	25.9	37.1	47.9	68.0	37.4	53.2	60.1	85.5	66.9	95.1
n	31	30	25	25	26	26	25	25	21	21
SD	8.2	11.7	27.3	38.7	13.7	19.4	34.8	49.5	40.9	58.2
Min	17.7	25.2	18.0	25.5	21.9	31.2	21.5	30.6	35.7	50.7
Max	50.3	71.5	118.0	166.0	76.4	109.0	174.0	248.0	218.0	310.0

Table F6. Daily means (SD) of H2S concentrations at site WA5B for January, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	37.3 (16.0)	53.1 (22.8)	30.7 (29.9)	43.7 (42.6)	43.3 (31.4)	61.8 (44.8)	64.7 (101.0)	92.2 (144.0)	44.9 (19.7)	63.9 (28.0)
2	20.7 (1.5)	29.5 (2.1)	29.0 (10.7)	41.3 (15.2)	39.6 (32.4)	56.3 (46.0)				
3	19.8 (1.6)	28.1 (2.3)	23.4 (5.9)	33.3 (8.4)	28.4 (18.6)	40.4 (26.5)	45.8 (47.0)	65.1 (66.8)		
4	18.7 (0.8)	26.6 (1.2)	22.2 (7.9)	31.5 (11.2)	25.7 (12.2)	36.5 (17.4)	37.0 (17.7)	52.5 (25.1)	33.3 (14.6)	47.4 (20.8)
5	19.7 (1.0)	27.9 (1.4)	32.7 (9.8)	46.4 (13.9)	34.1 (19.5)	48.5 (27.7)	81.2 (127.0)	115.0 (180.0)		
6	22.0 (2.3)	31.4 (3.2)	43.3 (26.8)	61.8 (38.2)	34.4 (14.8)	49.1 (21.0)	47.9 (21.6)	68.3 (30.9)	35.2 (22.5)	50.1 (32.0)
7	17.1 (2.7)	24.6 (3.8)	19.5 (2.3)	27.8 (3.4)	20.5 (6.3)	29.7 (9.2)				
8	15.8 (2.1)	22.5 (3.2)	20.1 (9.8)	29.0 (14.6)	20.9 (7.3)	30.5 (10.8)				
9	18.4 (1.6)	26.1 (2.2)	28.6 (10.8)	40.7 (15.3)	36.5 (25.0)	52.0 (35.6)	61.4 (51.6)	87.3 (73.4)		
10	18.7 (1.6)	26.6 (2.2)	59.3 (65.3)	84.4 (92.9)	24.0 (6.9)	34.1 (9.8)	35.9 (11.6)	51.1 (16.6)		
11	23.6 (5.0)	33.5 (7.2)	38.8 (24.8)	55.2 (35.3)					34.2 (9.3)	48.7 (13.3)
12	23.1 (3.1)	32.9 (4.4)	68.2 (80.8)	97.2 (115.0)	25.0 (17.9)	35.6 (25.5)			51.3 (42.9)	73.1 (61.1)
13	20.5 (2.9)	29.1 (4.1)								
14	17.3 (0.1)									
15	17.3 (0.9)	24.6 (1.3)	26.2 (25.7)	37.3 (36.5)	21.6 (9.7)	30.7 (13.8)	26.9 (15.3)	38.3 (21.7)	30.3 (12.5)	43.1 (17.8)
16	17.0 (1.2)	24.1 (1.7)	17.8 (1.0)	25.4 (1.4)	18.1 (1.3)	25.7 (1.8)	20.8 (14.2)	29.6 (20.2)	20.1 (8.2)	28.6 (11.6)
17	16.7 (0.7)	23.8 (1.0)	17.0 (1.4)	24.2 (2.0)	27.6 (19.2)	39.3 (27.3)	17.9 (1.2)	25.5 (1.7)		
18	17.0 (0.8)	24.2 (1.2)	23.1 (7.8)	32.8 (11.1)	36.2 (23.1)	51.5 (32.9)	19.3 (3.1)	27.5 (4.4)		
19	16.5 (0.8)	23.5 (1.2)	49.6 (104.0)	70.6 (148.0)	19.2 (3.0)	27.4 (4.3)	23.6 (10.1)	33.5 (14.4)		
20	15.9 (1.3)		48.0 (67.1)		21.5 (9.8)		35.7 (28.6)		32.0 (26.7)	
21	33.2 (162.0)		32.4 (22.6)		25.6 (15.4)		42.0 (24.6)		54.0 (29.4)	
22	17.9 (2.7)	25.4 (3.9)	22.4 (7.3)	31.8 (10.4)	16.5 (5.4)	23.5 (7.7)	43.9 (33.4)	62.4 (47.5)	145.0 (168.0)	207.0 (239.0)
23										
24										
25										
26										
27										
28										
29										
30			26.8 (19.0)	38.1 (27.0)	30.7 (36.4)	43.7 (51.9)	93.3 (148.0)	133.0 (211.0)	67.6 (48.8)	96.3 (69.5)
31			33.5 (26.0)	47.6 (37.0)	37.3 (26.8)	53.0 (38.1)	51.0 (64.6)	72.5 (91.9)	105.0 (137.0)	150.0 (195.0)
Avg	20.2	28.3	32.4	45.0	27.9	40.5	44.0	63.6	54.5	80.8
n	22	19	22	20	21	19	17	15	12	10
SD	5.3	6.6	13.4	19.3	7.6	11.1	20.8	31.3	34.9	53.4
Min	15.8	22.5	17.0	24.2	16.5	23.5	17.9	25.5	20.1	28.6
Max	37.3	53.1	68.2	97.2	43.3	61.8	93.3	133.0	145.0	207.0

Table F6. Daily means (SD) of H2S concentrations at site WA5B for February, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1			24.2 (36.9)	34.4 (52.5)	22.8 (14.1)	32.5 (20.1)	30.0 (21.9)	42.6 (31.1)	53.2 (47.2)	75.7 (67.2)
2			30.1 (38.1)	42.9 (54.2)	43.2 (27.8)	61.5 (39.6)	54.9 (44.0)	78.1 (62.5)	65.9 (81.0)	93.7 (115.0)
3			57.9 (60.9)	82.3 (86.6)	25.4 (9.8)	36.1 (14.0)	42.3 (17.8)	60.2 (25.3)	46.6 (24.3)	66.4 (34.7)
4			24.0 (6.5)	34.1 (9.2)	23.3 (7.6)	33.1 (10.8)	79.3 (114.0)	113.0 (162.0)	50.4 (28.8)	71.8 (41.1)
5										
6	17.9 (6.9)	25.5 (9.8)								
7	17.3 (15.3)	24.6 (21.8)								
8	24.4 (18.0)	34.7 (25.6)								
9	20.4 (13.5)	29.0 (19.2)								
10			26.4 (15.7)	37.5 (22.3)	27.5 (17.1)	39.1 (24.4)	35.7 (27.9)	50.8 (39.7)	43.0 (45.0)	61.1 (64.0)
11			36.7 (53.6)	52.2 (76.2)	47.5 (70.4)	67.7 (100.0)	38.4 (24.8)	54.6 (35.3)	47.1 (34.4)	67.0 (49.0)
12			21.3 (18.8)	30.3 (26.8)	18.2 (3.5)	26.0 (5.0)	46.3 (57.2)	65.9 (81.4)	56.0 (89.7)	79.8 (128.0)
13			19.7 (6.6)	28.0 (9.4)	31.9 (18.6)	45.4 (26.5)	23.2 (10.6)	32.9 (15.1)	33.1 (21.1)	47.1 (30.0)
14			22.2 (5.6)	31.6 (8.0)	28.2 (20.9)	40.1 (29.8)	68.7 (127.0)	97.8 (180.0)	55.6 (69.4)	79.2 (98.9)
15			34.5 (24.9)	49.1 (35.5)	35.8 (37.9)	51.0 (54.0)	45.8 (69.4)	65.2 (98.8)	41.9 (46.2)	59.7 (65.7)
16			19.5 (5.3)	27.7 (7.6)	23.2 (10.2)	33.1 (14.6)	26.6 (24.5)	37.9 (34.9)	43.8 (28.7)	62.4 (40.9)
17			20.5 (5.8)	29.2 (8.2)	32.1 (29.0)	45.7 (41.3)	72.7 (148.0)	103.0 (211.0)	31.5 (21.3)	44.8 (30.4)
18			18.6 (3.8)	26.4 (5.4)	16.7 (1.9)	23.7 (2.7)	34.5 (46.9)	48.7 (66.2)	25.4 (18.0)	36.2 (25.7)
19			17.8 (18.9)	25.3 (27.0)	15.5 (1.8)	22.1 (2.6)	94.7 (197.0)	135.0 (280.0)	30.2 (41.7)	43.0 (59.5)
20			28.7 (10.1)	40.9 (14.4)	40.3 (31.8)	57.4 (45.3)	39.2 (38.1)	55.8 (54.3)	49.1 (62.2)	70.0 (88.6)
21			32.4 (46.0)	46.1 (65.4)	23.3 (25.9)	33.2 (36.8)	44.3 (31.0)	63.1 (44.2)	41.4 (44.5)	58.9 (63.3)
22			51.1 (56.1)	72.7 (79.9)	21.2 (7.9)	30.2 (11.2)	105.0 (210.0)	149.0 (298.0)	61.4 (82.2)	87.4 (117.0)
23			34.4 (24.3)	49.0 (34.6)	50.1 (37.2)	71.4 (53.0)	59.5 (46.7)	84.7 (66.5)	51.2 (64.3)	72.9 (91.7)
24			25.7 (14.4)	36.7 (20.5)	40.7 (36.9)	58.1 (52.7)	25.6 (12.0)	36.6 (17.1)	45.6 (63.1)	65.2 (90.2)
25			16.0 (0.6)	22.9 (0.8)	22.7 (14.0)	32.4 (20.0)	18.9 (6.5)	26.9 (9.3)	19.3 (7.0)	27.5 (10.0)
26			18.6 (4.7)	26.5 (6.6)	18.0 (2.9)	25.6 (4.1)				
27			22.8 (15.6)	32.4 (22.2)	23.5 (12.8)	33.4 (18.2)	59.8 (111.0)	85.0 (158.0)	68.6 (124.0)	97.5 (176.0)
28			31.3 (31.8)	44.6 (45.2)	48.5 (39.4)	69.0 (56.1)	53.4 (63.5)	75.9 (90.3)	84.8 (102.0)	121.0 (145.0)
Avg	20.0	28.4	27.6	39.2	29.6	42.1	49.9	71.1	47.5	67.6
n	4	4	23	23	23	23	22	22	22	22
SD	2.8	4	10.2	14.5	10.5	15.0	22.4	31.9	14.6	20.8
Min	17.3	24.6	16.0	22.9	15.5	22.1	18.9	26.9	19.3	27.5
Max	24.4	34.7	57.9	82.3	50.1	71.4	105.0	149.0	84.8	121.0

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for March, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1			31.1 (17.8)	44.2 (25.2)	47.7 (17.5)	68.0 (24.9)	47.7 (75.9)	68.0 (108.0)	74.1 (131.0)	106.0 (187.0)
2			33.7 (28.2)	48.1 (40.2)	35.4 (28.0)	50.5 (39.9)	95.3 (233.0)	136.0 (332.0)	36.4 (43.0)	51.9 (61.2)
3			22.0 (13.4)	31.4 (19.1)	19.6 (6.7)	27.9 (9.6)	39.3 (65.5)	56.1 (93.4)	71.4 (146.0)	102.0 (208.0)
4			65.7 (104.0)	93.6 (147.0)	26.6 (16.5)	38.0 (23.5)	71.5 (153.0)	102.0 (218.0)	69.0 (119.0)	98.4 (169.0)
5			15.7 (1.2)	22.4 (1.6)	17.5 (5.6)	25.0 (8.0)	15.5 (2.6)	22.0 (3.7)	16.5 (4.6)	23.5 (6.6)
6			26.5 (10.0)	37.7 (14.2)	33.9 (15.8)	48.2 (22.5)	31.6 (17.4)	45.0 (24.8)	31.2 (19.5)	44.3 (27.7)
7			18.2 (4.2)	25.9 (5.9)	21.1 (7.7)	30.0 (11.0)	18.1 (4.8)	25.8 (6.8)	18.3 (3.0)	26.1 (4.3)
8			17.3 (3.4)	24.5 (4.9)	16.7 (3.0)	23.8 (4.3)	17.1 (3.2)	24.3 (4.7)	28.1 (25.9)	35.8 (31.5)
9			17.6 (4.1)	25.1 (5.8)	24.4 (11.0)	34.7 (15.7)	17.2 (5.6)	24.4 (8.0)	69.2 (137.0)	98.5 (195.0)
10			19.1 (20.1)	27.1 (28.5)	14.1 (0.7)	20.0 (1.0)	17.2 (3.2)	24.5 (4.6)	21.9 (15.4)	31.1 (21.9)
11			21.6 (26.2)	30.7 (37.2)	14.4 (1.8)	20.5 (2.5)	20.2 (5.1)	28.6 (7.3)	42.4 (69.7)	60.3 (99.1)
12										
13										
14			27.7 (16.0)	39.4 (22.8)	26.3 (14.1)	37.4 (20.1)	35.6 (34.6)	50.6 (49.3)	33.1 (22.5)	47.1 (32.0)
15			21.0 (9.9)	29.8 (14.1)	20.2 (5.0)	28.7 (7.1)	23.1 (11.6)	32.9 (16.5)	19.3 (4.9)	27.4 (7.0)
16			23.1 (6.3)	32.8 (8.9)	21.1 (7.1)	30.1 (10.1)	24.0 (11.4)	34.1 (16.3)		
17			20.3 (7.3)	28.9 (10.4)	18.8 (4.9)	26.7 (7.0)	22.2 (11.0)	31.6 (15.6)	45.6 (71.5)	64.9 (102.0)
18			20.4 (4.8)	29.0 (6.8)	33.3 (40.5)	47.4 (57.7)	24.9 (9.2)	35.4 (13.0)	41.1 (39.5)	58.5 (56.3)
19			21.8 (3.3)	31.0 (4.7)	36.3 (21.9)	51.7 (31.2)			29.4 (45.6)	42.0 (65.1)
20			30.3 (25.2)	43.2 (35.9)	21.4 (11.7)	30.5 (16.7)	21.2 (5.0)	30.2 (7.2)	25.9 (11.3)	36.9 (16.1)
21			20.8 (7.6)	29.7 (10.9)	21.4 (23.6)	30.5 (33.6)	24.7 (10.2)	35.2 (14.5)	118.0 (263.0)	168.0 (375.0)
22			23.0 (14.9)	32.7 (21.2)	18.3 (3.8)	26.1 (5.4)	25.1 (9.4)	35.7 (13.4)	118.0 (216.0)	169.0 (307.0)
23			24.9 (10.3)	35.4 (14.7)	24.4 (31.8)	34.7 (45.2)	30.1 (22.8)	42.8 (32.4)	102.0 (128.0)	145.0 (181.0)
24			19.3 (5.4)	27.4 (7.6)	39.6 (32.4)	56.3 (46.2)	35.1 (27.9)	50.0 (39.8)		
25			17.4 (6.8)	24.8 (9.7)	23.4 (13.5)	33.3 (19.2)	18.4 (6.8)	26.1 (9.7)	37.2 (38.5)	53.0 (54.8)
26							26.9 (12.7)		42.0 (63.0)	
27			22.3 (6.5)	31.7 (9.2)	57.0 (84.2)	81.0 (120.0)	28.6 (23.5)	40.7 (33.5)	56.0 (99.0)	79.6 (141.0)
28			23.8 (9.0)	33.9 (12.8)	23.6 (10.4)	33.7 (14.9)	24.0 (8.8)	34.1 (12.5)	74.2 (143.0)	106.0 (204.0)
29			17.9 (3.1)	25.4 (4.4)	45.0 (48.2)	64.0 (68.5)			19.3 (17.7)	27.5 (25.1)
30			29.6 (26.0)	42.1 (37.0)	33.2 (31.3)	47.3 (44.5)	56.5 (71.9)	80.3 (102.0)	23.3 (7.7)	33.2 (10.9)
31			39.5 (30.9)	56.3 (44.0)	21.3 (4.0)	30.3 (5.6)				
Avg	0	0	24.7	35.2	27.0	38.4	31.2	44.6	48.6	69.4
n			28	28	28	28	26	25	26	25
SD			9.6	13.7	10.5	14.9	18.1	26.3	29.5	42.9
Min			15.7	22.4	14.1	20.0	15.5	22.0	16.5	23.5
Max			65.7	93.6	57.0	81.0	95.3	136.0	118.0	169.0

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for April, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1			29.6 (20.0)	42.2 (28.4)	36.4 (21.7)	51.9 (30.9)	48.3 (43.2)	68.8 (61.5)	69.7 (110.0)	99.2 (156.0)
2			18.4 (1.9)	26.1 (2.7)	33.8 (33.6)	48.2 (47.8)				
3					20.2 (10.3)	28.7 (14.6)	28.7 (15.3)	40.8 (21.6)	24.5 (14.0)	34.8 (19.9)
4			19.9 (8.4)	28.2 (11.9)	17.6 (2.1)	25.0 (3.0)	26.7 (17.6)	37.9 (25.1)	18.7 (2.7)	26.6 (3.8)
5			24.0 (11.8)	34.2 (16.8)	54.3 (96.5)	77.2 (137.0)	27.9 (14.9)	39.7 (21.2)	131.0 (227.0)	187.0 (323.0)
6			70.3 (76.9)	100.0 (109.0)	29.3 (17.9)	41.7 (25.5)			87.4 (158.0)	124.0 (226.0)
7			28.6 (9.9)	40.7 (14.1)	35.8 (18.9)	51.0 (26.9)	26.1 (6.9)	37.1 (9.8)	51.3 (45.8)	73.2 (65.4)
8			27.1 (13.9)	38.6 (19.8)	44.5 (37.5)	63.3 (53.4)			159.0 (248.0)	227.0 (353.0)
9			28.1 (12.7)	40.0 (18.0)	22.4 (8.4)	31.8 (11.9)	30.6 (20.2)	43.5 (28.8)	26.0 (10.6)	37.0 (15.1)
10			24.6 (22.4)	35.1 (32.0)	37.5 (39.5)	53.5 (56.2)	35.4 (29.3)	50.5 (41.8)	83.7 (166.0)	119.0 (237.0)
11			21.4 (5.7)	30.5 (8.1)	34.6 (26.6)	49.3 (37.9)				
12			31.7 (31.8)	45.2 (45.2)	25.6 (8.3)	36.6 (11.9)	48.3 (51.6)	68.9 (73.5)	55.9 (71.8)	79.7 (102.0)
13			30.7 (36.8)	43.7 (52.4)	43.4 (59.8)	61.7 (85.0)	19.0 (2.0)	27.1 (2.9)		
14			25.9 (18.1)	36.9 (25.7)	30.9 (31.1)	44.0 (44.3)	26.4 (18.1)	37.6 (25.8)	24.9 (13.6)	35.5 (19.3)
15			28.3 (14.8)	40.2 (21.1)	26.9 (20.7)	38.3 (29.5)	27.9 (19.4)	39.6 (27.5)	82.6 (140.0)	117.0 (199.0)
16			23.2 (10.3)	33.2 (14.7)	27.4 (18.3)	38.9 (26.0)	33.0 (32.7)	47.4 (46.8)	76.0 (148.0)	110.0 (212.0)
17			24.2 (5.7)	34.7 (8.2)	31.5 (13.4)	45.4 (19.1)	64.0 (75.4)	91.1 (107.0)		
18			22.5 (6.8)	32.1 (9.7)			41.9 (26.6)	59.6 (37.8)	104.0 (99.7)	147.0 (142.0)
19			54.5 (40.2)	77.6 (57.2)	53.9 (68.3)	76.8 (97.3)	87.7 (141.0)	125.0 (201.0)	81.4 (156.0)	116.0 (222.0)
20			34.7 (25.7)	49.5 (36.7)	34.8 (29.6)	49.6 (42.3)			27.2 (8.7)	38.8 (12.4)
21			54.9 (34.5)	78.3 (49.2)	52.8 (50.6)	75.3 (72.1)	57.7 (129.0)	82.2 (184.0)	104.0 (107.0)	148.0 (153.0)
22			55.5 (41.9)	79.0 (59.7)	29.7 (48.8)	42.3 (69.6)			38.6 (45.7)	55.0 (65.1)
23			21.8 (9.5)	31.0 (13.5)	35.9 (23.5)	51.0 (33.4)	31.2 (22.5)	44.3 (32.0)	55.4 (99.8)	78.7 (142.0)
24			50.0 (68.4)	71.0 (97.2)	22.9 (8.5)	32.6 (12.2)	55.9 (48.1)	79.4 (68.4)	22.9 (8.5)	32.5 (12.1)
25			20.2 (3.8)	28.7 (5.4)	25.0 (14.1)	35.6 (20.0)	23.6 (8.7)	33.5 (12.3)	35.0 (35.2)	49.8 (50.1)
26			24.7 (8.0)	35.2 (11.3)	21.1 (5.6)	30.0 (8.0)	23.3 (11.6)	33.1 (16.5)	31.9 (17.4)	45.4 (24.8)
27			23.7 (10.7)	33.8 (15.3)	23.7 (16.2)	33.7 (23.1)			18.9 (3.7)	26.9 (5.3)
28			16.5 (1.2)	23.4 (1.8)	18.1 (5.1)	25.7 (7.2)	16.3 (0.8)	23.2 (1.1)	21.7 (14.3)	31.0 (20.3)
29			19.8 (3.4)	28.2 (4.8)	32.6 (21.7)	46.5 (30.9)	18.7 (3.2)	26.7 (4.6)	49.7 (45.1)	70.9 (64.3)
30			18.7 (2.8)	26.6 (4.0)	20.3 (5.1)	28.8 (7.2)			20.6 (4.6)	29.4 (6.5)
Avg	0	0	30.1	42.9	31.8	45.3	36.3	51.7	57.8	82.3
n			29	29	29	29	22	22	26	26
SD			13.3	18.9	10.1	14.5	17.2	24.4	37.2	52.9
Min			16.5	23.4	17.6	25.0	16.3	23.2	18.7	26.6
Max			70.3	100.0	54.3	77.2	87.7	125.0	159.0	227.0

Table F6. Daily means (SD) of H2S concentrations at site WA5B for May, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1			20.3 (4.0)	28.9 (5.7)	20.2 (8.3)	28.7 (11.9)	32.0 (21.3)	45.5 (30.3)	38.0 (40.6)	54.2 (57.8)
2			19.9 (4.7)	28.4 (6.7)	25.5 (10.3)	36.4 (14.7)	19.6 (8.9)	28.0 (12.6)	53.2 (85.2)	75.9 (122.0)
3			27.6 (16.9)	39.3 (24.1)	30.5 (22.4)	43.4 (31.9)	23.6 (10.6)	33.6 (15.1)	31.7 (28.8)	45.2 (41.1)
4			29.7 (28.5)	42.3 (40.6)	31.1 (31.1)	44.4 (44.3)			58.3 (94.4)	83.2 (135.0)
5			24.5 (8.4)	34.9 (12.0)	42.4 (45.2)	60.4 (64.4)				
6			24.3 (10.6)	34.7 (15.1)	40.0 (57.0)	57.1 (81.2)	54.6 (90.2)	77.8 (128.0)	35.1 (22.8)	50.0 (32.4)
7			21.7 (3.5)	30.9 (5.0)	23.6 (7.4)	33.7 (10.6)				
8			19.7 (4.0)	28.0 (5.7)	18.7 (4.4)	26.6 (6.2)	30.2 (21.5)	42.9 (30.7)	22.7 (9.4)	32.3 (13.4)
9			25.8 (11.3)	36.7 (16.0)	28.9 (17.2)	41.1 (24.5)	29.3 (13.1)	41.7 (18.6)	21.4 (9.7)	30.4 (13.8)
10			21.1 (5.3)	30.1 (7.6)	25.8 (14.7)	36.7 (20.9)	23.6 (15.8)	33.6 (22.5)	22.5 (9.6)	32.1 (13.7)
11			22.2 (6.5)	31.7 (9.3)	19.1 (2.2)	27.3 (3.2)				
12			20.3 (5.6)	28.8 (8.1)	18.6 (3.7)	26.5 (5.3)				
13			26.3 (9.1)	37.4 (12.9)	28.1 (21.8)	40.0 (31.0)	29.2 (17.7)	41.6 (25.2)	27.4 (22.4)	39.0 (31.8)
14			17.7 (1.4)	25.3 (2.0)	16.9 (0.5)	24.0 (0.8)				
15			18.3 (2.6)	26.1 (3.6)			22.5 (6.1)	32.0 (8.6)	18.3 (1.3)	26.0 (1.9)
16			21.0 (8.6)	30.0 (12.2)	18.6 (2.6)	26.5 (3.7)	21.9 (9.9)	31.1 (14.0)	20.1 (9.5)	28.6 (13.5)
17			21.6 (4.5)	30.9 (6.4)	22.3 (7.4)	31.8 (10.6)	20.1 (3.9)	28.7 (5.6)		
18			22.1 (4.8)	31.5 (6.9)	24.4 (15.8)	34.8 (22.5)	19.0 (6.5)	27.1 (9.3)	18.3 (3.6)	26.1 (5.1)
19			19.6 (3.4)	27.8 (4.9)	20.9 (6.1)	29.7 (8.7)				
20			25.2 (14.4)	35.9 (20.5)	20.1 (7.8)	28.6 (11.1)	29.7 (17.4)	42.2 (24.7)	29.3 (13.1)	41.7 (18.6)
21			50.0 (96.0)	71.2 (137.0)	28.4 (26.6)	40.4 (37.9)	20.0 (4.0)	28.5 (5.7)	36.6 (32.5)	52.1 (46.3)
22			47.1 (70.3)	67.0 (100.0)	41.1 (36.8)	58.6 (52.5)			41.0 (29.4)	58.4 (41.9)
23			20.8 (7.6)	29.7 (10.9)	23.4 (9.3)	33.3 (13.3)	22.9 (15.2)	32.6 (21.7)	32.9 (19.4)	46.9 (27.6)
24			19.1 (2.3)	27.2 (3.3)	25.7 (21.1)	36.6 (30.1)	24.8 (13.7)	35.3 (19.4)	27.2 (20.4)	38.7 (29.1)
25			20.7 (6.2)	29.5 (8.8)	23.5 (9.9)	33.4 (14.1)	27.6 (14.8)	39.3 (21.1)	28.0 (26.6)	39.9 (37.8)
26			21.3 (5.4)	30.3 (7.7)	29.3 (23.4)	42.1 (33.6)	20.4 (4.5)	29.2 (6.5)	31.5 (31.3)	45.2 (44.9)
27			19.1 (2.4)	27.2 (3.4)	20.5 (4.6)	29.2 (6.6)	27.6 (27.1)	39.3 (38.6)	25.4 (13.6)	36.3 (19.3)
28			22.8 (8.8)	32.6 (12.5)	20.2 (4.9)	28.8 (7.0)			28.0 (18.2)	40.0 (25.9)
29			33.5 (46.8)	47.9 (66.8)	22.5 (6.2)	32.2 (8.9)	69.9 (93.6)	99.8 (134.0)	42.1 (46.2)	60.1 (65.9)
30			34.0 (26.7)	48.5 (38.2)	31.6 (17.3)	45.2 (24.7)	26.0 (9.5)	37.1 (13.6)	38.5 (32.4)	54.9 (46.3)
31			21.2 (4.6)	30.3 (6.6)	29.8 (12.7)	42.5 (18.1)	28.0 (20.6)	39.9 (29.4)		
Avg	0	0	24.5	34.9	25.7	36.7	28.3	40.3	31.6	45.1
n			31	31	30	30	22	22	23	23
SD			7.5	10.6	6.6	9.4	11.6	16.6	10.1	14.5
Min			17.7	25.3	16.9	24.0	19.0	27.1	18.3	26.0
Max			50.0	71.2	42.4	60.4	69.9	99.8	58.3	83.2

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for June, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1			21.5 (4.7)	30.7 (6.7)	23.2 (8.4)	33.0 (12.0)	19.7 (1.9)	28.0 (2.7)	23.5 (7.6)	33.5 (10.9)
2			19.4 (6.1)	27.7 (8.6)	18.8 (11.1)	26.8 (15.8)	18.2 (3.6)	26.0 (5.2)	20.9 (5.6)	29.8 (8.0)
3			23.6 (9.5)	33.6 (13.5)	32.9 (19.7)	46.9 (28.1)	28.7 (17.8)	41.0 (25.3)	25.0 (7.4)	35.7 (10.6)
4			24.9 (11.3)	35.5 (16.2)	32.6 (27.4)	46.6 (39.2)	33.3 (18.7)	47.6 (26.7)		
5			23.3 (8.0)	33.4 (11.4)	20.2 (6.1)	28.9 (8.7)			26.9 (17.8)	38.6 (25.5)
6			18.3 (2.9)	26.2 (4.1)	22.3 (5.0)	31.8 (7.1)				
7			23.3 (6.3)	33.4 (9.0)	21.7 (3.2)	31.0 (4.6)			33.4 (22.6)	47.8 (32.3)
8			49.7 (53.7)	71.0 (76.8)	38.0 (35.1)	54.3 (50.1)				
9			22.9 (23.0)	32.7 (32.9)	35.5 (23.9)	50.7 (34.1)			34.1 (16.7)	48.6 (23.8)
10										
11			20.8 (4.2)	29.7 (6.0)	36.1 (35.4)	51.5 (50.6)				
12			24.2 (8.4)	34.6 (12.0)	60.0 (72.8)	85.9 (104.0)				
13			27.6 (19.6)		76.7 (119.0)		21.5 (11.9)			
14			19.6 (5.7)		28.1 (28.4)					
15			16.7 (2.8)		21.9 (8.8)					
16										
17										
18			17.1 (1.9)	24.4 (2.8)	16.9 (0.9)	24.2 (1.3)	18.0 (3.0)	25.7 (4.3)	18.9 (3.0)	26.9 (4.2)
19			17.0 (1.7)	24.3 (2.4)	21.5 (11.9)	30.7 (16.9)	17.0 (1.3)	24.2 (1.9)	21.3 (5.7)	30.5 (8.2)
20			16.3 (0.8)	23.3 (1.2)	19.7 (6.0)	28.1 (8.6)	16.1 (0.7)	22.9 (1.0)	19.5 (4.4)	27.9 (6.3)
21			16.8 (2.1)	24.0 (3.0)	17.9 (2.1)	25.5 (3.0)	16.0 (1.0)	22.8 (1.4)	27.9 (12.0)	39.8 (17.1)
22										
23			15.5 (0.5)	22.1 (0.7)	15.2 (0.6)	21.6 (0.9)	16.1 (1.3)	22.9 (1.8)	15.4 (0.7)	21.9 (1.0)
24			17.1 (4.2)	24.4 (6.0)	18.3 (4.0)	26.1 (5.7)				
25			-10.0 (1.8)	-14.3 (2.6)	-10.3 (2.5)	-14.6 (3.6)	-10.5 (0.5)	-15.0 (0.8)	-9.7 (0.9)	-13.8 (1.3)
26			-6.5 (7.2)	-9.3 (10.2)	-5.1 (12.4)	-7.3 (17.6)	-10.3 (0.7)	-14.7 (0.9)	6.9 (38.0)	9.8 (54.1)
27			-5.9 (6.3)	-8.4 (9.0)	-7.1 (4.1)	-10.2 (5.8)	2.0 (18.0)	2.8 (25.6)	-0.3 (14.6)	-0.4 (20.8)
28			-4.9 (10.8)	-7.0 (15.4)	-2.4 (24.5)	-3.4 (35.0)	2.6 (25.1)	3.7 (35.8)	-4.7 (7.1)	-6.7 (10.1)
29			-6.8 (5.6)	-9.6 (7.9)	-6.1 (11.0)	-8.7 (15.7)	-3.5 (15.2)	-5.0 (21.6)	8.2 (27.3)	11.7 (38.9)
30			-7.3 (4.8)	-10.3 (6.8)	3.2 (34.6)	4.6 (49.3)	7.2 (31.6)	10.2 (45.1)	-1.2 (16.5)	-1.7 (23.6)
Avg			15.2	20.5	21.1	26.3	12.0	16.2	15.7	22.3
n	0	0	26	23	26	23	16	15	17	17
SD			13.7	20.3	19.4	24.0	12.5	18.0	13.0	18.6
Min			-10.0	-14.3	-10.3	-14.6	-10.5	-15.0	-9.7	-13.8
Max			49.7	71.0	76.7	85.9	33.3	47.6	34.1	48.6

Table F6. Daily means (SD) of H2S concentrations at site WA5B for July, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1			-2.5 (13.4)	-3.6 (19.1)	-3.3 (12.2)	-4.7 (17.4)	-2.6 (16.3)	-3.7 (23.2)	16.4 (67.8)	23.4 (96.6)
2			1.2 (12.8)	1.7 (18.3)	2.0 (15.3)	2.9 (21.8)	-4.4 (8.9)	-6.3 (12.7)	4.9 (21.4)	6.9 (30.4)
3			6.1 (19.6)	8.8 (28.0)	20.3 (36.4)	29.0 (52.0)	-7.2 (9.7)	-10.3 (13.8)	-4.7 (9.5)	-6.7 (13.6)
4			9.1 (39.9)	13.1 (56.9)	-6.2 (7.7)	-8.8 (11.0)	0.0 (16.9)	0.0 (24.0)	5.8 (28.4)	8.3 (40.5)
5			-5.9 (10.0)	-8.4 (14.2)	20.3 (68.5)	28.9 (97.6)				
6			-13.0 (4.6)	-18.5 (6.5)	1.6 (43.3)	2.2 (61.8)	-11.6 (13.7)	-16.6 (19.5)	-12.6 (6.5)	-17.9 (9.3)
7			-13.7 (7.4)	-19.6 (10.5)	-15.0 (6.5)	-21.4 (9.2)	-14.0 (14.9)	-20.0 (21.3)	-6.6 (18.9)	-9.4 (27.0)
8										
9			24.5 (17.9)	35.0 (25.6)	32.5 (20.9)	46.3 (29.8)	20.6 (8.9)	29.4 (12.7)	19.6 (5.3)	28.0 (7.6)
10			21.5 (6.3)	30.7 (9.0)	46.3 (118.0)	66.2 (169.0)	22.6 (7.2)	32.2 (10.3)	70.8 (129.0)	101.0 (184.0)
11			25.0 (9.6)	35.6 (13.6)	34.5 (33.8)	49.2 (48.2)	21.9 (10.6)	31.3 (15.1)	32.8 (26.6)	46.8 (38.0)
12			22.0 (16.5)	31.4 (23.6)	44.4 (71.3)	63.5 (102.0)			46.4 (45.1)	66.3 (64.5)
13			21.8 (9.2)	31.1 (13.1)	24.6 (15.9)	35.2 (22.7)	20.7 (43.4)	29.6 (61.9)	21.7 (6.6)	31.0 (9.5)
14			23.4 (16.1)	33.4 (23.0)	24.2 (18.8)	34.6 (26.8)	23.0 (11.0)	32.9 (15.7)	22.8 (6.3)	32.5 (8.9)
15										
16										
17			33.8 (23.5)	48.3 (33.6)	35.8 (32.5)	51.1 (46.5)	27.2 (25.2)	38.8 (35.8)	43.0 (51.2)	61.4 (73.2)
18			20.5 (6.4)	29.3 (9.1)	103.0 (232.0)	148.0 (333.0)	26.1 (25.0)	37.2 (35.7)	21.1 (8.2)	30.1 (11.7)
19			19.0 (7.1)	27.2 (10.1)	24.0 (12.1)	34.2 (17.3)	28.4 (21.5)	40.5 (30.6)	27.1 (18.2)	38.7 (26.0)
20			20.6 (9.6)	29.4 (13.8)	92.1 (122.0)	132.0 (174.0)	27.4 (14.4)	39.1 (20.5)	51.7 (65.8)	73.7 (93.8)
21			42.8 (41.7)	61.1 (59.6)	41.7 (40.6)	59.6 (58.1)			57.3 (65.6)	81.8 (93.7)
22			26.8 (23.8)	38.3 (34.0)	24.7 (8.3)	35.3 (11.9)	21.4 (5.6)	30.7 (7.9)	36.6 (30.0)	52.4 (42.9)
23			18.2 (3.9)	26.0 (5.6)	45.7 (59.3)	65.3 (84.8)	17.0 (1.4)	24.4 (2.0)	31.6 (27.6)	45.2 (39.4)
24			27.5 (18.9)	39.4 (27.1)	25.7 (22.1)	36.8 (31.6)	19.1 (4.6)	27.3 (6.6)	51.9 (85.3)	74.3 (122.0)
25										
26										
27										
28										
29										
30			52.3 (53.4)	74.8 (76.5)	43.6 (35.0)	62.4 (50.1)	20.5 (20.2)	29.3 (28.9)		
31			38.8 (36.9)	55.6 (52.8)	48.8 (36.1)	69.9 (51.6)	28.6 (17.0)	41.0 (24.3)	37.9 (29.4)	54.3 (42.1)
Avg	0	0	18.2	26.1	30.9	44.2	14.2	20.3	27.4	39.2
n			23	23	23	23	20	20	21	21
SD			16.5	23.6	27.2	38.9	14.3	20.4	21.6	30.9
Min			-13.7	-19.6	-15.0	-21.4	-14.0	-20.0	-12.6	-17.9
Max			52.3	74.8	103.0	148.0	28.6	41.0	70.8	101.0

Table F6. Daily means (SD) of H2S concentrations at site WA5B for August, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1			34.9 (31.2)	50.0 (44.7)	37.3 (25.8)	53.5 (36.9)				
2			19.9 (5.8)	28.5 (8.3)	22.6 (10.4)	32.2 (14.8)	27.4 (19.6)	39.1 (28.1)		
3			30.7 (20.0)	43.9 (28.5)	72.3 (113.0)	103.0 (162.0)	22.6 (12.7)	32.3 (18.1)	26.5 (46.4)	37.8 (66.5)
4			26.7 (16.0)	38.1 (22.7)	48.4 (77.0)	69.1 (110.0)	21.8 (7.0)	31.2 (9.9)	29.5 (18.1)	42.1 (25.8)
5										
6			33.7 (14.4)	48.2 (20.6)	106.0 (161.0)	151.0 (230.0)	21.0 (1.4)	30.0 (2.0)	27.9 (9.4)	39.8 (13.5)
7			25.8 (20.4)	36.9 (29.1)	21.9 (4.6)	31.4 (6.6)				
8			32.9 (23.1)	47.0 (32.9)	31.9 (24.4)	45.6 (34.9)			42.4 (48.3)	60.6 (69.1)
9			31.6 (17.6)	45.1 (25.2)	32.6 (21.0)	46.6 (30.1)	27.4 (9.6)	39.2 (13.7)	46.9 (47.3)	67.1 (67.6)
10			22.0 (4.5)	31.4 (6.4)	33.1 (31.7)	47.4 (45.3)	20.9 (3.6)	29.9 (5.1)	59.8 (80.9)	85.5 (116.0)
11			53.8 (65.0)	77.0 (93.0)	31.6 (17.4)	45.3 (25.0)	27.3 (12.5)	39.1 (17.8)	52.6 (34.2)	75.3 (49.0)
12										
13										
14			23.3 (4.8)	33.2 (6.9)	50.1 (49.6)	71.5 (70.8)	36.5 (48.0)	52.0 (68.4)	38.0 (30.4)	54.3 (43.4)
15			33.1 (19.1)	47.2 (27.3)	29.8 (12.6)	42.5 (18.0)	23.4 (14.9)	33.4 (21.3)	38.2 (27.0)	54.4 (38.4)
16			28.4 (20.9)	40.5 (29.9)	86.0 (122.0)	123.0 (175.0)			24.3 (26.1)	34.7 (37.4)
17			29.8 (14.7)	42.6 (21.0)	26.8 (10.9)	38.3 (15.5)			42.8 (37.3)	61.1 (53.3)
18			30.8 (13.4)	44.0 (19.2)	38.6 (24.0)	55.2 (34.4)	34.7 (21.4)	49.6 (30.6)	89.7 (165.0)	128.0 (235.0)
19	28.2 (14.9)	40.3 (21.4)	43.1 (35.1)	61.7 (50.1)	41.5 (33.4)	59.3 (47.7)			48.4 (49.1)	69.2 (70.3)
20	67.7 (63.1)	96.9 (90.4)	35.1 (29.2)	50.3 (41.8)					75.7 (107.0)	108.0 (153.0)
21	48.9 (53.4)	69.9 (76.2)	33.9 (29.8)	48.4 (42.6)	35.9 (26.7)	51.4 (38.1)			68.8 (73.4)	98.4 (105.0)
22	23.2 (6.8)	33.2 (9.8)	23.1 (7.8)	33.0 (11.1)	25.5 (8.2)	36.4 (11.7)	30.8 (22.8)	43.9 (32.5)	30.2 (17.4)	43.1 (24.8)
23	20.9 (4.1)	29.8 (5.8)	44.9 (43.2)	64.0 (61.6)	34.0 (39.7)	48.6 (56.7)	23.9 (15.3)	34.0 (21.8)	28.4 (15.3)	40.5 (21.8)
24	20.7 (4.9)	29.5 (6.9)	21.1 (4.5)	30.1 (6.5)	41.8 (55.0)	59.6 (78.4)				
25	32.1 (20.9)	45.8 (29.8)	42.8 (47.6)	61.0 (67.8)	42.7 (39.4)	60.9 (56.1)				
26	26.3 (12.3)	37.7 (17.6)	25.9 (26.3)	36.9 (37.5)	24.5 (24.0)	34.9 (34.2)	19.3 (2.5)	27.6 (3.6)		
27	27.0 (8.7)	38.5 (12.4)	39.0 (71.3)	55.7 (102.0)	79.5 (135.0)	114.0 (193.0)			60.9 (48.9)	86.9 (69.9)
28	19.6 (2.6)	28.0 (3.7)	28.0 (9.3)	40.0 (13.2)	36.4 (20.9)	52.0 (29.9)				
29	20.9 (3.9)		34.8 (18.0)		49.5 (66.7)		23.3 (12.6)			
30	23.7 (11.9)		24.0 (9.8)		44.4 (107.0)		27.1 (15.9)		32.0 (20.0)	
31	37.3 (8.6)									
Avg	30.5	45.0	31.6	45.4	43.3	61.4	25.8	37.0	45.4	66.0
n	13	10	27	25	26	24	15	13	19	18
SD	13.3	20.8	7.9	11.5	20.3	30.2	4.9	7.4	18.0	26.0
Min	19.6	28.0	19.9	28.5	21.9	31.4	19.3	27.6	24.3	34.7
Max	67.7	96.9	53.8	77.0	106.0	151.0	36.5	52.0	89.7	128.0

Table F6. Daily means (SD) of H₂S concentrations at site WA5B for September, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³	ppb	mg·dsm ⁻³
1	27.6 (8.5)		65.5 (128.0)		30.7 (22.6)		50.8 (44.8)		31.9 (21.5)	
2	37.8 (34.0)		30.6 (15.1)		35.3 (20.8)		30.8 (13.0)		104.0 (206.0)	
3	21.9 (4.2)									
4	22.5 (5.4)	32.1 (7.7)	34.0 (18.6)	48.6 (26.5)	46.8 (36.3)	66.9 (51.8)	57.1 (84.1)	81.6 (120.0)	56.3 (55.1)	80.5 (78.8)
5	23.1 (8.7)	33.0 (12.3)	64.4 (68.8)	92.0 (98.2)	73.6 (80.8)	105.0 (115.0)	79.4 (142.0)	113.0 (203.0)	50.5 (41.8)	72.2 (59.8)
6	18.2 (1.3)	25.9 (1.9)	27.8 (21.2)	39.7 (30.2)	27.0 (20.3)	38.6 (29.0)			23.8 (10.9)	33.9 (15.6)
7	23.7 (12.3)	33.8 (17.6)	21.2 (4.7)	30.3 (6.7)	23.8 (11.4)	34.0 (16.3)	21.8 (6.9)	31.1 (9.8)	35.4 (24.4)	50.5 (34.9)
8	27.9 (14.0)	39.8 (19.9)	18.5 (2.6)	26.4 (3.7)	40.1 (48.4)	57.2 (69.1)	21.4 (5.6)	30.6 (8.0)	31.2 (29.7)	44.5 (42.3)
9	21.6 (3.4)	30.8 (4.9)	24.7 (11.8)	35.2 (16.8)	103.0 (169.0)	147.0 (242.0)	21.7 (8.6)	31.0 (12.3)	45.9 (31.2)	65.5 (44.5)
10	28.5 (14.7)	40.7 (21.1)	38.1 (32.0)	54.4 (45.7)	39.4 (32.4)	56.2 (46.2)	22.8 (11.1)	32.5 (15.9)	49.0 (52.1)	70.1 (74.4)
11	24.4 (9.4)	34.9 (13.4)			40.0 (29.0)	57.1 (41.4)				
12	38.4 (29.3)	54.7 (41.7)	54.7 (77.1)	78.1 (110.0)	66.4 (128.0)	94.8 (183.0)				
13	117.0 (134.0)	167.0 (192.0)	30.1 (14.0)	43.0 (20.0)						
14										
15										
16										
17	24.4 (12.2)	34.8 (17.4)	52.2 (102.0)	74.5 (145.0)	27.4 (23.2)	39.2 (33.3)	32.6 (26.9)	46.5 (38.4)	21.8 (6.0)	31.1 (8.5)
18	33.0 (22.4)	47.0 (32.0)	40.2 (61.3)	57.4 (87.5)	59.0 (46.1)	84.2 (65.8)			64.8 (75.4)	92.3 (107.0)
19	20.1 (4.1)	28.6 (5.8)	24.2 (9.6)	34.5 (13.7)	34.6 (24.9)	49.4 (35.5)				
20	20.4 (3.5)	29.1 (5.0)	24.8 (10.6)	35.4 (15.1)	59.8 (84.2)	85.2 (120.0)			26.3 (13.5)	37.4 (19.3)
21	48.4 (54.9)	69.0 (78.2)	40.1 (25.2)	57.1 (36.0)	59.6 (46.6)	85.0 (66.5)				
22	30.5 (28.8)	43.4 (41.0)	33.0 (21.6)	47.1 (30.9)	107.0 (187.0)	153.0 (267.0)				
23	36.2 (26.9)	51.6 (38.3)	29.4 (16.7)	41.9 (23.9)	36.7 (25.6)	52.4 (36.6)				
24	29.2 (17.3)									
25	21.0 (3.5)	30.0 (4.9)	21.6 (7.9)	30.9 (11.2)	22.3 (8.1)	31.8 (11.5)	28.0 (14.9)	40.0 (21.3)		
26	21.4 (3.5)	30.5 (4.9)	33.7 (33.4)	48.0 (47.7)	28.4 (17.9)	40.5 (25.6)	39.8 (33.1)	56.7 (47.3)		
27	22.7 (9.8)	32.3 (14.0)	30.5 (25.3)	43.5 (36.0)	22.4 (8.6)	31.9 (12.2)	29.0 (21.5)	41.3 (30.6)	49.3 (38.6)	70.2 (55.0)
28	40.4 (41.3)	57.5 (58.7)	28.2 (15.2)	40.2 (21.6)	50.6 (38.4)	72.1 (54.7)			32.3 (13.7)	46.0 (19.5)
29	19.1 (3.4)	27.2 (4.8)	28.8 (25.4)	41.0 (36.1)	25.2 (16.4)	35.9 (23.3)	23.8 (9.3)	33.9 (13.3)		
30	19.5 (1.9)	27.8 (2.7)	38.8 (42.5)	60.1 (64.9)	29.6 (15.4)				54.7 (55.0)	
Avg	30.3	43.6	34.8	48.1	45.4	67.5	35.3	49.0	45.2	57.8
n	27	23	24	22	24	21	13	11	15	12
SD	18.6	28.5	12.5	16.2	23.0	34.2	16.8	25.1	20.2	19.0
Min	18.2	25.9	18.5	26.4	22.3	31.8	21.4	30.6	21.8	31.1
Max	117	167	65.5	92.0	107.0	153.0	79.4	113.0	104.0	92.3

Table F7. Hydrogen sulfide emissions.

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for November, 2007

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1	560 (1290)	99 (227)	1090 (2520)			
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Avg	1	1	1	0	0	0
n						
SD						
Min						
Max						

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for December, 2007.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1	-135 (371)	-24 (65)	-264 (724)	-1790 (7520)	-215 (905)	-1910 (8020)
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17	-5400 (15000)	-952 (2640)	-10500 (29300)			
18	-3830 (7300)	-675 (1290)	-7480 (14300)			
19						
20						
21						
22						
23						
24						
25	596 (1030)	105 (182)	1160 (2010)			
26						
27						
28						
29						
30						
31						
Avg	-2190	-387	-4280	1	1	1
n	4	4	4			
SD	2500	441	4880			
Min	-5400	-952	-10500			
Max	596	105	1160			

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for February, 20

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24	167 (1470)	29 (259)	326 (2860)			
25						
26						
27						
28						
29						
Avg						
n	1	1	1	0	0	0
SD						
Min						
Max						

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for March, 2008.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16	366 (1930)	65 (341)	714 (3770)			
17						
18						
19						
20	907 (2130)	160 (375)	1770 (4150)			
21	99 (661)	18 (117)	194 (1290)			
22						
23						
24						
25						
26	1580 (4090)	279 (720)	3090 (7980)			
27	361 (965)	64 (170)	706 (1880)			
28						
29						
30	-124 (749)	-22 (132)	-242 (1460)			
31						
Avg	532	94	1040			
n	6	6	6	0	0	0
SD	565	100	1100			
Min	-124	-22	-242			
Max	1580	279	3090			

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for April, 2008.

Day	Barn 2			Barn 4		
	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6	546 (2300)	96 (406)	1070 (4490)	-189 (957)	-23 (115)	-202 (1020)
7						
8						
9						
10				1590 (4170)	192 (501)	1690 (4410)
11						
12						
13						
14	912 (1650)	161 (291)	1780 (3230)	-1540 (4590)	-185 (553)	-1620 (4830)
15	2610 (8880)	460 (1570)	5090 (17300)	31 (6900)	4 (831)	32 (7230)
16						
17						
18	659 (2190)	116 (387)	1290 (4290)	598 (1270)	72 (153)	623 (1320)
19						
20						
21						
22						
23	-316 (1560)	-56 (276)	-618 (3050)	1420 (5350)	171 (644)	1470 (5550)
24						
25						
26						
27						
28				1320 (5690)	159 (685)	1370 (5900)
29	6090 (22700)	1070 (4010)	11900 (44400)	2800 (10400)	337 (1260)	2900 (10800)
30	3710 (13100)	654 (2310)	7250 (25600)			
Avg	2030	358	3960	755	91	783
n	7	7	7	8	8	8
SD	2090	368	4070	1240	150	1300
Min	-316	-56	-618	-1540	-185	-1620
Max	6090	1070	11900	2800	337	2900

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for May, 2008.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4						
5						
6						
7	-1730 (8010)	-306 (1410)	-3390 (15700)	610 (9210)	74 (1110)	630 (9500)
8						
9	1840 (4670)	324 (824)	3590 (9130)	3420 (13200)	412 (1590)	3530 (13700)
10				-6310 (24000)	-759 (2880)	-6500 (24700)
11	286 (14500)	51 (2560)	559 (28400)	4030 (17800)	485 (2140)	4150 (18300)
12				8610 (23700)	1040 (2850)	8860 (24400)
13						
14						
15	5620 (18500)	991 (3250)	11000 (36100)	315 (5040)	38 (606)	324 (5180)
16						
17						
18						
19						
20						
21	-112 (615)	-20 (108)	-219 (1200)	-139 (2070)	-17 (249)	-142 (2120)
22	76 (975)	13 (172)	147 (1900)	430 (2420)	52 (291)	441 (2480)
23	1960 (7640)	345 (1350)	3820 (14900)			
24						
25						
26	-364 (982)	-64 (173)	-712 (1920)			
27	202 (595)	36 (105)	394 (1160)			
28						
29	3180 (10300)	561 (1820)	6220 (20200)			
30	-236 (968)	-42 (171)	-461 (1890)			
31						
Avg	974	172	1900	1370	165	1410
n	11	11	11	8	8	8
SD	1950	344	3810	3990	481	4110
Min	-1730	-306	-3390	-6310	-759	-6500
Max	5620	991	11000	8610	1040	8860

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for June, 2008.

Day	Barn 2			Barn 4		
	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹
1	-1510 (3410)	-266 (601)	-2940 (6650)	-2740 (7050)	-330 (848)	-2800 (7190)
2						
3						
4						
5						
6	-1510 (3830)	-267 (675)	-2950 (7480)	4500 (14100)	541 (1690)	4580 (14300)
7				2490 (11100)	300 (1340)	2530 (11400)
8	-2380 (5630)	-420 (993)	-4650 (11000)	8700 (23900)	1050 (2870)	8850 (24300)
9				2230 (5070)	268 (610)	2270 (5160)
10	-1410 (3260)	-248 (575)	-2750 (6370)			
11	4040 (10200)	712 (1800)	7890 (20000)			
12						
13				741 (1340)	89 (161)	753 (1360)
14						
15	-539 (1850)	-95 (326)	-1050 (3610)	-624 (3150)	-75 (380)	-633 (3200)
16				305 (3730)	37 (449)	309 (3780)
17	-96 (1360)	-17 (239)	-188 (2650)	1360 (2770)	164 (333)	1380 (2810)
18						
19						
20						
21						
22	1080 (4420)	191 (780)	2120 (8640)			
23	-1040 (4000)	-184 (706)	-2040 (7820)	2000 (11900)	241 (1440)	2030 (12100)
24	2120 (7290)	373 (1280)	4140 (14200)	2050 (10400)	247 (1260)	2070 (10600)
25	501 (2350)	88 (414)	978 (4590)	8370 (32700)	1010 (3930)	8460 (33000)
26	5110 (16100)	901 (2840)	9990 (31500)	4710 (14400)	567 (1740)	4760 (14600)
27	134 (2260)	24 (398)	261 (4420)	3200 (9850)	386 (1190)	3240 (9950)
28						
29						
30	5290 (13600)	933 (2390)	10300 (26500)			
Avg	699	123	1370	2660	321	2700
n	14	14	14	14	14	14
SD	2440	430	4760	3030	365	3080
Min	-2380	-420	-4650	-2740	-330	-2800
Max	5290	933	10300	8700	1050	8850

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for July, 2008.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23	136 (1910)	24 (337)	266 (3730)			
24	89 (5940)	16 (1050)	174 (11600)			
25						
26	6510 (14400)	1150 (2540)	12700 (28100)			
27	-1450 (2330)	-256 (411)	-2840 (4560)			
28						
29	-1450 (4650)	-256 (820)	-2840 (9080)			
30	4210 (9130)	743 (1610)	8230 (17800)			
31						
Avg	1340	236	2620			
n	6	6	6	0	0	0
SD	2990	527	5840			
Min	-1450	-256	-2840			
Max	6510	1150	12700			

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for September, 20

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4	148 (539)	26 (95)	290 (1050)			
5						
6						
7	-257 (507)	-45 (89)	-503 (989)			
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21	1030 (1920)	181 (338)	2010 (3740)			
22	1060 (1380)	187 (243)	2080 (2690)			
23						
24						
25						
26						
27						
28						
29						
30						
Avg	496	87	969			
n	4	4	4	0	0	0
SD	569	100	1110			
Min	-257	-45	-503			
Max	1060	187	2080			

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for October, 20

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1	-76 (503)	-14 (89)	-149 (983)			
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Avg	1	1	1	0	0	0
n						
SD						
Min						
Max						

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for November, 2008.

Day	Barn 2			Barn 4		
	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11	-530 (3180)	-93 (561)	-1050 (6290)	6470 (8720)	779 (1050)	8200 (11000)
12	-1180 (1340)	-207 (237)	-2330 (2660)	177 (5860)	21 (705)	205 (7880)
13						
14						
15						
16						
17						
18						
19	-354 (1760)	-62 (310)	-686 (3400)	2410 (10300)	290 (1250)	2550 (10900)
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Avg	-687	-121	-1350	3020	363	3650
n	3	3	3	3	3	3
SD	354	62	703	2600	314	3360
Min	-1180	-207	-2330	177	21	205
Max	-354	-62	-686	6470	779	8200

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for December, 2008.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14	415 (1180)	73 (207)	838 (2380)			
15						
16						
17						
18						
19						
20	1620 (4610)	286 (812)	3270 (9280)	865 (1280)	104 (155)	884 (1310)
21						
22						
23						
24						
25						
26						
27	2140 (3400)	378 (598)	4300 (6810)			
28						
29						
30						
31						
Avg	1390	246	2800			
n	3	3	3	1	1	1
SD	724	128	1450			
Min	415	73	838			
Max	2140	378	4300			

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for January, 2009.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1	3450 (9260)	608 (1630)	6900 (18500)	502 (7760)	60 (935)	513 (7950)
2						
3						
4						
5						
6	1900 (6460)	335 (1140)	3790 (12900)			
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Avg	2670	471	5350			
n	2	2	2	1	1	1
SD	775	137	1560			
Min	1900	335	3790			
Max	3450	608	6900			

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for February, 2009.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13	964 (3400)	170 (599)	1880 (6650)	135 (3240)	16 (390)	137 (3280)
14						
15						
16	355 (1150)	63 (203)	693 (2240)	1630 (2490)	196 (300)	1620 (2480)
17						
18						
19				650 (2450)	78 (295)	633 (2390)
20						
21						
22						
23						
24	182 (2240)	32 (395)	352 (4330)	1550 (13900)	187 (1670)	1480 (13100)
25	467 (922)	82 (162)	901 (1780)	-732 (2710)	-88 (326)	-689 (2550)
26						
27						
28						
Avg	492	87	957	648	78	635
n	4	4	4	5	5	5
SD	291	51	570	889	107	858
Min	182	32	352	-732	-88	-689
Max	964	170	1880	1630	196	1620

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for March, 2009.

Day	Barn 2			Barn 4		
	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5	-182 (659)	-32 (116)	-350 (1270)	-503 (1970)	-61 (237)	-477 (1870)
6						
7	-509 (1500)	-90 (264)	-977 (2870)	-420 (1160)	-51 (140)	-399 (1110)
8						
9						
10	83 (899)	15 (158)	159 (1730)	1000 (2430)	121 (293)	959 (2320)
11	143 (1340)	25 (237)	275 (2580)	2270 (5380)	273 (648)	2170 (5150)
12						
13						
14						
15	650 (2000)	115 (352)	1250 (3830)	-310 (1950)	-37 (234)	-298 (1870)
16	85 (2410)	15 (424)	163 (4610)			
17	421 (2740)	74 (483)	807 (5250)	9910 (25200)	1190 (3030)	9550 (24200)
18						
19						
20	-693 (2490)	-122 (438)	-1330 (4760)			
21						
22						
23	432 (2010)	76 (355)	826 (3850)	11100 (18900)	1330 (2270)	10800 (18400)
24						
25				5320 (13500)	641 (1620)	5190 (13100)
26						
27						
28						
29				-4390 (8410)	-528 (1010)	-4310 (8250)
30						
31						
Avg	48	8	91	2660	321	2570
n	9	9	9	9	9	9
SD	418	74	801	4850	584	4710
Min	-693	-122	-1330	-4390	-528	-4310
Max	650	115	1250	11100	1330	10800

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for April, 2009.

Day	Barn 2			Barn 4		
	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹
1						
2						
3				821 (2350)	99 (283)	812 (2320)
4						
5						
6						
7						
8				18000 (40800)	2160 (4920)	17900 (40700)
9	-278 (2340)	-49 (412)	-530 (4440)	219 (1340)	26 (161)	218 (1330)
10						
11						
12	248 (7280)	44 (1280)	473 (13800)	5350 (12600)	644 (1520)	5360 (12600)
13	-2400 (6700)	-422 (1180)	-4550 (12700)			
14	61 (2220)	11 (391)	115 (4210)			
15	-224 (3010)	-39 (531)	-425 (5720)	4650 (12300)	560 (1480)	4680 (12400)
16	1180 (5760)	208 (1010)	2240 (10900)			
17						
18						
19						
20						
21						
22				821 (8610)	99 (1040)	835 (8770)
23	2230 (6210)	392 (1100)	4220 (11800)	4040 (30300)	487 (3650)	4120 (30900)
24						
25	248 (1230)	44 (216)	470 (2320)	1270 (4980)	153 (599)	1300 (5090)
26				2020 (3030)	243 (365)	2070 (3100)
27				-378 (1920)	-46 (231)	-387 (1970)
28	-94 (378)	-17 (67)	-177 (714)	538 (1980)	65 (238)	552 (2040)
29	-194 (425)	-34 (75)	-367 (804)	2430 (7030)	292 (847)	2500 (7240)
30						
Avg	78	14	147	3310	399	3330
n	10	10	10	12	12	12
SD	1110	196	2110	4750	572	4740
Min	-2400	-422	-4550	-378	-46	-387
Max	2230	392	4220	18000	2160	17900

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for May, 2009.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1						
2						
3						
4						
5						
6	2030 (10100)	358 (1780)	3830 (19100)	-252 (9010)	-30 (1080)	-262 (9360)
7						
8	1410 (3420)	248 (602)	2660 (6450)	752 (2190)	91 (263)	782 (2270)
9						
10						
11						
12						
13	-49 (1520)	-9 (268)	-92 (2870)			
14						
15	383 (616)	67 (109)	723 (1160)			
16						
17						
18						
19						
20						
21						
22						
23						
24	1060 (2760)	186 (487)	2000 (5230)	231 (2970)	28 (357)	241 (3100)
25	1310 (3360)	230 (592)	2480 (6370)	793 (4090)	96 (492)	828 (4270)
26				24 (4670)	3 (563)	26 (4880)
27	977 (3540)	172 (623)	1850 (6700)	421 (1100)	51 (132)	440 (1150)
28				732 (1820)	88 (219)	764 (1900)
29						
30	-785 (2230)	-138 (393)	-1490 (4240)	1900 (4910)	229 (591)	1990 (5130)
31						
Avg	791	139	1490	575	69	601
n	8	8	8	8	8	8
SD	840	148	1590	612	74	639
Min	-785	-138	-1490	-252	-30	-262
Max	2030	358	3830	1900	229	1990

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for June, 2009.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1				33 (685)	4 (83)	35 (716)
2	-227 (1100)	-40 (193)	-431 (2080)	440 (1150)	53 (139)	460 (1200)
3	477 (1940)	84 (342)	905 (3680)	-885 (1430)	-107 (173)	-926 (1500)
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18				417 (836)	50 (101)	437 (877)
19				15 (940)	2 (113)	16 (986)
20	-26 (108)	-5 (19)	-49 (205)	-9 (1370)	-1 (165)	-9 (1440)
21	-179 (347)	-32 (61)	-342 (661)	2270 (2730)	273 (328)	2380 (2860)
22						
23						
24						
25				122 (231)	15 (28)	129 (242)
26	-598 (1220)	-105 (215)	-1140 (2320)	1320 (4900)	159 (590)	1390 (5150)
27	1990 (4800)	351 (847)	3810 (9170)	2580 (6820)	311 (822)	2710 (7170)
28	1200 (5060)	211 (892)	2290 (9660)	-325 (3730)	-39 (449)	-342 (3920)
29	921 (4250)	162 (750)	1760 (8120)	2530 (4560)	305 (549)	2660 (4790)
30	2790 (6190)	493 (1090)	5340 (11800)	-690 (7290)	-83 (878)	-725 (7670)
Avg	706	124	1350	602	72	632
n	9	9	9	13	13	13
SD	1070	188	2040	1140	138	1200
Min	-598	-105	-1140	-885	-107	-926
Max	2790	493	5340	2580	311	2710

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for July, 2009.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1	268 (2860)	47 (505)	513 (5470)	1450 (6730)	174 (810)	1520 (7080)
2						
3						
4						
5						
6	-55 (1450)	-10 (255)	-105 (2770)	-1390 (5250)	-167 (632)	-1460 (5530)
7						
8						
9	-240 (2340)	-42 (413)	-460 (4490)	-1980 (3950)	-238 (476)	-2090 (4170)
10						
11	-600 (2560)	-106 (451)	-1150 (4900)	-91 (1600)	-11 (192)	-96 (1690)
12				-4590 (23800)	-552 (2870)	-4840 (25100)
13				55 (1090)	7 (131)	58 (1150)
14						
15						
16						
17						
18				-11600 (34800)	-1400 (4190)	-12300 (36800)
19	1820 (4120)	321 (727)	3490 (7910)			
20				1070 (11700)	129 (1400)	1130 (12300)
21						
22	-120 (1480)	-21 (261)	-230 (2840)	3470 (7430)	418 (894)	3670 (7850)
23	-235 (710)	-41 (125)	-451 (1360)	-2410 (8520)	-290 (1030)	-2540 (9000)
24						
25						
26						
27						
28						
29						
30						
31						
Avg	120	21	230	-1610	-193	-1690
n	7	7	7	10	10	10
SD	735	129	1410	3970	478	4190
Min	-600	-106	-1150	-11600	-1400	-12300
Max	1820	321	3490	3470	418	3670

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for August, 2009.

Day	Barn 2			Barn 4		
	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹	g·d ⁻¹	mg·d ⁻¹ m ⁻²	mg·d ⁻¹ hd ⁻¹
1						
2						
3				-5200 (14800)	-626 (1790)	-5510 (15700)
4	-387 (1410)	-68 (249)	-746 (2720)	-1350 (6580)	-163 (792)	-1430 (6980)
5						
6						
7						
8				879 (4030)	106 (485)	932 (4270)
9	-87 (1880)	-15 (331)	-168 (3620)	1040 (3850)	125 (464)	1100 (4090)
10	-156 (691)	-27 (122)	-300 (1330)	1190 (6630)	143 (798)	1260 (7030)
11						
12						
13						
14	701 (4350)	124 (767)	1350 (8400)	-784 (5510)	-94 (664)	-833 (5850)
15						
16						
17						
18						
19						
20						
21						
22	326 (2090)	58 (368)	631 (4040)	493 (1990)	59 (240)	525 (2120)
23				-1120 (9350)	-135 (1130)	-1200 (9940)
24						
25						
26						
27						
28						
29						
30						
31						
Avg	80	14	154	-607	-73	-643
n	5	5	5	8	8	8
SD	387	68	747	1980	238	2100
Min	-387	-68	-746	-5200	-626	-5510
Max	701	124	1350	1190	143	1260

Table F7. Daily means (SD) of hydrogen sulfide emissions at site WA5B for September, 2009.

Day	Barn 2			Barn 4		
	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$	$\text{g}\cdot\text{d}^{-1}$	$\text{mg}\cdot\text{d}^{-1}\text{m}^{-2}$	$\text{mg}\cdot\text{d}^{-1}\text{hd}^{-1}$
1	73 (1630)	13 (287)	142 (3160)	2060 (5700)	248 (687)	2200 (6090)
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17				-946 (3910)	-114 (471)	-1010 (4170)
18				-4880 (11100)	-587 (1340)	-5200 (11900)
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Avg	1	1	1	-1260	-151	-1340
n				3	3	3
SD				2840	342	3030
Min				-4880	-587	-5200
Max				2060	248	2200

Table F8. Ammonia concentrations.Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for October, 2007.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20			0.628 (0.161)	0.446 (0.115)	0.716 (0.155)	0.509 (0.110)				
21			1.020 (0.265)	0.723 (0.188)	0.993 (0.298)	0.706 (0.212)				
22			1.370 (0.549)	0.975 (0.391)	1.380 (0.433)	0.981 (0.309)				
23					1.340 (0.569)	1.020 (0.397)	1.970 (0.354)	1.430 (0.257)		
24	1.510 (0.008)	1.070 (0.006)	1.080 (0.405)	0.767 (0.289)	1.200 (0.377)	0.851 (0.268)	1.710 (0.645)	1.220 (0.459)		
25	1.310 (0.363)	0.928 (0.262)								
26										
27			0.902 (0.121)	0.640 (0.086)	0.704 (0.242)	0.500 (0.172)				
28			0.805 (0.122)	0.572 (0.087)	0.833 (0.238)	0.592 (0.169)				
29			0.793 (0.136)	0.563 (0.097)	0.776 (0.157)	0.552 (0.112)	1.270 (0.300)	0.901 (0.213)		
30			0.813 (0.243)	0.578 (0.172)						
31										
Avg	1.410	1.000	0.926	0.658	0.992	0.713	1.650	1.180		
n	2	2	8	8	8	8	3	3	0	0
SD	0.098	0.072	0.213	0.152	0.261	0.197	0.291	0.218		
Min	1.310	0.928	0.628	0.446	0.704	0.500	1.270	0.901		
Max	1.510	1.070	1.370	0.975	1.380	1.020	1.970	1.430		

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for November, 2007.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1										
2										
3					0.859 (0.151)	0.610 (0.107)				
4			0.908 (0.140)	0.645 (0.100)	0.811 (0.135)	0.577 (0.096)				
5			0.852 (0.241)	0.605 (0.171)	0.760 (0.251)	0.540 (0.178)				
6	1.120 (0.292)	0.792 (0.207)	0.883 (0.247)	0.627 (0.175)						
7	1.420 (0.387)	1.010 (0.275)	0.857 (0.174)	0.609 (0.124)	0.891 (0.229)	0.633 (0.163)				
8	1.580 (0.457)	1.120 (0.325)	0.967 (0.264)	0.688 (0.187)	0.826 (0.322)	0.587 (0.229)				
9	1.020 (0.246)	0.726 (0.175)	0.671 (0.147)	0.477 (0.104)	0.797 (0.242)	0.567 (0.172)				
10	0.780 (0.165)	0.554 (0.117)	0.635 (0.230)	0.451 (0.163)	0.771 (0.228)	0.548 (0.162)				
11	0.921 (0.210)	0.654 (0.149)	0.694 (0.194)	0.493 (0.138)	0.780 (0.217)	0.554 (0.154)				
12	0.682 (0.233)	0.505 (0.175)	0.420 (0.030)	0.298 (0.021)	0.512 (0.105)	0.364 (0.075)				
13	0.697 (0.099)									
14	0.949 (0.234)									
15	0.762 (0.253)	0.542 (0.180)	0.503 (0.136)	0.357 (0.097)			0.823 (0.219)	0.585 (0.156)		
16	0.583 (0.132)	0.415 (0.094)	0.506 (0.128)	0.360 (0.091)	0.736 (0.374)	0.524 (0.266)	0.725 (0.234)	0.516 (0.167)		
17	0.889 (0.210)	0.633 (0.149)	0.629 (0.147)	0.447 (0.105)	0.746 (0.209)	0.530 (0.148)	0.975 (0.273)	0.694 (0.194)		
18	0.570 (0.158)	0.405 (0.112)	0.458 (0.122)	0.325 (0.087)	0.609 (0.223)	0.433 (0.159)				
19	0.685 (0.307)	0.486 (0.218)	0.453 (0.121)	0.322 (0.086)	0.472 (0.079)	0.336 (0.056)				
20	0.666 (0.139)	0.473 (0.099)	0.449 (0.118)	0.319 (0.084)						
21			0.453 (0.178)	0.321 (0.126)						
22			0.404 (0.080)		0.456 (0.085)	0.313 (0.056)	0.805 (0.099)	0.583 (0.062)		
23			0.423 (0.079)		0.540 (0.040)	0.383 (0.029)				
24			0.486 (0.106)	0.345 (0.075)	0.515 (0.089)	0.366 (0.063)				
25			0.405 (0.069)	0.289 (0.049)	0.514 (0.126)	0.365 (0.089)				
26										
27										
28										
29										
30										
Avg	0.888	0.640	0.603	0.443	0.682	0.484	0.832	0.594		
n	15	13	20	18	17	17	4	4	0	0
SD	0.286	0.213	0.189	0.133	0.146	0.105	0.091	0.064		
Min	0.570	0.405	0.404	0.289	0.456	0.313	0.725	0.516		
Max	1.580	1.120	0.967	0.688	0.891	0.633	0.975	0.694		

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for December, 2007.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.290 (0.021)	0.206 (0.015)	0.372 (0.081)		0.429 (0.072)	0.303 (0.051)			0.608 (0.125)	0.432 (0.089)
2	0.295 (0.028)	0.210 (0.020)	0.329 (0.053)	0.234 (0.038)	0.437 (0.076)	0.310 (0.054)				
3	0.354 (0.057)	0.252 (0.040)	0.414 (0.085)	0.295 (0.060)	0.495 (0.064)	0.352 (0.045)				
4	0.367 (0.049)	0.261 (0.035)	0.465 (0.090)	0.331 (0.064)	0.580 (0.113)	0.412 (0.080)	0.620 (0.130)	0.441 (0.092)		
5	0.554 (0.109)	0.394 (0.078)	0.648 (0.133)	0.461 (0.095)	0.739 (0.203)	0.525 (0.144)				
6	0.372 (0.124)	0.264 (0.088)	0.487 (0.189)	0.346 (0.134)	0.574 (0.179)	0.408 (0.127)				
7	0.314 (0.050)	0.220 (0.035)	0.376 (0.082)	0.265 (0.059)	0.463 (0.103)	0.325 (0.073)				
8	0.360 (0.035)									
9	0.312 (0.043)	0.221 (0.031)	0.432 (0.128)				0.875 (0.086)			
10	0.286 (0.026)	0.203 (0.019)	0.694 (0.197)							
11	0.272 (0.017)	0.193 (0.012)	0.401 (0.082)							
12	0.261 (0.036)									
13	0.267 (0.017)									
14	0.311 (0.029)	0.221 (0.020)	0.390 (0.058)		0.545 (0.248)	0.387 (0.176)				
15	0.332 (0.031)	0.236 (0.022)	0.621 (0.174)	0.468 (0.118)	0.864 (0.213)	0.625 (0.144)				
16	0.414 (0.116)	0.294 (0.083)	0.666 (0.252)	0.473 (0.179)	0.906 (0.333)	0.643 (0.236)	0.947 (0.288)	0.673 (0.204)		
17	0.354 (0.028)	0.251 (0.020)	0.745 (0.198)	0.530 (0.141)	0.783 (0.113)	0.557 (0.080)	0.935 (0.339)	0.664 (0.240)		
18	0.326 (0.025)	0.232 (0.017)	0.597 (0.131)	0.424 (0.093)	0.611 (0.179)	0.434 (0.127)				
19	0.302 (0.030)	0.215 (0.021)	0.654 (0.122)	0.465 (0.087)	0.848 (0.139)	0.603 (0.099)	0.680 (0.094)	0.483 (0.067)		
20	0.345 (0.037)	0.245 (0.026)	0.588 (0.108)	0.418 (0.077)	0.908 (0.218)	0.645 (0.155)	0.702 (0.133)	0.499 (0.095)		
21	0.338 (0.021)	0.240 (0.015)	0.812 (0.218)	0.577 (0.155)	0.858 (0.276)	0.609 (0.196)	1.010 (0.123)	0.716 (0.088)		
22	0.321 (0.031)	0.228 (0.022)	0.695 (0.228)	0.493 (0.162)						
23	0.360 (0.030)	0.255 (0.022)			0.785 (0.247)	0.558 (0.176)	1.060 (0.176)	0.756 (0.125)		
24	0.375 (0.041)	0.267 (0.029)	0.672 (0.186)	0.477 (0.132)	0.966 (0.238)	0.686 (0.169)				
25	0.325 (0.069)	0.231 (0.049)	0.591 (0.218)	0.440 (0.149)	0.754 (0.186)	0.540 (0.131)	0.874 (0.209)	0.638 (0.145)		
26	0.327 (0.032)	0.232 (0.023)	0.676 (0.120)	0.480 (0.086)	0.874 (0.156)	0.621 (0.111)				
27	0.328 (0.084)	0.233 (0.060)	0.626 (0.348)	0.433 (0.247)	0.816 (0.298)	0.579 (0.211)				
28	0.317 (0.042)	0.225 (0.030)	0.497 (0.118)	0.353 (0.084)	0.679 (0.154)	0.482 (0.110)	0.771 (0.168)	0.547 (0.119)		
29	0.343 (0.045)	0.244 (0.032)	0.663 (0.182)	0.470 (0.131)	0.839 (0.147)	0.596 (0.105)				
30	0.290 (0.018)	0.206 (0.013)	0.493 (0.108)	0.350 (0.077)	0.730 (0.070)	0.518 (0.050)				
31	0.360 (0.030)	0.256 (0.022)	0.683 (0.214)	0.495 (0.147)	0.674 (0.200)	0.479 (0.142)	0.958 (0.166)	0.680 (0.118)		
Avg	0.335	0.240	0.566	0.422	0.715	0.508	0.858	0.610		
n	31	28	27	22	24	24	11	10	1	1
SD	0.053	0.037	0.131	0.086	0.160	0.114	0.138	0.103		
Min	0.261	0.193	0.329	0.234	0.429	0.303	0.620	0.441		
Max	0.554	0.394	0.812	0.577	0.966	0.686	1.060	0.756		

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for January, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.339 (0.050)	0.240 (0.036)	0.527 (0.193)		0.720 (0.266)	0.512 (0.189)				
2	0.372 (0.047)	0.264 (0.033)	0.709 (0.253)		0.748 (0.176)	0.525 (0.136)				
3	0.316 (0.031)	0.224 (0.022)	0.660 (0.125)		0.797 (0.133)					
4	0.305 (0.025)	0.217 (0.018)	0.559 (0.234)	0.397 (0.166)						
5	0.330 (0.037)	0.234 (0.026)	0.892 (0.237)	0.634 (0.168)						
6	0.412 (0.039)	0.292 (0.027)	0.777 (0.239)	0.552 (0.170)	1.050 (0.211)	0.743 (0.150)				
7										
8										
9										
10										
11	0.354 (0.069)	0.270 (0.042)								
12	0.364 (0.052)	0.259 (0.037)	0.460 (0.111)	0.326 (0.079)	0.748 (0.189)	0.531 (0.134)				
13	0.383 (0.050)	0.272 (0.036)	0.622 (0.220)	0.441 (0.156)	0.734 (0.267)	0.521 (0.190)				
14	0.318 (0.033)	0.226 (0.024)	0.517 (0.042)	0.367 (0.030)	0.562 (0.094)	0.399 (0.067)				
15	0.376 (0.116)	0.267 (0.082)	0.622 (0.265)	0.441 (0.187)	0.751 (0.116)	0.533 (0.082)				
16	0.373 (0.053)	0.265 (0.037)	0.797 (0.197)	0.570 (0.140)	0.709 (0.181)	0.505 (0.129)				
17	0.412 (0.047)	0.292 (0.033)	0.418 (0.154)	0.303 (0.110)	0.611 (0.197)	0.436 (0.138)				
18	0.422 (0.026)	0.303 (0.020)								
19	0.490 (0.051)	0.348 (0.037)								
20	0.331 (0.113)	0.235 (0.080)	0.331 (0.089)	0.239 (0.063)	0.538 (0.155)	0.384 (0.109)				
21	0.275 (0.077)	0.195 (0.054)	0.276 (0.098)	0.202 (0.073)	0.443 (0.195)	0.323 (0.146)				
22	0.327 (0.024)	0.232 (0.017)	0.535 (0.333)	0.396 (0.246)	0.570 (0.206)	0.419 (0.155)				
23	0.353 (0.049)	0.250 (0.035)	0.571 (0.225)	0.423 (0.167)	0.706 (0.217)	0.518 (0.157)				
24	0.317 (0.042)	0.225 (0.030)	0.475 (0.164)	0.352 (0.121)	0.714 (0.132)	0.524 (0.096)				
25	0.291 (0.079)	0.206 (0.056)			0.674 (0.177)	0.494 (0.127)				
26	0.247 (0.047)	0.175 (0.033)	0.283 (0.163)	0.210 (0.121)	0.431 (0.150)	0.319 (0.111)				
27	0.177 (0.048)	0.126 (0.034)	0.362 (0.129)	0.267 (0.095)	0.723 (0.144)	0.520 (0.103)	0.739 (0.159)	0.544 (0.116)		
28	0.245 (0.046)	0.174 (0.032)	0.453 (0.160)	0.332 (0.120)						
29	0.186 (0.044)	0.132 (0.031)	0.487 (0.066)	0.346 (0.047)	0.592 (0.070)	0.420 (0.049)				
30	0.278 (0.064)	0.197 (0.045)	0.744 (0.323)	0.528 (0.230)	0.723 (0.183)	0.513 (0.130)				
31	0.213 (0.044)	0.151 (0.031)	0.605 (0.173)	0.430 (0.123)	0.607 (0.088)	0.431 (0.062)				
Avg	0.326	0.232	0.551	0.388	0.674	0.479				
n	27	27	23	20	21	20	1	1	0	0
SD	0.072	0.051	0.161	0.116	0.130	0.091				
Min	0.177	0.126	0.276	0.202	0.431	0.319				
Max	0.490	0.348	0.892	0.634	1.050	0.743				

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for February, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.238 (0.042)	0.169 (0.030)	0.535 (0.108)	0.380 (0.077)	0.736 (0.160)	0.523 (0.114)				
2	0.357 (0.134)	0.253 (0.095)	0.550 (0.181)	0.391 (0.128)	0.740 (0.438)	0.525 (0.311)				
3	0.244 (0.049)	0.173 (0.035)	0.619 (0.171)	0.440 (0.122)	0.878 (0.139)	0.623 (0.099)				
4	0.471 (0.162)	0.334 (0.115)	0.938 (0.387)	0.666 (0.275)	1.350 (0.507)	0.961 (0.360)				
5	0.305 (0.081)	0.216 (0.058)	0.813 (0.272)	0.577 (0.193)	1.060 (0.168)	0.751 (0.119)				
6	0.257 (0.062)	0.183 (0.044)	0.574 (0.076)	0.408 (0.054)	0.778 (0.115)	0.553 (0.082)				
7	0.201 (0.053)	0.143 (0.037)	0.530 (0.104)	0.377 (0.074)	0.690 (0.133)	0.490 (0.094)				
8	0.243 (0.046)	0.172 (0.033)	0.620 (0.089)	0.440 (0.063)	0.807 (0.107)	0.573 (0.076)				
9	0.374 (0.088)	0.266 (0.062)	0.696 (0.380)	0.495 (0.271)						
10	0.343 (0.087)	0.244 (0.062)	0.675 (0.202)	0.480 (0.143)	0.979 (0.345)	0.696 (0.245)				
11	0.476 (0.070)	0.338 (0.050)	0.986 (0.249)	0.701 (0.177)	1.430 (0.319)	1.020 (0.227)				
12	0.446 (0.089)	0.317 (0.063)	1.020 (0.360)	0.725 (0.256)	1.120 (0.277)	0.797 (0.197)				
13	0.289 (0.029)	0.205 (0.021)	0.672 (0.258)	0.478 (0.183)						
14	0.412 (0.249)									
15	0.448 (0.081)	0.318 (0.057)	0.813 (0.263)	0.578 (0.187)	0.919 (0.141)	0.653 (0.100)				
16	0.581 (0.156)	0.413 (0.111)	0.582 (0.248)	0.414 (0.176)	0.906 (0.192)	0.644 (0.136)				
17	0.372 (0.045)	0.264 (0.032)	0.687 (0.345)	0.488 (0.245)	0.782 (0.351)	0.556 (0.249)				
18	0.318 (0.073)	0.226 (0.052)	0.709 (0.298)	0.505 (0.211)	0.770 (0.294)	0.547 (0.209)				
19	0.419 (0.106)	0.297 (0.076)	0.608 (0.273)	0.434 (0.194)	0.717 (0.352)	0.510 (0.250)				
20	0.372 (0.059)	0.264 (0.042)	0.526 (0.222)	0.374 (0.158)	0.552 (0.212)	0.392 (0.150)				
21	0.423 (0.091)	0.299 (0.066)			0.860 (0.310)					
22	0.426 (0.029)	0.303 (0.020)	0.666 (0.343)	0.473 (0.243)	1.060 (0.552)	0.752 (0.393)				
23	0.444 (0.086)	0.315 (0.061)	0.626 (0.179)	0.445 (0.127)	0.690 (0.202)	0.490 (0.143)	0.976 (0.326)	0.693 (0.231)		
24	0.327 (0.084)	0.233 (0.060)	0.384 (0.093)	0.273 (0.066)	0.713 (0.124)	0.507 (0.089)	0.711 (0.120)	0.505 (0.086)		
25	0.383 (0.086)	0.272 (0.061)	0.521 (0.169)	0.370 (0.120)	0.599 (0.143)	0.426 (0.101)				
26	0.504 (0.166)	0.358 (0.118)	0.507 (0.239)	0.361 (0.170)	0.563 (0.192)	0.400 (0.136)				
27	0.439 (0.073)	0.312 (0.051)	0.736 (0.169)	0.523 (0.120)	0.650 (0.177)	0.462 (0.126)				
28	0.478 (0.073)	0.340 (0.052)	0.644 (0.204)	0.458 (0.145)	0.608 (0.190)	0.435 (0.136)				
29	0.441 (0.081)	0.314 (0.058)	0.588 (0.187)	0.418 (0.133)	0.704 (0.217)	0.503 (0.155)				
Avg	0.380	0.269	0.660	0.469	0.833	0.591	0.843	0.599		
n	29	28	27	27	26	25	2	2	0	0
SD	0.090	0.065	0.146	0.104	0.219	0.159	0.132	0.094		
Min	0.201	0.143	0.384	0.273	0.552	0.392	0.711	0.505		
Max	0.581	0.413	1.020	0.725	1.430	1.020	0.976	0.693		

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for March, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.281 (0.033)	0.199 (0.024)	0.438 (0.079)	0.311 (0.056)	0.562 (0.098)	0.399 (0.069)				
2	0.344 (0.111)	0.244 (0.079)	0.476 (0.101)	0.338 (0.072)						
3	0.276 (0.053)	0.196 (0.038)	0.375 (0.089)	0.266 (0.063)	0.563 (0.142)	0.400 (0.101)				
4	0.288 (0.036)	0.204 (0.026)	0.336 (0.053)	0.238 (0.038)	0.577 (0.081)	0.409 (0.057)				
5	0.345 (0.048)	0.245 (0.034)	0.528 (0.125)	0.375 (0.089)						
6	0.430 (0.077)	0.305 (0.055)	0.486 (0.137)	0.345 (0.098)	0.615 (0.225)	0.436 (0.160)				
7	0.446 (0.085)	0.316 (0.060)	0.725 (0.159)	0.515 (0.113)	0.646 (0.246)	0.458 (0.174)				
8	0.413 (0.091)	0.293 (0.065)	0.532 (0.117)	0.378 (0.083)	0.659 (0.104)	0.468 (0.074)				
9	0.396 (0.053)	0.281 (0.038)	0.649 (0.225)	0.461 (0.160)	0.618 (0.236)	0.439 (0.167)				
10	0.399 (0.087)	0.283 (0.062)	0.460 (0.245)	0.327 (0.174)	0.549 (0.275)	0.389 (0.195)				
11	0.241 (0.051)	0.171 (0.036)	0.369 (0.078)	0.262 (0.055)	0.437 (0.126)	0.310 (0.090)				
12	0.381 (0.082)	0.273 (0.058)	0.367 (0.115)	0.258 (0.083)			0.707 (0.094)	0.498 (0.067)		
13	0.261 (0.069)	0.186 (0.049)	0.335 (0.052)	0.238 (0.037)	0.457 (0.093)	0.324 (0.066)				
14	0.314 (0.044)	0.223 (0.031)	0.401 (0.081)	0.284 (0.057)	0.505 (0.131)	0.359 (0.093)	0.605 (0.181)	0.430 (0.128)		
15	0.332 (0.039)	0.235 (0.028)	0.535 (0.213)	0.380 (0.151)	0.606 (0.128)	0.430 (0.091)	0.710 (0.136)	0.504 (0.097)		
16	0.406 (0.126)	0.288 (0.090)	0.452 (0.079)	0.321 (0.056)	0.560 (0.062)	0.397 (0.044)	0.663 (0.116)	0.470 (0.082)		
17	0.384 (0.086)	0.273 (0.061)	0.476 (0.113)	0.338 (0.080)	0.511 (0.122)	0.362 (0.087)	0.673 (0.152)	0.478 (0.108)		
18	0.281 (0.038)	0.200 (0.027)	0.402 (0.082)	0.286 (0.058)	0.481 (0.052)	0.341 (0.037)	0.549 (0.116)	0.389 (0.083)		
19	0.343 (0.046)	0.243 (0.032)	0.401 (0.119)	0.284 (0.085)	0.471 (0.097)	0.334 (0.069)	0.641 (0.116)	0.455 (0.082)		
20	0.305 (0.041)	0.217 (0.029)	0.391 (0.078)	0.277 (0.055)	0.444 (0.075)	0.315 (0.053)	0.525 (0.166)	0.373 (0.118)		
21	0.256 (0.068)	0.181 (0.049)	0.350 (0.093)	0.248 (0.066)	0.445 (0.145)	0.316 (0.103)	0.452 (0.137)	0.321 (0.097)		
22	0.342 (0.042)	0.243 (0.030)			0.436 (0.079)	0.309 (0.056)	0.596 (0.118)	0.423 (0.084)		
23	0.299 (0.032)	0.212 (0.022)	0.382 (0.091)	0.271 (0.064)	0.394 (0.059)	0.280 (0.042)				
24	0.321 (0.070)	0.228 (0.050)	0.432 (0.173)	0.306 (0.123)	0.438 (0.112)	0.311 (0.079)	0.546 (0.099)	0.387 (0.070)		
25	0.382 (0.043)	0.271 (0.031)			0.487 (0.078)	0.345 (0.056)	0.622 (0.100)	0.441 (0.071)		
26	0.231 (0.043)	0.164 (0.030)	0.319 (0.031)	0.226 (0.022)	0.415 (0.067)	0.294 (0.047)	0.422 (0.051)	0.299 (0.036)		
27	0.284 (0.113)	0.198 (0.077)	0.348 (0.091)	0.245 (0.064)	0.404 (0.088)	0.285 (0.062)	0.431 (0.132)	0.305 (0.094)		
28	0.243 (0.046)	0.172 (0.033)	0.281 (0.065)	0.199 (0.046)	0.302 (0.048)	0.214 (0.034)	0.476 (0.138)	0.338 (0.098)		
29	0.218 (0.043)	0.154 (0.031)	0.327 (0.077)	0.232 (0.054)			0.392 (0.114)	0.278 (0.081)		
30	0.204 (0.041)	0.145 (0.029)	0.343 (0.114)	0.243 (0.081)	0.393 (0.064)	0.279 (0.045)	0.411 (0.118)	0.291 (0.084)		
31	0.302 (0.041)	0.214 (0.029)					0.534 (0.086)	0.379 (0.061)		
Avg	0.321	0.228	0.426	0.302	0.499	0.354	0.553	0.392		
n	31	31	28	28	26	26	18	18	0	0
SD	0.065	0.046	0.099	0.071	0.089	0.063	0.102	0.072		
Min	0.204	0.145	0.281	0.199	0.302	0.214	0.392	0.278		
Max	0.446	0.316	0.725	0.515	0.659	0.468	0.710	0.504		

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for April, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.251 (0.038)	0.178 (0.027)	0.294 (0.071)	0.208 (0.051)			0.464 (0.102)	0.329 (0.073)	0.534 (0.062)	0.379 (0.044)
2	0.249 (0.049)	0.177 (0.034)	0.413 (0.109)	0.293 (0.077)			0.558 (0.141)	0.396 (0.100)	0.673 (0.080)	0.477 (0.057)
3	0.325 (0.048)	0.230 (0.034)	0.410 (0.109)	0.291 (0.078)	0.527 (0.149)	0.374 (0.106)	0.641 (0.197)	0.455 (0.139)	0.740 (0.169)	0.525 (0.120)
4	0.432 (0.164)	0.306 (0.116)	0.473 (0.166)	0.335 (0.118)	0.474 (0.143)	0.337 (0.102)	0.568 (0.225)	0.403 (0.160)	0.767 (0.235)	0.544 (0.167)
5	0.299 (0.088)	0.212 (0.062)			0.399 (0.097)	0.283 (0.069)	0.533 (0.150)	0.378 (0.106)	0.707 (0.133)	0.502 (0.094)
6	0.203 (0.029)	0.144 (0.020)	0.310 (0.079)	0.220 (0.056)	0.431 (0.140)	0.306 (0.099)	0.388 (0.081)	0.275 (0.057)	0.555 (0.171)	0.394 (0.122)
7	0.289 (0.065)	0.205 (0.046)	0.400 (0.100)	0.284 (0.071)	0.476 (0.107)	0.337 (0.076)	0.603 (0.182)	0.428 (0.129)	0.724 (0.102)	0.514 (0.072)
8	0.315 (0.074)	0.223 (0.052)	0.437 (0.142)	0.310 (0.101)	0.438 (0.087)	0.311 (0.061)	0.729 (0.195)	0.517 (0.138)	0.737 (0.134)	0.523 (0.095)
9	0.272 (0.032)	0.193 (0.022)	0.478 (0.104)	0.339 (0.074)	0.435 (0.078)	0.308 (0.055)	0.579 (0.133)	0.411 (0.094)	0.748 (0.132)	0.530 (0.094)
10	0.267 (0.042)	0.190 (0.030)	0.410 (0.085)	0.291 (0.060)	0.613 (0.118)	0.435 (0.084)	0.648 (0.124)	0.460 (0.088)	0.829 (0.123)	0.588 (0.087)
11	0.371 (0.090)	0.263 (0.064)	0.393 (0.126)	0.279 (0.089)	0.439 (0.128)	0.311 (0.091)	0.561 (0.161)	0.398 (0.114)	0.667 (0.188)	0.473 (0.133)
12	0.404 (0.075)	0.286 (0.053)	0.476 (0.236)	0.338 (0.168)	0.523 (0.181)	0.371 (0.128)	0.609 (0.147)	0.432 (0.104)	0.795 (0.194)	0.565 (0.138)
13	0.464 (0.094)	0.330 (0.067)	0.597 (0.183)	0.424 (0.130)	0.676 (0.368)	0.480 (0.261)	0.667 (0.221)	0.474 (0.157)	1.040 (0.357)	0.742 (0.253)
14	0.239 (0.064)	0.170 (0.045)	0.306 (0.049)	0.217 (0.035)	0.426 (0.089)	0.303 (0.063)	0.388 (0.053)	0.276 (0.038)	0.577 (0.155)	0.409 (0.110)
15	0.300 (0.034)	0.213 (0.024)	0.302 (0.062)	0.214 (0.044)	0.396 (0.082)	0.281 (0.058)	0.446 (0.065)	0.316 (0.046)	0.535 (0.102)	0.380 (0.073)
16	0.272 (0.047)	0.193 (0.034)	0.331 (0.059)	0.235 (0.042)	0.388 (0.072)	0.275 (0.051)	0.496 (0.103)	0.352 (0.073)	0.602 (0.090)	0.427 (0.064)
17	0.348 (0.034)	0.247 (0.024)					0.555 (0.148)	0.394 (0.105)	0.780 (0.267)	0.553 (0.190)
18	0.246 (0.067)	0.175 (0.047)	0.294 (0.048)	0.208 (0.034)	0.357 (0.086)	0.253 (0.061)	0.345 (0.064)	0.245 (0.045)	0.494 (0.117)	0.350 (0.083)
19	0.216 (0.035)	0.153 (0.025)	0.319 (0.062)	0.226 (0.044)			0.408 (0.134)	0.290 (0.095)	0.558 (0.173)	0.395 (0.123)
20	0.265 (0.053)	0.188 (0.038)	0.396 (0.077)	0.281 (0.055)	0.486 (0.073)	0.345 (0.052)	0.595 (0.124)	0.422 (0.088)	0.712 (0.140)	0.505 (0.099)
21	0.262 (0.028)	0.186 (0.020)	0.344 (0.067)	0.244 (0.048)	0.413 (0.091)	0.293 (0.065)	0.545 (0.102)	0.386 (0.072)	0.658 (0.156)	0.467 (0.110)
22	0.282 (0.050)	0.200 (0.035)	0.403 (0.090)	0.286 (0.064)	0.420 (0.146)	0.298 (0.104)	0.594 (0.171)	0.422 (0.121)	0.708 (0.172)	0.503 (0.122)
23	0.259 (0.043)	0.183 (0.031)	0.375 (0.064)	0.266 (0.046)	0.485 (0.070)	0.344 (0.050)	0.515 (0.106)	0.366 (0.075)	0.668 (0.134)	0.474 (0.095)
24	0.512 (0.242)	0.363 (0.171)								
25	0.176 (0.226)	0.125 (0.160)								
26	0.772 (0.507)	0.548 (0.360)	0.605 (0.464)	0.429 (0.329)	0.710 (0.529)	0.504 (0.375)	1.340 (0.616)	0.951 (0.437)	1.990 (1.140)	1.420 (0.809)
27	1.070 (0.973)	0.762 (0.690)	1.030 (0.837)	0.732 (0.594)	1.170 (0.876)	0.832 (0.622)	2.170 (1.340)	1.540 (0.949)	2.980 (1.280)	2.110 (0.910)
28	0.804 (0.486)	0.570 (0.345)	0.872 (0.523)	0.619 (0.371)	1.640 (0.836)	1.170 (0.594)	1.580 (0.537)	1.120 (0.381)	2.740 (0.895)	1.940 (0.635)
29	0.097 (0.161)	0.069 (0.114)	0.277 (0.194)	0.197 (0.138)	0.841 (0.383)	0.597 (0.272)	0.830 (0.431)	0.589 (0.305)	1.650 (0.870)	1.170 (0.618)
30										
Avg	0.354	0.251	0.438	0.311	0.572	0.406	0.680	0.482	0.932	0.661
n	29	29	25	25	23	23	27	27	27	27
SD	0.206	0.146	0.178	0.127	0.296	0.211	0.399	0.283	0.644	0.457
Min	0.097	0.069	0.277	0.197	0.357	0.253	0.345	0.245	0.494	0.350
Max	1.070	0.762	1.030	0.732	1.640	1.170	2.170	1.540	2.980	2.110

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for May, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1										
2										
3										
4										
5										
6										
7	0.494 (0.292)	0.350 (0.207)	0.503 (0.157)	0.357 (0.111)	1.040 (0.286)	0.737 (0.203)	1.170 (0.554)	0.828 (0.393)	1.990 (0.634)	1.410 (0.450)
8	0.281 (0.125)	0.199 (0.089)	0.358 (0.210)	0.254 (0.149)	1.130 (0.616)	0.799 (0.437)	1.010 (0.359)	0.716 (0.255)	1.800 (0.584)	1.270 (0.414)
9	0.275 (0.186)	0.195 (0.132)	0.330 (0.462)	0.234 (0.327)	0.637 (0.443)	0.452 (0.315)	1.020 (0.398)	0.722 (0.282)	1.980 (0.796)	1.400 (0.565)
10	0.542 (0.406)	0.385 (0.288)			1.430 (0.640)	1.020 (0.454)	1.750 (1.040)	1.240 (0.741)	3.240 (1.160)	2.300 (0.824)
11	0.081 (0.147)	0.058 (0.104)	0.240 (0.210)	0.171 (0.149)	0.681 (0.349)	0.483 (0.248)	0.619 (0.327)	0.439 (0.232)	1.720 (0.836)	1.220 (0.593)
12	0.161 (0.145)	0.115 (0.103)	0.297 (0.298)	0.211 (0.212)	0.699 (0.347)	0.496 (0.247)	1.010 (0.456)	0.717 (0.324)	1.770 (0.814)	1.260 (0.577)
13	0.585 (0.278)	0.415 (0.197)	0.572 (0.294)	0.406 (0.208)	0.979 (0.378)	0.695 (0.268)	1.420 (0.753)	1.010 (0.535)	2.460 (0.834)	1.740 (0.592)
14	0.539 (0.547)	0.383 (0.388)	0.652 (0.379)	0.463 (0.269)	1.200 (0.558)	0.855 (0.396)	1.100 (0.626)	0.784 (0.445)	2.960 (1.650)	2.100 (1.180)
15	0.711 (0.515)	0.505 (0.366)	0.560 (0.600)	0.398 (0.426)	0.878 (0.609)	0.624 (0.433)	1.170 (0.642)	0.835 (0.456)	2.120 (1.140)	1.510 (0.807)
16										
17										
18										
19										
20										
21	0.042 (0.196)	0.030 (0.139)	0.245 (0.263)	0.174 (0.187)	0.942 (0.590)	0.668 (0.419)	0.504 (0.411)	0.358 (0.292)	1.630 (0.906)	1.160 (0.643)
22	0.041 (0.119)	0.029 (0.085)	0.178 (0.156)	0.126 (0.111)	0.699 (0.414)	0.496 (0.294)	0.560 (0.287)	0.397 (0.204)	1.570 (0.703)	1.120 (0.499)
23	0.414 (0.445)	0.294 (0.316)	0.361 (0.412)	0.256 (0.293)	0.922 (0.770)	0.656 (0.547)	1.250 (0.725)	0.889 (0.516)		
24	0.490 (0.222)	0.348 (0.158)	0.839 (0.317)	0.596 (0.226)	1.930 (0.855)	1.370 (0.608)	1.670 (0.214)	1.190 (0.152)		
25	0.219 (0.358)	0.156 (0.255)	0.433 (0.568)	0.308 (0.404)	0.923 (0.672)	0.656 (0.478)	1.230 (0.630)	0.873 (0.448)		
26	0.712 (0.176)	0.506 (0.125)	0.486 (0.141)	0.345 (0.100)	0.913 (0.396)	0.649 (0.281)	1.350 (0.725)	0.962 (0.515)		
27	0.742 (0.576)	0.527 (0.409)	0.776 (0.417)	0.552 (0.296)	1.550 (0.695)	1.100 (0.494)	2.070 (0.615)	1.470 (0.437)	4.330 (0.850)	3.070 (0.604)
28	1.290 (0.697)	0.920 (0.495)	1.330 (0.500)	0.945 (0.356)	1.880 (1.080)	1.340 (0.765)	2.750 (1.120)	1.950 (0.798)		
29	0.464 (0.313)	0.330 (0.222)	0.819 (0.540)	0.582 (0.384)	1.350 (0.580)	0.961 (0.413)	1.940 (1.080)	1.380 (0.769)	3.130 (1.640)	2.220 (1.170)
30	0.789 (0.238)	0.560 (0.169)	0.768 (0.193)	0.545 (0.137)	0.954 (0.452)	0.677 (0.321)	1.850 (0.798)	1.310 (0.567)	2.190 (0.728)	1.550 (0.517)
31	0.750 (0.544)	0.533 (0.386)	1.060 (0.462)	0.754 (0.328)	1.820 (0.795)	1.290 (0.564)	2.290 (1.470)	1.630 (1.040)	2.920 (1.200)	2.070 (0.854)
Avg	0.481	0.342	0.569	0.404	1.130	0.801	1.390	0.985	2.390	1.690
n	20	20	19	19	20	20	20	20	15	15
SD	0.302	0.215	0.296	0.210	0.395	0.281	0.573	0.407	0.752	0.535
Min	0.041	0.029	0.178	0.126	0.637	0.452	0.504	0.358	1.570	1.120
Max	1.290	0.920	1.330	0.945	1.930	1.370	2.750	1.950	4.330	3.070

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for June, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.245 (0.193)	0.174 (0.137)	0.607 (0.351)	0.431 (0.249)	1.280 (0.353)	0.911 (0.251)	1.700 (0.763)	1.210 (0.543)	2.390 (0.868)	1.700 (0.617)
2	0.488 (0.165)	0.346 (0.117)	0.743 (0.203)	0.527 (0.144)	1.260 (0.814)	0.893 (0.578)	2.100 (1.050)	1.490 (0.748)	2.860 (1.060)	2.030 (0.755)
3	0.487 (0.114)	0.346 (0.081)	0.621 (0.250)	0.441 (0.177)	1.340 (0.544)	0.954 (0.386)	2.260 (1.150)	1.600 (0.815)	3.400 (1.160)	2.420 (0.826)
4	0.546 (3.440)	0.387 (2.440)	0.426 (0.243)	0.303 (0.173)	0.895 (0.330)	0.635 (0.234)	1.290 (0.392)	0.916 (0.279)		
5	0.393 (0.642)	0.279 (0.456)	0.500 (0.442)	0.355 (0.314)	0.893 (0.554)	0.634 (0.394)	1.480 (0.802)	1.050 (0.569)		
6	0.020 (0.185)	0.014 (0.131)	0.166 (0.216)	0.118 (0.153)	0.498 (0.390)	0.354 (0.277)	0.643 (0.450)	0.457 (0.320)	1.570 (0.856)	1.110 (0.608)
7	0.365 (0.450)	0.259 (0.320)	0.516 (0.529)	0.366 (0.376)	1.020 (0.486)	0.723 (0.345)	1.700 (0.929)	1.210 (0.660)	2.560 (1.420)	1.820 (1.010)
8	0.255 (0.159)	0.181 (0.113)	0.452 (0.218)	0.321 (0.155)	1.010 (0.605)	0.715 (0.429)	1.310 (0.353)	0.931 (0.251)	2.050 (0.610)	1.450 (0.433)
9	0.449 (0.489)	0.319 (0.348)	0.470 (0.567)	0.334 (0.402)	0.879 (0.549)	0.624 (0.390)	1.430 (1.010)	1.010 (0.720)	2.080 (1.390)	1.480 (0.987)
10	0.110 (0.189)	0.078 (0.134)	-0.011 (0.310)	-0.008 (0.220)	0.335 (0.372)	0.238 (0.264)	1.020 (0.790)	0.727 (0.561)	1.120 (0.663)	0.795 (0.471)
11	0.025 (0.096)	0.018 (0.068)	0.256 (0.288)	0.182 (0.205)	0.775 (0.442)	0.551 (0.314)	0.949 (0.684)	0.674 (0.486)		
12										
13	0.522 (0.253)	0.371 (0.179)			1.240 (0.548)	0.879 (0.389)	1.230 (0.504)	0.876 (0.358)	2.060 (0.858)	1.460 (0.610)
14	0.304 (0.255)	0.216 (0.181)	0.504 (0.360)	0.358 (0.256)			1.380 (0.743)	0.981 (0.528)	2.050 (1.100)	1.460 (0.778)
15	0.588 (0.297)	0.417 (0.210)	0.436 (0.242)	0.310 (0.172)	0.593 (0.225)	0.421 (0.160)	1.400 (0.763)	0.997 (0.542)	2.130 (1.290)	1.510 (0.914)
16	0.626 (0.222)	0.444 (0.158)	0.544 (0.274)	0.386 (0.195)	1.000 (0.470)	0.711 (0.334)	1.690 (1.040)	1.200 (0.737)	2.210 (1.090)	1.570 (0.775)
17	0.421 (0.196)	0.299 (0.139)	0.613 (0.184)	0.435 (0.130)	0.913 (0.351)	0.648 (0.249)	1.260 (0.422)	0.895 (0.300)	2.170 (0.807)	1.540 (0.573)
18	0.492 (0.157)	0.349 (0.111)	0.850 (0.311)	0.603 (0.221)	1.190 (0.770)	0.846 (0.547)	1.660 (0.759)	1.180 (0.539)	2.200 (0.667)	1.560 (0.473)
19	0.546 (0.371)	0.388 (0.264)	0.893 (0.524)	0.634 (0.372)	1.140 (0.550)	0.811 (0.390)	1.650 (0.988)	1.170 (0.701)	1.970 (1.190)	1.400 (0.844)
20	1.370 (0.740)	0.974 (0.525)	2.080 (1.480)	1.480 (1.050)	2.170 (1.320)	1.540 (0.935)	3.520 (2.260)	2.500 (1.600)	4.120 (2.180)	2.920 (1.550)
21	1.820 (1.900)	1.300 (1.350)	1.730 (1.320)	1.230 (0.935)	2.050 (1.420)	1.450 (1.010)	2.590 (2.030)	1.840 (1.440)	3.580 (2.150)	2.540 (1.530)
22	0.767 (0.351)	0.545 (0.250)	0.893 (0.274)	0.634 (0.194)	0.736 (0.411)	0.523 (0.292)	1.180 (0.289)	0.841 (0.206)		
23	0.445 (0.345)	0.316 (0.245)	0.638 (0.211)	0.453 (0.150)	0.965 (0.480)	0.686 (0.341)	1.370 (0.362)	0.974 (0.257)	1.800 (0.577)	1.270 (0.409)
24	0.410 (0.245)	0.291 (0.174)	0.898 (0.430)	0.638 (0.305)	0.963 (0.287)	0.684 (0.204)	1.970 (0.848)	1.400 (0.602)	1.960 (0.486)	1.390 (0.345)
25	0.824 (0.405)	0.586 (0.287)	0.974 (0.464)	0.692 (0.330)	1.180 (0.404)	0.836 (0.287)	1.870 (0.567)	1.330 (0.403)	2.400 (0.646)	1.700 (0.459)
26	0.568 (0.223)	0.404 (0.158)	0.756 (0.323)	0.537 (0.229)	1.290 (0.705)	0.920 (0.501)	1.890 (0.535)	1.340 (0.380)	2.270 (0.426)	1.610 (0.303)
27	1.680 (0.552)	1.200 (0.392)	1.940 (0.827)	1.380 (0.588)	1.700 (0.805)	1.210 (0.572)	3.500 (1.600)	2.490 (1.140)	4.000 (2.260)	2.840 (1.610)
28	1.840 (0.709)	1.310 (0.504)	2.160 (1.070)	1.540 (0.760)	3.290 (1.340)	2.340 (0.955)	4.380 (2.400)	3.110 (1.700)	5.170 (2.940)	3.680 (2.090)
29	2.730 (1.480)	1.940 (1.050)	2.130 (0.855)	1.520 (0.608)	2.630 (1.370)	1.870 (0.970)	3.190 (1.180)	2.270 (0.840)	4.000 (2.500)	2.840 (1.780)
30	2.010 (0.741)	1.430 (0.527)	1.350 (0.663)	0.958 (0.472)	1.660 (0.593)	1.180 (0.422)	2.610 (1.050)	1.860 (0.745)	3.020 (1.430)	2.150 (1.010)
Avg	0.736	0.523	0.862	0.613	1.246	0.885	1.870	1.329	2.606	1.850
n	29	29	28	28	28	28	29	29	25	25
SD	0.664	0.473	0.608	0.433	0.642	0.456	0.865	0.614	0.946	0.673
Min	0.020	0.014	-0.011	-0.008	0.335	0.238	0.643	0.457	1.120	0.795
Max	2.730	1.940	2.160	1.540	3.290	2.340	4.380	3.110	5.170	3.680

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for July, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	2.560 (1.090)	1.820 (0.779)	2.690 (1.330)	1.910 (0.943)	3.650 (1.460)	2.600 (1.040)				
2	1.710 (1.050)	1.220 (0.748)	2.460 (0.901)	1.750 (0.641)	2.990 (2.060)	2.130 (1.470)				
3	1.990 (2.880)	1.420 (2.050)	1.700 (0.614)	1.210 (0.437)	2.820 (1.190)	2.010 (0.849)				
4	0.920 (0.696)	0.654 (0.495)	1.320 (0.565)	0.937 (0.402)	2.010 (0.934)	1.430 (0.664)				
5										
6										
7										
8	0.936 (0.378)	0.665 (0.269)	1.070 (0.290)	0.763 (0.207)	1.360 (0.586)	0.968 (0.417)				
9	1.260 (0.511)	0.893 (0.363)	1.300 (0.463)	0.927 (0.330)	1.660 (0.426)	1.180 (0.303)				
10	1.150 (0.525)	0.816 (0.373)	1.400 (1.070)	0.993 (0.758)	1.310 (0.451)	0.930 (0.321)				
11	0.931 (0.315)	0.661 (0.223)	1.390 (0.737)	0.990 (0.523)	1.870 (1.450)	1.330 (1.030)				
12	1.440 (0.709)	1.020 (0.503)	2.050 (1.060)	1.450 (0.754)	2.270 (1.700)	1.610 (1.210)				
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
Avg	1.430	1.020	1.710	1.210	2.220	1.580				
n	9	9	9	9	9	9	0	0	0	0
SD	0.531	0.379	0.532	0.379	0.749	0.534				
Min	0.920	0.654	1.070	0.763	1.310	0.930				
Max	2.560	1.820	2.690	1.910	3.650	2.600				

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for August, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	2.580 (2.290)	1.830 (1.630)	2.160 (1.620)	1.540 (1.150)	2.290 (2.080)	1.630 (1.480)				
24	1.980 (1.320)	1.410 (0.937)	2.030 (1.300)	1.440 (0.922)	2.550 (1.620)	1.810 (1.150)	2.370 (1.330)	1.680 (0.943)		
25	0.660 (0.537)	0.469 (0.382)	0.797 (0.394)	0.567 (0.280)			2.070 (0.754)	1.470 (0.537)		
26	0.803 (0.440)	0.570 (0.312)	0.682 (0.334)	0.484 (0.237)	0.937 (0.461)	0.665 (0.328)	1.240 (0.462)	0.883 (0.328)		
27										
28										
29										
30										
31										
Avg	1.500	1.070	1.420	1.010	1.920	1.370	1.890	1.350		
n	4	4	4	4	3	3	3	3	0	0
SD	0.804	0.571	0.682	0.485	0.706	0.502	0.475	0.338		
Min	0.660	0.469	0.682	0.484	0.937	0.665	1.240	0.883		
Max	2.580	1.830	2.160	1.540	2.550	1.810	2.370	1.680		

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for September, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1										
2										
3										
4	1.030 (0.183)	0.734 (0.130)	1.220 (0.194)	0.866 (0.138)	1.420 (0.277)	1.010 (0.197)				
5	1.340 (0.462)	0.948 (0.328)	1.710 (0.495)	1.220 (0.351)	2.180 (0.532)	1.550 (0.378)				
6	1.400 (0.663)	0.997 (0.471)	1.370 (0.589)	0.977 (0.419)	1.890 (0.670)	1.340 (0.477)				
7	1.790 (0.892)	1.270 (0.633)	1.650 (0.568)	1.170 (0.404)	2.010 (1.140)	1.430 (0.809)				
8	1.630 (0.756)	1.160 (0.537)	1.900 (0.677)	1.350 (0.480)	2.380 (1.030)	1.690 (0.730)				
9	1.430 (0.577)	1.010 (0.410)	1.820 (0.909)	1.290 (0.646)	1.660 (0.683)	1.180 (0.485)				
10	1.060 (0.296)	0.751 (0.210)	1.290 (0.274)	0.917 (0.194)	1.600 (0.563)	1.140 (0.400)	1.740 (0.373)	1.240 (0.265)		
11	1.360 (0.116)									
12	2.050 (0.847)	1.460 (0.626)			2.380 (1.250)	1.770 (0.896)				
13	1.100 (0.555)	0.779 (0.394)	1.420 (0.825)	1.010 (0.585)	1.800 (0.575)	1.280 (0.409)				
14	1.760 (0.946)	1.250 (0.672)	2.140 (0.717)	1.520 (0.509)	2.390 (1.430)	1.700 (1.020)				
15	1.850 (1.020)	1.320 (0.721)	2.050 (1.050)	1.460 (0.745)	3.270 (2.630)	2.320 (1.870)				
16	2.730 (1.660)	1.940 (1.180)	3.080 (2.280)	2.190 (1.620)	3.040 (1.810)	2.160 (1.280)				
17	2.140 (1.640)									
18	0.977 (0.281)									
19	1.570 (0.429)	1.120 (0.304)	2.160 (0.702)	1.540 (0.499)	2.770 (1.020)	1.970 (0.727)				
20	0.963 (0.168)	0.684 (0.119)	1.320 (0.232)	0.938 (0.165)	2.170 (0.760)	1.540 (0.540)				
21	0.897 (0.226)	0.637 (0.160)	1.210 (0.229)	0.863 (0.163)	1.770 (0.372)	1.260 (0.264)				
22	0.828 (0.253)	0.587 (0.179)	0.930 (0.231)	0.660 (0.164)	1.450 (0.495)	1.030 (0.352)				
23	1.060 (0.481)	0.758 (0.344)	1.030 (0.774)	0.745 (0.555)	1.220 (0.784)	0.881 (0.559)				
24	1.070 (0.385)	0.757 (0.274)					2.220 (0.638)	1.580 (0.454)		
25	0.912 (0.292)	0.648 (0.207)	1.220 (0.359)	0.866 (0.255)	1.860 (0.412)	1.320 (0.293)				
26	1.100 (0.431)	0.784 (0.306)	1.240 (0.197)	0.878 (0.140)	1.640 (0.450)	1.160 (0.320)	2.120 (0.360)	1.500 (0.255)		
27	1.080 (0.391)	0.766 (0.278)	1.330 (0.362)	0.948 (0.257)	1.550 (0.691)	1.100 (0.491)	2.070 (0.634)	1.470 (0.451)		
28	1.270 (0.420)	0.904 (0.298)	1.530 (0.482)	1.080 (0.342)			2.350 (0.570)	1.670 (0.405)		
29	1.590 (0.633)	1.130 (0.449)	1.850 (0.551)	1.310 (0.391)	1.970 (1.000)	1.400 (0.712)	2.740 (0.702)	1.940 (0.499)		
30	1.510 (0.641)	1.070 (0.455)	1.710 (0.765)	1.220 (0.543)	1.890 (1.080)	1.340 (0.764)				
Avg	1.390	0.978	1.600	1.140	2.010	1.430	2.210	1.570		
n	27	24	22	22	22	22	6	6	0	0
SD	0.444	0.311	0.472	0.335	0.513	0.366	0.301	0.214		
Min	0.828	0.587	0.930	0.660	1.220	0.881	1.740	1.240		
Max	2.730	1.940	3.080	2.190	3.270	2.320	2.740	1.940		

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for October, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	1.310 (0.306)	0.941 (0.218)	1.880 (0.717)	1.360 (0.496)	2.380 (1.280)	1.720 (0.919)				
2	1.050 (0.469)									
3	0.904 (0.172)									
4	0.554 (0.148)	0.394 (0.105)	0.655 (0.253)	0.466 (0.180)	0.839 (0.207)	0.596 (0.147)	0.999 (0.378)	0.710 (0.269)	1.850 (0.663)	1.310 (0.471)
5	0.795 (0.217)	0.565 (0.154)	0.861 (0.279)	0.611 (0.199)	1.160 (0.235)	0.825 (0.165)	1.520 (0.345)	1.080 (0.245)	2.540 (0.426)	1.800 (0.302)
6	0.910 (0.199)	0.647 (0.141)	1.320 (0.195)	0.939 (0.138)	1.790 (0.548)	1.270 (0.389)	2.010 (0.330)	1.430 (0.234)	2.780 (0.496)	1.980 (0.353)
7	0.611 (0.151)	0.434 (0.107)	0.733 (0.211)	0.521 (0.150)	1.030 (0.323)	0.733 (0.229)	1.080 (0.326)	0.765 (0.231)		
8	0.902 (0.275)	0.641 (0.195)								
9	0.755 (0.199)	0.536 (0.141)	0.858 (0.192)	0.609 (0.136)	1.260 (0.357)	0.893 (0.254)	1.310 (0.422)	0.930 (0.300)	2.240 (0.549)	1.590 (0.390)
10	0.704 (0.204)	0.499 (0.145)	0.780 (0.194)	0.553 (0.137)	0.802 (0.274)	0.569 (0.195)	0.965 (0.160)	0.685 (0.114)	1.690 (0.626)	1.200 (0.444)
11	0.654 (0.144)	0.464 (0.102)	0.659 (0.175)	0.467 (0.124)	0.829 (0.270)	0.588 (0.191)	0.826 (0.267)	0.586 (0.189)	1.620 (0.675)	1.150 (0.479)
12	0.813 (0.271)	0.576 (0.192)	0.819 (0.368)	0.581 (0.261)	0.973 (0.383)	0.690 (0.272)	1.220 (0.584)	0.868 (0.415)	1.890 (0.749)	1.340 (0.532)
13	1.060 (0.464)	0.751 (0.329)	1.330 (0.361)	0.947 (0.257)	1.700 (0.553)	1.210 (0.392)			2.790 (0.642)	1.980 (0.456)
14	0.535 (0.253)	0.379 (0.179)								
15	0.890 (0.453)	0.631 (0.321)								
16	1.250 (0.617)	0.912 (0.444)	1.310 (0.542)	0.939 (0.399)	1.330 (0.626)	0.959 (0.456)	1.760 (0.645)	1.250 (0.460)	2.670 (1.050)	1.930 (0.771)
17	1.610 (0.718)	1.140 (0.511)	1.790 (0.546)	1.280 (0.388)	1.900 (0.588)	1.350 (0.419)	2.510 (0.870)	1.790 (0.621)	3.360 (1.610)	2.400 (1.150)
18	1.540 (0.625)	1.100 (0.445)	1.510 (0.339)	1.080 (0.241)	2.100 (0.619)	1.500 (0.442)	2.390 (0.583)	1.710 (0.417)	3.590 (0.950)	2.560 (0.678)
19	1.090 (0.378)	0.772 (0.269)	1.090 (0.313)	0.777 (0.223)	1.620 (0.348)	1.150 (0.248)	1.810 (0.378)	1.290 (0.269)	3.170 (0.544)	2.250 (0.387)
20	0.972 (0.602)	0.691 (0.428)	0.799 (0.237)	0.568 (0.169)	1.260 (0.403)	0.897 (0.287)			2.270 (0.916)	1.620 (0.652)
21	0.698 (0.269)	0.496 (0.191)	0.690 (0.244)	0.491 (0.173)	0.889 (0.377)	0.632 (0.268)			1.620 (0.238)	1.160 (0.169)
22	1.110 (0.358)	0.786 (0.255)	1.460 (0.403)	1.040 (0.286)	1.380 (0.513)	0.982 (0.365)				
23	0.994 (0.272)	0.705 (0.193)			1.200 (0.552)	0.860 (0.393)				
24	1.060 (0.301)	0.753 (0.214)	1.280 (0.444)	0.913 (0.316)	1.510 (0.530)	1.080 (0.377)	1.850 (0.396)	1.310 (0.282)	2.570 (0.452)	1.830 (0.322)
25	1.070 (0.392)	0.763 (0.279)	1.460 (0.473)	1.040 (0.337)	2.180 (0.773)	1.550 (0.550)	2.650 (0.542)	1.880 (0.386)	3.640 (0.784)	2.590 (0.558)
26	0.804 (0.247)	0.571 (0.175)	1.010 (0.182)	0.717 (0.129)	1.380 (0.419)	0.980 (0.298)	1.730 (0.514)	1.230 (0.366)	2.660 (0.648)	1.890 (0.461)
27	1.070 (0.428)	0.761 (0.304)	1.430 (0.572)	1.010 (0.407)	1.160 (0.638)	0.826 (0.454)	2.180 (0.560)	1.550 (0.399)	3.450 (0.614)	2.450 (0.437)
28	1.220 (0.645)	0.870 (0.458)	1.590 (0.401)	1.130 (0.285)	1.450 (0.566)	1.030 (0.402)	2.440 (0.659)	1.740 (0.468)	3.220 (0.657)	2.290 (0.467)
29	1.160 (0.341)	0.826 (0.242)								
30	1.380 (0.341)	0.984 (0.242)	1.610 (0.388)	1.150 (0.276)	1.670 (0.416)	1.190 (0.296)	2.690 (0.311)	1.920 (0.221)	3.550 (0.477)	2.530 (0.341)
31	1.260 (0.288)	0.896 (0.205)	1.560 (0.322)	1.110 (0.230)	1.840 (0.461)	1.310 (0.329)	2.160 (0.379)	1.540 (0.271)	3.220 (0.590)	2.300 (0.422)
Avg	0.991	0.706	1.190	0.846	1.430	1.020	1.790	1.280	2.690	1.910
n	31	29	24	24	25	25	19	19	21	21
SD	0.268	0.198	0.378	0.271	0.431	0.310	0.588	0.419	0.667	0.476
Min	0.535	0.379	0.655	0.466	0.802	0.569	0.826	0.586	1.620	1.150
Max	1.610	1.140	1.880	1.360	2.380	1.720	2.690	1.920	3.640	2.590

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for November, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	1.370 (0.379)	0.974 (0.270)	1.820 (0.279)	1.300 (0.199)	1.950 (0.781)	1.400 (0.558)			3.680 (0.575)	2.630 (0.411)
2	0.908 (0.145)	0.647 (0.103)	1.240 (0.142)	0.887 (0.101)	1.830 (0.382)	1.310 (0.272)				
3	0.940 (0.142)	0.670 (0.101)	1.080 (0.207)	0.771 (0.148)	1.140 (0.401)	0.812 (0.286)	1.670 (0.407)	1.190 (0.291)	2.230 (0.363)	1.590 (0.259)
4	0.881 (0.166)	0.627 (0.118)	1.040 (0.194)	0.742 (0.139)	1.400 (0.211)	0.996 (0.151)	1.790 (0.409)	1.270 (0.292)		
5	1.370 (0.217)	0.981 (0.153)	1.580 (0.471)	1.120 (0.336)						
6	1.430 (2.220)	1.020 (1.580)	1.890 (2.180)	1.350 (1.550)	3.110 (4.070)	2.220 (2.900)	3.820 (4.470)	2.720 (3.190)	4.550 (4.690)	3.240 (3.340)
7	1.060 (0.178)	0.758 (0.127)	1.260 (0.185)	0.900 (0.132)	1.130 (0.277)	0.803 (0.198)	2.130 (0.353)	1.520 (0.252)	2.360 (0.304)	1.690 (0.217)
8	0.994 (0.162)	0.709 (0.115)	1.340 (0.274)	0.957 (0.196)	1.470 (0.325)	1.050 (0.232)	2.260 (0.243)	1.610 (0.174)	2.540 (0.318)	1.810 (0.227)
9	1.350 (0.374)	0.959 (0.266)					2.910 (0.649)	2.080 (0.463)	3.080 (0.513)	2.200 (0.366)
10	1.380 (0.252)	0.986 (0.180)	1.760 (0.399)	1.250 (0.285)			2.550 (0.438)	1.810 (0.313)	3.320 (0.414)	2.370 (0.296)
11	0.997 (0.220)	0.711 (0.156)	0.978 (0.139)	0.697 (0.100)	1.280 (0.215)	0.912 (0.153)	1.500 (0.348)	1.070 (0.248)	2.300 (0.418)	1.640 (0.297)
12	0.824 (0.115)	0.589 (0.082)	0.978 (0.146)	0.699 (0.105)	1.320 (0.252)	0.941 (0.180)	1.230 (0.090)	0.880 (0.064)	1.880 (0.270)	1.350 (0.194)
13	0.857 (0.104)	0.609 (0.074)	1.130 (0.152)	0.803 (0.109)	1.630 (0.290)	1.160 (0.208)	1.370 (0.180)	0.978 (0.128)		
14	1.310 (0.285)	0.933 (0.202)	1.290 (0.263)	0.920 (0.187)	1.560 (0.588)	1.110 (0.418)	2.100 (0.319)	1.490 (0.227)	2.730 (0.407)	1.940 (0.289)
15	1.170 (0.182)	0.830 (0.129)	1.280 (0.161)	0.912 (0.115)	1.360 (0.192)	0.966 (0.136)	2.190 (0.260)	1.560 (0.186)	2.750 (0.321)	1.960 (0.229)
16	1.270 (0.204)	0.900 (0.145)	1.460 (0.233)	1.040 (0.166)	1.570 (0.288)	1.120 (0.205)	2.280 (0.206)	1.620 (0.148)	2.870 (0.382)	2.040 (0.272)
17	1.370 (0.128)	0.975 (0.091)	1.600 (0.417)	1.140 (0.297)	1.690 (0.254)	1.200 (0.181)	2.570 (0.205)	1.830 (0.146)	2.920 (0.298)	2.080 (0.213)
18	1.270 (0.168)	0.901 (0.120)	1.900 (0.319)	1.350 (0.228)	1.910 (0.433)	1.360 (0.308)	2.790 (0.603)	1.990 (0.430)	3.170 (0.370)	2.260 (0.265)
19	1.240 (0.111)	0.880 (0.079)	1.490 (0.328)	1.060 (0.234)	2.060 (0.271)	1.470 (0.193)	2.260 (0.428)	1.610 (0.305)	3.060 (0.271)	2.180 (0.193)
20	1.270 (0.299)	0.904 (0.213)	1.260 (0.206)	0.893 (0.146)	1.500 (0.147)	1.070 (0.104)			2.450 (0.338)	1.740 (0.240)
21	1.030 (0.152)	0.733 (0.108)	1.290 (0.311)	0.914 (0.221)	1.420 (0.330)	1.010 (0.235)	2.200 (0.636)	1.560 (0.453)	2.480 (0.681)	1.760 (0.485)
22	1.110 (0.160)	0.790 (0.114)	1.580 (0.276)	1.130 (0.196)	2.100 (0.372)	1.500 (0.265)	2.300 (0.340)	1.640 (0.242)	3.040 (0.306)	2.160 (0.218)
23	1.180 (0.121)	0.839 (0.086)	1.570 (0.230)	1.110 (0.163)	1.760 (0.279)	1.250 (0.198)	2.340 (0.462)	1.660 (0.328)	2.920 (0.329)	2.080 (0.234)
24	1.320 (0.095)	0.936 (0.068)	1.610 (0.246)	1.140 (0.175)	1.400 (0.335)	0.999 (0.238)	2.370 (0.231)	1.690 (0.164)	2.600 (0.312)	1.850 (0.222)
25	1.090 (0.095)	0.775 (0.068)	1.310 (0.124)	0.930 (0.088)	1.510 (0.264)	1.070 (0.188)	2.230 (0.275)	1.580 (0.196)	2.570 (0.381)	1.830 (0.271)
26	1.030 (0.184)	0.733 (0.130)	1.140 (0.135)	0.813 (0.096)	1.150 (0.207)	0.816 (0.147)	1.680 (0.234)	1.200 (0.166)	1.910 (0.280)	1.360 (0.199)
27	0.930 (0.206)	0.661 (0.147)	1.090 (0.164)	0.777 (0.116)	1.400 (0.259)	0.995 (0.185)	1.880 (0.352)	1.340 (0.250)	2.140 (0.411)	1.530 (0.292)
28	0.973 (0.170)	0.692 (0.121)	1.340 (0.252)	0.955 (0.179)			2.440 (0.254)	1.730 (0.181)	2.900 (0.552)	2.060 (0.393)
29	1.120 (0.106)	0.795 (0.076)	1.140 (0.293)	0.809 (0.208)	1.550 (0.531)	1.100 (0.378)	2.580 (0.447)	1.840 (0.318)	2.960 (0.533)	2.110 (0.379)
30	1.260 (0.139)	0.894 (0.099)	1.120 (0.250)	0.794 (0.178)	1.160 (0.208)	0.825 (0.148)	2.170 (0.194)	1.550 (0.138)	2.420 (0.170)	1.720 (0.121)
Avg	1.140	0.814	1.360	0.971	1.590	1.130	2.220	1.580	2.760	1.970
n	30	30	29	29	26	26	26	26	26	26
SD	0.180	0.128	0.265	0.189	0.408	0.291	0.517	0.368	0.550	0.392
Min	0.824	0.589	0.978	0.697	1.130	0.803	1.230	0.880	1.880	1.350
Max	1.430	1.020	1.900	1.350	3.110	2.220	3.820	2.720	4.550	3.240

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for December, 2008.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.985 (0.158)	0.701 (0.112)			1.600 (0.285)	1.140 (0.203)	2.140 (0.207)	1.520 (0.147)	2.680 (0.381)	1.910 (0.271)
2	1.360 (0.216)	0.970 (0.154)			1.420 (0.368)	1.010 (0.262)	2.090 (0.702)	1.490 (0.501)	2.590 (0.637)	1.840 (0.455)
3	1.280 (0.128)	0.911 (0.091)	1.100 (0.203)	0.783 (0.144)	1.220 (0.236)	0.869 (0.168)	1.920 (0.319)	1.370 (0.227)	2.160 (0.285)	1.540 (0.203)
4	1.070 (0.122)	0.760 (0.087)	1.340 (0.193)	0.950 (0.137)	1.320 (0.241)	0.940 (0.171)	1.990 (0.259)	1.410 (0.184)	2.280 (0.139)	1.620 (0.099)
5	1.000 (0.122)	0.712 (0.087)	1.340 (0.166)	0.951 (0.118)	1.470 (0.265)	1.050 (0.188)	2.190 (0.343)	1.560 (0.244)	2.420 (0.440)	1.720 (0.313)
6	1.150 (0.295)	0.814 (0.210)	1.760 (0.487)	1.250 (0.346)	1.920 (0.543)	1.360 (0.386)	2.730 (0.490)	1.940 (0.349)	2.980 (0.631)	2.120 (0.449)
7	1.720 (0.420)	1.230 (0.299)			2.340 (1.090)	1.670 (0.776)	3.180 (0.931)	2.260 (0.663)	3.470 (0.500)	2.470 (0.357)
8	1.160 (0.108)	0.823 (0.077)	1.520 (0.270)	1.080 (0.192)	1.850 (0.260)	1.310 (0.185)	2.390 (0.552)	1.700 (0.393)	3.000 (0.487)	2.130 (0.347)
9	1.360 (0.147)	0.970 (0.104)	1.860 (0.471)	1.320 (0.335)	2.000 (0.378)	1.420 (0.269)	2.410 (0.346)	1.720 (0.247)	2.840 (0.490)	2.020 (0.349)
10	1.320 (0.252)	0.938 (0.179)			1.880 (0.334)	1.330 (0.238)	2.440 (0.195)	1.730 (0.139)	3.110 (0.550)	2.220 (0.392)
11	1.130 (0.146)	0.802 (0.104)	1.300 (0.395)	0.924 (0.281)	1.260 (0.202)	0.896 (0.144)	1.810 (0.214)	1.280 (0.152)	2.560 (0.286)	1.820 (0.204)
12	0.920 (0.139)	0.654 (0.099)	1.250 (0.453)	0.892 (0.323)	1.650 (0.462)	1.180 (0.330)	1.620 (0.423)	1.150 (0.301)	2.610 (0.724)	1.850 (0.516)
13	0.822 (0.175)	0.584 (0.125)	1.090 (0.144)	0.774 (0.103)			1.470 (0.349)	1.040 (0.248)	2.710 (0.866)	1.930 (0.617)
14	0.654 (0.101)	0.464 (0.072)	0.892 (0.180)	0.633 (0.128)	1.160 (0.235)	0.826 (0.167)	1.090 (0.178)	0.772 (0.126)		
15	0.785 (0.138)	0.555 (0.097)	0.980 (0.163)	0.695 (0.116)	1.250 (0.290)	0.883 (0.206)	1.540 (0.282)	1.100 (0.199)	1.760 (0.212)	1.250 (0.152)
16	0.799 (0.095)	0.566 (0.067)	1.580 (0.259)	1.120 (0.184)	1.600 (0.203)	1.130 (0.144)	2.150 (0.241)	1.520 (0.171)		
17	0.896 (0.091)	0.635 (0.065)	1.410 (0.315)	0.999 (0.224)	1.630 (0.404)	1.160 (0.287)	1.860 (0.342)	1.320 (0.243)		
18	2.240 (0.958)									
19	0.855 (0.125)	0.606 (0.089)	1.090 (0.222)	0.777 (0.157)	1.470 (0.233)	1.040 (0.166)	2.020 (0.283)	1.440 (0.201)	2.590 (0.285)	1.840 (0.203)
20	0.783 (0.059)	0.555 (0.042)	0.774 (0.214)	0.549 (0.152)	1.050 (0.305)	0.743 (0.216)	1.430 (0.268)	1.010 (0.190)	1.710 (0.200)	1.210 (0.142)
21	0.751 (0.098)	0.533 (0.070)	1.140 (0.167)	0.811 (0.119)	1.680 (0.185)	1.190 (0.132)	1.970 (0.414)	1.400 (0.294)	2.190 (0.355)	1.550 (0.252)
22	0.835 (0.167)	0.592 (0.119)	1.030 (0.286)	0.733 (0.203)	1.220 (0.368)	0.863 (0.261)	2.060 (0.247)	1.460 (0.175)	2.260 (0.348)	1.600 (0.247)
23	0.832 (0.129)	0.590 (0.092)	1.190 (0.211)	0.842 (0.150)	1.210 (0.208)	0.857 (0.148)	1.620 (0.131)	1.150 (0.093)	2.090 (0.288)	1.480 (0.204)
24	0.820 (0.133)	0.582 (0.095)	0.856 (0.177)	0.608 (0.125)	0.982 (0.203)	0.698 (0.144)	1.420 (0.243)	1.010 (0.173)	1.650 (0.161)	1.170 (0.114)
25	0.758 (0.096)	0.538 (0.068)	1.030 (0.135)	0.734 (0.096)	1.350 (0.145)	0.959 (0.103)	1.670 (0.159)	1.190 (0.113)	2.010 (0.299)	1.420 (0.212)
26	0.757 (0.097)	0.537 (0.069)	1.240 (0.303)	0.878 (0.215)						
27	0.847 (0.136)	0.603 (0.097)	1.340 (0.194)	0.951 (0.138)	1.700 (0.192)	1.210 (0.137)	1.610 (0.165)	1.150 (0.118)		
28	0.967 (0.165)	0.688 (0.117)	1.520 (0.247)	1.090 (0.175)	1.920 (0.259)	1.370 (0.184)	1.870 (0.429)	1.330 (0.305)		
29	0.949 (0.170)	0.675 (0.121)	1.340 (0.265)	0.952 (0.189)	1.560 (0.267)	1.110 (0.191)				
30	0.863 (0.127)	0.614 (0.091)	1.480 (0.273)	1.050 (0.194)	1.730 (0.281)	1.230 (0.200)	1.910 (0.601)	1.360 (0.428)	2.360 (0.582)	1.680 (0.415)
31	0.938 (0.099)	0.667 (0.070)	1.380 (0.211)	0.980 (0.150)	1.640 (0.175)	1.170 (0.124)	1.710 (0.344)	1.220 (0.245)		
Avg	1.020	0.695	1.260	0.897	1.540	1.090	1.940	1.380	2.460	1.750
n	31	30	26	26	28	28	28	28	22	22
SD	0.322	0.168	0.261	0.186	0.314	0.224	0.428	0.305	0.458	0.327
Min	0.654	0.464	0.774	0.549	0.982	0.698	1.090	0.772	1.650	1.170
Max	2.240	1.230	1.860	1.320	2.340	1.670	3.180	2.260	3.470	2.470

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for January, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	0.668 (0.173)	0.476 (0.123)	1.030 (0.318)	0.735 (0.226)	1.330 (0.415)	0.947 (0.296)	1.420 (0.354)	1.010 (0.253)	1.960 (0.633)	1.400 (0.452)
2	0.569 (0.097)	0.404 (0.069)	1.220 (0.489)	0.864 (0.347)	1.680 (0.553)	1.200 (0.393)				
3	0.650 (0.139)	0.461 (0.099)	0.934 (0.504)	0.663 (0.358)	1.030 (0.544)	0.731 (0.387)	1.580 (0.558)	1.120 (0.396)		
4	0.708 (0.183)	0.502 (0.130)	0.477 (0.167)	0.339 (0.119)	0.863 (0.242)	0.612 (0.172)	1.080 (0.276)	0.764 (0.196)	1.370 (0.271)	0.970 (0.192)
5	0.498 (0.103)	0.354 (0.073)	0.971 (0.167)	0.690 (0.119)			1.670 (0.329)	1.190 (0.234)		
6	0.754 (0.105)	0.537 (0.075)	1.320 (0.445)	0.942 (0.317)	1.880 (0.459)	1.340 (0.327)	1.720 (0.469)	1.230 (0.334)	2.390 (0.272)	1.710 (0.194)
7	0.567 (0.111)	0.397 (0.077)	1.140 (0.130)	0.814 (0.093)	1.480 (0.084)	1.050 (0.061)	1.220 (0.151)	0.869 (0.109)		
8	0.526 (0.151)	0.358 (0.102)	1.240 (0.350)	0.839 (0.221)	1.650 (0.228)	1.150 (0.162)				
9	0.788 (0.158)	0.560 (0.112)	1.620 (0.436)	1.150 (0.310)	2.080 (0.532)	1.480 (0.379)	2.510 (0.449)	1.780 (0.319)		
10	0.986 (0.124)	0.701 (0.089)	1.820 (0.391)	1.300 (0.278)	1.960 (0.278)	1.390 (0.197)	2.430 (0.333)	1.730 (0.237)	3.080 (0.341)	2.190 (0.243)
11	0.961 (0.107)	0.683 (0.076)	1.740 (0.554)	1.240 (0.394)	2.060 (0.259)	1.470 (0.184)	2.600 (0.233)	1.850 (0.166)	3.250 (0.424)	2.320 (0.302)
12	1.060 (0.181)	0.758 (0.129)	2.250 (0.525)	1.600 (0.373)	2.260 (0.449)	1.610 (0.321)	2.800 (0.328)	1.990 (0.234)	3.560 (0.413)	2.540 (0.296)
13	0.986 (0.109)	0.702 (0.078)	1.230 (0.422)	0.872 (0.301)	1.780 (0.602)	1.270 (0.429)				
14	0.754 (0.180)									
15	0.594 (0.128)	0.422 (0.091)	0.958 (0.272)	0.681 (0.193)	1.370 (0.371)	0.974 (0.264)	1.490 (0.136)	1.060 (0.097)	2.200 (0.436)	1.570 (0.310)
16	0.637 (0.098)	0.452 (0.070)	0.939 (0.227)	0.667 (0.161)	1.670 (0.185)	1.190 (0.132)	1.470 (0.283)	1.040 (0.201)	2.930 (0.360)	2.080 (0.256)
17	0.497 (0.089)	0.353 (0.064)	0.958 (0.054)	0.681 (0.039)	1.830 (0.166)	1.300 (0.118)	1.540 (0.269)	1.100 (0.191)		
18	0.617 (0.193)	0.439 (0.137)	1.060 (0.184)	0.752 (0.131)	1.710 (0.194)	1.220 (0.138)	1.750 (0.121)	1.240 (0.086)		
19	0.568 (0.140)	0.403 (0.099)	1.000 (0.331)	0.712 (0.235)	1.620 (0.204)	1.150 (0.145)	2.000 (0.223)	1.420 (0.159)		
20	0.818 (0.113)		0.814 (0.165)		1.070 (0.177)		1.650 (0.267)		2.290 (0.254)	
21	0.272 (0.174)		0.300 (0.156)		0.394 (0.200)		0.815 (0.146)		1.110 (0.247)	
22	0.326 (0.047)	0.232 (0.033)	0.336 (0.268)	0.239 (0.191)	0.484 (0.159)	0.344 (0.113)	0.855 (0.184)	0.608 (0.130)	1.230 (0.192)	0.875 (0.137)
23										
24										
25										
26										
27										
28										
29										
30			0.797 (0.256)	0.567 (0.182)	0.924 (0.363)	0.658 (0.258)	1.610 (0.232)	1.140 (0.165)	2.030 (0.333)	1.440 (0.237)
31			0.884 (0.198)	0.628 (0.140)	1.040 (0.173)	0.736 (0.123)	1.290 (0.271)	0.920 (0.193)	1.820 (0.178)	1.290 (0.127)
Avg	0.673	0.484	1.090	0.808	1.460	1.090	1.670	1.230	2.250	1.670
n	22	19	23	21	22	20	20	18	13	11
SD	0.201	0.137	0.446	0.303	0.502	0.324	0.538	0.375	0.752	0.524
Min	0.272	0.232	0.300	0.239	0.394	0.344	0.815	0.608	1.110	0.875
Max	1.060	0.758	2.250	1.600	2.260	1.610	2.800	1.990	3.560	2.540

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for February, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1			0.806 (0.301)	0.573 (0.214)	0.766 (0.178)	0.545 (0.127)	1.370 (0.250)	0.972 (0.178)	1.550 (0.239)	1.100 (0.171)
2			0.921 (0.323)	0.655 (0.230)	0.898 (0.189)	0.638 (0.135)	1.550 (0.398)	1.100 (0.283)	1.730 (0.257)	1.230 (0.183)
3			0.943 (0.280)	0.671 (0.199)	0.947 (0.181)	0.673 (0.129)	1.600 (0.303)	1.140 (0.216)	1.740 (0.341)	1.240 (0.243)
4			0.926 (0.268)	0.658 (0.190)	0.725 (0.250)	0.516 (0.178)	1.360 (0.311)	0.965 (0.221)	1.760 (0.368)	1.250 (0.262)
5										
6	0.184 (0.180)	0.131 (0.128)								
7	0.180 (0.155)	0.128 (0.111)								
8	0.116 (0.203)	0.083 (0.144)								
9	0.205 (0.228)	0.146 (0.162)								
10			0.570 (0.174)	0.405 (0.124)	0.623 (0.124)	0.443 (0.088)	0.948 (0.236)	0.674 (0.168)	1.310 (0.227)	0.929 (0.161)
11			0.488 (0.115)	0.347 (0.082)	0.661 (0.144)	0.470 (0.102)	0.940 (0.128)	0.668 (0.091)	1.330 (0.272)	0.947 (0.193)
12			0.502 (0.180)	0.357 (0.128)	0.548 (0.136)	0.390 (0.097)	0.971 (0.210)	0.690 (0.149)	1.190 (0.178)	0.848 (0.126)
13			0.390 (0.171)	0.278 (0.121)	0.674 (0.142)	0.479 (0.101)	0.724 (0.109)	0.515 (0.078)	1.480 (0.288)	1.050 (0.205)
14			0.573 (0.165)	0.407 (0.118)	0.681 (0.158)	0.485 (0.113)	1.130 (0.250)	0.807 (0.178)	1.800 (0.444)	1.280 (0.316)
15			0.571 (0.108)	0.406 (0.077)	0.677 (0.140)	0.481 (0.100)	1.240 (0.109)	0.885 (0.078)	1.470 (0.223)	1.050 (0.159)
16			0.483 (0.102)	0.344 (0.073)	0.795 (0.117)	0.566 (0.084)	0.974 (0.149)	0.693 (0.106)	1.510 (0.170)	1.080 (0.121)
17			0.504 (0.268)	0.359 (0.191)	0.693 (0.209)	0.494 (0.149)	1.160 (0.451)	0.824 (0.321)	1.630 (0.416)	1.160 (0.296)
18			0.805 (0.341)	0.573 (0.243)	0.769 (0.280)	0.548 (0.199)	1.330 (0.468)	0.947 (0.333)	2.200 (0.675)	1.570 (0.480)
19			0.297 (0.171)	0.211 (0.122)	0.304 (0.118)	0.217 (0.084)	0.689 (0.233)	0.490 (0.166)	1.100 (0.459)	0.786 (0.327)
20			0.465 (0.095)	0.331 (0.068)	0.609 (0.197)	0.433 (0.141)	0.858 (0.170)	0.610 (0.121)	1.700 (0.271)	1.210 (0.193)
21			0.432 (0.130)	0.307 (0.093)	0.648 (0.252)	0.461 (0.179)	0.950 (0.250)	0.676 (0.178)	1.510 (0.400)	1.080 (0.285)
22			0.636 (0.224)	0.452 (0.159)	0.596 (0.190)	0.424 (0.135)	1.060 (0.203)	0.752 (0.144)	1.540 (0.296)	1.100 (0.211)
23			0.461 (0.122)	0.328 (0.087)	0.620 (0.059)	0.442 (0.042)	0.960 (0.228)	0.683 (0.162)	1.360 (0.171)	0.969 (0.122)
24			0.224 (0.125)	0.160 (0.089)	0.407 (0.139)	0.290 (0.099)	0.478 (0.161)	0.341 (0.115)	0.785 (0.290)	0.559 (0.207)
25			0.154 (0.067)	0.110 (0.047)	0.328 (0.090)	0.233 (0.064)	0.424 (0.138)	0.302 (0.098)	0.787 (0.201)	0.560 (0.143)
26			0.282 (0.160)	0.201 (0.114)	0.495 (0.153)	0.352 (0.109)				
27			0.340 (0.183)	0.242 (0.130)	0.449 (0.135)	0.319 (0.096)	0.640 (0.140)	0.455 (0.100)	1.170 (0.210)	0.828 (0.149)
28			0.359 (0.111)	0.255 (0.079)	0.557 (0.081)	0.396 (0.058)	0.710 (0.155)	0.505 (0.110)	1.200 (0.156)	0.852 (0.111)
Avg	0.171	0.122	0.528	0.375	0.629	0.448	1.000	0.713	1.450	1.030
n	4	4	23	23	23	23	22	22	22	22
SD	0.033	0.024	0.219	0.156	0.157	0.112	0.313	0.222	0.325	0.232
Min	0.116	0.083	0.154	0.110	0.304	0.217	0.424	0.302	0.785	0.559
Max	0.205	0.146	0.943	0.671	0.947	0.673	1.600	1.140	2.200	1.570

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for March, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1			0.295 (0.074)	0.210 (0.053)	0.552 (0.147)	0.393 (0.105)	0.700 (0.150)	0.498 (0.107)	1.270 (0.216)	0.903 (0.154)
2			0.253 (0.162)	0.180 (0.115)	0.372 (0.253)	0.265 (0.180)	0.650 (0.211)	0.463 (0.150)	0.938 (0.215)	0.668 (0.153)
3			0.311 (0.092)	0.222 (0.065)	0.322 (0.158)	0.229 (0.112)	0.662 (0.118)	0.472 (0.084)	1.070 (0.305)	0.760 (0.217)
4			0.334 (0.080)	0.237 (0.057)	0.576 (0.188)	0.410 (0.134)	0.678 (0.131)	0.483 (0.093)	1.400 (0.350)	0.999 (0.250)
5			0.201 (0.086)	0.143 (0.061)	0.327 (0.140)	0.232 (0.099)	0.313 (0.106)	0.223 (0.075)	0.681 (0.204)	0.485 (0.145)
6			0.332 (0.147)	0.236 (0.105)	0.481 (0.148)	0.342 (0.106)	0.551 (0.182)	0.391 (0.129)	1.140 (0.274)	0.808 (0.195)
7			0.203 (0.066)	0.144 (0.047)	0.457 (0.158)	0.325 (0.112)	0.398 (0.189)	0.283 (0.135)	0.923 (0.422)	0.656 (0.300)
8			0.282 (0.078)	0.203 (0.056)	0.499 (0.144)	0.360 (0.101)	0.601 (0.140)	0.433 (0.097)	1.180 (0.194)	0.847 (0.130)
9			0.325 (0.113)	0.231 (0.080)	0.474 (0.101)	0.337 (0.072)	0.604 (0.181)	0.429 (0.129)	1.060 (0.241)	0.756 (0.171)
10			0.096 (0.095)	0.068 (0.067)	0.122 (0.105)	0.087 (0.074)	0.209 (0.153)	0.148 (0.109)	0.436 (0.209)	0.309 (0.149)
11			0.089 (0.082)	0.063 (0.058)	0.116 (0.046)	0.082 (0.032)	0.300 (0.114)	0.213 (0.081)	0.580 (0.142)	0.412 (0.101)
12										
13										
14			0.503 (0.338)	0.358 (0.240)	0.587 (0.228)	0.418 (0.162)	0.650 (0.317)	0.462 (0.225)	1.100 (0.428)	0.781 (0.304)
15			0.134 (0.073)	0.095 (0.052)	0.306 (0.090)	0.218 (0.064)	0.307 (0.146)	0.219 (0.104)	0.647 (0.289)	0.461 (0.206)
16			0.199 (0.058)	0.141 (0.041)	0.320 (0.097)	0.228 (0.069)	0.364 (0.083)	0.259 (0.059)		
17			0.143 (0.063)	0.101 (0.045)	0.313 (0.085)	0.223 (0.060)	0.300 (0.065)	0.213 (0.046)	0.657 (0.168)	0.467 (0.120)
18			0.533 (0.195)	0.379 (0.139)	0.646 (0.218)	0.460 (0.155)	0.969 (0.221)	0.689 (0.157)	1.600 (0.274)	1.140 (0.195)
19			0.520 (0.189)	0.370 (0.134)	0.765 (0.230)	0.545 (0.164)	0.940 (0.213)	0.669 (0.152)	1.810 (0.344)	1.290 (0.245)
20			0.500 (0.190)	0.356 (0.136)	0.804 (0.225)	0.573 (0.161)	0.744 (0.140)	0.530 (0.100)	1.700 (0.393)	1.210 (0.281)
21			0.289 (0.127)	0.206 (0.090)	0.468 (0.279)	0.333 (0.199)	0.734 (0.212)	0.523 (0.151)	1.400 (0.379)	0.995 (0.270)
22			0.417 (0.147)	0.297 (0.105)	0.456 (0.151)	0.325 (0.107)	0.739 (0.328)	0.526 (0.234)	1.200 (0.383)	0.854 (0.273)
23			0.200 (0.071)	0.142 (0.051)	0.450 (0.203)	0.320 (0.144)	0.444 (0.151)	0.316 (0.107)	0.903 (0.159)	0.642 (0.113)
24			0.223 (0.154)	0.159 (0.110)	0.432 (0.204)	0.307 (0.145)	0.501 (0.271)	0.356 (0.193)	0.824 (0.267)	0.586 (0.190)
25			0.112 (0.080)	0.080 (0.057)	0.366 (0.185)	0.260 (0.131)	0.329 (0.093)	0.234 (0.066)	0.660 (0.206)	0.470 (0.147)
26							0.466 (0.135)		0.905 (0.254)	
27			0.441 (0.134)	0.313 (0.096)	0.887 (0.237)	0.631 (0.169)	0.694 (0.151)	0.493 (0.108)	1.520 (0.346)	1.080 (0.247)
28			0.334 (0.107)	0.238 (0.076)	0.439 (0.142)	0.313 (0.101)	0.749 (0.287)	0.533 (0.204)	1.150 (0.404)	0.817 (0.288)
29			0.137 (0.083)	0.097 (0.059)	0.349 (0.100)	0.248 (0.071)			0.632 (0.202)	0.449 (0.144)
30										
31										
Avg	0	0	0.285	0.203	0.457	0.325	0.561	0.402	1.050	0.754
n			26	26	26	26	26	25	26	25
SD			0.134	0.095	0.179	0.128	0.201	0.146	0.360	0.261
Min			0.089	0.063	0.116	0.082	0.209	0.148	0.436	0.309
Max			0.533	0.379	0.887	0.631	0.969	0.689	1.810	1.290

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for April, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18			0.431 (0.215)	0.307 (0.153)			0.799 (0.251)	0.568 (0.179)	1.550 (0.479)	1.100 (0.340)
19			0.514 (0.204)	0.366 (0.145)	0.761 (0.411)	0.542 (0.293)	0.996 (0.343)	0.709 (0.244)	1.640 (0.533)	1.170 (0.380)
20			0.595 (0.318)	0.424 (0.226)	0.784 (0.614)	0.559 (0.438)	1.180 (0.728)	0.843 (0.518)	1.680 (0.817)	1.200 (0.583)
21			0.722 (0.348)	0.515 (0.248)	0.789 (0.236)	0.562 (0.168)	0.895 (0.212)	0.637 (0.151)	1.610 (0.560)	1.150 (0.399)
22			0.377 (0.207)	0.269 (0.147)	0.596 (0.300)	0.424 (0.214)			1.110 (0.430)	0.790 (0.307)
23			0.161 (0.040)	0.115 (0.028)	0.350 (0.135)	0.248 (0.096)	0.329 (0.055)	0.234 (0.039)	0.757 (0.217)	0.537 (0.154)
24			0.279 (0.115)	0.198 (0.082)	0.466 (0.217)	0.331 (0.154)	0.507 (0.216)	0.360 (0.153)	0.942 (0.352)	0.669 (0.250)
25			0.219 (0.107)	0.156 (0.076)	0.387 (0.139)	0.275 (0.099)	0.468 (0.199)	0.333 (0.141)	0.956 (0.423)	0.680 (0.300)
26			0.247 (0.147)	0.176 (0.105)	0.315 (0.083)	0.224 (0.059)	0.446 (0.106)	0.317 (0.075)	0.829 (0.282)	0.589 (0.200)
27			0.184 (0.141)	0.131 (0.100)	0.233 (0.178)	0.166 (0.126)			0.777 (0.350)	0.553 (0.249)
28			0.124 (0.074)	0.088 (0.052)	0.191 (0.126)	0.136 (0.090)	0.175 (0.073)	0.124 (0.052)	0.524 (0.195)	0.372 (0.139)
29			0.179 (0.061)	0.127 (0.044)	0.312 (0.086)	0.222 (0.061)	0.379 (0.149)	0.270 (0.106)	0.860 (0.276)	0.613 (0.197)
30			0.194 (0.076)	0.138 (0.054)	0.308 (0.071)	0.219 (0.050)	0.520 (0.092)	0.370 (0.066)	0.925 (0.174)	0.658 (0.124)
Avg			0.325	0.231	0.458	0.326	0.609	0.433	1.090	0.776
n	0	0	13	13	12	12	11	11	13	13
SD			0.181	0.129	0.210	0.150	0.299	0.213	0.378	0.270
Min			0.124	0.088	0.191	0.136	0.175	0.124	0.524	0.372
Max			0.722	0.515	0.789	0.562	1.180	0.843	1.680	1.200

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for May, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1			0.439 (0.200)	0.313 (0.142)	0.690 (0.577)	0.492 (0.410)	0.760 (0.306)	0.541 (0.217)	1.490 (0.565)	1.060 (0.402)
2			0.502 (0.300)	0.357 (0.213)	0.633 (0.160)	0.451 (0.114)	0.862 (0.247)	0.614 (0.176)	1.270 (0.238)	0.902 (0.169)
3			0.384 (0.085)	0.273 (0.060)	0.435 (0.250)	0.310 (0.178)	0.608 (0.162)	0.433 (0.116)	1.050 (0.303)	0.746 (0.216)
4			0.186 (0.144)	0.133 (0.103)	0.472 (0.440)	0.336 (0.313)	0.604 (0.441)	0.430 (0.314)	0.902 (0.467)	0.642 (0.332)
5			0.181 (0.104)	0.129 (0.074)	0.336 (0.197)	0.239 (0.140)			0.558 (0.197)	0.397 (0.140)
6			0.161 (0.054)	0.115 (0.038)	0.321 (0.114)	0.229 (0.082)	0.402 (0.141)	0.286 (0.100)	0.720 (0.291)	0.513 (0.207)
7			0.170 (0.057)	0.121 (0.041)	0.370 (0.150)	0.263 (0.106)				
8			0.279 (0.134)	0.198 (0.095)	0.429 (0.178)	0.305 (0.127)	0.562 (0.142)	0.400 (0.101)	1.140 (0.437)	0.814 (0.311)
9			0.523 (0.295)	0.372 (0.210)	0.862 (0.417)	0.614 (0.297)	0.755 (0.173)	0.537 (0.123)	1.250 (0.327)	0.890 (0.233)
10			0.370 (0.244)	0.264 (0.173)	0.424 (0.298)	0.302 (0.212)	0.725 (0.437)	0.517 (0.311)	1.090 (0.471)	0.780 (0.335)
11			0.270 (0.081)	0.192 (0.058)	0.444 (0.068)	0.316 (0.049)				
12			0.125 (0.073)	0.088 (0.052)	0.298 (0.161)	0.211 (0.115)				
13			0.281 (0.103)	0.200 (0.073)	0.388 (0.188)	0.276 (0.134)	0.460 (0.169)	0.328 (0.120)	0.728 (0.206)	0.518 (0.147)
14			0.120 (0.068)	0.086 (0.049)	0.318 (0.191)	0.226 (0.136)			0.570 (0.235)	0.406 (0.167)
15			0.399 (0.203)	0.284 (0.145)	0.718 (0.539)	0.511 (0.384)	0.679 (0.298)	0.483 (0.212)	1.480 (0.764)	1.050 (0.544)
16			0.440 (0.196)	0.313 (0.140)	0.601 (0.336)	0.428 (0.239)	0.906 (0.492)	0.644 (0.350)	1.350 (0.710)	0.963 (0.505)
17			0.640 (0.453)	0.456 (0.323)	0.737 (0.423)	0.525 (0.301)	0.876 (0.473)	0.624 (0.337)	1.460 (0.539)	1.040 (0.384)
18			0.440 (0.166)	0.314 (0.118)	0.604 (0.149)	0.431 (0.106)	0.744 (0.210)	0.531 (0.150)	1.180 (0.179)	0.841 (0.127)
19			0.268 (0.163)	0.191 (0.116)	0.421 (0.180)	0.299 (0.129)	0.347 (0.115)	0.247 (0.082)		
20			0.390 (0.097)	0.277 (0.069)	0.502 (0.102)	0.357 (0.073)	0.525 (0.063)	0.373 (0.045)	0.808 (0.176)	0.575 (0.125)
21			0.612 (0.551)	0.435 (0.392)	0.676 (0.741)	0.481 (0.527)	0.651 (0.149)	0.463 (0.106)	1.140 (0.597)	0.808 (0.425)
22			1.070 (0.648)	0.764 (0.461)	1.460 (1.030)	1.040 (0.733)			2.660 (1.200)	1.890 (0.855)
23			0.561 (0.174)	0.400 (0.123)	0.843 (0.237)	0.601 (0.169)	0.922 (0.230)	0.656 (0.164)	1.620 (0.522)	1.150 (0.372)
24			0.271 (0.093)	0.193 (0.066)	0.450 (0.187)	0.320 (0.133)	0.484 (0.113)	0.344 (0.080)	0.931 (0.312)	0.662 (0.222)
25			0.306 (0.117)	0.218 (0.083)	0.450 (0.202)	0.320 (0.144)	0.587 (0.094)	0.418 (0.067)	0.856 (0.389)	0.610 (0.277)
26			0.341 (0.075)	0.242 (0.054)	0.543 (0.220)	0.381 (0.152)	0.634 (0.205)	0.454 (0.146)	1.130 (0.465)	0.804 (0.333)
27			0.346 (0.157)	0.247 (0.112)	0.360 (0.228)	0.257 (0.162)	0.694 (0.304)	0.495 (0.217)	0.998 (0.492)	0.712 (0.351)
28			0.450 (0.142)	0.321 (0.101)	0.576 (0.269)	0.411 (0.192)			1.130 (0.350)	0.806 (0.250)
29			0.912 (0.650)	0.651 (0.464)	1.600 (1.630)	1.140 (1.160)	1.230 (0.724)	0.876 (0.516)	2.800 (3.000)	2.000 (2.140)
30			0.617 (0.385)	0.440 (0.274)	0.684 (0.239)	0.488 (0.170)	1.010 (0.356)	0.724 (0.255)	1.310 (0.441)	0.937 (0.315)
31			0.531 (0.151)	0.378 (0.107)	0.868 (0.399)	0.619 (0.284)	0.786 (0.176)	0.560 (0.125)	1.560 (0.622)	1.110 (0.443)
Avg			0.406	0.289	0.597	0.425	0.701	0.499	1.230	0.876
n	0	0	31	31	31	31	24	24	27	27
SD			0.212	0.151	0.294	0.210	0.199	0.142	0.511	0.364
Min			0.120	0.086	0.298	0.211	0.347	0.247	0.558	0.397
Max			1.070	0.764	1.600	1.140	1.230	0.876	2.800	2.000

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for June, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1			0.460 (0.157)	0.328 (0.112)	0.589 (0.284)	0.420 (0.202)	0.761 (0.118)	0.542 (0.084)	1.180 (0.390)	0.843 (0.279)
2			0.233 (0.236)	0.166 (0.168)	0.165 (0.186)	0.118 (0.133)	0.389 (0.160)	0.277 (0.114)	0.660 (0.480)	0.471 (0.342)
3			0.480 (0.157)	0.342 (0.112)	0.899 (0.458)	0.641 (0.327)	0.789 (0.233)	0.562 (0.166)	1.330 (0.557)	0.951 (0.398)
4			0.679 (0.336)	0.485 (0.240)	0.976 (0.452)	0.696 (0.322)	1.310 (0.519)	0.935 (0.370)	1.650 (0.774)	1.180 (0.552)
5			0.492 (0.089)	0.353 (0.064)	0.893 (0.231)	0.640 (0.165)			1.960 (0.717)	1.400 (0.514)
6			0.260 (0.094)	0.186 (0.067)	0.672 (0.342)	0.480 (0.244)			1.080 (0.305)	0.771 (0.217)
7			0.419 (0.110)	0.299 (0.079)	0.681 (0.100)	0.487 (0.072)			1.520 (0.318)	1.080 (0.227)
8			0.410 (0.175)	0.293 (0.125)	0.449 (0.289)	0.320 (0.206)				
9			0.497 (0.240)	0.355 (0.172)	0.658 (0.538)	0.470 (0.385)			1.430 (0.710)	1.020 (0.507)
10										
11			0.505 (0.140)	0.360 (0.100)	0.757 (0.380)	0.540 (0.271)	0.890 (0.193)	0.635 (0.138)		
12			0.618 (0.269)	0.442 (0.192)	0.869 (0.316)	0.621 (0.226)	1.120 (0.423)	0.801 (0.302)		
13			0.822 (0.553)		1.030 (0.721)		1.160 (0.603)			
14			0.470 (0.134)		0.843 (0.339)					
15			0.427 (0.098)		0.775 (0.372)					
16										
17										
18			0.478 (0.067)	0.341 (0.047)	0.636 (0.188)	0.454 (0.134)	0.873 (0.247)	0.623 (0.176)	1.440 (0.356)	1.030 (0.254)
19			0.547 (0.299)	0.391 (0.214)	0.904 (0.308)	0.645 (0.221)	1.060 (0.549)	0.761 (0.392)	2.620 (1.710)	1.870 (1.220)
20			0.346 (0.089)	0.246 (0.064)	0.676 (0.362)	0.482 (0.258)	0.617 (0.141)	0.440 (0.101)	1.210 (0.236)	0.860 (0.168)
21			0.307 (0.096)	0.219 (0.069)	0.628 (0.168)	0.448 (0.120)	0.568 (0.156)	0.405 (0.111)	1.250 (0.372)	0.893 (0.265)
22										
23			0.233 (0.092)	0.166 (0.065)	0.240 (0.127)	0.171 (0.090)	0.450 (0.133)	0.321 (0.095)	0.545 (0.144)	0.388 (0.103)
24			0.446 (0.315)	0.318 (0.225)	0.677 (0.294)	0.482 (0.209)	0.585 (0.329)	0.417 (0.235)		
25			0.207 (0.061)	0.147 (0.044)	0.242 (0.055)	0.173 (0.039)	0.417 (0.139)	0.297 (0.099)	0.649 (0.256)	0.463 (0.182)
26			0.306 (0.122)	0.218 (0.087)	0.601 (0.299)	0.428 (0.213)	0.570 (0.195)	0.406 (0.139)	1.100 (0.427)	0.780 (0.305)
27			0.370 (0.102)	0.264 (0.073)	0.479 (0.155)	0.341 (0.110)	0.705 (0.127)	0.501 (0.090)	1.020 (0.320)	0.722 (0.228)
28			0.358 (0.080)	0.255 (0.057)	0.511 (0.182)	0.364 (0.130)	0.613 (0.104)	0.437 (0.074)	0.855 (0.196)	0.610 (0.140)
29			0.330 (0.135)	0.235 (0.096)	0.402 (0.180)	0.286 (0.128)	0.571 (0.203)	0.407 (0.145)	0.920 (0.439)	0.655 (0.313)
30			0.365 (0.149)	0.260 (0.106)	0.515 (0.182)	0.366 (0.130)	0.614 (0.233)	0.437 (0.166)	0.883 (0.503)	0.628 (0.358)
Avg			0.426	0.290	0.645	0.438	0.740	0.511	1.230	0.875
n	0	0	26	23	26	23	19	18	19	19
SD			0.139	0.086	0.223	0.154	0.258	0.175	0.481	0.344
Min			0.207	0.147	0.165	0.118	0.389	0.277	0.545	0.388
Max			0.822	0.485	1.030	0.696	1.310	0.935	2.620	1.870

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for July, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1			0.511 (0.284)	0.364 (0.202)	0.654 (0.222)	0.466 (0.158)	0.810 (0.140)	0.577 (0.100)	1.130 (0.514)	0.802 (0.366)
2			1.020 (0.633)	0.728 (0.451)	1.240 (0.482)	0.883 (0.343)	1.460 (0.676)	1.040 (0.482)	1.680 (0.504)	1.190 (0.359)
3			1.180 (0.817)	0.840 (0.583)	1.380 (1.040)	0.986 (0.739)	1.580 (0.841)	1.130 (0.600)	2.110 (1.740)	1.510 (1.240)
4			0.966 (0.592)	0.689 (0.422)	1.040 (0.520)	0.742 (0.371)	1.240 (0.601)	0.887 (0.429)	1.580 (0.710)	1.130 (0.507)
5			0.769 (0.410)	0.549 (0.293)	0.959 (0.366)	0.684 (0.261)	1.260 (0.473)	0.896 (0.338)		
6			0.344 (0.121)	0.245 (0.086)	0.726 (0.294)	0.518 (0.210)	0.604 (0.335)	0.430 (0.239)	0.913 (0.401)	0.652 (0.286)
7			0.486 (0.185)	0.346 (0.132)	0.652 (0.250)	0.465 (0.178)	0.922 (0.293)	0.657 (0.209)	1.010 (0.312)	0.723 (0.223)
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
Avg	0	0	0.753	0.537	0.951	0.678	1.120	0.802	1.400	1.000
n			7	7	7	7	7	7	6	6
SD			0.292	0.208	0.269	0.192	0.330	0.235	0.423	0.302
Min			0.344	0.245	0.652	0.465	0.604	0.430	0.913	0.652
Max			1.180	0.840	1.380	0.986	1.580	1.130	2.110	1.510

Table F8. Daily means (SD) of NH3 concentrations at site WA5B for August, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1										
2										
3										
4										
5										
6			0.719 (0.134)	0.513 (0.096)	1.150 (0.357)	0.821 (0.255)	1.120 (0.246)	0.799 (0.175)		
7			0.569 (0.115)	0.407 (0.082)	0.844 (0.273)	0.603 (0.195)			1.680 (0.619)	1.200 (0.442)
8			0.579 (0.192)	0.413 (0.137)	0.769 (0.346)	0.549 (0.248)	1.010 (0.352)	0.724 (0.251)	1.370 (0.490)	0.977 (0.351)
9			0.827 (0.218)	0.591 (0.155)	1.040 (0.458)	0.742 (0.328)	1.150 (0.331)	0.823 (0.236)	1.660 (0.821)	1.190 (0.587)
10			0.728 (0.184)	0.520 (0.132)	0.865 (0.226)	0.618 (0.162)	0.994 (0.255)	0.710 (0.182)	1.550 (0.600)	1.110 (0.429)
11			0.958 (0.468)	0.685 (0.334)	1.240 (0.625)	0.890 (0.447)	1.160 (0.294)	0.830 (0.210)	1.920 (0.966)	1.370 (0.690)
12										
13										
14			0.607 (0.102)	0.433 (0.073)	0.943 (0.148)	0.672 (0.105)	0.949 (0.241)	0.676 (0.172)	1.370 (0.325)	0.978 (0.232)
15			0.797 (0.244)	0.568 (0.174)	0.735 (0.140)	0.524 (0.100)	1.090 (0.422)	0.780 (0.301)	1.430 (0.323)	1.020 (0.230)
16			0.768 (0.449)	0.548 (0.320)	1.190 (0.755)	0.846 (0.539)	0.970 (0.372)	0.692 (0.266)	1.390 (0.403)	0.994 (0.288)
17			0.845 (0.212)	0.603 (0.151)	1.050 (0.357)	0.746 (0.255)	1.270 (0.413)	0.904 (0.294)	1.810 (0.850)	1.300 (0.606)
18			1.090 (0.412)	0.779 (0.294)	1.150 (0.427)	0.818 (0.305)	1.610 (0.675)	1.150 (0.482)	1.890 (0.759)	1.350 (0.542)
19	1.400 (0.865)	1.000 (0.618)	1.380 (0.841)	0.987 (0.601)	1.450 (1.040)	1.040 (0.740)			1.940 (1.040)	1.390 (0.744)
20	2.410 (2.140)	1.730 (1.530)	1.590 (1.170)	1.140 (0.835)	1.530 (1.280)	1.100 (0.918)	2.230 (1.750)	1.600 (1.260)	3.100 (2.680)	2.220 (1.920)
21	0.916 (0.177)	0.654 (0.126)	0.950 (0.430)	0.678 (0.307)	1.450 (0.973)	1.040 (0.695)			1.770 (0.598)	1.260 (0.428)
22	0.659 (0.077)	0.470 (0.055)	0.654 (0.176)	0.467 (0.126)	0.848 (0.292)	0.605 (0.209)	0.980 (0.223)	0.699 (0.159)	1.390 (0.343)	0.994 (0.245)
23	0.466 (0.078)	0.332 (0.056)	0.548 (0.061)	0.390 (0.043)	0.838 (0.241)	0.597 (0.172)	0.838 (0.189)	0.597 (0.135)	1.140 (0.297)	0.814 (0.211)
24	0.645 (0.125)	0.460 (0.089)	0.729 (0.286)	0.520 (0.204)	0.892 (0.424)	0.636 (0.302)	1.080 (0.293)	0.770 (0.209)	1.500 (0.630)	1.070 (0.449)
25	1.050 (0.356)	0.747 (0.253)	0.974 (0.474)	0.694 (0.338)	1.220 (0.689)	0.867 (0.491)	1.070 (0.292)	0.766 (0.208)	1.520 (0.710)	1.090 (0.507)
26	0.885 (0.433)	0.632 (0.310)	0.803 (0.362)	0.573 (0.258)	0.998 (0.626)	0.712 (0.447)	1.200 (0.392)	0.857 (0.279)		
27	1.100 (0.542)	0.783 (0.386)	1.130 (0.518)	0.804 (0.370)	1.720 (0.787)	1.230 (0.562)			2.190 (0.653)	1.570 (0.466)
28	1.000 (0.244)	0.716 (0.174)	1.100 (0.322)	0.783 (0.229)	1.690 (0.631)	1.210 (0.449)				
29	0.857 (0.170)		0.969 (0.400)		1.060 (0.496)		1.210 (0.229)		1.960 (0.912)	
30	0.764 (0.150)		0.894 (0.245)		1.180 (0.478)		1.450 (0.398)		2.020 (0.680)	
31	1.680 (0.390)									
Avg	1.060	0.752	0.878	0.623	1.120	0.802	1.190	0.836	1.730	1.220
n	13	10	23	21	23	21	18	16	20	18
SD	0.496	0.372	0.251	0.188	0.279	0.208	0.308	0.230	0.413	0.305
Min	0.466	0.332	0.548	0.390	0.735	0.524	0.838	0.597	1.140	0.814
Max	2.410	1.730	1.590	1.140	1.720	1.230	2.230	1.600	3.100	2.220

Table F8. Daily means (SD) of NH₃ concentrations at site WA5B for September, 2009.

Day	Ambient		Barn 2 inlet		Barn 4 inlet		Barn 2 exhaust		Barn 4 exhaust	
	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³	ppm	mg·dsm ⁻³
1	1.550 (0.720)		1.230 (0.502)		1.330 (0.579)		1.730 (0.643)		1.910 (0.847)	
2	1.290 (0.410)		1.020 (0.259)		1.390 (0.796)		1.570 (0.507)		2.260 (1.030)	
3	0.861 (0.288)									
4	0.983 (0.352)	0.701 (0.251)	1.400 (0.725)	0.995 (0.516)	1.620 (0.476)	1.160 (0.340)	1.710 (0.600)	1.220 (0.427)	1.880 (0.473)	1.340 (0.337)
5	1.060 (0.624)	0.758 (0.444)	1.390 (0.800)	0.992 (0.570)	1.610 (0.854)	1.150 (0.609)	1.560 (0.634)	1.110 (0.452)	2.030 (0.769)	1.450 (0.548)
6	0.518 (0.097)	0.369 (0.070)	0.625 (0.183)	0.445 (0.130)	0.819 (0.221)	0.585 (0.158)			1.240 (0.321)	0.882 (0.230)
7	0.465 (0.059)	0.331 (0.042)	0.609 (0.152)	0.434 (0.108)	0.733 (0.341)	0.522 (0.243)	0.786 (0.087)	0.561 (0.062)	1.040 (0.196)	0.741 (0.139)
8	0.712 (0.138)	0.507 (0.098)	0.696 (0.222)	0.496 (0.158)	0.758 (0.438)	0.540 (0.312)	1.040 (0.344)	0.739 (0.245)	1.410 (0.474)	1.010 (0.338)
9	0.693 (0.154)	0.494 (0.109)	0.758 (0.226)	0.540 (0.161)	0.967 (0.345)	0.690 (0.246)	0.974 (0.322)	0.695 (0.229)	1.650 (0.671)	1.180 (0.478)
10	1.020 (0.527)	0.727 (0.376)	1.060 (0.358)	0.753 (0.256)	1.170 (0.600)	0.839 (0.428)	1.350 (0.370)	0.966 (0.264)	1.820 (0.684)	1.300 (0.489)
11	1.280 (0.592)	0.911 (0.423)	1.660 (0.876)	1.180 (0.625)	1.850 (1.050)	1.320 (0.751)	1.880 (0.895)	1.340 (0.639)		
12	1.500 (0.563)	1.070 (0.401)	1.220 (0.507)	0.867 (0.362)	1.570 (0.872)	1.120 (0.623)	1.540 (0.431)	1.100 (0.307)		
13	1.810 (0.908)	1.290 (0.647)	1.420 (0.862)	1.010 (0.615)	1.840 (1.200)	1.320 (0.856)				
14										
15										
16										
17	0.664 (0.175)	0.474 (0.125)	0.732 (0.295)	0.522 (0.210)	0.858 (0.241)	0.612 (0.173)	0.967 (0.284)	0.690 (0.203)	1.510 (0.600)	1.080 (0.429)
18	0.941 (0.227)	0.670 (0.161)	1.420 (0.524)	1.010 (0.373)	1.500 (0.893)	1.070 (0.637)	1.590 (0.471)	1.140 (0.335)	2.130 (0.733)	1.520 (0.522)
19	0.883 (0.305)	0.629 (0.217)	0.852 (0.311)	0.608 (0.222)	1.020 (0.418)	0.726 (0.297)				
20	0.493 (0.043)	0.351 (0.030)	0.604 (0.106)	0.430 (0.076)	0.812 (0.203)	0.578 (0.145)	0.838 (0.134)	0.597 (0.095)	1.310 (0.250)	0.933 (0.178)
21	1.160 (0.575)	0.826 (0.409)	1.220 (0.737)	0.871 (0.525)	1.450 (1.120)	1.030 (0.797)			2.200 (0.970)	1.570 (0.691)
22	1.340 (0.569)	0.955 (0.405)	1.470 (0.645)	1.050 (0.460)	1.950 (1.260)	1.390 (0.895)			2.760 (1.180)	1.970 (0.839)
23	1.310 (0.507)	0.933 (0.360)	1.410 (0.780)	1.000 (0.556)	1.370 (0.936)	0.978 (0.667)				
24	0.914 (0.399)									
25	0.653 (0.174)	0.465 (0.124)	0.817 (0.180)	0.582 (0.128)	1.080 (0.401)	0.770 (0.286)	1.240 (0.265)	0.881 (0.189)		
26	0.529 (0.127)	0.377 (0.091)	0.800 (0.415)	0.570 (0.296)	1.140 (0.389)	0.816 (0.278)	1.530 (0.862)	1.090 (0.615)		
27	0.614 (0.137)	0.437 (0.097)	0.767 (0.398)	0.545 (0.283)	1.020 (0.364)	0.728 (0.259)	1.050 (0.285)	0.749 (0.203)	1.560 (0.460)	1.110 (0.328)
28	0.853 (0.613)	0.607 (0.436)	0.839 (0.473)	0.597 (0.336)	1.110 (0.789)	0.790 (0.561)			1.870 (1.070)	1.330 (0.763)
29	0.398 (0.057)	0.283 (0.041)	0.526 (0.100)	0.374 (0.071)	0.924 (0.272)	0.658 (0.194)	0.896 (0.165)	0.638 (0.117)		
30	0.462 (0.091)	0.328 (0.065)	0.644 (0.082)	0.451 (0.060)	0.847 (0.141)				1.280 (0.298)	
Avg	0.924	0.630	1.010	0.710	1.230	0.881	1.310	0.900	1.760	1.240
n	27	23	25	23	25	22	17	15	17	14
SD	0.372	0.265	0.337	0.249	0.361	0.267	0.344	0.243	0.431	0.311
Min	0.398	0.283	0.526	0.374	0.733	0.522	0.786	0.561	1.040	0.741
Max	1.810	1.290	1.660	1.180	1.950	1.390	1.880	1.340	2.760	1.970

Table F9. Ammonia emissions.

Table F9. Daily means (SD) of ammonia emissions at site WA5B for November, 2007.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16	11.1 (6.7)	2.0 (1.2)	21.7 (13.2)			
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Avg						
n	1	1	1	0	0	0
SD						
Min						
Max						

Table F9. Daily means (SD) of ammonia emissions at site WA5B for December, 2007.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1	8.6 (5.4)	1.5 (0.9)	16.8 (10.5)	19.7 (10.2)	2.4 (1.2)	21.0 (10.9)
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17	3.9 (5.7)	0.7 (1.0)	7.7 (11.1)			
18	0.5 (7.8)	0.1 (1.4)	1.0 (15.3)			
19						
20	7.6 (10.0)	1.3 (1.8)	14.9 (19.6)			
21						
22						
23						
24						
25	8.7 (11.4)	1.5 (2.0)	17.0 (22.2)			
26						
27						
28						
29						
30						
31						
Avg	5.9	1.0	11.46	1	1	1
n	5	5	5			
SD	3.2	0.6	6.22			
Min	0.5	0.1	1.03			
Max	8.7	1.5	16.95			

Table F9. Daily means (SD) of ammonia emissions at site WA5B for February, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24	12.0 (7.8)	2.1 (1.4)	23.5 (15.2)			
25						
26						
27						
28						
29						
Avg						
n	1	1	1	0	0	0
SD						
Min						
Max						

Table F9. Daily means (SD) of ammonia emissions at site WA5B for March, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14	11.9 (8.2)	2.1 (1.4)	23.3 (16.0)			
15						
16	9.8 (6.7)	1.7 (1.2)	19.2 (13.1)			
17	10.6 (11.7)	1.9 (2.1)	20.8 (22.8)			
18						
19						
20	6.7 (5.3)	1.2 (0.9)	13.1 (10.3)			
21	6.3 (7.0)	1.1 (1.2)	12.3 (13.7)			
22						
23						
24						
25						
26	7.6 (5.7)	1.3 (1.0)	14.9 (11.2)			
27	3.2 (5.8)	0.6 (1.0)	6.3 (11.4)			
28						
29	4.0 (5.1)	0.7 (0.9)	7.8 (9.9)			
30	4.8 (6.6)	0.8 (1.2)	9.3 (12.8)			
31						
Avg	7.2	1.3	14.11			
n	9	9	9	0	0	0
SD	2.9	0.5	5.61			
Min	3.2	0.6	6.28			
Max	11.9	2.1	23.31			

Table F9. Daily means (SD) of ammonia emissions at site WA5B for April, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6	6.4 (5.0)	1.1 (0.9)	12.5 (9.7)	13.3 (9.4)	1.6 (1.1)	14.3 (10.1)
7						
8						
9						
10	15.0 (11.7)	2.6 (2.1)	29.2 (22.9)	13.2 (14.7)	1.6 (1.8)	13.9 (15.5)
11						
12						
13						
14	9.4 (8.4)	1.7 (1.5)	18.4 (16.4)	16.5 (22.9)	2.0 (2.8)	17.3 (24.0)
15	12.9 (10.1)	2.3 (1.8)	25.2 (19.7)	9.0 (10.6)	1.1 (1.3)	9.5 (11.1)
16	9.6 (4.9)	1.7 (0.9)	18.7 (9.6)			
17						
18	6.3 (6.9)	1.1 (1.2)	12.3 (13.5)	19.2 (11.1)	2.3 (1.3)	20.0 (11.6)
19						
20						
21						
22						
23	11.0 (7.1)	1.9 (1.3)	21.5 (14.0)	22.1 (15.6)	2.7 (1.9)	23.0 (16.2)
24						
25						
26						
27						
28				125.1 (116.6)	15.1 (14.0)	129.6 (120.8)
29	56.8 (45.7)	10.0 (8.0)	110.9 (89.2)	85.5 (84.4)	10.3 (10.2)	88.5 (87.4)
30						
Avg	15.9	2.8	31.1	38.0	4.6	39.5
n	8	8	8	8	8	8
SD	16.8	3.0	32.8	43.1	5.2	44.5
Min	6.3	1.1	12.3	9.0	1.1	9.5
Max	56.8	10.0	110.9	125.1	15.1	129.6

Table F9. Daily means (SD) of ammonia emissions at site WA5B for May, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7	40.2 (39.7)	7.1 (7.0)	78.5 (77.5)	77.4 (68.3)	9.3 (8.2)	79.9 (70.5)
8	44.7 (34.6)	7.9 (6.1)	87.3 (67.5)			
9	54.3 (34.0)	9.6 (6.0)	106.1 (66.4)	117.2 (75.6)	14.1 (9.1)	120.8 (77.9)
10				137.9 (75.2)	16.6 (9.1)	142.1 (77.5)
11	36.1 (27.0)	6.4 (4.8)	70.5 (52.7)	114.0 (67.3)	13.7 (8.1)	117.4 (69.3)
12	50.7 (25.2)	8.9 (4.4)	99.1 (49.2)	80.8 (44.8)	9.7 (5.4)	83.2 (46.1)
13						
14						
15	43.3 (38.1)	7.6 (6.7)	84.5 (74.4)	71.2 (41.3)	8.6 (5.0)	73.2 (42.5)
16						
17						
18						
19						
20						
21	28.0 (31.6)	4.9 (5.6)	54.7 (61.6)	67.2 (63.9)	8.1 (7.7)	69.0 (65.6)
22	39.9 (26.0)	7.0 (4.6)	78.0 (50.7)	89.3 (76.7)	10.8 (9.2)	91.5 (78.6)
23	77.0 (52.2)	13.6 (9.2)	150.4 (101.9)			
24	50.6 (29.9)	8.9 (5.3)	98.8 (58.4)			
25						
26	61.6 (53.5)	10.9 (9.4)	120.3 (104.5)			
27	76.1 (39.1)	13.4 (6.9)	148.7 (76.3)			
28						
29	65.8 (41.0)	11.6 (7.2)	128.6 (80.1)			
30	74.3 (75.7)	13.1 (13.3)	145.1 (147.8)			
31						
Avg	53.0	9.4	103.60	94.4	11.4	97.14
n	14	14	14	8	8	8
SD	15.2	2.7	29.64	23.9	2.9	24.73
Min	28.0	4.9	54.72	67.2	8.1	68.95
Max	77.0	13.6	150.40	137.9	16.6	142.10

Table F9. Daily means (SD) of ammonia emissions at site WA5B for June, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1	76.8 (38.6)	13.5 (6.8)	150.1 (75.5)	79.3 (72.3)	9.5 (8.7)	81.0 (73.8)
2						
3						
4						
5	77.5 (50.4)	13.7 (8.9)	151.4 (98.5)			
6	66.1 (49.0)	11.7 (8.6)	129.0 (95.6)	170.9 (93.3)	20.6 (11.2)	174.1 (95.0)
7				101.1 (79.5)	12.2 (9.6)	102.9 (81.0)
8	56.8 (30.9)	10.0 (5.4)	110.9 (60.3)	70.5 (52.2)	8.5 (6.3)	71.8 (53.2)
9				99.1 (61.3)	11.9 (7.4)	100.8 (62.3)
10	67.5 (44.8)	11.9 (7.9)	131.8 (87.6)			
11	66.3 (45.6)	11.7 (8.0)	129.5 (89.1)			
12						
13				73.3 (60.2)	8.8 (7.2)	74.5 (61.1)
14	60.4 (36.6)	10.7 (6.4)	118.0 (71.4)			
15	63.2 (50.6)	11.1 (8.9)	123.4 (98.8)	100.9 (82.7)	12.1 (10.0)	102.4 (84.0)
16	71.0 (50.3)	12.5 (8.9)	138.6 (98.2)	91.7 (54.1)	11.0 (6.5)	93.0 (54.9)
17	47.3 (30.3)	8.3 (5.3)	92.3 (59.3)	111.7 (86.3)	13.5 (10.4)	113.3 (87.5)
18						
19						
20						
21						
22	22.4 (19.8)	3.9 (3.5)	43.7 (38.7)			
23	53.2 (24.5)	9.4 (4.3)	103.9 (47.8)	70.4 (54.1)	8.5 (6.5)	71.3 (54.7)
24	51.1 (58.3)	9.0 (10.3)	99.9 (113.8)	68.0 (41.3)	8.2 (5.0)	68.7 (41.7)
25	67.8 (34.3)	12.0 (6.0)	132.5 (67.0)	90.2 (54.5)	10.9 (6.6)	91.2 (55.1)
26	89.4 (45.8)	15.8 (8.1)	174.6 (89.5)	81.2 (56.4)	9.8 (6.8)	82.1 (57.0)
27	88.5 (90.9)	15.6 (16.0)	172.9 (177.6)	124.9 (72.5)	15.0 (8.7)	126.2 (73.2)
28						
29						
30	96.6 (54.9)	17.0 (9.7)	188.7 (107.2)			
Avg	66.0	11.6	128.9	95.2	11.5	96.7
n	17	17	17	14	14	14
SD	17.7	3.1	34.7	27.6	3.3	28.1
Min	22.4	3.9	43.7	68.0	8.2	68.7
Max	96.6	17.0	188.7	170.9	20.6	174.1

Table F9. Daily means (SD) of ammonia emissions at site WA5B for October, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1	30.1 (26.6)	5.3 (4.7)	58.8 (51.9)	114.0 (43.1)	13.7 (5.2)	110.6 (41.8)
2						
3						
4						
5	26.3 (30.5) 9.7 (34.1)	4.6 (5.4) 1.7 (6.0)	51.4 (59.5) 19.0 (66.6)	81.1 (32.4)	9.8 (3.9)	78.5 (31.3)
6						
7						
8						
9						
10						
11						
12						
13						
14						
15	28.4 (20.2)	5.0 (3.6)	55.4 (39.5)			
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Avg	23.6	4.2	46.14	97.6	11.7	94.56
n	4	4	4	2	2	2
SD	8.1	1.4	15.90	16.5	2.0	16.07
Min	9.7	1.7	18.98	81.1	9.8	78.49
Max	30.1	5.3	58.82	114.0	13.7	110.60

Table F9. Daily means (SD) of ammonia emissions at site WA5B for November, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3				62.1 (32.2)	7.5 (3.9)	59.6 (30.8)
4						
5						
6						
7						
8						
9						
10						
11	39.7 (19.9)	7.0 (3.5)	78.5 (39.4)	105.2 (55.5)	12.7 (6.7)	133.9 (70.2)
12	39.7 (26.6)	7.0 (4.7)	78.5 (52.6)	94.3 (32.2)	11.4 (3.9)	127.3 (43.2)
13						
14						
15						
16						
17						
18						
19	24.6 (11.5)	4.3 (2.0)	47.7 (22.4)	40.8 (16.5)	4.9 (2.0)	43.1 (17.4)
20						
21	34.7 (22.0)	6.1 (3.9)	67.7 (43.0)			
22						
23						
24						
25						
26						
27						
28						
29						
30						
Avg	34.7	6.1	68.09	75.6	9.1	90.97
n	4	4	4	4	4	4
SD	6.1	1.1	12.54	25.6	3.1	40.12
Min	24.6	4.3	47.74	40.8	4.9	43.10
Max	39.7	7.0	78.46	105.2	12.7	133.90

Table F9. Daily means (SD) of ammonia emissions at site WA5B for December, 2008.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14	27.8 (23.2)	4.9 (4.1)	56.2 (46.8)			
15						
16						
17						
18						
19						
20	24.4 (16.5)	4.3 (2.9)	49.2 (33.3)	21.8 (15.6)	2.6 (1.9)	22.3 (16.0)
21						
22						
23						
24						
25						
26						
27	18.7 (19.0)	3.3 (3.4)	37.5 (38.1)			
28	16.4 (12.8)	2.9 (2.3)	33.0 (25.7)			
29						
30						
31	15.3 (13.1)	2.7 (2.3)	30.7 (26.2)			
Avg	20.5	3.6	41.30			
n	5	5	5	1	1	1
SD	4.8	0.8	9.81			
Min	15.3	2.7	30.67			
Max	27.8	4.9	56.19			

Table F9. Daily means (SD) of ammonia emissions at site WA5B for January, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1	24.7 (15.4)	4.4 (2.7)	49.5 (30.8)	48.1 (26.4)	5.8 (3.2)	49.2 (27.0)
2						
3						
4						
5						
6	30.0 (19.5)	5.3 (3.4)	59.9 (38.8)	59.7 (45.7)	7.2 (5.5)	61.2 (46.9)
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Avg	27.4	4.8	54.69	53.9	6.5	55.20
n	2	2	2	2	2	2
SD	2.6	0.5	5.21	5.8	0.7	5.97
Min	24.7	4.4	49.48	48.1	5.8	49.23
Max	30.0	5.3	59.90	59.7	7.2	61.17

Table F9. Daily means (SD) of ammonia emissions at site WA5B for February, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13	18.9 (12.7)	3.3 (2.2)	36.9 (24.8)	41.6 (19.2)	5.0 (2.3)	42.1 (19.4)
14						
15						
16	20.1 (10.5)	3.5 (1.9)	39.2 (20.5)	29.0 (12.7)	3.5 (1.5)	28.8 (12.6)
17						
18						
19	12.4 (9.8)	2.2 (1.7)	24.1 (19.1)	20.5 (12.5)	2.5 (1.5)	19.9 (12.2)
20						
21						
22						
23						
24	37.0 (19.8)	6.5 (3.5)	71.4 (38.2)	60.8 (30.2)	7.3 (3.6)	57.5 (28.6)
25	32.9 (15.5)	5.8 (2.7)	63.5 (29.9)	66.5 (33.7)	8.0 (4.1)	62.5 (31.6)
26						
27						
28						
Avg	24.3	4.3	47.01	43.7	5.3	42.16
n	5	5	5	5	5	5
SD	9.2	1.6	17.62	17.7	2.1	16.27
Min	12.4	2.2	24.10	20.5	2.5	19.93
Max	37.0	6.5	71.37	66.5	8.0	62.49

Table F9. Daily means (SD) of ammonia emissions at site WA5B for March, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5	10.7 (6.9)	1.9 (1.2)	20.5 (13.2)	42.4 (18.7)	5.1 (2.2)	40.2 (17.7)
6						
7	15.5 (20.1)	2.7 (3.5)	29.7 (38.6)	39.6 (33.9)	4.8 (4.1)	37.7 (32.2)
8						
9						
10	4.6 (6.2)	0.8 (1.1)	8.9 (11.8)	16.2 (8.2)	2.0 (1.0)	15.5 (7.8)
11	9.7 (6.9)	1.7 (1.2)	18.7 (13.2)	17.4 (7.9)	2.1 (1.0)	16.6 (7.6)
12						
13						
14						
15	19.2 (17.7)	3.4 (3.1)	36.9 (34.0)	39.0 (26.0)	4.7 (3.1)	37.5 (24.9)
16	12.9 (10.6)	2.3 (1.9)	24.7 (20.3)			
17	16.2 (7.5)	2.9 (1.3)	31.0 (14.3)	39.5 (19.0)	4.8 (2.3)	38.1 (18.3)
18						
19						
20	15.9 (12.5)	2.8 (2.2)	30.4 (23.8)			
21						
22						
23	17.2 (17.5)	3.0 (3.1)	32.8 (33.4)	30.2 (18.0)	3.6 (2.2)	29.3 (17.5)
24						
25	19.7 (13.2)	3.5 (2.3)	37.6 (25.3)	20.7 (13.0)	2.5 (1.6)	20.2 (12.7)
26						
27						
28						
29				22.3 (13.5)	2.7 (1.6)	21.9 (13.2)
30						
31						
Avg	14.2	2.5	27.12	29.7	3.6	28.54
n	10	10	10	9	9	9
SD	4.5	0.8	8.51	10.1	1.2	9.53
Min	4.6	0.8	8.90	16.2	2.0	15.46
Max	19.7	3.5	37.58	42.4	5.1	40.18

Table F9. Daily means (SD) of ammonia emissions at site WA5B for April, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22				47.6 (32.7)	5.7 (3.9)	48.4 (33.3)
23	16.6 (12.0)	2.9 (2.1)	31.4 (22.8)	37.7 (30.3)	4.5 (3.7)	38.4 (30.9)
24						
25	23.5 (11.8)	4.1 (2.1)	44.5 (22.3)	54.0 (33.9)	6.5 (4.1)	55.2 (34.6)
26	17.0 (13.6)	3.0 (2.4)	32.2 (25.7)	45.0 (30.0)	5.4 (3.6)	46.1 (30.7)
27				55.2 (25.5)	6.6 (3.1)	56.6 (26.1)
28	7.9 (8.9)	1.4 (1.6)	15.0 (16.8)	42.0 (24.2)	5.1 (2.9)	43.1 (24.9)
29	13.5 (10.1)	2.4 (1.8)	25.6 (19.1)	40.0 (19.2)	4.8 (2.3)	41.2 (19.7)
30				41.9 (20.0)	5.0 (2.4)	43.2 (20.6)
Avg	15.7	2.8	29.73	45.4	5.5	46.53
n	5	5	5	8	8	8
SD	5.1	0.9	9.60	6.0	0.7	6.11
Min	7.9	1.4	15.01	37.7	4.5	38.41
Max	23.5	4.1	44.52	55.2	6.6	56.59

Table F9. Daily means (SD) of ammonia emissions at site WA5B for May, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5				40.9 (29.8)	4.9 (3.6)	42.5 (30.9)
6	23.5 (14.4)	4.1 (2.5)	44.4 (27.1)	48.5 (29.1)	5.8 (3.5)	50.4 (30.2)
7						
8	19.5 (10.2)	3.4 (1.8)	36.7 (19.3)	46.4 (25.9)	5.6 (3.1)	48.3 (26.9)
9						
10						
11						
12						
13	14.3 (10.3)	2.5 (1.8)	27.0 (19.5)	38.4 (31.3)	4.6 (3.8)	39.9 (32.6)
14				39.6 (22.8)	4.8 (2.7)	41.3 (23.7)
15	17.3 (16.0)	3.1 (2.8)	32.8 (30.3)			
16						
17						
18						
19	11.0 (12.5)	1.9 (2.2)	20.8 (23.6)			
20						
21						
22						
23						
24	21.9 (13.8)	3.9 (2.4)	41.5 (26.1)	47.7 (28.4)	5.7 (3.4)	49.7 (29.6)
25	22.1 (10.6)	3.9 (1.9)	41.8 (20.0)	32.2 (20.2)	3.9 (2.4)	33.6 (21.1)
26	19.6 (10.8)	3.5 (1.9)	37.2 (20.5)	33.5 (20.4)	4.0 (2.5)	34.9 (21.3)
27	25.0 (17.9)	4.4 (3.2)	47.4 (34.0)	43.2 (21.4)	5.2 (2.6)	45.1 (22.4)
28				33.4 (19.6)	4.0 (2.4)	34.8 (20.5)
29						
30	26.7 (22.2)	4.7 (3.9)	50.7 (42.2)	42.4 (26.8)	5.1 (3.2)	44.3 (28.0)
31						
Avg	20.1	3.5	38.04	40.6	4.9	42.26
n	10	10	10	11	11	11
SD	4.6	0.8	8.74	5.5	0.7	5.72
Min	11.0	1.9	20.78	32.2	3.9	33.64
Max	26.7	4.7	50.72	48.5	5.8	50.37

Table F9. Daily means (SD) of ammonia emissions at site WA5B for June, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1				43.3 (31.5)	5.2 (3.8)	45.2 (32.9)
2	33.0 (19.4)	5.8 (3.4)	62.6 (36.9)	51.0 (21.0)	6.1 (2.5)	53.3 (21.9)
3	23.1 (13.3)	4.1 (2.3)	43.9 (25.2)	31.4 (32.5)	3.8 (3.9)	32.9 (34.0)
4						
5						
6						
7						
8						
9						
10						
11	26.1 (12.3)	4.6 (2.2)	49.6 (23.5)			
12						
13						
14						
15						
16						
17						
18				65.4 (35.1)	7.9 (4.2)	68.6 (36.8)
19	29.9 (16.3)	5.3 (2.9)	56.9 (31.1)	76.2 (55.0)	9.2 (6.6)	80.0 (57.7)
20	25.8 (10.9)	4.5 (1.9)	49.1 (20.8)	51.0 (48.2)	6.1 (5.8)	53.5 (50.6)
21	23.6 (14.1)	4.2 (2.5)	45.1 (26.8)	55.4 (39.2)	6.7 (4.7)	58.2 (41.2)
22						
23						
24						
25	18.3 (12.7)	3.2 (2.2)	34.9 (24.3)	30.9 (22.7)	3.7 (2.7)	32.5 (23.8)
26	18.6 (10.5)	3.3 (1.9)	35.5 (20.1)	34.8 (19.9)	4.2 (2.4)	36.5 (20.9)
27	28.9 (14.0)	5.1 (2.5)	55.2 (26.7)	45.6 (26.1)	5.5 (3.1)	48.0 (27.4)
28	19.9 (10.2)	3.5 (1.8)	37.9 (19.4)	27.9 (16.4)	3.4 (2.0)	29.3 (17.2)
29	21.0 (12.6)	3.7 (2.2)	40.1 (24.0)	40.6 (21.3)	4.9 (2.6)	42.7 (22.4)
30	19.2 (12.9)	3.4 (2.3)	36.8 (24.6)	25.8 (29.9)	3.1 (3.6)	27.2 (31.5)
Avg	23.9	4.2	45.63	44.6	5.4	46.75
n	12	12	12	13	13	13
SD	4.6	0.8	8.79	14.5	1.7	15.21
Min	18.3	3.2	34.87	25.8	3.1	27.18
Max	33.0	5.8	62.62	76.2	9.2	79.98

Table F9. Daily means (SD) of ammonia emissions at site WA5B for July, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1	20.3 (13.2)	3.6 (2.3)	38.7 (25.2)	23.3 (14.0)	2.8 (1.7)	24.5 (14.7)
2						
3						
4						
5						
6	25.9 (21.8)	4.6 (3.8)	49.5 (41.7)	21.5 (24.2)	2.6 (2.9)	22.7 (25.5)
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Avg	23.1	4.1	44.10	22.4	2.7	23.59
n	2	2	2	2	2	2
SD	2.8	0.5	5.39	0.9	0.1	0.91
Min	20.3	3.6	38.70	21.5	2.6	22.68
Max	25.9	4.6	49.49	23.3	2.8	24.50

Table F9. Daily means (SD) of ammonia emissions at site WA5B for August, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7				65.9 (44.9)	7.9 (5.4)	69.9 (47.6)
8	34.0 (20.0)	6.0 (3.5)	65.5 (38.6)	54.6 (30.4)	6.6 (3.7)	57.9 (32.2)
9	18.6 (16.1)	3.3 (2.8)	35.8 (31.0)	34.3 (27.7)	4.1 (3.3)	36.4 (29.4)
10	17.6 (10.0)	3.1 (1.8)	33.9 (19.4)	46.0 (26.2)	5.5 (3.2)	48.8 (27.9)
11						
12						
13						
14	24.8 (12.2)	4.4 (2.2)	47.8 (23.6)	29.8 (21.6)	3.6 (2.6)	31.7 (23.0)
15						
16						
17						
18						
19						
20						
21				30.2 (35.5)	3.6 (4.3)	32.1 (37.8)
22	26.7 (13.0)	4.7 (2.3)	51.6 (25.2)	48.6 (29.9)	5.8 (3.6)	51.7 (31.9)
23	25.5 (15.9)	4.5 (2.8)	49.4 (30.8)	28.6 (20.1)	3.4 (2.4)	30.4 (21.3)
24						
25						
26						
27						
28						
29						
30						
31						
Avg	24.5	4.3	47.32	42.2	5.1	44.84
n	6	6	6	8	8	8
SD	5.5	1.0	10.54	12.8	1.5	13.57
Min	17.6	3.1	33.86	28.6	3.4	30.40
Max	34.0	6.0	65.48	65.9	7.9	69.87

Table F9. Daily means (SD) of ammonia emissions at site WA5B for September, 2009.

Day	Barn 2			Barn 4		
	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹	kg·d ⁻¹	g·d ⁻¹ m ⁻²	g·d ⁻¹ hd ⁻¹
1						
2						
3						
4						
5						
6						
7	17.7 (13.3)	3.1 (2.3)	34.3 (25.9)	30.9 (26.8)	3.7 (3.2)	33.0 (28.6)
8						
9						
10						
11						
12						
13						
14						
15						
16						
17	19.9 (11.7)	3.5 (2.1)	38.8 (22.8)	45.1 (41.9)	5.4 (5.0)	48.2 (44.7)
18						
19						
20	17.6 (10.9)	3.1 (1.9)	34.3 (21.2)	38.7 (19.2)	4.7 (2.3)	41.3 (20.5)
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Avg	18.4	3.2	35.83	38.3	4.6	40.83
n	3	3	3	3	3	3
SD	1.1	0.2	2.11	5.8	0.7	6.21
Min	17.6	3.1	34.34	30.9	3.7	32.98
Max	19.9	3.5	38.82	45.1	5.4	48.17

Table F10. Completeness of airflow and emission data.

Table F10. Airflow and emission data completeness (%) at site WA5B for September, 2007.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	51.9	51.9	0	0	0	0	44.4	43.9	0	0	0	0
29	100	100	0	0	0	0	100	100	0	0	0	0
30	100	100	0	0	0	0	100	100	0	0	0	0
Avg	8.4	8.4	0	0	0	0	8.2	8.1	0	0	0	0
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	26.2	26.2	0	0	0	0	25.8	25.8	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	0	0	0	0	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for October, 2007.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	0	0	0	0	100	100	0	0	0	0
2	100	100	0	0	0	0	100	100	0	0	0	0
3	100	100	0	0	0	0	100	100	0	0	0	0
4	96.7	96.7	0	0	0	0	96.8	96.8	0	0	0	0
5	100	100	0	0	0	0	100	100	0	0	0	0
6	100	100	0	0	0	0	100	100	0	0	0	0
7	100	100	0	0	0	0	100	100	0	0	0	0
8	100	100	0	0	0	0	100	100	0	0	0	0
9	100	100	0	0	0	0	100	100	0	0	0	0
10	69.2	69.2	0	0	0	0	69.2	69.2	0	0	0	0
11	100	100	0	0	0	0	100	100	0	0	0	0
12	100	100	0	0	0	0	100	100	0	0	0	0
13	100	100	0	0	0	0	100	100	0	0	0	0
14	100	100	0	0	0	0	100	100	0	0	0	0
15	100	100	0	0	0	0	100	100	0	0	0	0
16	100	100	0	0	0	0	100	100	0	0	0	0
17	100	100	0	0	0	0	100	100	0	0	0	0
18	99.4	99.4	0	0	0	0	99.4	99.4	0	0	0	0
19	66.9	66.9	23	0.2	38.1	0.4	66.9	66.9	0	0	0	0
20	100	100	61.1	37.8	61.1	37.8	100	100	0	0	0	0
21	100	100	29.7	0	29.7	0	100	100	0	0	0	0
22	100	100	26	0.1	26	0.1	100	100	0	0	0	0
23	87.2	87.2	18.8	0	18.8	0	87.2	87.2	0	0	0	0
24	100	100	37.2	28	37.2	28	100	100	0	0	0	0
25	96	96	32.3	0.1	32.3	0.1	96	96	0	0	0	0
26	59	59	4.5	0	4.5	0	59	59	0	0	0	0
27	100	100	0.2	0	0.2	0	100	100	0	0	0	0
28	100	100	27.2	0	27.2	0	100	100	0	0	0	0
29	100	100	17.4	0	17.4	0	100	100	0	0	0	0
30	100	100	15.5	0.1	15.5	0.1	100	100	0	0	0	0
31	99.1	99.1	13.3	0	13.3	0	99.1	91.3	0	0	0	0
Avg	95.9	95.9	9.9	2.1	10.4	2.2	95.9	95.7	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	10.5	10.5	15.1	8.2	15.7	8.2	10.5	10.5	0	0	0	0
Min	59	59	0	0	0	0	59	59	0	0	0	0
Max	100	100	61.1	37.8	61.1	37.8	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for November, 2007.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	97.6	97.6	5.3	0	5.3	0	70.8	74.7	0	0	0	0
2	83.3	98.4	0	11.3	0	11.3	98.4	98.4	0	0	0	0
3	100	100	9	0	9	0	100	100	0	0	0	0
4	100	100	20.1	0.4	20.1	0.4	100	100	0	0	0	0
5	100	100	11.3	0	11.3	0	100	100	0	0	0	0
6	100	100	4.5	0	4.5	0	100	100	0	0	0	0
7	100	100	11.3	0	11.3	0	100	100	0	0	0	0
8	100	100	12.7	0	12.7	0	100	100	0	0	0	0
9	100	100	5.4	0.3	5.4	0.3	100	100	0	0	0	0
10	100	100	26.3	15.5	26.3	15.5	99.7	99.7	0	0	0	0
11	100	100	43.5	0.3	43.5	0.3	100	100	0	0	0	0
12	82.8	82.8	40.8	16.1	40.8	16.1	67.9	67.9	0	0	0	0
13	63.5	63.5	43.2	0.1	43.2	0.1	63.5	63.5	0	0	0	0
14	42.4	42.4	7.4	0	7.4	0	16.7	16.7	0	0	0	0
15	100	100	40.8	14.2	40.8	14.2	0	0	0	0	0	0
16	100	100	92.1	14.7	92.1	14.7	0	0	0	0	0	0
17	100	100	61.9	0.7	61.9	0.7	0	0	0	0	0	0
18	100	100	28.1	0.8	28.1	0.8	0	0	0	0	0	0
19	100	100	3.9	0.4	3.9	0.4	0	0	0	0	0	0
20	100	100	6.4	0	6.4	0	0	0	0	0	0	0
21	99	100	20.6	0.1	20.6	0.1	0	0	0	0	0	0
22	80.9	87.2	61.5	0	61.5	0	0	0	0	0	0	0
23	65.3	93.8	4.9	0	4.9	0	0	0	0	0	0	0
24	100	100	1.5	0	1.5	0	0	0	0	0	0	0
25	96.7	100	25.3	0.1	25.3	0.1	0	0	0	0	0	0
26	67.2	99.1	7	0	7	0	0	0	0	0	0	0
27	85.9	89.8	0	0	0	0	0	0	0	0	0	0
28	99	99.6	0	0	0	0	0	0	0	0	0	0
29	99.8	99.8	0	0	0	0	0	0	0	0	0	0
30	97.6	98.8	0.6	0.3	1	0.3	0	0	0	0	0	0
Avg	92	95.1	19.8	2.5	19.9	2.5	40.6	40.7	0	0	0	0
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	14.4	12.3	22.4	5.4	22.4	5.4	46.3	46.3	0	0	0	0
Min	42.4	42.4	0	0	0	0	0	0	0	0	0	0
Max	100	100	92.1	16.1	92.1	16.1	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for December, 2007.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	45.8	95.7	52.8	2.8	39.1	3.2	0	0	0	0	0	0
2	98.5	100	7.4	79.1	7.6	79.1	0	0	0	0	0	0
3	100	100	38.1	39	38.6	39.6	0	0	0	0	0	0
4	100	100	97.3	29.1	97.3	29.6	0	0	0	0	0	0
5	100	100	28.8	0.1	29.4	0.1	0	0	0	0	0	0
6	100	100	23.1	0.5	17.6	0.8	0	0	0	0	0	0
7	89.4	89.4	12.2	7.4	14.8	7.6	0	0	0	0	0	0
8	32.8	33.6	13.3	0.1	13.5	0.3	0	0	0	0	0	0
9	17.1	71.1	24.7	0	25.1	0	0	0	0	0	0	0
10	21.7	96.5	16.1	0.3	14.2	0.3	0	0	0	0	0	0
11	50.7	64.6	4.5	0.1	4.7	0.2	0	0	0	0	0	0
12	50.2	51.8	0.1	0	0.2	0	0	0	0	0	0	0
13	44.4	61	0	0	0.2	0	0	0	0	0	0	0
14	79.3	100	33.5	0.1	32.4	0.1	0	0	0	0	0	0
15	83.4	95.9	33.4	14.3	26.2	7.8	0	0	0	0	0	0
16	100	100	66	7.4	66.3	7.5	0	0	0	0	0	0
17	100	100	84.7	0.5	82.5	0.8	0	0	0	0	0	0
18	100	100	7.1	15.1	2.4	15.3	0	0	0	0	0	0
19	100	100	96	8.2	75.2	9.2	0	0	0	0	0	0
20	100	100	77.8	0.6	48.5	1.1	0	0	0	0	0	0
21	100	100	47.7	0.2	41.3	0.4	0	0	0	0	0	0
22	99.6	100	52.4	0.4	40.1	0.8	0	0	0	0	0	0
23	100	100	36.9	0.1	36.2	0.1	0	0	0	0	0	0
24	100	100	36.7	0.3	37.2	0.6	0	0	0	0	0	0
25	89.9	97.6	80.8	8.9	80.8	1.3	0	0	0	0	0	0
26	100	100	24.7	0.6	25.1	0.8	0	0	0	0	0	0
27	95.2	100	51	30.7	33.9	24.5	0	0	0	0	0	0
28	100	100	52.5	8.5	43.5	9.1	0	0	0	0	0	0
29	97.8	99.4	33.1	0.6	34	0.7	0	0	0	0	0	0
30	99.8	99.8	15.2	1	8.3	1.6	0	0	0	0	0	0
31	96	100	52.7	0.2	48	0.3	0	0	0	0	0	0
Avg	83.6	92.1	38.7	8.3	34.3	7.8	0	0	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	26.1	16.6	27.4	16.3	24.8	16.1	0	0	0	0	0	0
Min	17.1	33.6	0	0	0.2	0	0	0	0	0	0	0
Max	100	100	97.3	79.1	97.3	79.1	0	0	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for January, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	63.8	100	5.3	0	5.7	0	0	0	0	0	0	0
2	79.7	79.7	5.1	0	0.6	0	0	0	0	0	0	0
3	53.4	53.4	3.3	0	3.3	0	0	0	0	0	0	0
4	99.9	99.9	29	0	20.1	0	0	0	0	0	0	0
5	100	100	16.7	0	10.2	0	0	0	0	0	0	0
6	99.8	99.8	8.8	0	9	0	0	0	0	0	0	0
7	44.2	44.2	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	47.2	47.2	5.2	0	5.3	0	0	0	0	0	0	0
11	76	76	13.5	0	9.6	0	0	0	0	0	0	0
12	99.9	99.9	21.9	0	19.7	0	0	0	0	0	0	0
13	99.9	99.9	13.8	0	10.6	0	0	0	0	0	0	0
14	99.9	99.9	13.8	0	14.3	0	0	0	0	0	0	0
15	99.8	99.8	0.5	0	1	0	0	0	0	0	0	0
16	100	100	15.8	0	7.9	0	0	0	0	0	0	0
17	99.8	99.8	15.2	0	15.3	0	0	0	0	0	0	0
18	77.4	77.4	0	0	0	0	0	0	0	0	0	0
19	100	100	21.8	0	15.6	0	0	0	0	0	0	0
20	100	100	44	0	44.2	0	0	0	0	0	0	0
21	100	100	0	0	0.1	0	0	0	0	0	0	0
22	100	100	0	0	0	0	0	0	0	0	0	0
23	100	100	0	0	0	0	0	0	0	0	0	0
24	100	100	0.1	0	0.3	0	0	0	0	0	0	0
25	99.7	99.7	0	0	0	0	0	0	0	0	0	0
26	99.9	99.9	0	0	0	0	0	0	0	0	0	0
27	100	100	35.3	0	35.4	0	0	0	0	0	0	0
28	100	100	14.2	0	13.5	0	0	0	0	0	0	0
29	100	100	39.8	0	39.9	0	0	0	0	0	0	0
30	100	100	0.6	0	0.8	0	0	0	0	0	0	0
31	100	100	22.4	0	22.6	0	0	0	0	0	0	0
Avg	85.2	86.3	11.2	0	9.8	0	0	0	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	27.9	27.7	12.6	0	12	0	0	0	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	44	0	44.2	0	0	0	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for February, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	0.1	0	0.3	0	0	0	0	0	0	0
2	100	100	15.6	0	15.9	0	0	0	0	0	0	0
3	100	100	0.1	0	0.1	0	0	0	0	0	0	0
4	100	100	0.1	0	0.1	0	0	0	0	0	0	0
5	100	100	0.4	0	0.7	0	0	0	0	0	0	0
6	100	100	0	0	0	0	0	0	0	0	0	0
7	100	100	0.2	0	0.3	0	0	0	0	0	0	0
8	99.1	99.1	0	0	0	0	0	0	0	0	0	0
9	100	100	0	0	0	0	0	0	0	0	0	0
10	100	100	0.2	0	0.3	0	0	0	0	0	0	0
11	100	100	0.2	0	0.3	0	0	0	0	0	0	0
12	100	100	0	0	0	0	0	0	0	0	0	0
13	99.7	99.7	25.6	0	25.8	0	0	0	0	0	0	0
14	72.7	72.7	7.4	0	7.7	0	62	62	62	62	0	0
15	100	100	6.9	0	7.2	0	100	100	100	100	0	0
16	100	100	4	0	3.4	0	100	100	100	100	0	0
17	100	100	15.7	0	12.2	0	100	100	71.6	71.6	0	0
18	100	100	13.1	0	8.7	0	100	100	0	0	0	0
19	99.7	99.7	11	0	3.5	0	99.7	99.7	0	0	0	0
20	100	100	29.5	0	29.7	0	100	100	0	0	0	0
21	96.3	96.3	28.9	0	25.6	0	96.3	96.3	0	0	0	0
22	100	100	27.9	0	28.2	0	100	100	0	0	0	0
23	100	100	52.2	0	51	0	100	100	0	0	0	0
24	100	100	76.9	0	77.1	0	100	100	0	0	0	0
25	100	100	0.1	0	0.3	0	100	100	0	0	0	0
26	100	100	0	0	0	0	100	100	0	0	0	0
27	100	100	0.6	0	1	0	100	100	0	0	0	0
28	100	100	9.9	0	5.1	0	100	100	0	0	0	0
29	100	100	0	0	0	0	97.3	96.7	0	0	0	0
Avg	98.9	98.9	11.3	0	10.5	0	53.6	53.6	11.5	11.5	0	0
n	29	29	29	29	29	29	29	29	29	29	29	29
SD	5	5	17.7	0	17.6	0	48.8	48.8	29.4	29.4	0	0
Min	72.7	72.7	0	0	0	0	0	0	0	0	0	0
Max	100	100	76.9	0	77.1	0	100	100	100	100	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for March, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	0	0	0	0	100	100	0	0	0	0
2	100	100	13	0	13.2	0	100	100	0	0	0	0
3	100	100	25.6	0	16.1	0	100	100	0	0	0	0
4	100	100	0	0	0	0	100	100	0	0	0	0
5	100	100	14.4	0	14.5	0	100	100	0	0	0	0
6	100	100	27.6	0	22.2	0	100	100	0	0	0	0
7	100	100	10.7	0	5.3	0	100	100	0	0	0	0
8	100	100	46.2	0	39.8	0	100	100	0	0	0	0
9	100	100	11.7	0	11.9	0	100	100	0	0	0	0
10	100	100	11.9	0	11.9	0	100	100	0	0	0	0
11	100	100	57.8	0	58.3	0	100	100	0	0	0	0
12	92.7	92.7	59.2	0	49.7	0	92.7	92.7	0	0	0	0
13	100	100	18.3	0	8.1	0	100	100	0	0	0	0
14	99.8	99.8	87.2	0	73.8	0	99.8	99.8	0	0	0	0
15	100	100	46	0	46.5	0	100	100	0	0	0	0
16	100	100	77.9	0	77.9	0	100	100	0	0	0	0
17	100	100	79.2	0	70.5	0	100	100	0	0	0	0
18	100	100	64.6	0	46.4	0	95	95	0	0	0	0
19	100	100	45.6	0	45.5	0	100	100	0	0	0	0
20	100	100	82.6	0	82.6	0	100	100	0	0	0	0
21	100	100	91.2	0	91.2	0	100	100	0	0	0	0
22	100	100	46.5	0	40.9	0	100	100	0	0	0	0
23	100	100	70.8	0	71.2	0	100	100	0	0	0	0
24	100	100	64.6	0	50.2	0	100	100	0	0	0	0
25	100	100	51.5	0	51.9	0	100	100	0	0	0	0
26	100	100	97.4	0	97.4	0	100	100	0	0	0	0
27	97.5	97.4	82.2	0	82.3	0	97.5	97.5	0	0	0	0
28	99.9	99.9	74.4	0	66.9	0	99.9	99.9	0	0	0	0
29	100	100	86.4	0	62.8	0	100	100	0	0	0	0
30	100	100	84.9	0	85	0	100	100	0	0	0	0
31	100	100	51.3	0	40.6	0	100	100	0	0	0	0
Avg	99.7	99.7	51	0	46.3	0	99.5	99.5	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	1.4	1.4	29.7	0	29	0	1.6	1.6	0	0	0	0
Min	92.7	92.7	0	0	0	0	92.7	92.7	0	0	0	0
Max	100	100	97.4	0	97.4	0	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for April, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	69.9	47.2	67.4	45.3	100	100	0	0	0	0
2	100	100	56.7	38.7	38.7	29.9	100	100	0	0	0	0
3	100	100	60.5	58.3	53.3	43.5	100	100	0	0	0	0
4	100	100	69.8	63.5	69.8	63.9	100	100	0	0	0	0
5	100	100	60.6	73.6	61.3	73.6	100	100	0	0	0	0
6	100	100	97.8	97.8	97.8	97.8	100	100	0	0	0	0
7	100	100	71.2	68	65.1	62	100	100	0	0	0	0
8	100	100	60.4	49.4	60.4	47.4	100	100	0	0	0	0
9	100	100	69.6	52.6	57.9	53	100	100	0	0	0	0
10	100	100	79.2	79.2	64.2	79.2	55.1	55.1	0	0	0	0
11	100	100	61.3	66.3	55.5	60.6	0	0	0	0	0	0
12	100	100	55.4	57.8	47.1	51.6	0	0	0	0	0	0
13	100	100	53.5	50.8	51.5	51.2	0	0	0	0	0	0
14	100	100	99.5	99.5	99.5	99.5	0	0	0	0	0	0
15	100	100	88.3	88.3	88.3	88.3	0	0	0	0	0	0
16	100	100	75.8	62.6	70.3	57.4	0	0	0	0	0	0
17	100	100	51	53.1	64.6	45.5	0	0	0	0	46	46
18	100	100	97.2	97.2	97.2	97.2	0	0	0	0	100	100
19	100	100	59.2	42.2	38.6	43.1	0	0	0	0	100	100
20	100	100	60.3	68.6	60.3	68.6	0	0	0	0	100	100
21	100	100	59.8	58.5	46.2	58.8	0	0	0	0	100	100
22	100	100	68.8	67.6	68.8	59.1	0	0	0	0	100	100
23	100	100	88.6	88.6	88.6	88.6	0	0	0	0	100	100
24	100	100	32.6	34.4	33.1	33.5	56.3	56.3	0	0	43.8	43.8
25	100	100	49.8	28	30	21	100	100	0	0	0	0
26	100	100	55.7	64.1	54.9	64.1	100	100	0	0	0	0
27	100	100	57.2	54.6	57.2	54.7	100	100	0	0	0	0
28	100	100	73.5	86	74	75.6	100	100	0	0	0	0
29	100	100	94.9	94.9	94.9	94.9	100	100	0	0	0	0
30	100	100	92	67.6	92	68.2	99.1	97.6	0	0	0	0
Avg	100	100	69	65.3	64.9	62.6	53.7	53.6	0	0	23	23
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	0	0	16.5	19	19.3	20.4	48.2	48.1	0	0	40.1	40.1
Min	100	100	32.6	28	30	21	0	0	0	0	0	0
Max	100	100	99.5	99.5	99.5	99.5	100	100	0	0	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for May, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	99.9	99.9	20	20.6	20.1	20.7	99.9	99.9	0	0	0	0
2	99.2	99.2	0	0	0	0	99.2	99.2	0	0	0	0
3	100	100	0	0	0	0	100	100	0	0	0	0
4	100	100	0	0	0	0	100	100	0	0	0	0
5	100	100	0	0	0	0	100	100	0	0	0	0
6	100	100	43.1	40.1	43.3	40.4	95.1	100	0	0	0	0
7	100	100	89.9	89.9	89.9	89.9	100	100	0	0	0	0
8	100	100	78.5	71.7	55.3	72.3	100	100	0	0	0	0
9	100	100	93.1	93.1	76.7	93.1	100	100	0	0	0	0
10	100	100	65.8	77.6	66.4	76.7	100	100	0	0	0	0
11	100	100	95.4	95.4	95.4	95.4	100	100	0	0	0	0
12	100	100	78.1	88.3	68.6	88.3	100	100	0	0	0	0
13	100	100	52.9	53.9	45.8	48.4	100	100	0	0	0	0
14	100	100	67.8	67.8	67.8	60.3	100	100	0	0	0	0
15	100	100	80.6	79	80.6	79	100	100	0	0	0	0
16	52.8	52.8	9.9	12.3	8.8	12.3	52.8	52.8	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	70.4	70.4	60.8	64.3	61	64.4	68.1	68.1	0	0	0	0
21	100	100	99.1	99.1	99.1	96.7	100	100	0	0	0	0
22	100	100	99.6	95.6	95.8	95.8	100	100	0	0	0	0
23	100	100	97.7	38.1	97.7	38.2	100	100	0	0	0	0
24	100	100	80.5	4.7	61.5	5	100	100	0	0	0	0
25	100	100	71.6	24.3	69.9	24.5	100	100	0	0	0	0
26	100	100	92.2	54.4	92.4	54.6	100	100	0	0	0	0
27	100	100	82.2	74.5	82.7	68.3	100	100	0	0	0	0
28	100	100	48.5	33.1	48.8	33.1	100	100	0	0	0	0
29	100	100	80.5	73.1	80.5	73.5	100	100	0	0	0	0
30	100	100	80.7	73.6	80.8	74	100	100	0	0	0	0
31	100	100	70.3	63.9	70.4	64.2	100	100	0	0	0	0
Avg	87.8	87.8	56.1	48	53.5	47.4	87.6	87.7	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	30.3	30.3	36.5	35.4	35.3	35	30.3	30.4	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	99.6	99.1	99.1	96.7	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for June, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	91.7	87	87.4	84	100	100	0	0	0	0
2	100	100	74.3	69.4	72.9	68.8	100	100	0	0	0	0
3	100	100	71.9	71.9	71.9	71.9	100	100	0	0	0	0
4	100	100	73.1	44.2	73.2	44.3	100	94.9	0	0	0	0
5	100	100	77.7	60.3	64	60.5	100	100	0	0	0	0
6	100	100	100	100	100	100	100	100	0	0	0	0
7	100	100	73.1	75.6	67.2	75.8	100	100	0	0	0	0
8	100	100	86.7	86.7	86.7	75.6	100	100	0	0	0	0
9	100	100	64.4	76.7	64.7	76.8	100	100	0	0	0	0
10	100	100	84.4	63.4	84.5	55.2	100	100	0	0	0	0
11	100	100	88.1	56.7	88.1	56.8	100	100	0	0	0	0
12	100	100	92	66.3	69.1	66.3	52.2	52.2	0	0	41.9	41.9
13	100	100	69.5	83.2	70.1	79.7	0	0	0	0	100	100
14	100	100	82.9	62.2	71.9	63	0	0	0	0	100	100
15	100	100	85.2	83.2	78.8	83.3	0	0	0	0	100	100
16	100	100	78.9	75.1	74.9	75.6	0	0	0	0	100	100
17	100	100	91.4	91.4	91.4	91.4	0	0	0	0	100	100
18	100	100	61.3	61.3	57.6	59.9	39.6	39.6	0	0	54.2	54.2
19	100	100	58.3	63.4	58.5	58.7	100	100	0	0	0	0
20	100	100	58	58.8	54.7	58.8	100	100	0	0	0	0
21	100	100	73	66.9	73	67.1	100	100	0	0	0	0
22	100	100	82.7	50.5	79.8	47.3	100	100	0	0	0	0
23	100	100	85.8	78.2	85.8	78.4	100	100	0	0	0	0
24	100	100	79	79.9	79.4	80.1	100	100	0	0	0	0
25	100	100	93.1	93.1	93.1	93.1	100	100	0	0	0	0
26	100	100	93.9	93.9	91.6	93.9	100	100	0	0	0	0
27	100	100	75.8	75.8	75.8	75.8	100	100	0	0	0	0
28	100	100	69.3	69.3	69.3	69.3	100	100	0	0	0	0
29	100	100	65.3	71	65.8	71.1	91.9	91.9	0	0	0	0
30	100	100	78.9	66.6	79	66.8	100	100	0	0	0	0
Avg	100	100	78.7	72.7	76	71.6	79.5	79.3	0	0	19.9	19.9
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	0	0	10.9	13.1	11.1	13.3	38	37.9	0	0	37.8	37.8
Min	100	100	58	44.2	54.7	44.3	0	0	0	0	0	0
Max	100	100	100	100	100	100	100	100	0	0	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for July, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	0.1	0.6	0.3	0.9	100	100	0	0	0	0
2	100	100	0	7.3	0.1	1.1	100	100	0	0	0	0
3	100	100	2.1	0.6	2.6	0.8	100	100	0	0	0	0
4	100	100	0.7	0.6	1.3	0.8	100	100	0	0	0	0
5	23.8	23.8	0	0	0	0	23.8	23.8	0	0	0	0
6	28.9	28.9	0	0	0.4	0.2	28.9	28.9	0	0	0	0
7	99.8	99.8	0.2	12	0.8	1	99.8	99.8	0	0	0	0
8	100	100	0.8	2.6	1.4	1.1	100	100	0	0	0	0
9	100	100	0.6	8.7	0.7	8.9	100	100	0	0	0	0
10	100	100	0.2	15.6	0.3	16	52.2	52.2	29.9	29.9	0	0
11	100	100	0	0.2	0	0.5	0	0	100	100	0	0
12	99.9	99.9	0	0.2	0	0.4	0	0	99.9	99.9	0	0
13	100	100	0	0	0.3	0.3	0	0	100	100	0	0
14	100	100	0	0	7.4	0.5	0	0	100	100	0	0
15	100	100	0	0	0.1	0.1	0	0	100	100	0	0
16	100	100	0	0	1	0.5	0	0	100	100	0	0
17	99.5	99.5	0	0	1.4	0.8	0	0	99.5	99.5	0	0
18	100	100	0	0	10.2	0.4	0	0	100	100	0	0
19	100	100	0	0	5.9	0.4	0	0	100	100	0	0
20	100	100	0	0	0.5	1.2	0	0	100	100	0	0
21	100	100	0	0	0.6	0.5	0	0	100	100	0	0
22	100	100	0	0	39.7	7.7	0	0	100	100	0	0
23	100	100	0	0	91.2	12.3	45.8	45.8	45.8	45.8	0	0
24	100	100	0	0	88.5	45.3	100	100	0	0	0	0
25	100	100	0	0	67.4	0	100	100	0	0	0	0
26	100	100	0	0	92.4	0	100	100	0	0	0	0
27	100	100	0	0	82.4	0	100	100	0	0	0	0
28	100	100	0	0	73	0	100	100	0	0	0	0
29	100	100	0	0	77.1	0	100	100	0	0	0	0
30	100	100	0	0	85.7	0	100	100	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Avg	92	92	0.2	1.6	23.6	3.3	50	50	41.1	41.1	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	24.7	24.7	0.4	3.8	35.5	8.6	47.1	47.1	47.7	47.7	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	2.1	15.6	92.4	45.3	100	100	100	100	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for August, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	62.2	62.2	0	0	52.7	48.9	48.7	48.7	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	28.9	28.9	0	0	0	12.6	28.9	28.9	0	0	0	0
7	40.2	40.2	0	0	6.5	5.9	40.2	40.2	0	0	0	0
8	98.8	98.8	0	0	0	1.1	98.8	98.8	0	0	0	0
9	100	100	0	0	0	0.8	100	100	0	0	0	0
10	100	100	0	0	0	1.3	100	100	0	0	0	0
11	100	100	0	0	0	0.6	100	100	0	0	0	0
12	100	100	0	0	0	1.1	100	100	0	0	0	0
13	100	100	0	0	0	1.3	100	100	0	0	0	0
14	54.4	54.4	0	0	0	0.1	54.4	54.4	0	0	0	0
15	100	100	0	0	0	0	100	100	0	0	0	0
16	100	100	0	0	0	0	100	100	0	0	0	0
17	100	100	0	0	0	0	100	100	0	0	0	0
18	68.5	68.5	0	0	0	0	68.5	68.5	0	0	0	0
19	30.3	30.3	0	0	0	0	30.3	30.3	0	0	0	0
20	69.4	69.4	0	0	0	0	69.4	69.4	0	0	0	0
21	100	100	0	0	0	0	100	100	0	0	0	0
22	93.6	93.6	0	0	0	0	93.6	93.6	0	0	0	0
23	99.8	99.8	17.5	0	11.6	0	99.8	99.8	0	0	0	0
24	100	100	67	0	26	0	100	100	0	0	0	0
25	100	100	52.6	0	49.4	0	100	100	0	0	0	0
26	100	100	60.9	0	29.3	0	100	100	0	0	0	0
27	63.5	63.5	20.3	0	0.6	0	63.5	63.5	0	0	0	0
28	53.1	53.1	0	0	0	0	48.5	48.5	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Avg	63.3	63.3	7	0	5.7	2.4	62.7	62.7	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	40.5	40.5	18.1	0	13.8	8.8	40.6	40.6	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	67	0	52.7	48.9	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for September, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	51.9	51.9	5.6	0	21.2	0.6	51.9	51.9	0	0	0	0
4	100	100	51.6	25.9	80.7	40.8	100	100	0	0	0	0
5	100	100	31.8	28.1	73.9	58.3	100	100	0	0	0	0
6	100	100	57.8	36.2	58.5	47.4	100	100	0	0	0	0
7	100	100	41.5	25.4	76.3	41.5	100	100	0	0	0	0
8	100	100	39.7	31.9	55.4	32.2	100	100	0	0	0	0
9	100	100	19	27.9	63.8	44.2	100	100	0	0	0	0
10	100	100	55.8	27.7	69.6	28.8	100	100	0	0	0	0
11	15.6	15.6	0.2	0	0.7	0	15.6	15.6	0	0	0	0
12	91.1	91.1	3.8	0.4	49.6	16.8	40.9	40.9	0	0	46	46
13	100	100	43.1	8.8	71.1	14.3	0	0	0	0	100	100
14	100	100	25.3	19.7	28.8	20.1	0	0	0	0	100	100
15	100	100	47.2	8.5	50.4	33.3	0	0	0	0	100	100
16	100	100	36.7	0.6	41.7	29.2	0	0	0	0	100	100
17	51.9	51.9	5	0	5.8	0	0	0	0	0	51.9	51.9
18	27.1	27.1	0.2	0	3.8	0	26.6	26.6	0	0	0	0
19	100	100	45.1	0	49.4	0	100	100	0	0	0	0
20	100	100	40.9	0	73.1	0	100	100	0	0	0	0
21	100	100	46.8	0	82.4	0	100	100	0	0	0	0
22	100	100	48.8	0	87.8	0	100	100	0	0	0	0
23	96.7	96.7	10.2	0.2	31.6	0.6	96.7	96.7	0	0	0	0
24	99.3	99.3	47.4	0	49.2	0	99.3	99.3	0	0	0	0
25	100	100	20.6	0	70.5	0	96.6	96.6	0	0	0	0
26	100	100	47.6	0	56.4	0	100	100	0	0	0	0
27	100	100	65.1	0	65.1	0	100	100	0	0	0	0
28	100	100	46.5	0	50.7	0	100	100	0	0	0	0
29	100	100	33.3	0	36.4	0	100	100	0	0	0	0
30	100	100	32.2	0	46.7	0	100	100	0	0	0	0
Avg	84.5	84.5	31.6	8	48.4	13.6	67.6	67.6	0	0	16.6	16.6
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	31.6	31.6	19.8	12.3	26	18.4	43.5	43.5	0	0	34.9	34.9
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	65.1	36.2	87.8	58.3	100	100	0	0	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for October, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	95	95	29.7	0	32.6	0	94.9	94.9	0	0	0	0
2	37.1	37.1	13.6	0	0.5	0	37.1	37.1	0	0	0	0
3	51	51	15.4	15.4	15.4	14.4	51	51	0	0	0	0
4	100	100	92.3	81.1	92.3	57.2	100	100	0	0	0	0
5	99.5	99.5	47.9	68.4	42.3	57.5	99.5	99.5	0	0	0	0
6	100	100	43.8	54.9	44.1	49.5	100	100	0	0	0	0
7	100	100	68.1	42.3	52.4	40.1	100	100	0	0	0	0
8	99.3	99.3	40.5	38.5	39.4	35.1	99.3	99.3	0	0	0	0
9	100	100	72.8	73.5	73	67.6	100	100	0	0	0	0
10	100	100	82.7	84.7	50.2	71.8	100	100	0	0	0	0
11	100	100	75.8	68.5	52.8	51	100	100	0	0	0	0
12	100	100	60	68.4	55.5	66.9	100	100	0	0	0	0
13	100	100	47.6	46.4	35.1	43.1	100	100	0	0	0	0
14	100	100	42.7	32.7	18	29.6	100	100	0	0	0	0
15	100	100	27.2	28.5	21.9	22.5	100	100	0	0	0	0
16	93.3	93.3	40.3	50.8	40.6	46.5	99.9	99.9	0	0	0	0
17	99.9	99.9	48.2	43.3	48.3	33.8	99.9	99.9	0	0	0	0
18	100	100	50.3	52.2	50.4	52.4	100	100	0	0	0	0
19	100	100	43.3	37.2	42	34.9	100	100	0	0	0	0
20	100	100	29.9	56.6	22.4	16.5	90.8	90.8	0	0	0	0
21	100	100	58.7	60.7	40.8	45.1	100	100	0	0	0	0
22	99.8	99.8	11.4	18.9	16.9	19	99.8	99.8	0	0	0	0
23	99.3	99.3	43.3	47.2	31.3	47.5	99.1	99.1	0	0	0	0
24	100	100	53.9	46.5	53.4	46.5	100	100	0	0	0	0
25	100	100	49.3	48.1	49.3	42.8	100	100	0	0	0	0
26	100	100	79	63.3	74.5	52.4	100	100	0	0	0	0
27	100	100	30.8	30.8	30.9	30.3	100	100	0	0	0	0
28	100	100	25.3	31.6	11.4	29.1	100	100	0	0	0	0
29	100	100	18.5	10.4	5.4	6.5	100	100	0	0	0	0
30	99.7	99.7	30.3	30.3	26.2	30.3	99.7	99.7	0	0	0	0
31	100	100	65.1	65.1	48.1	56.4	100	100	0	0	0	0
Avg	95.9	95.9	46.4	45	39.3	38.6	95.8	95.8	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	13.8	13.8	20.7	21.7	20	18.7	13.8	13.8	0	0	0	0
Min	37.1	37.1	11.4	0	0.5	0	37.1	37.1	0	0	0	0
Max	100	100	92.3	84.7	92.3	71.8	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for November, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	35.2	47.6	34.3	45.3	100	100	0	0	0	0
2	100	100	39.9	51.5	26.5	40.1	100	100	0	0	0	0
3	100	100	63	84	34.8	65.2	100	100	0	0	0	0
4	100	100	59.1	34.4	33	16.3	100	100	0	0	0	0
5	98.4	98.4	22.1	22.1	22.1	21.9	98.4	98.4	0	0	0	0
6	100	100	43.2	47.3	43.2	47.3	100	100	0	0	0	0
7	100	100	39.9	39.9	39.9	38.8	100	100	0	0	0	0
8	100	100	38.6	42.1	26.1	41.4	100	100	0	0	0	0
9	100	100	5.6	14.5	5.8	13.2	100	100	0	0	0	0
10	100	100	46.7	45.9	46.7	44.4	100	100	0	0	0	0
11	100	100	91.5	91.5	87.6	91.5	100	100	0	0	0	0
12	99.9	99.9	97.2	96.5	97.2	96.5	99.9	99.9	0	0	0	0
13	99.3	99.3	68.1	29.3	62	30.1	47.1	47.1	0	0	48.1	48.1
14	100	100	53.8	50.6	50.8	51.1	0	0	0	0	100	100
15	100	100	39.1	36.5	39.1	36.5	0	0	0	0	100	100
16	100	100	28.3	28.4	26.5	28.4	0	0	0	0	100	100
17	100	100	18	27.4	18.4	19.2	0	0	0	0	100	100
18	100	100	28.7	28.9	28.7	28.9	0	0	0	0	100	100
19	100	100	85.3	85.3	85.3	85.3	0	0	0	0	100	100
20	100	100	43.5	63.8	35.9	64.2	0	0	0	0	100	100
21	100	100	75.8	62.6	58.8	62.6	53	53	0	0	44.9	44.9
22	100	100	66.9	47.8	67	46.5	100	100	0	0	0	0
23	100	100	29.7	29.7	29.7	29.7	100	100	0	0	0	0
24	100	100	24.1	24.1	24.1	24.1	100	100	0	0	0	0
25	100	100	34	33.9	34	33.9	100	100	0	0	0	0
26	100	100	48.8	48.8	45.2	47.8	100	100	0	0	0	0
27	100	100	42.4	45.8	42.8	39.6	100	100	0	0	0	0
28	100	100	31.1	28.8	30.3	28.8	100	100	0	0	0	0
29	100	100	56.7	53.4	56.7	53.5	100	100	0	0	0	0
30	100	100	61	60.3	61	60.3	100	100	0	0	0	0
Avg	99.9	99.9	47.2	46.8	43.1	44.4	73.3	73.3	0	0	26.4	26.4
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	0.3	0.3	21.5	20.6	20.9	20.7	42.3	42.3	0	0	42.2	42.2
Min	98.4	98.4	5.6	14.5	5.8	13.2	0	0	0	0	0	0
Max	100	100	97.2	96.5	97.2	96.5	100	100	0	0	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for December, 2008.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	34.8	39.2	34.3	30.8	100	100	0	0	0	0
2	100	100	31.7	40.4	31.9	40.4	100	100	0	0	0	0
3	99.8	99.8	71.1	74.1	71.1	74.1	93.1	99.8	0	0	0	0
4	100	100	56.2	63.4	56.2	62.8	100	100	0	0	0	0
5	100	100	30.6	39.2	30.7	39.2	100	100	0	0	0	0
6	100	100	29.8	34.9	30.1	34.9	100	100	0	0	0	0
7	100	100	33.3	35.8	33.1	36.2	100	100	0	0	0	0
8	100	100	72.3	69.5	59.8	69.5	100	100	0	0	0	0
9	100	100	42.8	42.2	41.3	42.4	100	100	0	0	0	0
10	100	100	39.4	39	26	39.1	100	100	0	0	0	0
11	100	100	41	49.2	37.6	47.2	100	100	0	0	0	0
12	100	100	53.9	56.3	45.8	50.2	96.3	96.3	0	0	0	0
13	100	100	62.8	53.8	62.4	43.8	98.6	98.6	0	0	0	0
14	100	100	84.6	56.3	82.6	56.5	100	100	0	0	0	0
15	99	99	69.4	46.1	67.8	46.5	99	99	0	0	0	0
16	100	100	48.4	42.4	48.4	42.5	100	100	0	0	0	0
17	99.9	99.9	46	36.9	46.2	20.8	99.9	64.5	0	0	0	0
18	47.9	47.9	17.4	21.5	5.3	17.8	47.9	0	0	0	0	0
19	100	100	35.1	33.8	34.7	32.2	100	0	0	0	0	0
20	100	100	94.7	95	94.8	88.1	100	0	0	0	0	0
21	100	100	72.6	72.6	72.6	33.2	100	0	0	0	0	0
22	100	100	43.3	42.2	43.3	42.4	100	0	0	0	0	0
23	100	100	36.3	37	36.5	37.2	100	0	0	0	0	0
24	100	100	46.7	49.9	45.3	50.2	100	0	0	0	0	0
25	100	100	45.6	41.9	39.8	41.9	100	0	0	0	0	0
26	100	100	7	1.7	5.5	1.8	100	0	0	0	0	0
27	100	100	88.9	39	87.6	26	100	0	0	0	0	0
28	100	100	94.6	58	70.8	58.3	100	0	0	0	0	0
29	99.8	99.8	53.3	34	39.4	34.3	99.8	0	0	0	0	0
30	99.6	99.6	53.8	38	53.8	38.3	99.6	0	0	0	0	0
31	100	100	85.4	58.1	58.1	42.4	100	0	0	0	0	0
Avg	98.3	98.3	52.3	46.5	48.1	42.6	97.9	53.5	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	9.2	9.2	22.1	17	20.9	16.5	9.2	48.9	0	0	0	0
Min	47.9	47.9	7	1.7	5.3	1.8	47.9	0	0	0	0	0
Max	100	100	94.7	95	94.8	88.1	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for January, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	88.1	80	82.2	80.1	100	0	0	0	0	0
2	100	100	30.8	0.1	26.5	0.1	100	0	0	0	0	0
3	100	100	22.6	16.9	22.7	15.4	100	0	0	0	0	0
4	100	100	51.2	51.2	51.2	51.2	100	0	0	0	0	0
5	100	100	30.5	14.8	30.5	14.9	100	0	0	0	0	0
6	100	100	77.2	80.1	77.3	63	100	0	0	0	0	0
7	91.8	91.8	74	56.3	67.2	56.3	92.2	0	0	0	0	0
8	90.1	90.1	60.9	27.4	39.4	27.6	90.1	39.6	0	0	0	0
9	100	100	55.1	34.4	48.1	18.5	100	100	0	0	0	0
10	100	100	32.3	27.8	24.1	15.9	100	100	0	0	0	0
11	100	100	28	26.1	18.9	16.8	100	100	0	0	0	0
12	100	100	32.8	33.5	30.6	33.6	100	100	0	0	0	0
13	100	100	30.3	33.1	19.7	27.8	100	100	0	0	0	0
14	52.4	52.4	3.3	1.3	0.2	1	52.4	52.4	0	0	0	0
15	100	100	14	16.6	12.3	15.8	100	100	0	0	0	0
16	100	100	35.3	36.2	35.2	36.2	100	100	0	0	0	0
17	100	100	29.9	19.2	29.9	16.7	100	100	0	0	0	0
18	100	100	59.8	44.3	59.8	36.2	100	100	0	0	0	0
19	100	100	42.4	20.7	42.4	21	100	100	0	0	0	0
20	55	55	20.1	20.1	20.1	20.1	54.1	54.1	0	0	0	0
21	37.3	37.3	14.1	14.1	14.1	14.1	34	33.8	0	0	0	0
22	100	100	38.4	41.3	38.5	41.3	100	100	0	0	0	0
23	100	100	40.9	40.8	40.5	39.8	100	100	0	0	0	0
24	100	100	0	0	0	0	100	100	0	0	0	0
25	100	100	0	0	0	0	100	100	0	0	0	0
26	100	100	0	0	0	0	100	100	0	0	0	0
27	100	100	0	0	0	0	100	33.1	0	0	0	0
28	46.9	46.9	0	0	0	0	35.4	37.6	0	0	0	0
29	100	100	12	16.3	12	16.3	98.7	97.2	0	0	0	0
30	100	100	52.8	52.8	52.8	52.8	100	53.5	0	0	0	0
31	100	100	71.4	71.4	71.4	71.4	100	0	0	0	0	0
Avg	92.7	92.7	33.8	28.3	31.2	25.9	92.2	61.3	0	0	0	0
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	17.6	17.6	24.6	23	23.7	22	19	42.7	0	0	0	0
Min	37.3	37.3	0	0	0	0	34	0	0	0	0	0
Max	100	100	88.1	80.1	82.2	80.1	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for February, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	43.3	41.6	43.2	40.8	100	0	0	0	0	0
2	100	100	19.8	19	15.3	19	100	0	0	0	0	0
3	100	100	19.4	19.4	16.7	19.4	100	0	0	0	0	0
4	100	100	34.5	34.5	34.5	34.5	100	0	0	0	0	0
5	100	100	8.7	12.2	8.8	8.6	82.6	32.1	0	0	0	0
6	100	100	0	0	0	0	100	100	0	0	0	0
7	81.3	81.5	0	0	0	0	99.2	99.2	0	0	0	0
8	43.6	43.6	0	0	0	0	43.6	2.5	0	0	0	0
9	100	100	0	0	0	0	100	0	0	0	0	0
10	100	100	67.8	67.8	67.8	67.8	100	0	0	0	0	0
11	100	100	57.2	57.2	57.2	57.2	89.2	21.5	0	0	0	0
12	99.9	99.9	56.6	56.7	56.6	56.7	36.8	36.8	58.8	58.8	0	0
13	100	100	94.6	97	94.8	97	0	0	100	100	0	0
14	100	100	54	52.6	54	52.6	0	0	100	100	0	0
15	100	100	45.1	45.1	45.1	45.1	0	0	100	100	0	0
16	100	100	91.3	91.3	91.3	91.3	0	0	100	100	0	0
17	100	100	55.7	55.7	55.7	55.7	0	0	100	100	0	0
18	99.6	99.6	51	51.4	51	51.4	0	0	99.7	99.7	0	0
19	99.8	99.8	75.3	75.3	72.6	75.3	0	0	99.9	99.9	0	0
20	100	100	64.1	67.8	64.2	67.8	0	0	100	100	0	0
21	100	100	60.9	67.5	58.8	66.5	0	0	100	100	0	0
22	100	100	42.8	42.8	40.4	42.8	0	0	100	100	0	0
23	100	100	65.3	65.3	65.3	64.3	0	0	100	100	0	0
24	99.4	99.4	99.6	99.6	99.6	99.6	0	0	100	100	0	0
25	99.9	99.9	99.9	99.9	99.9	99.9	0	0	99.9	99.9	0	0
26	100	100	70.4	70.4	67.3	70.6	0	0	41.7	41.7	61.1	61.1
27	100	100	53.5	55.5	51.5	55.5	0	0	0	0	100	100
28	100	100	67	67	67	67	0	0	0	0	100	100
Avg	97.3	97.3	49.9	50.5	49.2	50.2	37.6	10.4	50	50	9.3	9.3
n	28	28	28	28	28	28	28	28	28	28	28	28
SD	10.9	10.9	29.8	30	30	30.2	45.7	26.5	48.2	48.2	27.6	27.6
Min	43.6	43.6	0	0	0	0	0	0	0	0	0	0
Max	100	100	99.9	99.9	99.9	99.9	100	100	100	100	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for March, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	99.9	99.9	64	64	64	64	0	0	0	0	99.9	99.9
2	100	100	71.3	71.3	71.3	64.2	0	0	0	0	100	100
3	100	100	62.5	60.3	62.5	60.5	0	0	0	0	100	100
4	99.9	99.9	63.3	63.3	63.3	63.3	50	50	0	0	46.5	46.5
5	100	100	86.2	79.4	86.2	79.4	100	100	0	0	0	0
6	100	100	66.3	69.9	66.3	70.1	100	100	0	0	0	0
7	100	100	75.1	78.9	75.3	78.9	100	100	0	0	0	0
8	95.8	95.8	50.9	61.9	51.2	50.8	95.8	95.8	0	0	0	0
9	100	100	65.5	65.5	65.5	65.5	100	100	0	0	0	0
10	100	100	96.7	95.8	91.7	95.8	100	100	0	0	0	0
11	100	100	81.3	81.3	81.3	81.3	100	100	0	0	0	0
12	64.4	64.4	11.5	11	12.9	15.8	64.7	64.7	0	0	0	0
13	75.5	75.5	0.4	1.2	1.3	4.7	75.5	75.5	0	0	0	0
14	100	100	62.4	62.6	62.6	62.6	100	100	0	0	0	0
15	100	100	94.3	94.3	94.3	94.3	100	100	0	0	0	0
16	100	100	97.8	72.2	97.8	65.9	100	100	0	0	0	0
17	100	100	94.4	94.4	94.4	94.4	100	100	0	0	0	0
18	100	100	39.1	39.1	39.1	39.1	99.7	100	0	0	0	0
19	100	100	48.8	48.8	45.2	48.8	100	100	0	0	0	0
20	99.9	99.9	78.5	62.4	78.5	62.8	99.9	99.9	0	0	0	0
21	99.9	99.9	55	58.8	55.3	58.8	99.9	99.9	0	0	0	0
22	100	100	61	61	61	61	100	100	0	0	0	0
23	100	100	85.7	85.7	85.7	78.2	100	100	0	0	0	0
24	100	100	71	71	71	41.4	100	100	0	0	0	0
25	99.8	99.8	87.7	87.7	69.5	87.7	100	99.2	0	0	0	0
26	29.9	29.9	22.4	22	22.4	22	29.9	29.9	0	0	0	0
27	100	100	57.1	58.2	57.4	58.4	100	100	0	0	0	0
28	100	100	50.6	58.4	50.8	54.9	100	100	0	0	0	0
29	100	100	73.5	100	73.8	100	100	100	0	0	0	0
30	100	100	26.9	29.6	60.5	61.8	100	100	0	0	0	0
31	100	100	0	0	33.9	23.3	100	100	0	0	0	0
Avg	95.6	95.6	61.3	61.6	62.8	61.6	84.4	84.4	0	0	11.2	11.2
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	14.2	14.2	26.4	25.9	22.8	23.1	32	32	0	0	30.2	30.2
Min	29.9	29.9	0	0	1.3	4.7	0	0	0	0	0	0
Max	100	100	97.8	100	97.8	100	100	100	0	0	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for April, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	99.9	99.9	0	0	56.7	70.8	100	100	0	0	0	0
2	100	100	0	0	37.2	51.7	100	100	0	0	0	0
3	99.8	99.8	0	0	48.8	78.2	99.8	99.8	0	0	0	0
4	99.9	99.9	0	0	62.6	57.2	99.9	99.9	0	0	0	0
5	100	100	0	0	45.4	44.5	100	100	0	0	0	0
6	100	100	0	0	30.8	51.6	100	100	0	0	0	0
7	100	100	0	0	46.1	43.9	100	100	0	0	0	0
8	100	100	0	0	68.1	95.2	100	100	0	0	0	0
9	100	100	0	0	82.3	82.3	100	100	0	0	0	0
10	100	100	0	0	50.2	61.9	100	100	0	0	0	0
11	100	100	0	0	68.4	52.4	100	100	0	0	0	0
12	100	100	0	0	88.3	88.3	100	100	0	0	0	0
13	100	100	0	0	82.8	68.5	100	100	0	0	0	0
14	100	100	0	0	77.9	71.4	100	100	0	0	0	0
15	100	100	0	0	91.8	91.8	100	100	0	0	0	0
16	98.3	98.3	0	0	75.6	64	98.3	98.3	0	0	0	0
17	96.9	96.9	10.9	9.2	47.2	38.3	96.7	96.7	0	0	0	0
18	99.9	99.9	69.9	59.4	67.9	59.9	99.9	99.9	0	0	0	0
19	100	100	60.8	60.8	60.8	60.8	100	100	0	0	0	0
20	100	100	57.4	46.5	52.1	46.6	100	100	0	0	0	0
21	100	100	63.3	57.2	63.3	57.2	100	100	0	0	0	0
22	100	100	60.1	80.8	60.2	77.4	100	100	0	0	0	0
23	100	100	90.3	90.3	90.3	90.3	100	100	0	0	0	0
24	100	100	64	71.1	64.1	71.1	100	100	0	0	0	0
25	100	100	89.9	89.9	89.9	89.9	100	100	0	0	0	0
26	100	100	86.5	89.9	71.4	88.1	100	100	0	0	0	0
27	100	100	62.3	84.4	62.8	82	100	100	0	0	0	0
28	100	100	91.7	91.7	91.7	91.7	100	100	0	0	0	0
29	100	100	91.3	91.3	91.3	91.3	100	100	0	0	0	0
30	100	100	66.8	78.5	60.1	68.5	42.4	42.4	0	0	53.7	53.7
Avg	99.8	99.8	32.2	33.4	66.2	69.6	97.9	97.9	0	0	1.8	1.8
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	0.6	0.6	37.2	38.9	17	16.8	10.3	10.3	0	0	9.6	9.6
Min	96.9	96.9	0	0	30.8	38.3	42.4	42.4	0	0	0	0
Max	100	100	91.7	91.7	91.8	95.2	100	100	0	0	53.7	53.7

Table F10. Airflow and emission data completeness (%) at site WA5B for May, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	99.9	99.9	42.3	58.5	41.3	58.5	0	0	0	0	99.9	99.9
2	99.9	99.9	57.8	57.8	53.4	57.8	0	0	0	0	99.9	99.9
3	100	100	51.3	48.6	41.2	42.8	0	0	0	0	100	100
4	100	100	68.6	69.4	61.1	69.4	0	0	0	0	100	100
5	100	100	71.9	99.1	72.2	72.3	0	0	0	0	100	100
6	100	100	88.3	88.3	88.3	88.3	0	0	0	0	100	100
7	100	100	50.8	69.6	44.7	56.4	53.5	53.3	0	0	41.3	41.3
8	100	100	82	80.1	79.6	80.2	100	100	0	0	0	0
9	100	100	53.5	60.6	53.7	59.7	100	100	0	0	0	0
10	100	100	47.8	62.2	48.1	62.2	100	100	0	0	0	0
11	100	100	55	40.7	55.3	40.9	100	100	0	0	0	0
12	98.4	98.4	48.5	28.8	28.8	29.7	95.6	95.6	0	0	0	0
13	100	100	77.5	77.5	77.5	63.7	100	100	0	0	0	0
14	100	100	71.6	98.9	65.5	65.3	100	100	0	0	0	0
15	99.9	99.9	77.2	64.1	77.2	44.9	99.7	99.7	0	0	0	0
16	99.9	99.9	68.6	68.6	66.8	68.6	99.9	99.9	0	0	0	0
17	100	100	58.3	61.1	58.3	56.5	99.9	98.8	0	0	0	0
18	100	100	74	74	71.7	74	100	100	0	0	0	0
19	100	100	99.5	60	48.1	60.1	99.4	98.5	0	0	0	0
20	100	100	71.4	70	64.7	55.1	99.4	99.4	0	0	0	0
21	100	100	64.9	48	52.4	48.8	100	100	0	0	0	0
22	100	100	45.2	46.5	45.2	45.4	100	100	0	0	0	0
23	100	100	69.7	71.2	69.8	70.4	100	100	0	0	0	0
24	100	100	92.1	92.1	92.1	92.1	100	100	0	0	0	0
25	100	100	89.5	90.3	89.5	90.3	97.9	97.9	0	0	0	0
26	98.5	98.5	77.3	77.9	67.4	77.9	98.5	98.5	0	0	0	0
27	100	100	78.5	78.5	78.5	78.5	100	99.8	0	0	0	0
28	100	100	64.7	81.9	65	81.9	100	100	0	0	0	0
29	100	100	71.6	71.6	71.6	68.1	100	100	0	0	0	0
30	100	100	83.5	83.5	83.5	82.2	100	100	0	0	0	0
31	100	100	67.2	67.7	67.4	53.5	100	100	0	0	0	0
Avg	99.9	99.9	68.4	69.3	63.9	64.4	78.8	78.8	0	0	20.7	20.7
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	0.4	0.4	14.5	16.3	15.5	15.2	39.5	39.4	0	0	39.5	39.5
Min	98.4	98.4	42.3	28.8	28.8	29.7	0	0	0	0	0	0
Max	100	100	99.5	99.1	92.1	92.1	100	100	0	0	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for June, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	71.3	91.2	71.5	91.2	100	100	0	0	0	0
2	100	100	83	88.3	81.7	88.3	100	100	0	0	0	0
3	100	100	90.2	90.2	90.2	90.2	100	100	0	0	0	0
4	100	100	44.7	64.6	44.7	41.7	100	100	0	0	0	0
5	99.8	99.8	0	57.2	0	57.2	99.8	99.8	0	0	0	0
6	99.9	99.9	0	67.4	0	40.6	99.9	99.9	0	0	0	0
7	100	100	0	70	0	68.8	100	100	0	0	0	0
8	100	100	0	47.8	0	42.1	100	100	0	0	0	0
9	100	100	0	56.2	0	53.1	100	100	0	0	0	0
10	51.3	51.3	0	24.1	0	0.8	51.3	51.3	0	0	0	0
11	100	100	80.6	36.3	58.1	36.8	100	100	0	0	0	0
12	100	100	68.1	22.2	27.4	22.4	100	100	0	0	0	0
13	74	74	30.6	0	30.6	0	74	74	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	46.7	46.7	29.4	32	29.7	23.3	46.7	46.7	0	0	0	0
18	100	100	74.3	81.1	74.8	81.3	100	100	0	0	0	0
19	99.7	99.7	81.7	81	61.7	81	99.9	99.9	0	0	0	0
20	100	100	76.4	92.2	76.5	92.4	100	100	0	0	0	0
21	100	100	85.6	87.1	85.8	79.6	100	100	0	0	0	0
22	60.5	60.5	39.9	39.2	39.9	39.2	60.5	60.5	0	0	0	0
23	100	100	73.4	74.1	73.5	74.2	100	100	0	0	0	0
24	100	100	74.1	47.7	37.3	47.7	100	100	0	0	0	0
25	100	100	80.8	76.7	72.4	76.9	100	100	0	0	0	0
26	100	100	87.6	87.6	87.6	87.6	100	100	0	0	0	0
27	100	100	82.9	77.4	76	77.6	100	100	0	0	0	0
28	100	100	78.9	78.9	78.9	78.9	100	100	0	0	0	0
29	100	100	84.8	84.9	84.9	84.9	100	100	0	0	0	0
30	100	100	84.3	84.3	84.3	84.3	100	100	0	0	0	0
Avg	84.4	84.4	50.1	58	45.6	54.7	84.4	84.4	0	0	0	0
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	31.7	31.7	36.2	30.4	34.5	31.8	31.7	31.7	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	90.2	92.2	90.2	92.4	100	100	0	0	0	0

Table F10. Airflow and emission data completeness (%) at site WA5B for July, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	79.4	79.4	79.4	79.4	100	96.6	0	0	0	0
2	100	100	40.2	39.3	40.2	39.3	100	97.6	0	0	0	0
3	99.9	99.9	58.1	56.3	58.1	56.3	99.9	97.8	0	0	0	0
4	100	100	59.9	63.7	60.1	61.2	100	97.7	0	0	0	0
5	100	100	44.8	47.8	35.8	34.4	96.9	96.9	0	0	0	0
6	100	100	78.8	79.5	79.2	79.8	95.3	94.2	0	0	0	0
7	100	100	72.4	72.4	72.4	72.4	100	100	0	0	0	0
8	53.5	53.5	29.6	34.2	29.6	34.2	48.4	48.4	3.6	3.6	0	0
9	100	100	50.5	50.5	90	90.7	100	100	100	100	0	0
10	100	100	0	0	66.6	66.3	100	100	100	99.9	0	0
11	100	100	0	0	95.6	95.6	100	100	100	99.7	0	0
12	100	100	0	0	56.3	90.4	100	100	100	98.8	0	0
13	100	100	0	0	71.1	85.4	100	100	100	100	0	0
14	100	100	0	0	59.9	69.3	100	100	100	100	0	0
15	100	100	0	0	23.5	21.9	100	100	100	100	0	0
16	68.2	68.2	0	0	20.3	9.6	68.2	68.2	68.2	68	0	0
17	100	100	0	0	52.1	54.8	100	100	100	98.1	0	0
18	100	100	0	0	64.8	82.6	100	100	100	99.7	0	0
19	100	100	0	0	76.3	73.4	100	100	100	100	0	0
20	100	100	0	0	72.4	75.1	100	100	100	99.7	0	0
21	100	100	0	0	50.8	51.7	100	100	100	100	0	0
22	100	100	0	0	86.3	86.3	94.2	94.2	46.6	46.6	46.3	46.3
23	100	100	0	0	93.3	95.8	100	99.7	0	0	100	99.7
24	100	100	0	0	67.1	67.8	100	90.8	0	0	100	90.8
25	100	100	0	0	5.6	4.2	100	99.7	0	0	100	99.7
26	100	100	0	0	0	0	100	100	0	0	100	100
27	100	100	0	0	0	0	100	100	0	0	100	100
28	100	100	0	0	0	0	100	98.3	0	0	100	98.3
29	41.3	41.3	0	0	0	0	41.3	41.3	0	0	41.3	41.3
30	100	100	0	0	46.3	42.9	91.9	91.9	0	0	77.8	79.3
31	100	100	0	0	60.2	66.9	100	100	0	0	100	100
Avg	95.6	95.6	16.6	16.9	52	54.4	94.7	94	42.5	42.4	27.9	27.6
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	13.9	13.9	27.4	27.7	29	31.4	14.4	14.2	47.8	47.6	42.4	41.9
Min	41.3	41.3	0	0	0	0	41.3	41.3	0	0	0	0
Max	100	100	79.4	79.5	95.6	95.8	100	100	100	100	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for August, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	100	100	0	0	47.8	47.8	100	100	0	0	100	100
2	100	100	0	0	65.7	45.7	100	100	0	0	100	99.7
3	100	100	0	0	61.3	80.4	100	100	0	0	89.3	89
4	100	100	0	0	79.1	79.1	100	100	0	0	100	100
5	49.3	49.3	0	0	23.8	23.6	49.3	49.3	0	0	40.7	40.7
6	100	100	66	53.5	66.2	70.1	100	100	0	0	0	0
7	99.9	99.9	37.4	78.8	19.4	40.2	99.9	99.9	0	0	0	0
8	100	100	86.4	86.4	54.9	86.4	100	100	0	0	0	0
9	100	100	76.8	77.7	76.9	76.6	100	100	0	0	0	0
10	100	100	81.2	81.2	81.2	81.2	100	100	0	0	0	0
11	100	100	59.7	65.5	57.3	65.7	100	100	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	59.5	59.5	36.7	36.7	36.9	36.9	59.5	59.5	0	0	0	0
14	100	100	83.5	84.2	75.5	84.4	100	100	0	0	0	0
15	100	100	70	70.5	70	70.4	100	100	0	0	0	0
16	100	100	73.3	69.5	52.2	69.7	100	100	0	0	0	0
17	100	100	63.3	65.5	53.2	65.7	100	100	0	0	0	0
18	100	100	48.5	60	48.7	60.1	100	100	0	0	0	0
19	100	100	41	46.6	34.3	46.6	100	100	0	0	0	0
20	100	100	54.9	56.3	54.8	50.2	100	100	0	0	0	0
21	100	100	49.3	80.8	49.9	74.4	100	98.3	0	0	0	0
22	100	100	84.2	83.1	84.2	82.3	92.4	93.5	0	0	0	0
23	100	100	95.2	95.2	73.8	95.2	0	0	0	0	0	0
24	100	100	66.7	66	55.1	53.6	0	0	0	0	0	0
25	100	100	55.1	51.8	49.8	49.6	0	0	0	0	0	0
26	100	100	56.7	51.7	56.7	51.9	0	0	0	0	0	0
27	100	100	46.6	50.1	46.5	50.1	0	0	0	0	0	0
28	100	100	22.8	27	23.5	27.2	0	0	0	0	0	0
29	34.2	34.2	10.6	18.2	10.8	5.8	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Avg	85.3	85.3	44.1	47	48.7	53.9	64.6	64.5	0	0	13.9	13.9
n	31	31	31	31	31	31	31	31	31	31	31	31
SD	32	32	31.5	32.3	24	26.6	45.9	45.9	0	0	33	32.9
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	95.2	95.2	84.2	95.2	100	100	0	0	100	100

Table F10. Airflow and emission data completeness (%) at site WA5B for September, 2009.

Day	Airflow		Ammonia		Hydrogen sulfide		PM ₁₀		PM _{2.5}		TSP	
	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4	B2	B4
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	99.9	99.9	55.7	50.6	55.8	50.9	99.9	0	0	0	0	0
5	100	100	58.5	60.8	58.8	60.8	100	0	0	0	0	0
6	100	100	67.1	73.8	67.6	74.1	100	0	0	0	0	0
7	100	100	90.3	89.1	90.4	89.4	100	0	0	0	0	0
8	100	100	60.9	59	60.9	59.1	100	0	0	0	0	0
9	100	100	49.8	63.4	50.4	60	100	0	0	0	0	0
10	100	100	45.5	43.2	37.7	43.2	100	0	0	0	0	0
11	100	100	31	15.2	21.7	15.6	100	0	0	0	0	0
12	100	100	30.4	28.5	29.6	25	100	0	0	0	0	0
13	100	100	39.9	32.9	39.9	31.3	100	0	0	0	0	0
14	100	100	0	0	0	0	100	0	0	0	0	0
15	100	100	0	0	0	0	100	0	0	0	0	0
16	100	100	0.4	12.3	0.7	12.6	100	47.8	0	0	0	0
17	100	100	80.5	75.8	74.1	76	100	100	0	0	0	0
18	100	100	38.6	33.4	32.6	33.5	100	100	0	0	0	0
19	100	100	23.9	40.1	18.9	23.1	100	100	0	0	0	0
20	100	100	82.8	79.9	54.8	78.3	100	100	0	0	0	0
21	100	100	33.5	35.6	33.5	32.8	100	100	0	0	0	0
22	100	100	14.6	15.3	14.6	15.3	100	100	0	0	0	0
23	100	100	21.6	14.3	21.6	14.3	100	100	0	0	0	0
24	71.5	71.5	6.4	6	4.4	6.4	71.5	71.5	0	0	0	0
25	100	100	37.1	46.7	37.6	46.8	100	100	0	0	0	0
26	100	100	51.3	44.7	51.3	44.7	100	100	0	0	0	0
27	100	100	51	56.9	51.2	41.6	100	100	0	0	0	0
28	100	100	51.6	39.2	51.7	39.4	75.9	100	0	0	0	0
29	100	100	54.6	56	55.1	39	45.9	100	0	0	0	0
30	84.5	57.5	43.2	56.1	43.4	56.3	100	100	0	0	0	0
Avg	88.5	87.6	37.3	37.6	35.3	35.6	86.4	47.3	0	0	0	0
n	30	30	30	30	30	30	30	30	30	30	30	30
SD	30.1	30.6	26.1	26.2	24.9	25.7	31	48.4	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	100	100	90.3	89.1	90.4	89.4	100	100	0	0	0	0