

Appendix B

Case Study 2: Dairy 4

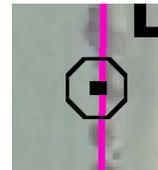
- a: Elements of the Figures**
- I: Four Week Passive Project Results, Complete**
- II: Passive Results, June 1 – June 9, 2010**
- III: Passive Results, June 9 – June 17, 2010**
- IV: Passive Results, June 17 – June 23, 2010**
- V: Passive Results, June 23 – June 30, 2010**
- VI: Active Sampling Site Locations**
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- VIII: Active Sampling Results, June 17, 2010**
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Elements of the Figures

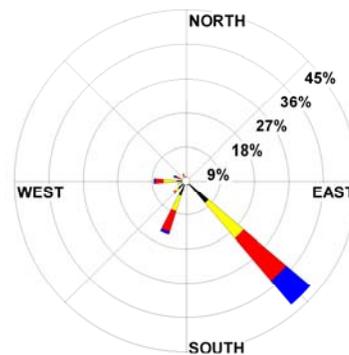
Proportional bars represent weekly passive ammonia concentrations in the summary figure, as well as the short term active ammonia (green) and hydrogen sulfide (pink) concentrations. The pink line in all of the figures represent the study boundary, which in most cases should be the property boundary of the farms.



Proportional symbols represent passive ammonia concentrations in the weekly figures. Each case study has its own concentration scale and can not be directly compared with other farms. Actual concentrations associated with the symbols are shown in the tables on each figure page.



Wind roses are a device to illustrate the direction and speed of the wind. The direction of the bar indicates where the wind is blowing **from**, with the colors indicating the speed of the wind and the length of the bar showing what percentage of the time the wind was coming from that direction. In the figure to the right, wind was coming from the southeast close to 45% of the time, with a wind speed of 11 – 17 knots about 9% of the time, a speed of 7 – 11 knots about 15% of the time, a speed of 4 – 7 knots about 11% of the time, and 1 – 4 knots about 8% of the time. In addition, winds were from the west 9% of the time, and from the southwest about 15% of the time. At the bottom of the wind speed scale to the right, the percentage of the time that the wind was calm is recorded, in this case, 16.67% of the time.

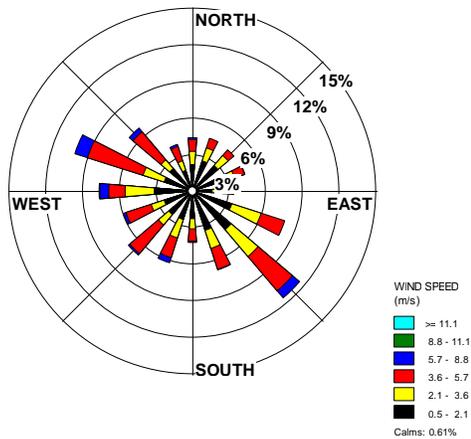
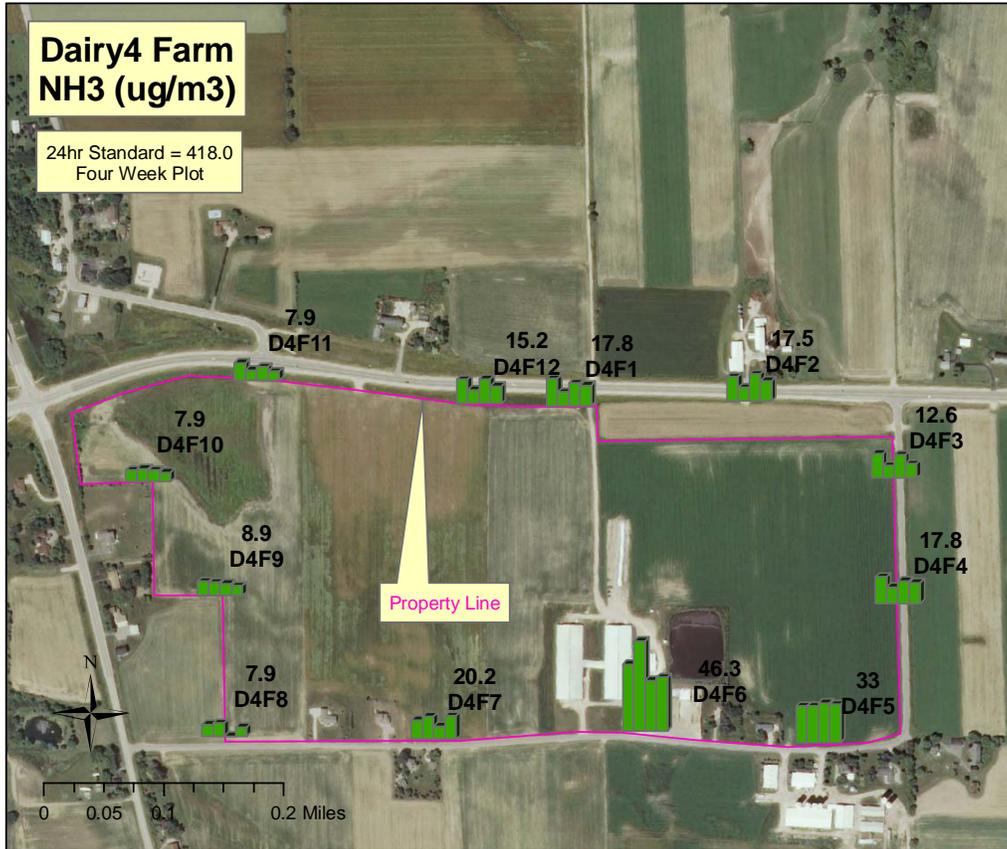


WIND SPEED (Knots)



Calms: 16.67%

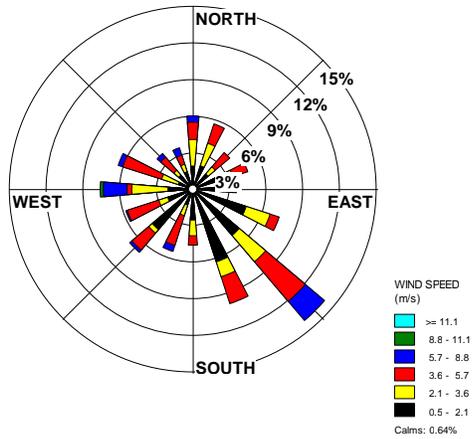
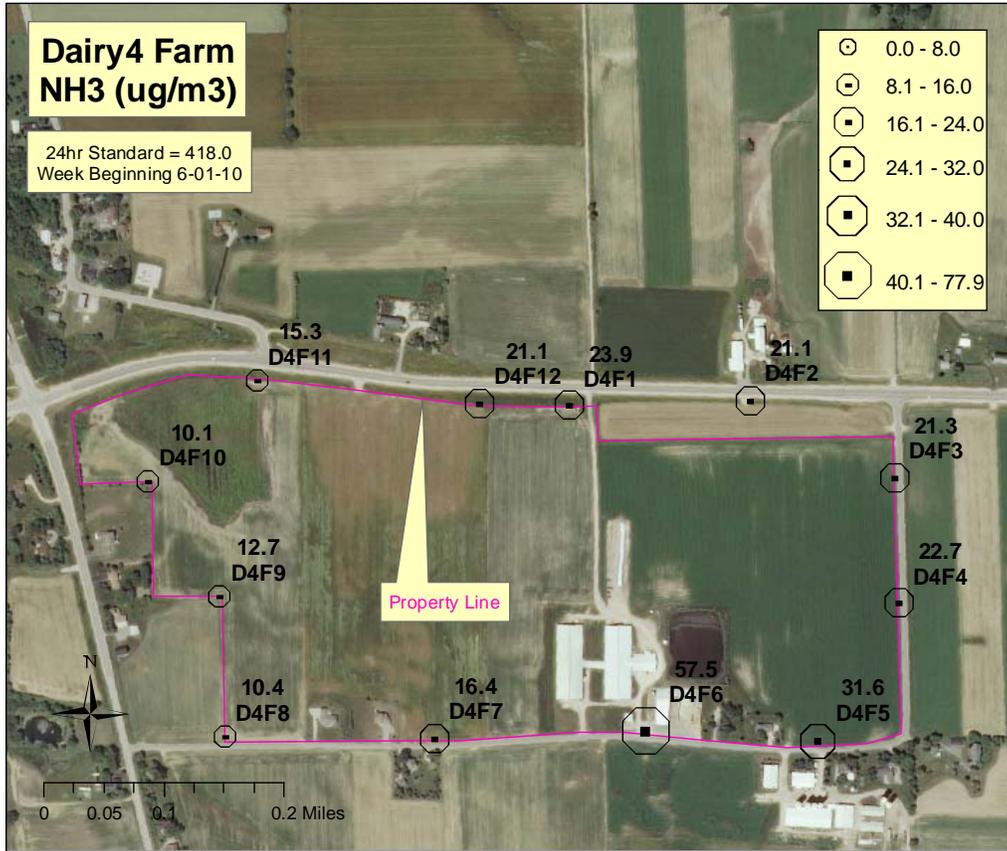
Figure B-I: Four Week Passive Project Results, Complete



Dairy 4 Fenceline Passive Ammonia Samples
6/1 – 6/30/2010
Ambient Air Concentrations in Micrograms per Cubic Meter.
Asterisk denotes values calculated from results below lab reporting limit.

Location	06/01/2010	06/09/2010	06/17/2010	06/23/2010
D4F1	23.9	12.1*	19.8*	17.8
D4F2	21.1	11.9*	23.4	17.5
D4F3	21.3	10.9*	20.2	12.6*
D4F4	22.7	13.8*	19.4*	17.8
D4F5	31.6	31.7	34.5	33.0
D4F6	57.5	77.9	43.6	46.3
D4F7	16.4	19.6	11.1*	20.2
D4F8	10.4*	11.5*		7.9*
D4F9	12.7*	11.7*	10.7*	8.9*
D4F10	10.1*	11.2*	9.9*	7.9*
D4F11	15.3	8.9*	11.9*	7.9*
D4F12	21.1	11.8*	21.4	15.2*

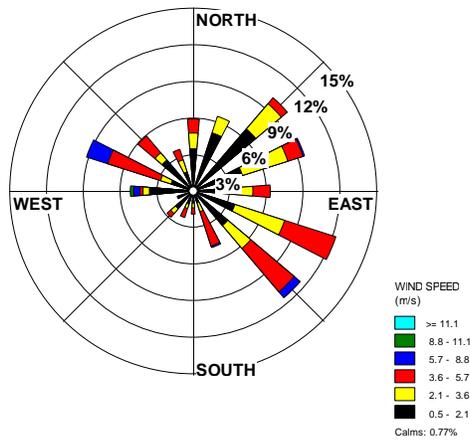
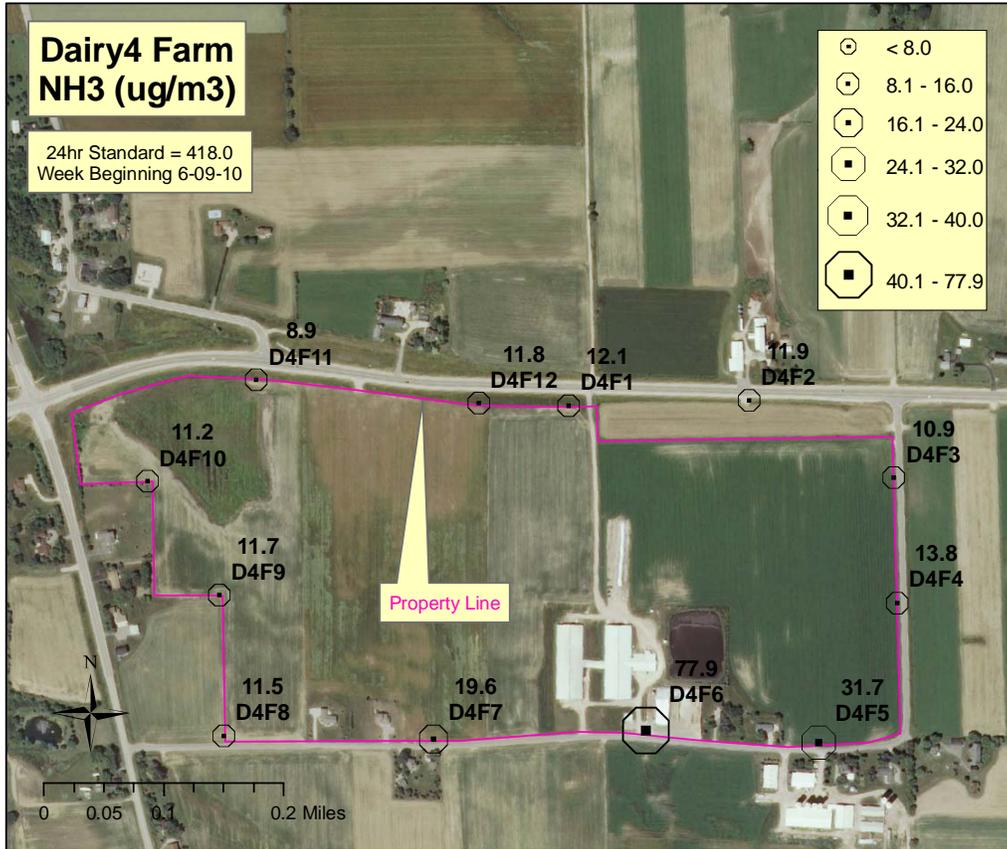
Figure B-II: Passive Results, June 1 – June 9, 2010



Dairy 4 Fenceline Passive Ammonia Samples, 6/1 – 6/9/2010
Ambient Air Concentrations in Micrograms per Cubic Meter. An asterisk denotes values calculated from results below lab reporting limit.

Location	06/01/2010
D4F1	23.9
D4F2	21.1
D4F3	21.3
D4F4	22.7
D4F5	31.6
D4F6	57.5
D4F7	16.4
D4F8	10.4*
D4F9	12.7*
D4F10	10.1*
D4F11	15.3
D4F12	21.1

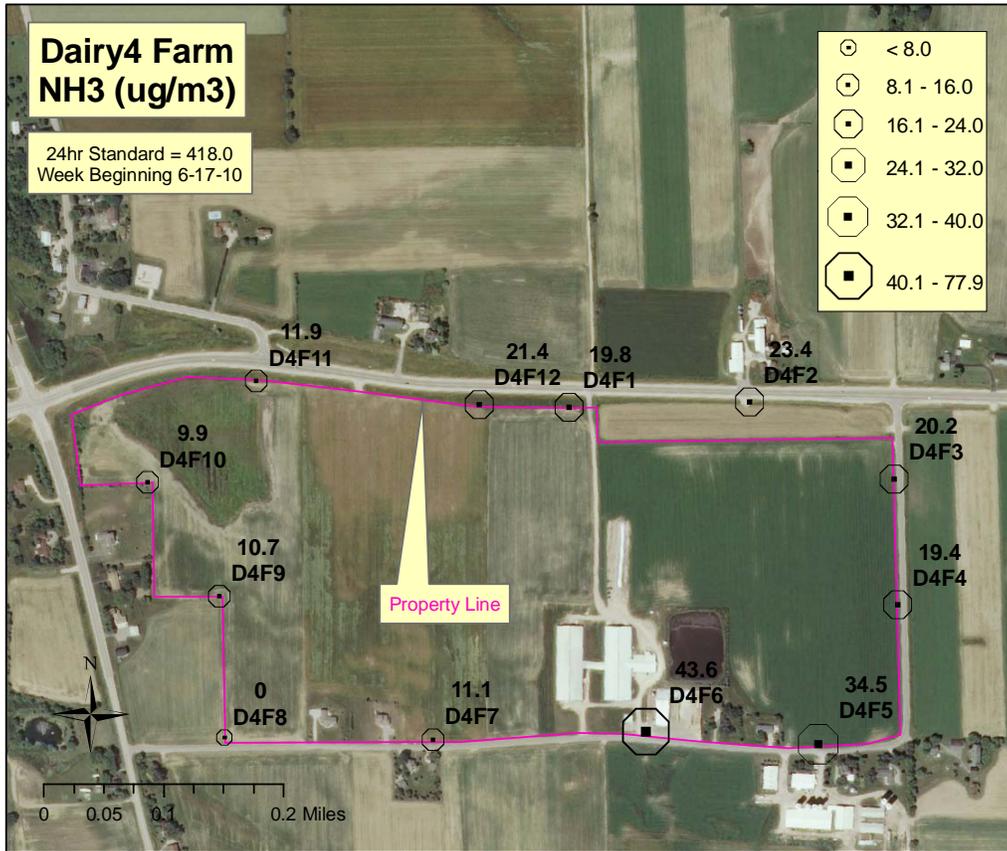
Figure B-III: Passive Results, June 9 – June 17, 2010



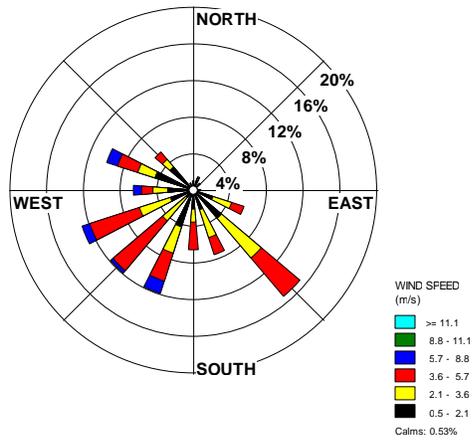
Dairy 4 Fenceline Passive Ammonia Samples, 6/9 – 6/17/2010
Ambient Air Concentrations in Micrograms per Cubic Meter. An asterisk denotes values calculated from results below lab reporting limit.

Location	06/09/2010
D4F1	12.1*
D4F2	11.9*
D4F3	10.9*
D4F4	13.8*
D4F5	31.7
D4F6	77.9
D4F7	19.6
D4F8	11.5*
D4F9	11.7*
D4F10	11.2*
D4F11	8.9*
D4F12	11.8*

Figure B-IV: Passive Results, June 17 – June 23, 2010

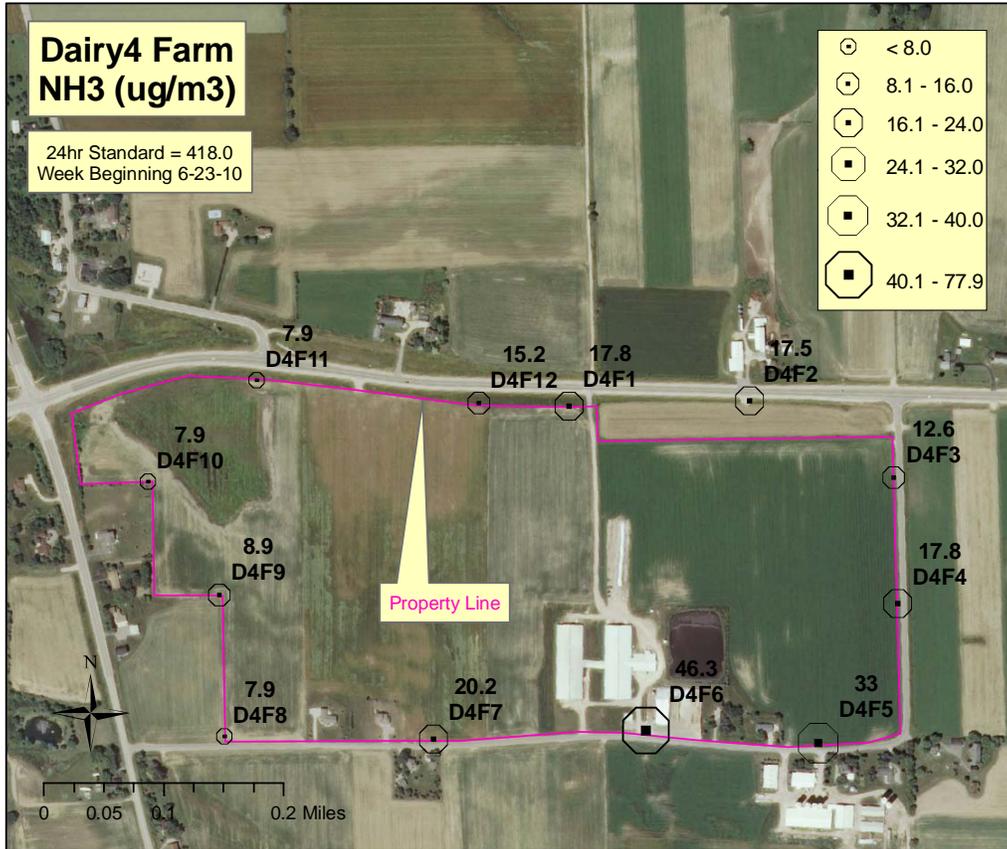


Dairy 4 Fenceline Passive Ammonia Samples, 6/17 – 6/23/2010
Ambient Air Concentrations in Micrograms per Cubic Meter. An asterisk denotes values calculated from results below lab reporting limit.

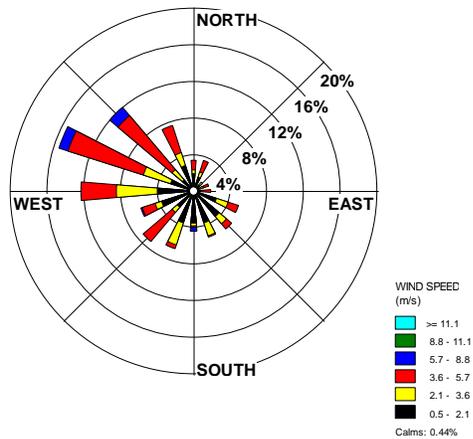


Location	06/17/2010
D4F1	19.8*
D4F2	23.4
D4F3	20.2
D4F4	19.4*
D4F5	34.5
D4F6	43.6
D4F7	11.1*
D4F8	
D4F9	10.7*
D4F10	9.9*
D4F11	11.9*
D4F12	21.4

Figure B-V: Passive Results, June 23 – June 30, 2010



Dairy 4 Fenceline Passive Ammonia Samples, 6/23 – 6/30/2010
Ambient Air Concentrations in Micrograms per Cubic Meter. An asterisk denotes values calculated from results below lab reporting limit.



Location	06/23/2010
D4F1	17.8
D4F2	17.5
D4F3	12.6*
D4F4	17.8
D4F5	33.0
D4F6	46.3
D4F7	20.2
D4F8	7.9*
D4F9	8.9*
D4F10	7.9*
D4F11	7.9*
D4F12	15.2*

Figure B-VI: Active Sampling Site Locations

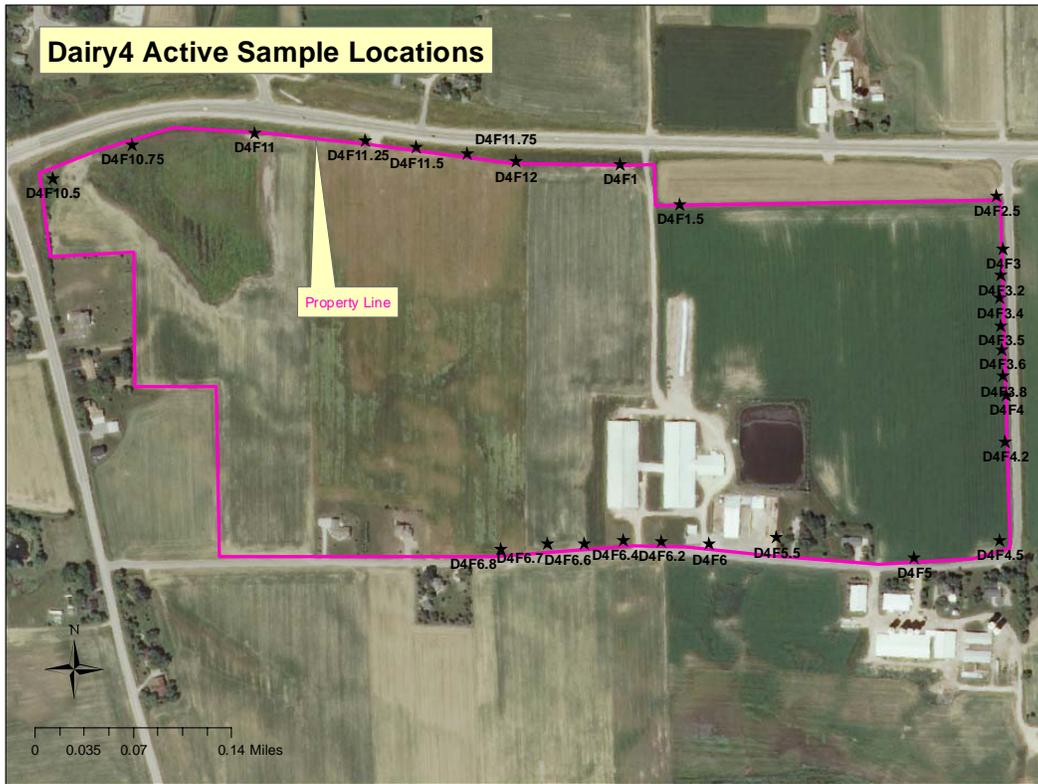
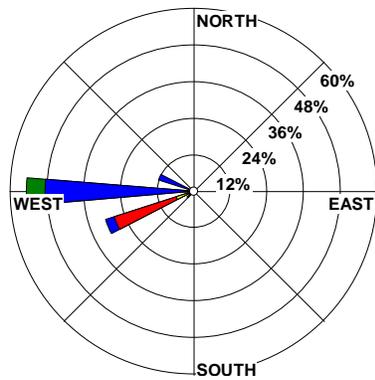
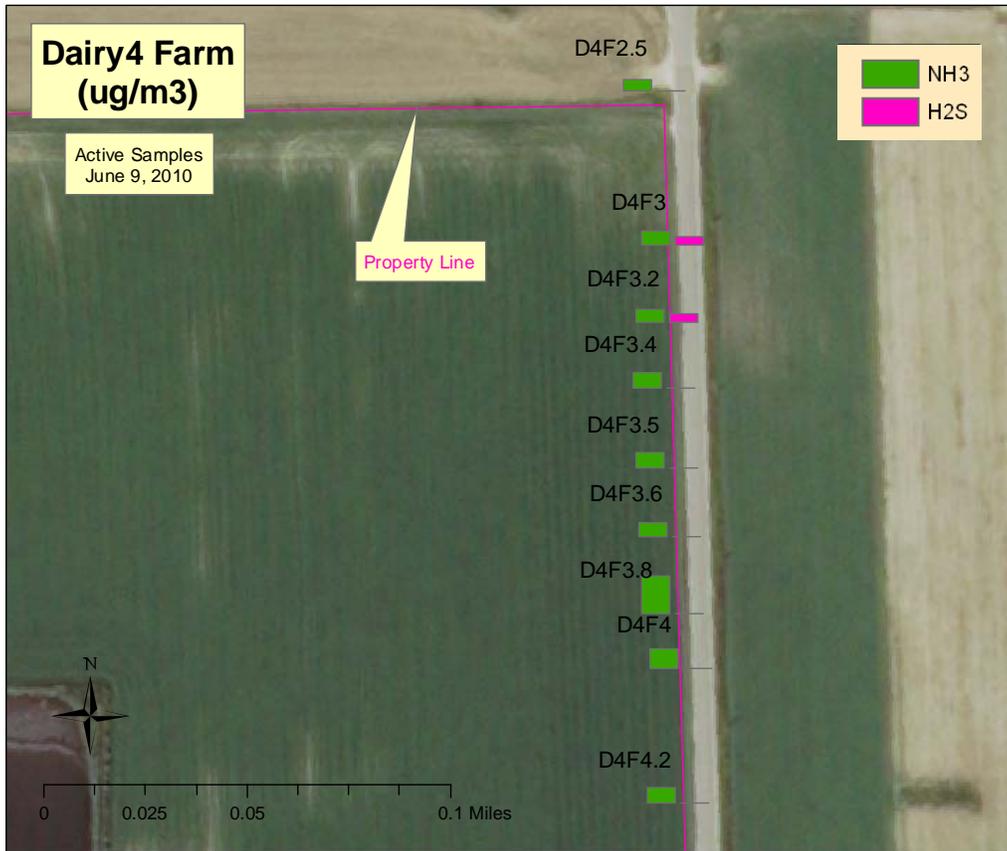


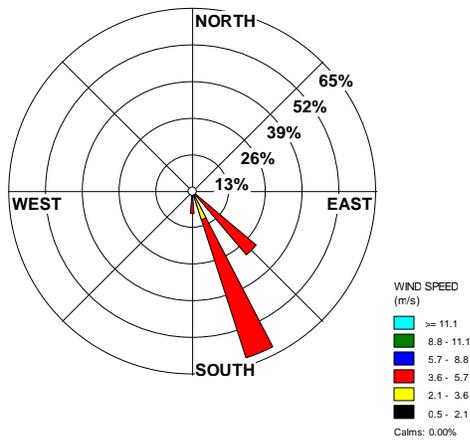
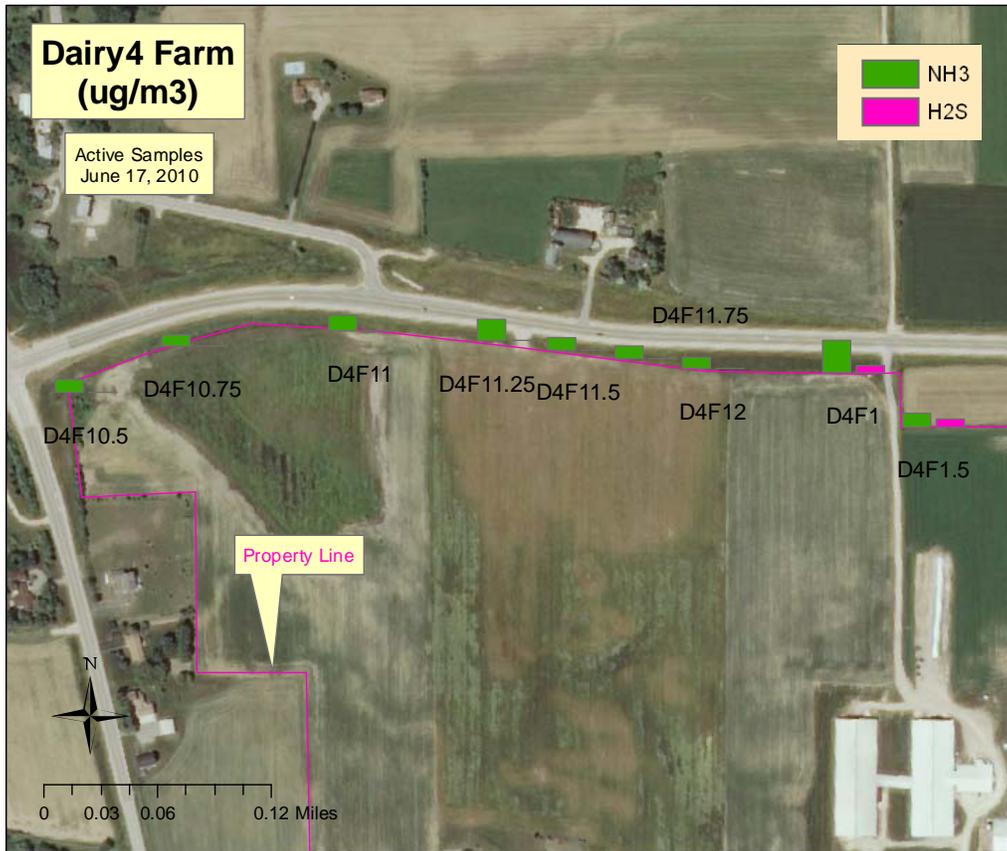
Figure B-VII: Active Sampling Results, June 9, 2010



Dairy 4 Active Sample Results 06/09/2010

Location	NH3	H2S
D4F2.5	<9.5	
D4F3	<12.1	<7.2
D4F3.2	<11.2	<6.8
D4F3.4	<12.7	
D4F3.5	<12.7	
D4F3.6	<11.2	
D4F3.8	<32.1	
D4F4	<16.1	
D4F4.2	12.7	
D4F2.5	<9.5	

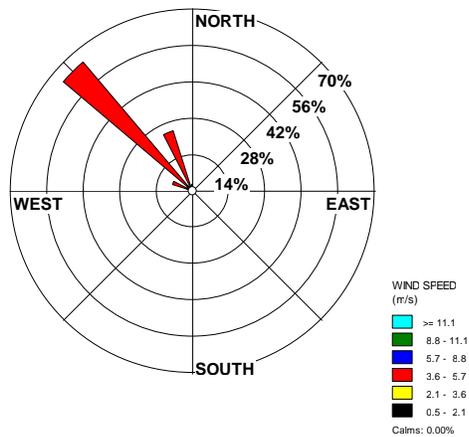
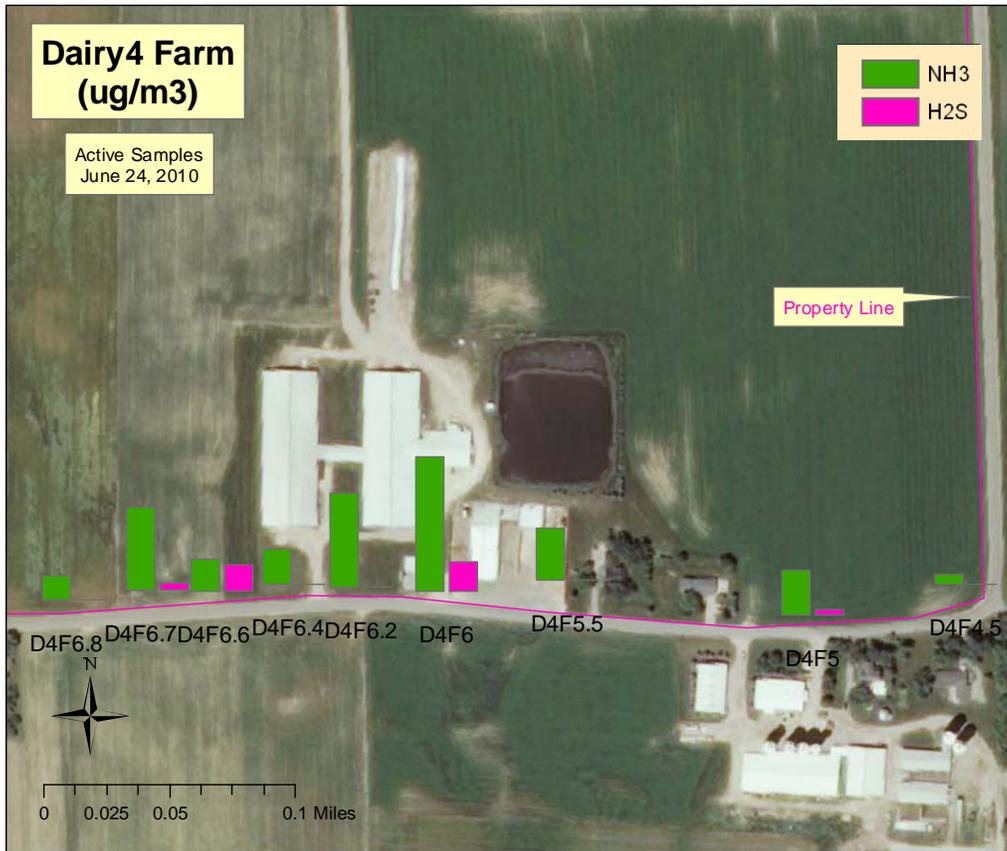
Figure B-VIII: Active Sampling Results, June 17, 2010



**Dairy 4 Active Sample Results
06/17/2010**

Location	NH3	H2S
D4F1	27.7	5.5
D4F1.5	10.7	<6.4
D4F10.5	<9.9	
D4F10.75	<9.8	
D4F11	<12.5	
D4F11.25	<17.9	
D4F11.5	<9.6	
D4F11.75	<10.2	
D4F12	<9.8	
D4F1	27.7	5.5

Figure B-IX: Active Sampling Results, June 24, 2010



Dairy 4 Active Sample Results 06/24/2010

Location	NH3	H2S
D4F4.5	<8.8	
D4F5	37.8	<5.0
D4F5.5	43.7	
D4F6	113.5	25.6
D4F6.2	78.4	
D4F6.4	29.8	
D4F6.6	27.1	23.4
D4F6.7	69.6	<5.5
D4F6.8	20.0	
D4F4.5	<8.8	