

APPENDIX D

METEOROLOGICAL STATION DATA

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: March 9, 2009
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Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: JANUARY 2009

Data: _____ Preliminary _____ ☒ Validated _____ Adjusted (list parameters)	Attached/Enclosed: _____ Preliminary Report _____ ☒ Final Report _____ ☒ Data Summaries _____ AIRS Diskette _____ Client Data Disk _____ Other (as noted)
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Program Operations/Data Collection Activities Summary:

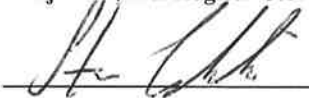
- A period of wind speed data is reported as missing ("N") from 0700 EST through 1400 EST on January 7. This missing data is the result of excessive ice buildup on the windspeed cups during a frozen precipitation event on this day.
- An intermittent problem of electrical nature within the Lakeshore tower temperature system resulted in periods of erroneously high recorded temperature at times during the month. These periods affected both measured levels of temperature, delta-temperature, and dew point. The erroneous data has been removed from the database and the affected hours are reported as "N"
- Monthly data recovery rates for January ranged from 91.7 to 100 percent.

Climatic Summary: JANUARY 2009General Predominance for winds from: due west**10-meter level**Primary Peak WD: W
Secondary Peak WD: WSWMax. Wind Speed : 19.3 mph
Min. Wind Speed : 1.1 mph**2-meter level**Max. Temperature: 47.0 °F
Min. Temperature: 5.2 °FMax. Dew Point Temp. 33.9 °F
Min. Dew Point Temp. -5.8 °FMax. Relative Humidity 99%
Min. Relative Humidity 36%**Cumulative-to-date Data Recovery Rates****Period: January 1, 2009 through****January 31, 2009****10-Meter Level**

10-Meter Vector Wind Speed: 98.9 %
 10-Meter Vector Wind Direction: 98.9 %
 10-Meter Scalar Wind Speed: 98.9 %
 10-Meter Scalar Wind Direction: 100 %
 10-Meter Sigma Theta: 100 %
 10-Meter Vertical Wind Speed: 100 %
 Sigma W: 100 %
 Sigma Phi: 98.9 %
 10-Meter Temperature: 91.7 %

2-Meter Level

2-Meter Temperature: 91.7 %
 Delta Temperature: 91.7 %
 Relative Humidity: 100 %
 Dew Point Temperature: 91.7 %
 Solar Radiation: 100 %
 Barometric Pressure: 100 %

Project Meteorologist: Steven Coughlin

Distribution:

P. Petrone - Parsons
 G. Pacheco - Parsons
 T. Fritts - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: JANUARY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

PARAMETER	ABBREVIATION	UNITS OF MEASUREMENT
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: JANUARY 2009

<u>SITE / PARAMETER</u>	<u>MONTHLY MINIMUM VALUE</u>	<u>MONTHLY MAXIMUM VALUE</u>	<u>MONTHLY MEAN VALUE</u>	<u>MONTHLY DATA RECOVERY RATES (%) BASED ON</u>	
				<u>OPERATING SCHEDULE</u>	<u>TOTAL HOURS</u>

LAKESHORE/WILLIS AVE 10-METER TOWER

10-Meter Level

Vector Wind Speed (mph)	0.2	18.8	7.8	98.9	98.9
Vector Wind Direction (deg)	2	356	217	98.9	98.9
Scalar Wind Speed (mph)	1.1	19.3	8.2	98.9	98.9
Scalar Wind Direction (deg.)	1	356	215	100.0	100.0
Sigma Theta (deg.)	6.7	66.3	16.3	100.0	100.0
Vertical Wind Speed (mph)	-0.12	0.99	0.28	100.0	100.0
Sigma W (mph)	0.14	2.14	0.95	100.0	100.0
Sigma Phi (deg)	3.02	16.0	6.9	100.0	98.9
Temperature (deg-F)	5.4	47.4	21.4	91.7	91.7

2-Meter Level

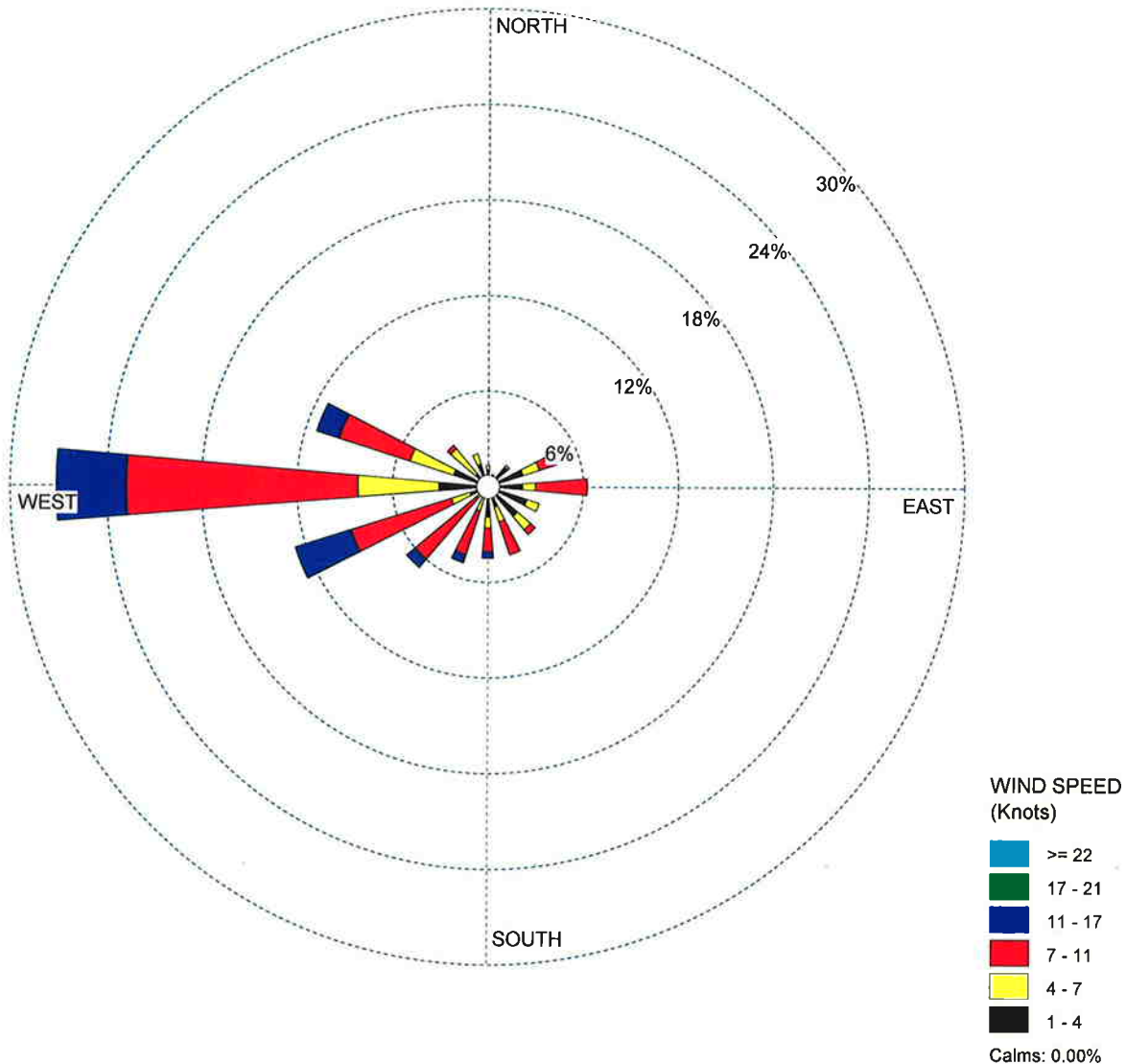
Temperature (deg-F)	5.2	47.0	21.3	91.7	91.7
10-m - 2-m Delta Temp (F-deg)	-1.19	5.01	0.13	91.7	91.7
Relative Humidity (percent)	36.0	98.7	76.0	100.0	100.0
Dew Point Temperature (deg-F)	-5.8	33.9	14.8	91.7	91.7
Solar Radiation (W/m ²)	0.0	591.6	1908.7 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.76	30.21	29.70	100.0	100.0

WIND ROSE PLOT:

Honeywell - Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - January 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Jan 1 - Jan 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

736 hrs.

AVG. WIND SPEED:

7.10 Knots

DATE:

3/9/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: March 9, 2009
Subject: Submittal of Wastebed 13 Meteorological Data for: JANUARY 2009	
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)
Program Operations/Data Collection Activities Summary: • A period of wind speed data (and associated parameters) is reported as missing ("N") on January 7 from hour 6 through hour 19. This missing data results from a period of snow and freezing rain on this day and a subsequent buildup of ice on the wind speed sensor. • No other operational problems occurred at the Wastebed 13 site in January and monthly data recovery rates ranged from 98.1 to 100 percent. • Precipitation bucket is non-heated, so recorded precipitation amounts generally reflect rain events only.	
Climatic Summary: JANUARY 2009 General Predominance for winds from: <u>southwest through due west</u> <u>10-meter level</u> Primary Peak WD: <u>WSW</u> Max. Wind Speed : <u>22.6 mph</u> Secondary Peak WD: <u>W</u> Min. Wind Speed : <u>0.7 mph</u> <u>2-meter level</u> Max. Temperature: <u>44.8 °F</u> Max. Dew Point Temp. <u>34.4 °F</u> Max. Relative Humidity <u>100%</u> Min. Temperature: <u>-1.8 °F</u> Min. Dew Point Temp. <u>-7.3 °F</u> Min. Relative Humidity <u>36%</u>	
Cumulative-to-date Data Recovery Rates Period: January 1, 2009 through January 31, 2009	
<u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>98.1</u> % 10-Meter Vector Wind Direction: <u>98.1</u> % 10-Meter Scalar Wind Speed: <u>98.1</u> % 10-Meter Scalar Wind Direction: <u>100</u> % 10-Meter Sigma Theta: <u>100</u> % 10-Meter Vertical Wind Speed: <u>100</u> % Sigma W: <u>100</u> % Sigma Phi: <u>98.1</u> % 10-Meter Temperature: <u>100</u> %	<u>2-Meter Level</u> 2-Meter Temperature: <u>100</u> % Delta Temperature: <u>100</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>100</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % <u>Surface</u> Precipitation (Rain): <u>100</u> %
Project Meteorologist: Steven Coughlin 	Distribution: P. Petrone - Parsons G. Pacheco - Parsons T. Fritts - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: JANUARY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: JANUARY 2009

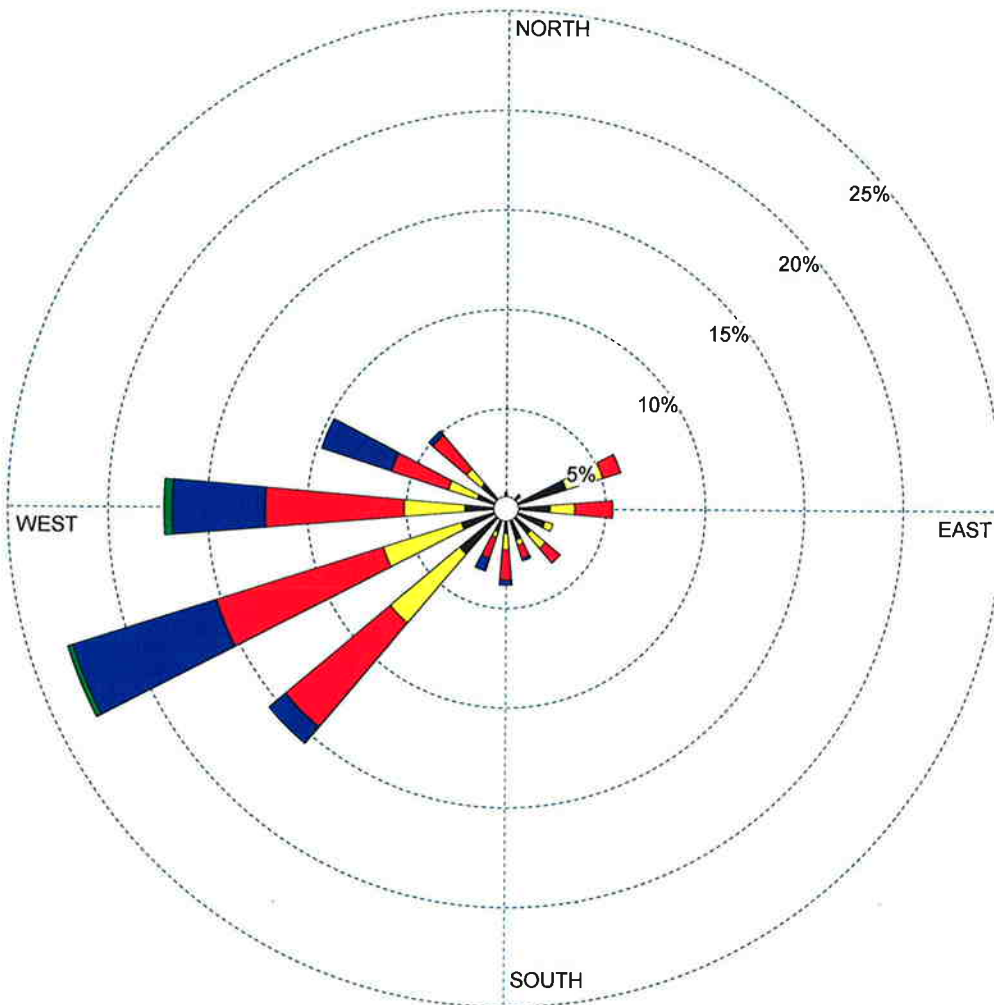
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.4	22.1	8.3	98.1	98.1
Vector Wind Direction (deg)	1	356	220	98.1	98.1
Scalar Wind Speed (mph)	0.7	22.6	8.6	98.1	98.1
Scalar Wind Direction (deg.)	2	360	219	100.0	100.0
Sigma Theta (deg.)	3.3	60.8	14.2	100.0	100.0
Vertical Wind Speed (mph)	-0.10	1.09	0.25	100.0	100.0
Sigma W (mph)	0.07	2.15	0.90	100.0	100.0
Sigma Phi (deg)	1.65	17.1	6.2	98.1	98.1
Temperature (deg-F)	2.3	45.8	19.9	100.0	100.0
2-Meter Level					
Temperature (deg-F)	-1.8	44.8	19.5	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-0.66	4.92	0.39	100.0	100.0
Relative Humidity (percent)	36.1	100.0	78.5	100.0	100.0
Dew Point Temperature (deg-F)	-7.3	34.4	13.6	100.0	100.0
Net Radiation (W/m ²)	-129.1	112.7	-222.5 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.64	30.08	29.57	100.0	100.0
Surface Level					
Precipitation (Rain in inches)	0.00	0.06	0.37 (Total)	100.0	100.0

WIND ROSE PLOT:

Honeywell - Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - January 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Jan 1 - Jan 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

730 hrs.

AVG. WIND SPEED:

7.46 Knots

DATE:

3/6/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: March 11, 2009
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Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for:	FEBRUARY 2009
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Data: _____ Preliminary <u> X </u> Validated _____ Adjusted (list parameters)	Attached/Enclosed: _____ Preliminary Report <u> X </u> Final Report <u> X </u> Data Summaries	_____ AIRS Diskette _____ Client Data Disk _____ Other (as noted)
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Program Operations/Data Collection Activities Summary:

- A period of vertical wind speed data is reported as missing ("N") from 0300 EST through 1000 EST on February 13. This missing data is the result of excessive ice buildup on the vertical wind speed propeller blades during a frozen precipitation event on this day.
- An intermittent problem of electrical nature within the Lakeshore tower temperature system resulted in periods of erroneously high recorded temperature at times during the month. These periods affected both measured levels of temperature, delta-temperature, and dew point. The erroneous data has been removed from the database and the affected hours are reported as "N"
- Monthly data recovery rates for February ranged from 87.8 to 100 percent.

Climatic Summary: FEBRUARY 2009

 General Predominance for winds from: due west
10-meter level

Primary Peak WD:	<u>W</u>	Max. Wind Speed :	<u>23.3 mph</u>
Secondary Peak WD:	<u>WNW</u>	Min. Wind Speed :	<u>0.8 mph</u>

2-meter level

Max. Temperature:	<u>57.7 °F</u>	Max. Dew Point Temp.	<u>51.3 °F</u>	Max. Relative Humidity	<u>98%</u>
Min. Temperature:	<u>1.5 °F</u>	Min. Dew Point Temp.	<u>-1.5 °F</u>	Min. Relative Humidity	<u>24%</u>

Cumulative-to-date Data Recovery Rates
Period: January 1, 2009 through
February 28, 2009
10-Meter Level

10-Meter Vector Wind Speed:	<u>99.4</u> %
10-Meter Vector Wind Direction:	<u>99.4</u> %
10-Meter Scalar Wind Speed:	<u>99.4</u> %
10-Meter Scalar Wind Direction:	<u>100</u> %
10-Meter Sigma Theta:	<u>100</u> %
10-Meter Vertical Wind Speed:	<u>99.4</u> %
Sigma W:	<u>99.4</u> %
Sigma Phi:	<u>98.9</u> %
10-Meter Temperature:	<u>89.8</u> %

2-Meter Level

2-Meter Temperature:	<u>89.8</u> %
Delta Temperature:	<u>89.8</u> %
Relative Humidity:	<u>100</u> %
Dew Point Temperature:	<u>89.8</u> %
Solar Radiation:	<u>100</u> %
Barometric Pressure:	<u>100</u> %

Project Meteorologist: Steven Coughlin

Distribution:

P. Petrone - Parsons
 G. Pacheco - Parsons
 T. Fritts - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: FEBRUARY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

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N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: FEBRUARY 2009

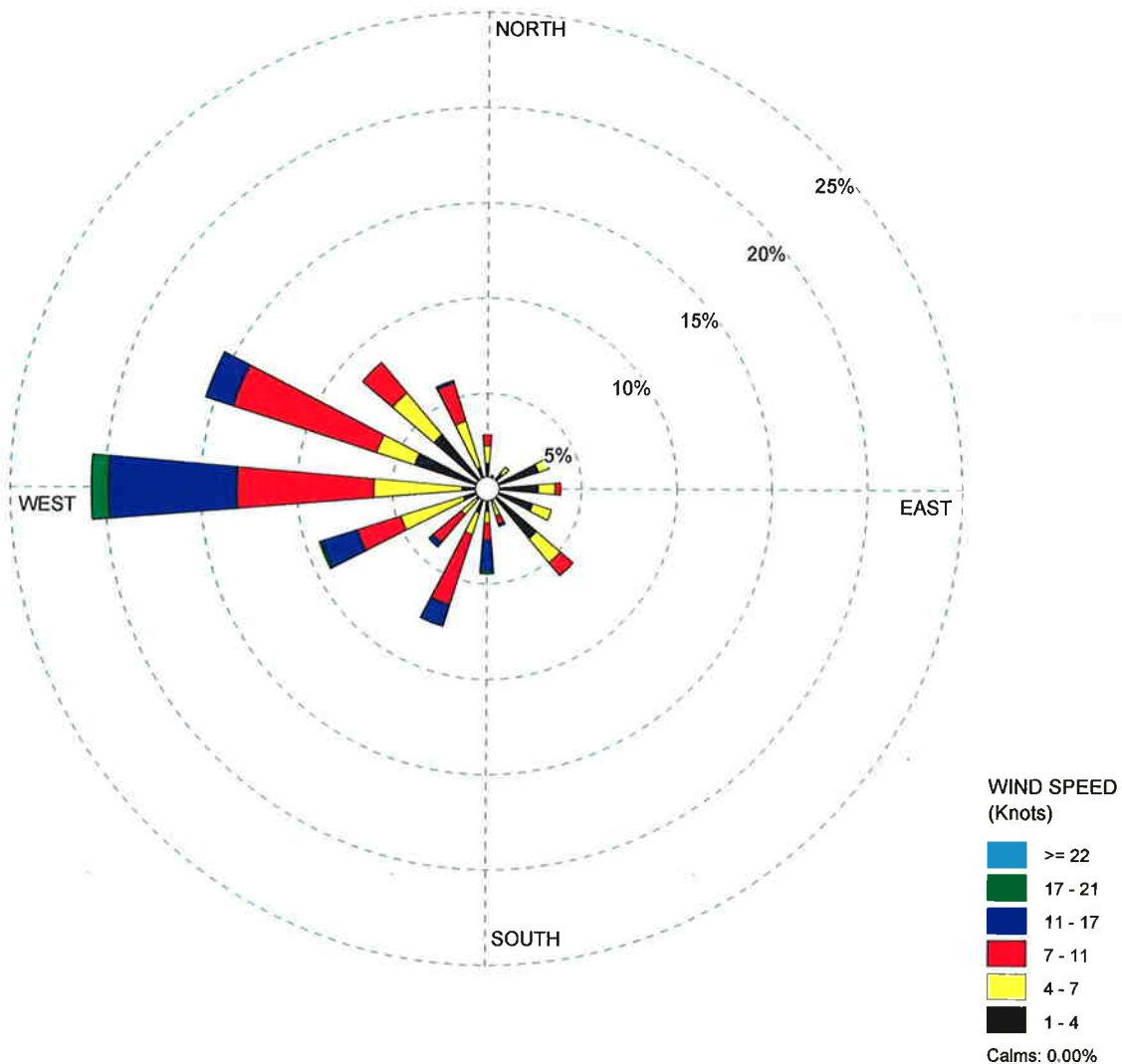
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
LAKESHORE/WILLIS AVE 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.2	22.6	7.6	100.0	100.0
Vector Wind Direction (deg)	1	360	233	100.0	100.0
Scalar Wind Speed (mph)	0.8	23.3	8.0	100.0	100.0
Scalar Wind Direction (deg.)	3	360	233	100.0	100.0
Sigma Theta (deg.)	5.6	68.7	17.9	100.0	100.0
Vertical Wind Speed (mph)	-0.11	1.10	0.25	98.8	98.8
Sigma W (mph)	0.08	2.61	0.99	98.8	98.8
Sigma Phi (deg)	3.28	16.4	7.3	98.8	98.8
Temperature (deg-F)	2.3	57.7	32.4	87.8	87.8
2-Meter Level					
Temperature (deg-F)	1.5	57.7	32.3	87.8	87.8
10-m - 2-m Delta Temp (F-deg)	-1.57	3.40	0.17	87.8	87.8
Relative Humidity (percent)	24.4	98.0	72.0	100.0	100.0
Dew Point Temperature (deg-F)	-1.5	51.3	23.4	87.8	87.8
Solar Radiation (W/m ²)	0.0	815.0	2698.9 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.86	30.17	29.74	100.0	100.0

WIND ROSE PLOT:

Honeywell - Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - February 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Feb 1 - Feb 28
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

672 hrs.

AVG. WIND SPEED:

6.95 Knots

DATE:

3/11/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: March 9, 2009
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Subject: Submittal of Wastedbed 13 Meteorological Data for:	FEBRUARY 2009
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Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☒ Final Report ☒ Data Summaries	☐ AIRS Diskette ☐ Client Data Disk ☐ Other (as noted)
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Program Operations/Data Collection Activities Summary:

- Periods of wind speed data (and associated parameters) are reported as missing ("N") on February 13 from hours 1 through 11 and on Feb 27 from hour 21 through Feb 28 hour 23. This missing data results from a period of snow and freezing rain on these days and a subsequent buildup of ice on the wind speed sensor.
- No other operational problems occurred at the Wastedbed 13 site in February and monthly data recovery rates ranged from 94.5 to 100 percent.
- Precipitation bucket is non-heated, so recorded precipitation amounts generally reflect rain events only.

Climatic Summary: FEBRUARY 2009

 General Predominance for winds from: west through west-northwest
10-meter level

Primary Peak WD:	<u>W</u>	Max. Wind Speed :	<u>24.3 mph</u>
Secondary Peak WD:	<u>WNW</u>	Min. Wind Speed :	<u>0.8 mph</u>

2-meter level

Max. Temperature:	<u>54.7 °F</u>	Max. Dew Point Temp.	<u>49.5 °F</u>	Max. Relative Humidity	<u>100%</u>
Min. Temperature:	<u>-2.1 °F</u>	Min. Dew Point Temp.	<u>-4.2 °F</u>	Min. Relative Humidity	<u>26%</u>

Cumulative-to-date Data Recovery Rates

Period: January 1, 2009 through

February 28, 2009

10-Meter Level

10-Meter Vector Wind Speed:	<u>96.4</u> %
10-Meter Vector Wind Direction:	<u>96.4</u> %
10-Meter Scalar Wind Speed:	<u>96.4</u> %
10-Meter Scalar Wind Direction:	<u>100</u> %
10-Meter Sigma Theta:	<u>100</u> %
10-Meter Vertical Wind Speed:	<u>100</u> %
Sigma W:	<u>100</u> %
Sigma Phi:	<u>96.4</u> %
10-Meter Temperature:	<u>100</u> %

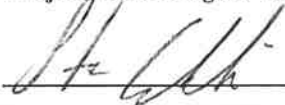
2-Meter Level

2-Meter Temperature:	<u>100</u> %
Delta Temperature:	<u>100</u> %
Relative Humidity:	<u>100</u> %
Dew Point Temperature:	<u>100</u> %
Net Radiation:	<u>100</u> %
Barometric Pressure:	<u>100</u> %

Surface

Precipitation (Rain):	<u>100</u> %
-----------------------	--------------

Project Meteorologist: Steven Coughlin


Distribution:

P. Petrone - Parsons
 G. Pacheco - Parsons
 T. Fritts - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: FEBRUARY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: FEBRUARY 2009

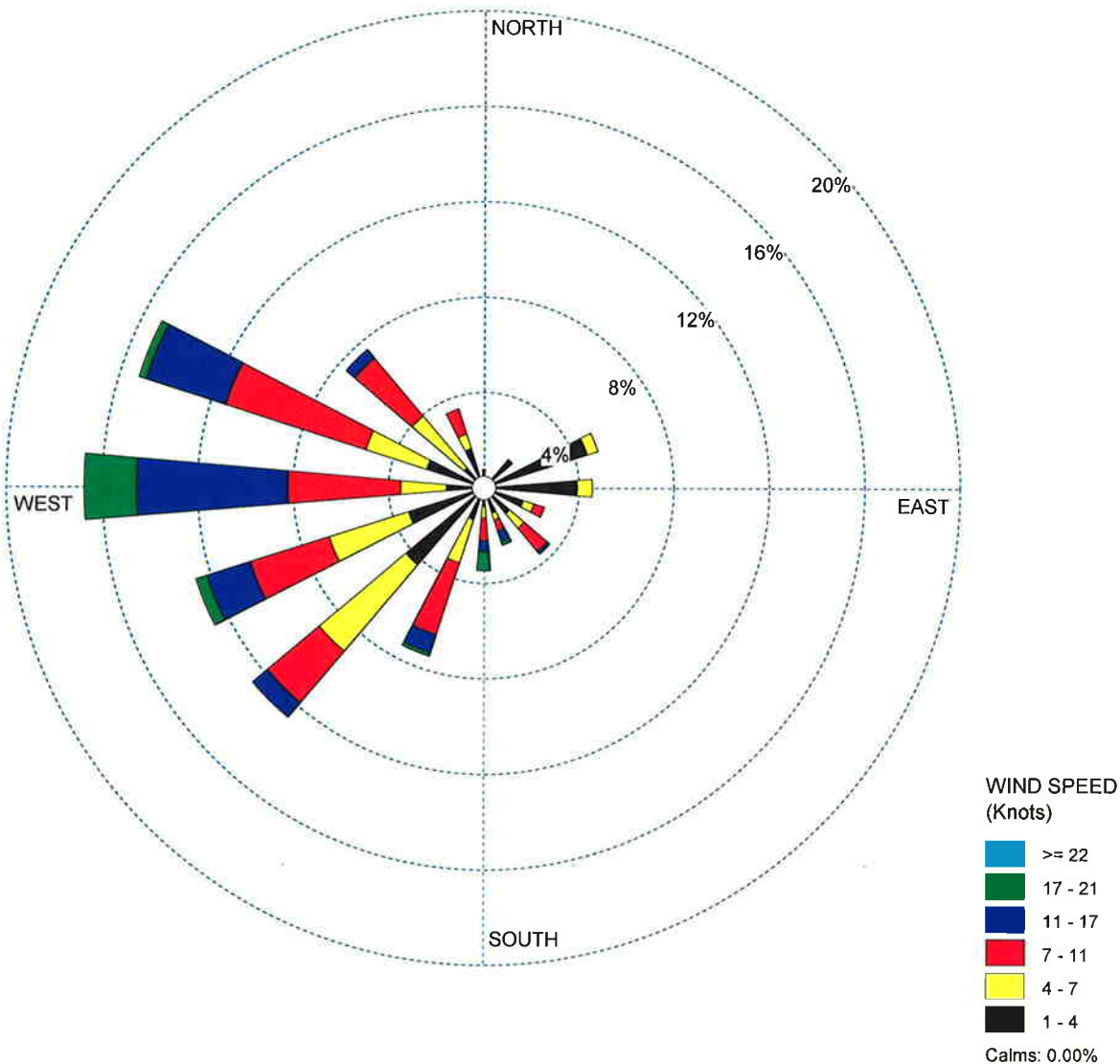
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
<u>WASTEBED 13 10-METER TOWER</u>					
<u>10-Meter Level</u>					
Vector Wind Speed (mph)	0.3	23.8	8.3	94.5	94.5
Vector Wind Direction (deg)	1	354	227	94.5	94.5
Scalar Wind Speed (mph)	0.8	24.3	8.6	94.5	94.5
Scalar Wind Direction (deg.)	2	360	232	100.0	100.0
Sigma Theta (deg.)	4.3	59.9	15.1	100.0	100.0
Vertical Wind Speed (mph)	-0.16	1.26	0.28	100.0	100.0
Sigma W (mph)	0.06	2.75	0.93	100.0	100.0
Sigma Phi (deg)	2.13	14.7	6.2	94.5	94.5
Temperature (deg-F)	0.6	56.3	28.7	100.0	100.0
<u>2-Meter Level</u>					
Temperature (deg-F)	-2.1	54.7	27.7	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-1.54	5.78	0.98	100.0	100.0
Relative Humidity (percent)	25.7	99.9	75.1	100.0	100.0
Dew Point Temperature (deg-F)	-4.2	49.5	20.2	100.0	100.0
Net Radiation (W/m ²)	-68.6	382.6	236.3 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.75	30.03	29.61	100.0	100.0
<u>Surface Level</u>					
Precipitation (Rain in inches)	0.00	0.12	1.73 (Total)	100.0	100.0

WIND ROSE PLOT:

Honeywell - Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - February 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Feb 1 - Feb 28
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

635 hrs.

AVG. WIND SPEED:

7.47 Knots

DATE:

3/6/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: April 24, 2009								
Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: MARCH 2009									
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)								
Program Operations/Data Collection Activities Summary: • An intermittent problem of electrical nature within the Lakeshore tower temperature system resulted in periods of erroneously high recorded temperature at times during the month. These periods affected both measured levels of temperature, delta-temperature, and dew point. The erroneous data has been removed from the database and the affected hours are reported as "N" • Monthly data recovery rates for March ranged from 62.2 percent for the above mentioned parameters to 100 percent for all other parameters.									
Climatic Summary: MARCH 2009 General Predominance for winds from: <u>due west through north-northwest</u> 10-meter level Primary Peak WD: <u>W</u> Max. Wind Speed: <u>23.4 mph</u> Secondary Peak WD: <u>NNW</u> Min. Wind Speed: <u>0.8 mph</u> 2-meter level Max. Temperature: <u>62.9 °F</u> Max. Dew Point Temp. <u>54.8 °F</u> Max. Relative Humidity <u>98%</u> Min. Temperature: <u>10.2 °F</u> Min. Dew Point Temp. <u>1.6 °F</u> Min. Relative Humidity <u>18%</u>									
<table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">Cumulative-to-date Data Recovery Rates</td> <td style="width: 30%;">Period: January 1, 2009 through</td> <td style="width: 30%;">March 31, 2009</td> </tr> <tr> <td colspan="3" style="padding-top: 10px;"> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> 10-Meter Level 10-Meter Vector Wind Speed: <u>99.6</u> % 10-Meter Vector Wind Direction: <u>99.6</u> % 10-Meter Scalar Wind Speed: <u>99.6</u> % 10-Meter Scalar Wind Direction: <u>100</u> % 10-Meter Sigma Theta: <u>100</u> % 10-Meter Vertical Wind Speed: <u>99.6</u> % Sigma W: <u>99.6</u> % Sigma Phi: <u>99.3</u> % 10-Meter Temperature: <u>80.3</u> % </td> <td style="width: 50%; vertical-align: top;"> 2-Meter Level 2-Meter Temperature: <u>80.3</u> % Delta Temperature: <u>80.3</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>80.3</u> % Solar Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % </td> </tr> </table> </td> </tr> </table>		Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	March 31, 2009	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> 10-Meter Level 10-Meter Vector Wind Speed: <u>99.6</u> % 10-Meter Vector Wind Direction: <u>99.6</u> % 10-Meter Scalar Wind Speed: <u>99.6</u> % 10-Meter Scalar Wind Direction: <u>100</u> % 10-Meter Sigma Theta: <u>100</u> % 10-Meter Vertical Wind Speed: <u>99.6</u> % Sigma W: <u>99.6</u> % Sigma Phi: <u>99.3</u> % 10-Meter Temperature: <u>80.3</u> % </td> <td style="width: 50%; vertical-align: top;"> 2-Meter Level 2-Meter Temperature: <u>80.3</u> % Delta Temperature: <u>80.3</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>80.3</u> % Solar Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % </td> </tr> </table>			10-Meter Level 10-Meter Vector Wind Speed: <u>99.6</u> % 10-Meter Vector Wind Direction: <u>99.6</u> % 10-Meter Scalar Wind Speed: <u>99.6</u> % 10-Meter Scalar Wind Direction: <u>100</u> % 10-Meter Sigma Theta: <u>100</u> % 10-Meter Vertical Wind Speed: <u>99.6</u> % Sigma W: <u>99.6</u> % Sigma Phi: <u>99.3</u> % 10-Meter Temperature: <u>80.3</u> %	2-Meter Level 2-Meter Temperature: <u>80.3</u> % Delta Temperature: <u>80.3</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>80.3</u> % Solar Radiation: <u>100</u> % Barometric Pressure: <u>100</u> %
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Project Meteorologist: Steven Coughlin 	Distribution: P. Petrone - Parsons G. Pacheco - Parsons T. Fritts - Parsons								

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE -- 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: MARCH 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

PARAMETER	ABBREVIATION	UNITS OF MEASUREMENT
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: MARCH 2009

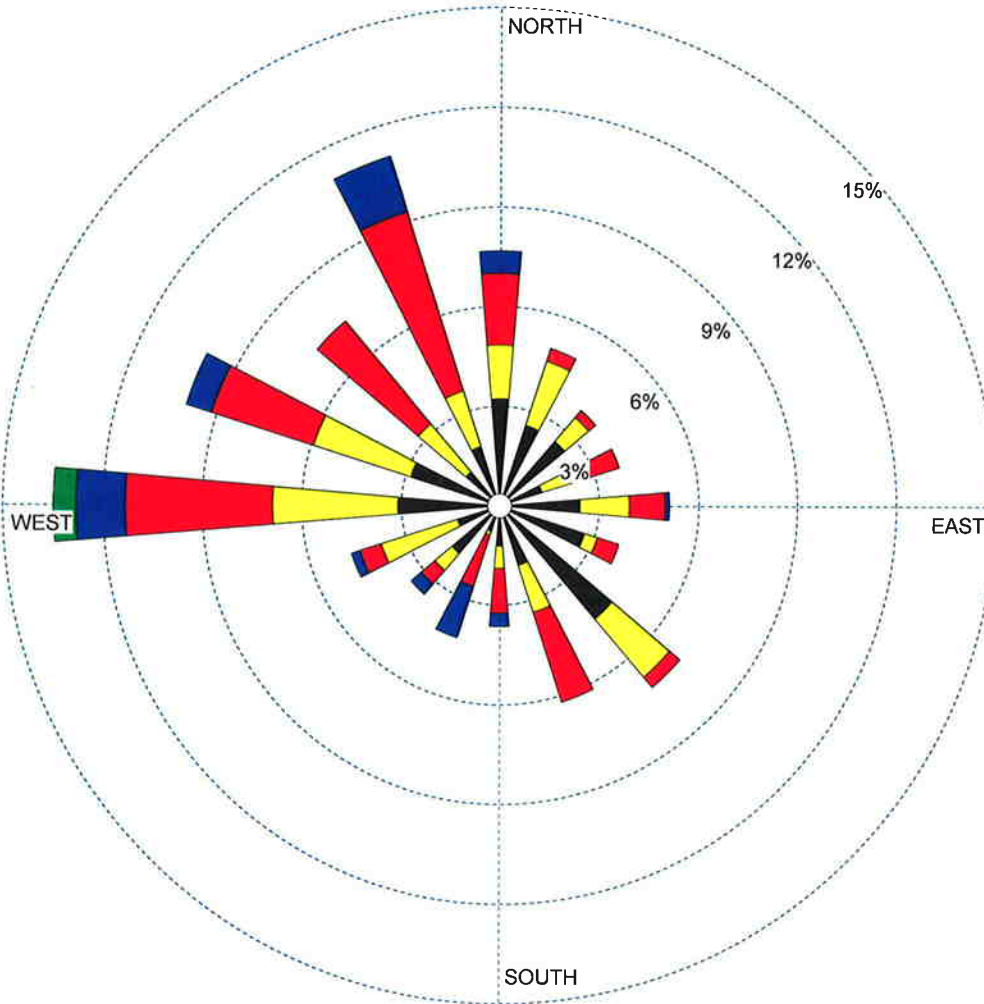
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
LAKESHORE/WILLIS AVE 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.1	22.7	6.6	100.0	100.0
Vector Wind Direction (deg)	1	360	210	100.0	100.0
Scalar Wind Speed (mph)	0.8	23.4	7.0	100.0	100.0
Scalar Wind Direction (deg.)	1	360	209	100.0	100.0
Sigma Theta (deg.)	4.0	79.1	19.6	100.0	100.0
Vertical Wind Speed (mph)	-0.16	1.11	0.20	100.0	100.0
Sigma W (mph)	0.09	2.49	0.87	100.0	100.0
Sigma Phi (deg)	2.49	28.7	7.4	100.0	100.0
Temperature (deg-F)	10.0	62.4	38.6	62.2	62.2
2-Meter Level					
Temperature (deg-F)	10.2	62.9	38.3	62.2	62.2
10-m - 2-m Delta Temp (F-deg)	-2.55	6.04	0.29	62.2	62.2
Relative Humidity (percent)	18.4	97.8	64.0	100.0	100.0
Dew Point Temperature (deg-F)	1.6	54.8	26.9	62.2	62.2
Solar Radiation (W/m ²)	0.0	933.0	4033.2 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.00	30.30	29.87	100.0	100.0

WIND ROSE PLOT:

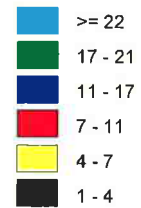
Honeywell - Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - March 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)



Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
Mar 1 - Mar 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

744 hrs.

AVG. WIND SPEED:

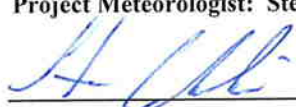
6.07 Knots

DATE:

4/23/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: April 24, 2009																																		
Subject: Submittal of Wastebed 13 Meteorological Data for: MARCH 2009																																			
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)																																		
Program Operations/Data Collection Activities Summary: • A period of wind speed data (and associated parameters) is reported as missing ("N") on March 1 from hours 0 through 13. This missing data results from a period of snow and freezing rain on this day and a subsequent buildup of ice on the wind speed sensor. • No other operational problems occurred at the Wastebed 13 site in March and monthly data recovery rates ranged from 98.1 to 100 percent. • Precipitation bucket is non-heated, so recorded precipitation amounts generally reflect rain events only.																																			
Climatic Summary: MARCH 2009 General Predominance for winds from: <u>southwest through due west to north-northwest</u> <u>10-meter level</u> <table style="width: 100%;"> <tr> <td>Primary Peak WD:</td> <td><u>SW</u></td> <td>Max. Wind Speed :</td> <td><u>25.6 mph</u></td> </tr> <tr> <td>Secondary Peak WD:</td> <td><u>WNW</u></td> <td>Min. Wind Speed :</td> <td><u>0.8 mph</u></td> </tr> </table> <u>2-meter level</u> <table style="width: 100%;"> <tr> <td>Max. Temperature:</td> <td><u>65.5 °F</u></td> <td>Max. Dew Point Temp.</td> <td><u>50.4 °F</u></td> <td>Max. Relative Humidity</td> <td><u>100%</u></td> </tr> <tr> <td>Min. Temperature:</td> <td><u>7.7 °F</u></td> <td>Min. Dew Point Temp.</td> <td><u>-0.2 °F</u></td> <td>Min. Relative Humidity</td> <td><u>18%</u></td> </tr> </table>		Primary Peak WD:	<u>SW</u>	Max. Wind Speed :	<u>25.6 mph</u>	Secondary Peak WD:	<u>WNW</u>	Min. Wind Speed :	<u>0.8 mph</u>	Max. Temperature:	<u>65.5 °F</u>	Max. Dew Point Temp.	<u>50.4 °F</u>	Max. Relative Humidity	<u>100%</u>	Min. Temperature:	<u>7.7 °F</u>	Min. Dew Point Temp.	<u>-0.2 °F</u>	Min. Relative Humidity	<u>18%</u>														
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Cumulative-to-date Data Recovery Rates Period: January 1, 2009 through March 31, 2009																																			
<u>10-Meter Level</u> <table style="width: 100%;"> <tr><td>10-Meter Vector Wind Speed:</td><td><u>97.0</u> %</td></tr> <tr><td>10-Meter Vector Wind Direction:</td><td><u>97.0</u> %</td></tr> <tr><td>10-Meter Scalar Wind Speed:</td><td><u>97.0</u> %</td></tr> <tr><td>10-Meter Scalar Wind Direction:</td><td><u>100</u> %</td></tr> <tr><td>10-Meter Sigma Theta:</td><td><u>100</u> %</td></tr> <tr><td>10-Meter Vertical Wind Speed:</td><td><u>100</u> %</td></tr> <tr><td>Sigma W:</td><td><u>100</u> %</td></tr> <tr><td>Sigma Phi:</td><td><u>97.0</u> %</td></tr> <tr><td>10-Meter Temperature:</td><td><u>100</u> %</td></tr> </table>	10-Meter Vector Wind Speed:	<u>97.0</u> %	10-Meter Vector Wind Direction:	<u>97.0</u> %	10-Meter Scalar Wind Speed:	<u>97.0</u> %	10-Meter Scalar Wind Direction:	<u>100</u> %	10-Meter Sigma Theta:	<u>100</u> %	10-Meter Vertical Wind Speed:	<u>100</u> %	Sigma W:	<u>100</u> %	Sigma Phi:	<u>97.0</u> %	10-Meter Temperature:	<u>100</u> %	<u>2-Meter Level</u> <table style="width: 100%;"> <tr><td>2-Meter Temperature:</td><td><u>100</u> %</td></tr> <tr><td>Delta Temperature:</td><td><u>100</u> %</td></tr> <tr><td>Relative Humidity:</td><td><u>100</u> %</td></tr> <tr><td>Dew Point Temperature:</td><td><u>100</u> %</td></tr> <tr><td>Net Radiation:</td><td><u>100</u> %</td></tr> <tr><td>Barometric Pressure:</td><td><u>100</u> %</td></tr> <tr><td colspan="2"><u>Surface</u></td></tr> <tr><td>Precipitation (Rain):</td><td><u>100</u> %</td></tr> </table>	2-Meter Temperature:	<u>100</u> %	Delta Temperature:	<u>100</u> %	Relative Humidity:	<u>100</u> %	Dew Point Temperature:	<u>100</u> %	Net Radiation:	<u>100</u> %	Barometric Pressure:	<u>100</u> %	<u>Surface</u>		Precipitation (Rain):	<u>100</u> %
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Barometric Pressure:	<u>100</u> %																																		
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Project Meteorologist: Steven Coughlin 	Distribution: P. Petrone - Parsons G. Pacheco - Parsons T. Fritts - Parsons																																		

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: MARCH 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

PARAMETER	ABBREVIATION	UNITS OF MEASUREMENT
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: MARCH 2009

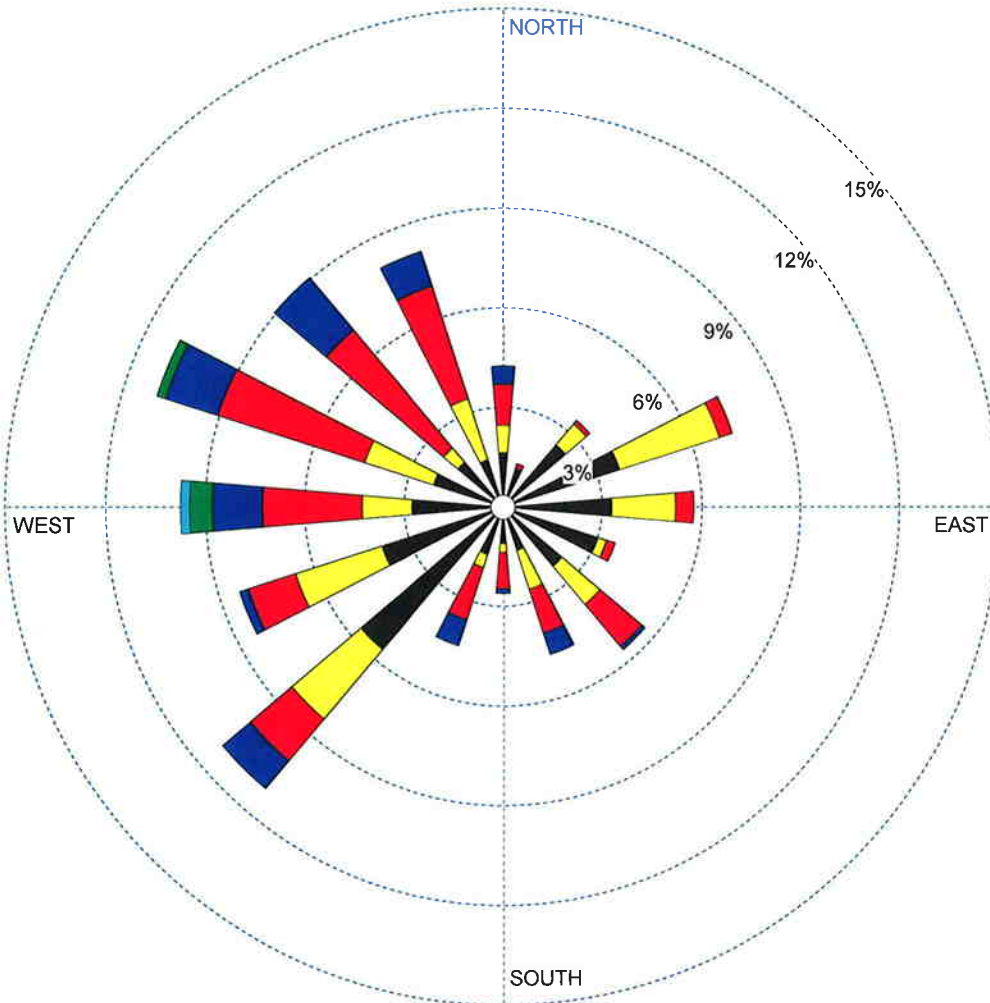
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				BASED ON OPERATING SCHEDULE	TOTAL HOURS
<u>WASTEBED 13 10-METER TOWER</u>					
<u>10-Meter Level</u>					
Vector Wind Speed (mph)	0.3	24.8	6.8	98.1	98.1
Vector Wind Direction (deg)	1	360	214	98.1	98.1
Scalar Wind Speed (mph)	0.8	25.6	7.3	98.1	98.1
Scalar Wind Direction (deg.)	2	358	214	100.0	100.0
Sigma Theta (deg.)	4.3	66.2	19.3	100.0	100.0
Vertical Wind Speed (mph)	-0.10	1.39	0.26	100.0	100.0
Sigma W (mph)	0.02	2.41	0.87	100.0	100.0
Sigma Phi (deg)	1.06	23.9	7.1	98.1	98.1
Temperature (deg-F)	8.3	64.7	36.6	100.0	100.0
<u>2-Meter Level</u>					
Temperature (deg-F)	7.7	65.5	35.6	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-1.97	5.93	1.00	100.0	100.0
Relative Humidity (percent)	18.1	99.5	66.7	100.0	100.0
Dew Point Temperature (deg-F)	-0.2	50.4	23.9	100.0	100.0
Net Radiation (W/m ²)	-94.1	500.4	1265.5 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.90	30.18	29.75	100.0	100.0
<u>Surface Level</u>					
Precipitation (Rain in inches)	0.00	0.25	3.13 (Total)	100.0	100.0

WIND ROSE PLOT:

Honeywell - Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - March 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)



Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
Mar 1 - Mar 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

731 hrs.

AVG. WIND SPEED:

6.32 Knots

DATE:

4/22/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: May 15, 2009
---	--

Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for:	APRIL 2009
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Data: _____ Preliminary ☒ Validated _____ Adjusted (list parameters)	Attached/Enclosed: _____ Preliminary Report ☒ Final Report ☒ Data Summaries	_____ AIRS Diskette _____ Client Data Disk _____ Other (as noted)
--	--	---

Program Operations/Data Collection Activities Summary:

- An intermittent problem of electrical nature within the Lakeshore tower temperature system resulted in periods of erroneously high recorded temperature at times during the month. This problem affected both measured levels of temperature, delta-temperature, and dew point. The erroneous data has been removed from the database and the affected hours are reported as "N"
- A minor period of data is reported as scheduled down ("S") on April 29. This missing data is the result of a performance audit that was conducted on the meteorological monitoring system on this day.
- Monthly data recovery rates for April ranged from 75.7 percent for the above mentioned parameters to 100 percent for all other parameters.

Climatic Summary: APRIL 2009

 General Predominance for winds from: due west
10-meter level

Primary Peak WD:	<u>W</u>	Max. Wind Speed :	<u>21.0 mph</u>
Secondary Peak WD:	<u>WNW</u>	Min. Wind Speed :	<u>0.7 mph</u>

2-meter level

Max. Temperature:	<u>94.6 °F</u>	Max. Dew Point Temp.	<u>64.3 °F</u>	Max. Relative Humidity	<u>97%</u>
Min. Temperature:	<u>28.7 °F</u>	Min. Dew Point Temp.	<u>15.1 °F</u>	Min. Relative Humidity	<u>20%</u>

Cumulative-to-date Data Recovery Rates

Period: January 1, 2009 through

April 30, 2009

10-Meter Level

10-Meter Vector Wind Speed:	<u>99.7</u> %
10-Meter Vector Wind Direction:	<u>99.7</u> %
10-Meter Scalar Wind Speed:	<u>99.7</u> %
10-Meter Scalar Wind Direction:	<u>99.9</u> %
10-Meter Sigma Theta:	<u>99.9</u> %
10-Meter Vertical Wind Speed:	<u>99.7</u> %
Sigma W:	<u>99.7</u> %
Sigma Phi:	<u>99.4</u> %
10-Meter Temperature:	<u>79.1</u> %

2-Meter Level

2-Meter Temperature:	<u>79.1</u> %
Delta Temperature:	<u>79.1</u> %
Relative Humidity:	<u>100</u> %
Dew Point Temperature:	<u>79.1</u> %
Solar Radiation:	<u>100</u> %
Barometric Pressure:	<u>100</u> %

Project Meteorologist: Steven Coughlin


Distribution:

P. Petrone - Parsons
 G. Pacheco - Parsons
 T. Fritts - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: APRIL 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: APRIL 2009

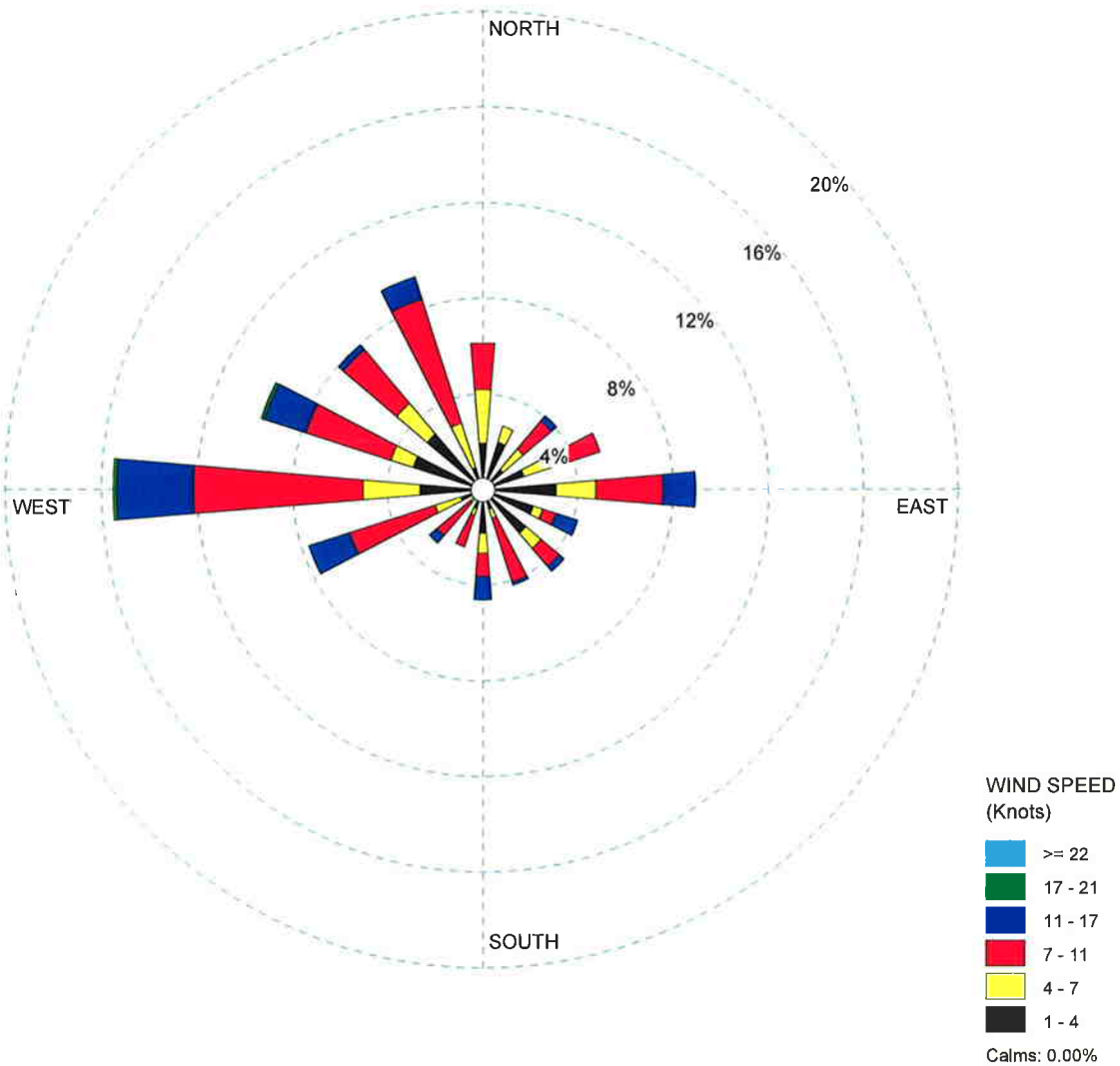
<u>SITE / PARAMETER</u>	<u>MONTHLY MINIMUM VALUE</u>	<u>MONTHLY MAXIMUM VALUE</u>	<u>MONTHLY MEAN VALUE</u>	<u>MONTHLY DATA RECOVERY RATES (%)</u>	
				<u>OPERATING SCHEDULE</u>	<u>TOTAL HOURS</u>
<u>LAKESHORE/WILLIS AVE 10-METER TOWER</u>					
<u>10-Meter Level</u>					
Vector Wind Speed (mph)	0.2	20.3	7.7	100.0	99.7
Vector Wind Direction (deg)	1	359	208	100.0	99.7
Scalar Wind Speed (mph)	0.7	21.0	8.2	100.0	99.7
Scalar Wind Direction (deg.)	2	359	207	100.0	99.7
Sigma Theta (deg.)	4.5	65.7	18.2	100.0	99.7
Vertical Wind Speed (mph)	-0.31	0.95	0.24	100.0	99.7
Sigma W (mph)	0.09	2.62	0.97	100.0	99.7
Sigma Phi (deg)	2.50	17.8	6.9	100.0	99.7
Temperature (deg-F)	29.8	93.4	53.1	75.7	75.4
<u>2-Meter Level</u>					
Temperature (deg-F)	28.7	94.6	53.2	75.7	75.4
10-m - 2-m Delta Temp (F-deg)	-3.05	2.98	-0.12	75.7	75.4
Relative Humidity (percent)	19.9	96.8	60.3	100.0	100.0
Dew Point Temperature (deg-F)	15.1	64.3	35.3	75.7	75.4
Solar Radiation (W/m ²)	0.0	1042.0	5207.1 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.72	30.30	29.66	100.0	100.0

WIND ROSE PLOT:

**Honeywell - Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - April 2009**

DISPLAY:

**Wind Speed
Direction (blowing from)**



COMMENTS:

DATA PERIOD:

**2009
Apr 1 - Apr 30
00:00 - 23:00**

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

718 hrs.

AVG. WIND SPEED:

7.07 Knots

DATE:

5/14/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 290 Elwood Davis Road - Suite 312 Liverpool, NY 13088	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 444540-02300 Date: May 15, 2009
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Subject: Submittal of Wastebed 13 Meteorological Data for:	APRIL 2009
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Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☒ Final Report ☒ Data Summaries ☐ AIRS Diskette ☐ Client Data Disk ☐ Other (as noted)
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Program Operations/Data Collection Activities Summary:

- Minor periods of data are reported as scheduled down ("S") on April 30. This missing data is the result of a performance audit conducted on the Wastebed 13 meteorological system on this day.
- No operational problems occurred at the Wastebed 13 site in April and monthly data recovery rates ranged from 99.6 to 100 percent.

Climatic Summary: APRIL 2009

General Predominance for winds from: southwest through due west to north-northwest

10-meter level

Primary Peak WD:	<u>WSW</u>	Max. Wind Speed :	<u>23.1 mph</u>
Secondary Peak WD:	<u>WNW</u>	Min. Wind Speed :	<u>0.9 mph</u>

2-meter level

Max. Temperature:	<u>90.6 °F</u>	Max. Dew Point Temp.	<u>60.6 °F</u>	Max. Relative Humidity	<u>100%</u>
Min. Temperature:	<u>25.3 °F</u>	Min. Dew Point Temp.	<u>8.5 °F</u>	Min. Relative Humidity	<u>20%</u>

Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	April 30, 2009
10-Meter Level 10-Meter Vector Wind Speed: <u>97.7</u> % 10-Meter Vector Wind Direction: <u>97.7</u> % 10-Meter Scalar Wind Speed: <u>97.7</u> % 10-Meter Scalar Wind Direction: <u>99.9</u> % 10-Meter Sigma Theta: <u>99.9</u> % 10-Meter Vertical Wind Speed: <u>99.9</u> % Sigma W: <u>99.9</u> % Sigma Phi: <u>97.7</u> % 10-Meter Temperature: <u>99.9</u> %	2-Meter Level 2-Meter Temperature: <u>99.9</u> % Delta Temperature: <u>99.9</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>99.9</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % Surface Precipitation (Rain): <u>100</u> %	

Project Meteorologist: Steven Coughlin 	Distribution: P. Petrone - Parsons G. Pacheco - Parsons T. Fritts - Parsons
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HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: APRIL 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: APRIL 2009

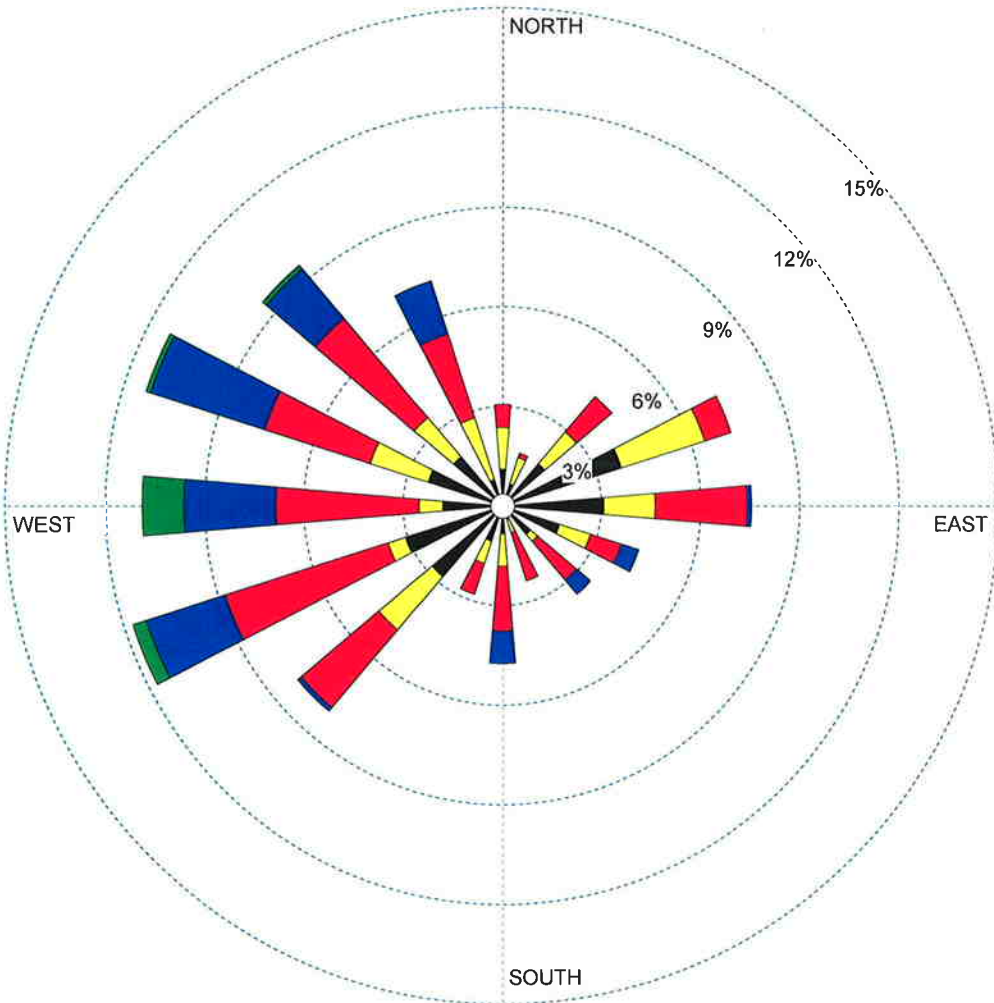
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.3	22.5	8.1	100.0	99.7
Vector Wind Direction (deg)	1	360	210	100.0	99.7
Scalar Wind Speed (mph)	0.9	23.1	8.5	100.0	99.7
Scalar Wind Direction (deg.)	1	360	209	100.0	99.7
Sigma Theta (deg.)	4.0	61.9	17.4	100.0	99.7
Vertical Wind Speed (mph)	-0.22	1.29	0.30	100.0	99.7
Sigma W (mph)	0.08	2.60	1.02	100.0	99.7
Sigma Phi (deg)	1.96	21.6	6.9	100.0	99.7
Temperature (deg-F)	28.3	92.5	49.7	100.0	99.6
2-Meter Level					
Temperature (deg-F)	25.3	90.6	48.0	100.0	99.6
10-m - 2-m Delta Temp (F-deg)	-1.62	7.58	1.65	100.0	99.6
Relative Humidity (percent)	19.5	100.0	62.7	100.0	100.0
Dew Point Temperature (deg-F)	8.5	60.6	33.5	100.0	99.6
Net Radiation (W/m ²)	-88.3	537.9	1831.8 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.61	30.18	29.55	100.0	100.0
Surface Level					
Precipitation (Rain in inches)	0.00	0.12	2.09 (Total)	100.0	100.0

WIND ROSE PLOT:

Honeywell - Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - April 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Apr 1 - Apr 30
00:00 - 23:00

CALM WINDS:

0.00%

AVG. WIND SPEED:

7.42 Knots

COMPANY NAME:

PARSONS

MODELER:

TOTAL COUNT:

718 hrs.

DATE:

5/12/2009

PROJECT NO.:

444540-02300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: June 26, 2009
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Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for:	MAY 2009
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Data: _____ Preliminary ☒ Validated _____ Adjusted (list parameters)	Attached/Enclosed: _____ Preliminary Report ☒ Final Report ☒ Data Summaries	_____ AIRS Diskette _____ Client Data Disk _____ Other (as noted)
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Program Operations/Data Collection Activities Summary:

- A significant amount of data is reported as missing ("N") from the Lakeshore/Willis Ave monitoring site in May. This missing data results from a gradual and eventual total loss of solar power likely caused by a lightning strike to the solar charging assembly. Several attempts to troubleshoot and restart the system by an on-site technician were intermittantly successful during the month. Comprehensive testing and repairs to lightning damaged equipment were conducted on June 2 and no similar problems have occurred to date.
- Monthly data recovery rates for May are approximately 37 percent for all parameters due to the above mentioned power issue.

Climatic Summary: MAY 2009

 General Predominance for winds from: south-southeast through due south (reflects only 37 percent data recovery)
10-meter level

Primary Peak WD:	<u>SSE</u>	Max. Wind Speed :	<u>24.1 mph</u>
Secondary Peak WD:	<u>S</u>	Min. Wind Speed :	<u>1.4 mph</u>

2-meter level

Max. Temperature:	<u>76.9 °F</u>	Max. Dew Point Temp.	<u>65.1 °F</u>	Max. Relative Humidity	<u>95%</u>
Min. Temperature:	<u>38.4 °F</u>	Min. Dew Point Temp.	<u>22.3 °F</u>	Min. Relative Humidity	<u>20%</u>

Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	May 31, 2009
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10-Meter Level

10-Meter Vector Wind Speed:	<u>86.7</u> %
10-Meter Vector Wind Direction:	<u>86.7</u> %
10-Meter Scalar Wind Speed:	<u>86.7</u> %
10-Meter Scalar Wind Direction:	<u>87.0</u> %
10-Meter Sigma Theta:	<u>87.0</u> %
10-Meter Vertical Wind Speed:	<u>86.7</u> %
Sigma W:	<u>86.7</u> %
Sigma Phi:	<u>86.5</u> %
10-Meter Temperature:	<u>70.4</u> %

2-Meter Level

2-Meter Temperature:	<u>70.4</u> %
Delta Temperature:	<u>70.4</u> %
Relative Humidity:	<u>87.0</u> %
Dew Point Temperature:	<u>70.4</u> %
Solar Radiation:	<u>87.0</u> %
Barometric Pressure:	<u>87.0</u> %

Project Meteorologist: Steven Coughlin

Distribution:

P. Petrone - Parsons
 G. Pacheco - Parsons
 T. Fritts - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: MAY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: MAY 2009

<u>SITE / PARAMETER</u>	<u>MONTHLY MINIMUM VALUE</u>	<u>MONTHLY MAXIMUM VALUE</u>	<u>MONTHLY MEAN VALUE</u>	<u>MONTHLY DATA RECOVERY RATES (%)</u> BASED ON	
				<u>OPERATING SCHEDULE</u>	<u>TOTAL HOURS</u>

LAKESHORE/WILLIS AVE 10-METER TOWER

10-Meter Level

Vector Wind Speed (mph)	0.5	23.3	6.0	36.7	36.7
Vector Wind Direction (deg)	3	360	206	36.7	36.7
Scalar Wind Speed (mph)	1.4	24.1	6.6	36.7	36.7
Scalar Wind Direction (deg.)	1	360	204	36.7	36.7
Sigma Theta (deg.)	5.5	73.1	25.1	36.7	36.7
Vertical Wind Speed (mph)	-0.28	1.35	0.15	36.7	36.7
Sigma W (mph)	0.17	2.98	1.01	36.7	36.7
Sigma Phi (deg)	2.64	18.5	9.3	36.7	36.7
Temperature (deg-F)	39.2	74.1	60.8	36.7	36.7

2-Meter Level

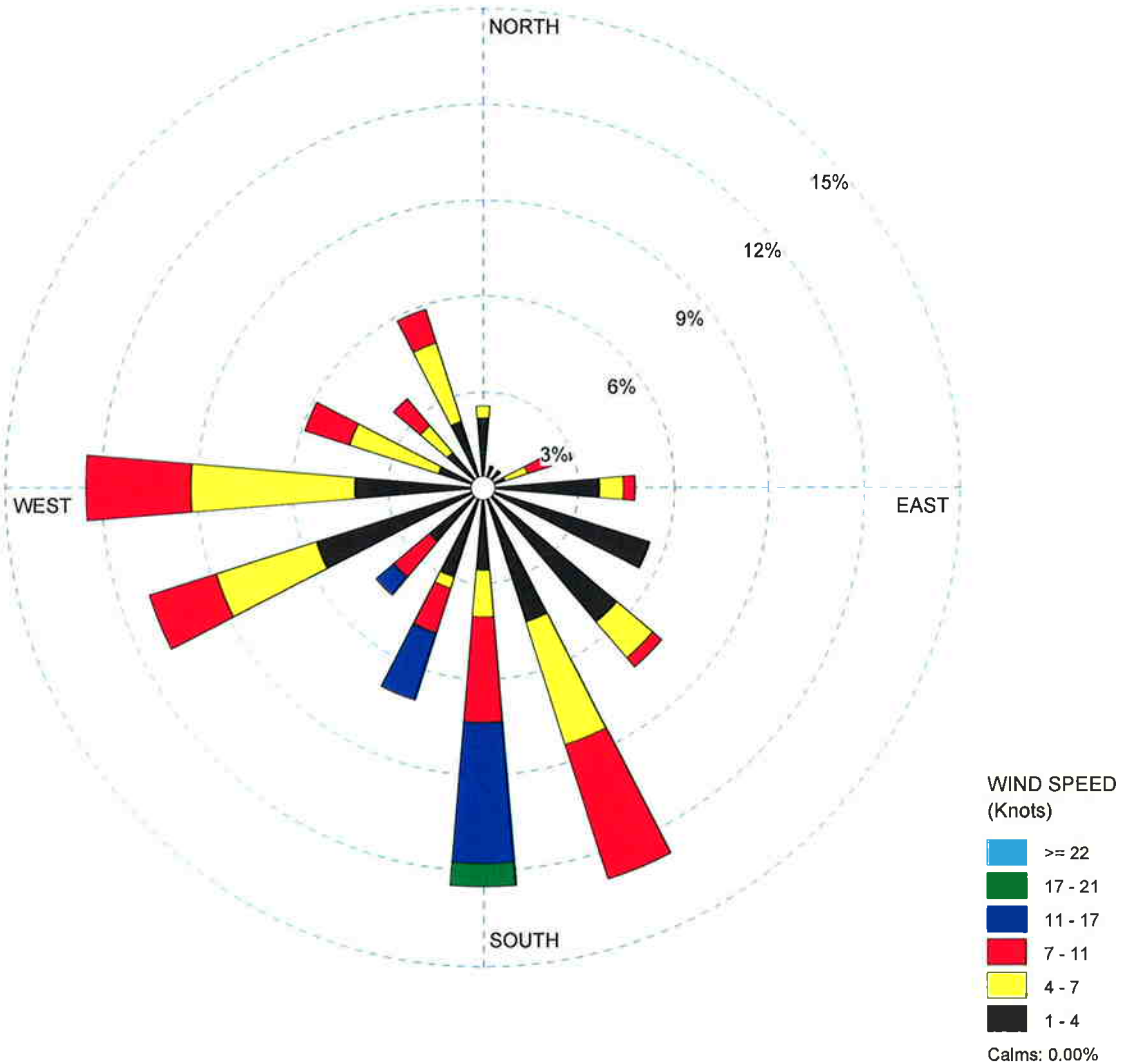
Temperature (deg-F)	38.4	76.9	60.9	36.7	36.7
10-m - 2-m Delta Temp (F-deg)	-3.37	2.71	-0.12	36.7	36.7
Relative Humidity (percent)	20.0	95.1	62.5	36.7	36.7
Dew Point Temperature (deg-F)	22.3	65.1	47.5	36.7	36.7
Solar Radiation (W/m ²)	0.0	1051.0	5383.4 (Avg. Daily Total)	36.7	36.7
Barometric Pressure (in. Hg.)	29.32	30.08	29.66	36.7	36.7

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - May 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
May 1 - May 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

273 hrs.

AVG. WIND SPEED:

5.74 Knots

DATE:

6/23/2009

PROJECT NO.:

445162-04300

Client:	Honeywell
Project:	Onondaga Lake - Meteorological Monitoring Program
Job No.:	445162-04300
Date:	June 26, 2009

Data: ☐ Preliminary
 ☒ Validated
 ☐ Adjusted
 (list parameters)

Attached/Enclosed: Preliminary Report AIRS Diskette
 X Final Report Client Data Disk
 X Data Summaries Other (as noted)

No operational problems occurred at the Wastebed 13 site in May and monthly data recovery rates are 100 percent for all parameters.

General Predominance for winds from: *southwest through due west to west-northwest*

Primary Peak WD:	$\frac{SW}{WNW}$	Max. Wind Speed :	$\frac{25.5 \text{ mph}}$
Secondary Peak WD:		Min. Wind Speed :	$\frac{0.9 \text{ mph}}$

Max. Temperature:	<u>87.4 °F</u>	Max. Dew Point Temp.	<u>67.1 °F</u>	Max. Relative Humidity	<u>99%</u>
Min. Temperature:	<u>34.4 °F</u>	Min. Dew Point Temp.	<u>19.4 °F</u>	Min. Relative Humidity	<u>19%</u>

May 31, 2009

10-Meter Vector Wind Speed:	<u>98.2</u>	%
10-Meter Vector Wind Direction:	<u>98.2</u>	%
10-Meter Scalar Wind Speed:	<u>98.2</u>	%
10-Meter Scalar Wind Direction:	<u>99.9</u>	%
10-Meter Sigma Theta:	<u>99.9</u>	%

10-Meter Vertical Wind Speed:	<u>99.9</u>	%
Sigma W:	<u>99.9</u>	%
Sigma Phi:	<u>98.2</u>	%
10-Meter Temperature:	<u>99.9</u>	%

2-Meter Temperature:	<u>99.9</u>	%
Delta Temperature:	<u>99.9</u>	%
Relative Humidity:	<u>100</u>	%
Dew Point Temperature:	<u>99.9</u>	%
Net Radiation:	<u>100</u>	%
Barometric Pressure:	<u>100</u>	%

Precipitation (Rain): 100 %

Project Meteorologist: Steven Coughlin

P. Petrone - Parsons
G. Pacheco - Parsons
T. Fritts - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: MAY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

**HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER**

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: MAY 2009

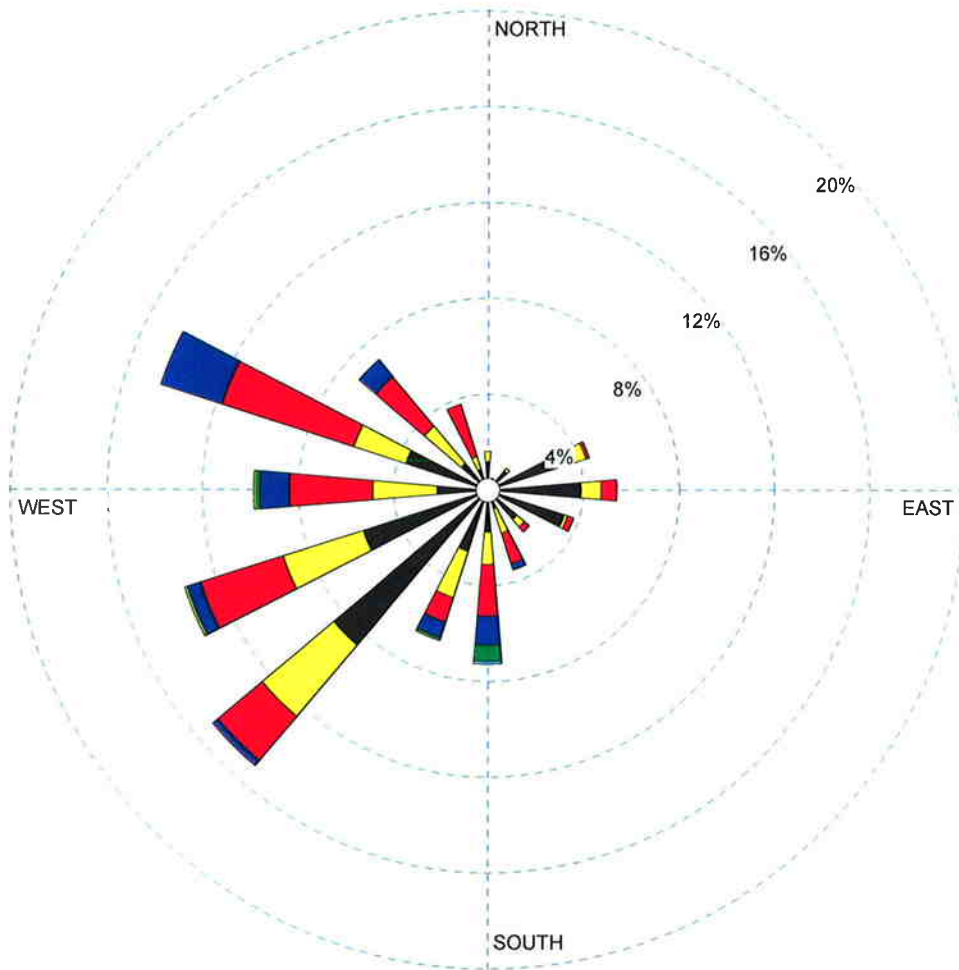
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.1	24.6	6.4	100.0	100.0
Vector Wind Direction (deg)	3	359	223	100.0	100.0
Scalar Wind Speed (mph)	0.9	25.5	6.9	100.0	100.0
Scalar Wind Direction (deg.)	1	358	223	100.0	100.0
Sigma Theta (deg.)	5.7	70.6	20.6	100.0	100.0
Vertical Wind Speed (mph)	-0.40	1.07	0.15	100.0	100.0
Sigma W (mph)	0.02	3.40	0.93	100.0	100.0
Sigma Phi (deg)	1.35	23.8	7.8	100.0	100.0
Temperature (deg-F)	35.8	88.5	58.1	100.0	100.0
2-Meter Level					
Temperature (deg-F)	34.4	87.4	57.8	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-3.38	4.84	0.27	100.0	100.0
Relative Humidity (percent)	19.2	99.0	65.1	100.0	100.0
Dew Point Temperature (deg-F)	19.4	67.1	44.2	100.0	100.0
Net Radiation (W/m ²)	-123.5	634.2	2678.6 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.06	30.03	29.61	100.0	100.0
Surface Level					
Precipitation (Rain in inches)	0.00	0.40	2.88 (Total)	100.0	100.0

WIND ROSE PLOT:

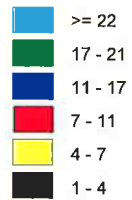
Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - May 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)



Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
May 1 - May 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

744 hrs.

AVG. WIND SPEED:

5.99 Knots

DATE:

6/23/2009

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: July 16, 2009
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Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for:	JUNE 2009
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Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☒ Final Report ☒ Data Summaries ☐ AIRS Diskette ☐ Client Data Disk ☐ Other (as noted)
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Program Operations/Data Collection Activities Summary:

- A period of data is reported as missing ("N") from the Lakeshore/Willis Ave monitoring site on June 1st and 2nd. This missing data results from a loss of solar power likely caused by a lightning strike to the solar charging assembly. Repairs to the lightning damaged equipment were conducted on June 2 and no similar problems have occurred to date.
- Monthly data recovery rates for June are 95.1 percent for all parameters due to the above mentioned power issue.

Climatic Summary: JUNE 2009

 General Predominance for winds from: due west
10-meter level

 Primary Peak WD: W Max. Wind Speed : 17.3 mph
 Secondary Peak WD: NNW Min. Wind Speed : 1.1 mph
2-meter level

Max. Temperature:	<u>86.9 °F</u>	Max. Dew Point Temp.	<u>72.5 °F</u>	Max. Relative Humidity	<u>97%</u>
Min. Temperature:	<u>44.3 °F</u>	Min. Dew Point Temp.	<u>35.0 °F</u>	Min. Relative Humidity	<u>28%</u>

Cumulative-to-date Data Recovery Rates

Period: January 1, 2009 through

June 30, 2009

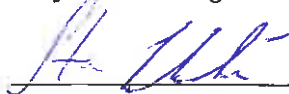
10-Meter Level

10-Meter Vector Wind Speed:	<u>88.1</u> %
10-Meter Vector Wind Direction:	<u>88.1</u> %
10-Meter Scalar Wind Speed:	<u>88.1</u> %
10-Meter Scalar Wind Direction:	<u>88.3</u> %
10-Meter Sigma Theta:	<u>88.3</u> %
10-Meter Vertical Wind Speed:	<u>88.1</u> %
Sigma W:	<u>88.1</u> %
Sigma Phi:	<u>87.9</u> %
10-Meter Temperature:	<u>74.5</u> %

2-Meter Level

2-Meter Temperature:	<u>74.5</u> %
Delta Temperature:	<u>74.5</u> %
Relative Humidity:	<u>88.4</u> %
Dew Point Temperature:	<u>74.5</u> %
Solar Radiation:	<u>88.4</u> %
Barometric Pressure:	<u>88.4</u> %

Project Meteorologist: Steven Coughlin


Distribution:

T. Abrams - Parsons
 P. Petrone - Parsons
 T. Fritts - Parsons
 G. Pacheco - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: JUNE 2009

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10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
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10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
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WIND PERSISTENCE FACTOR	WIND PERS.	--
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

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PREPARED BY: **PARSONS**

BOSTON, MASS.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: JUNE 2009

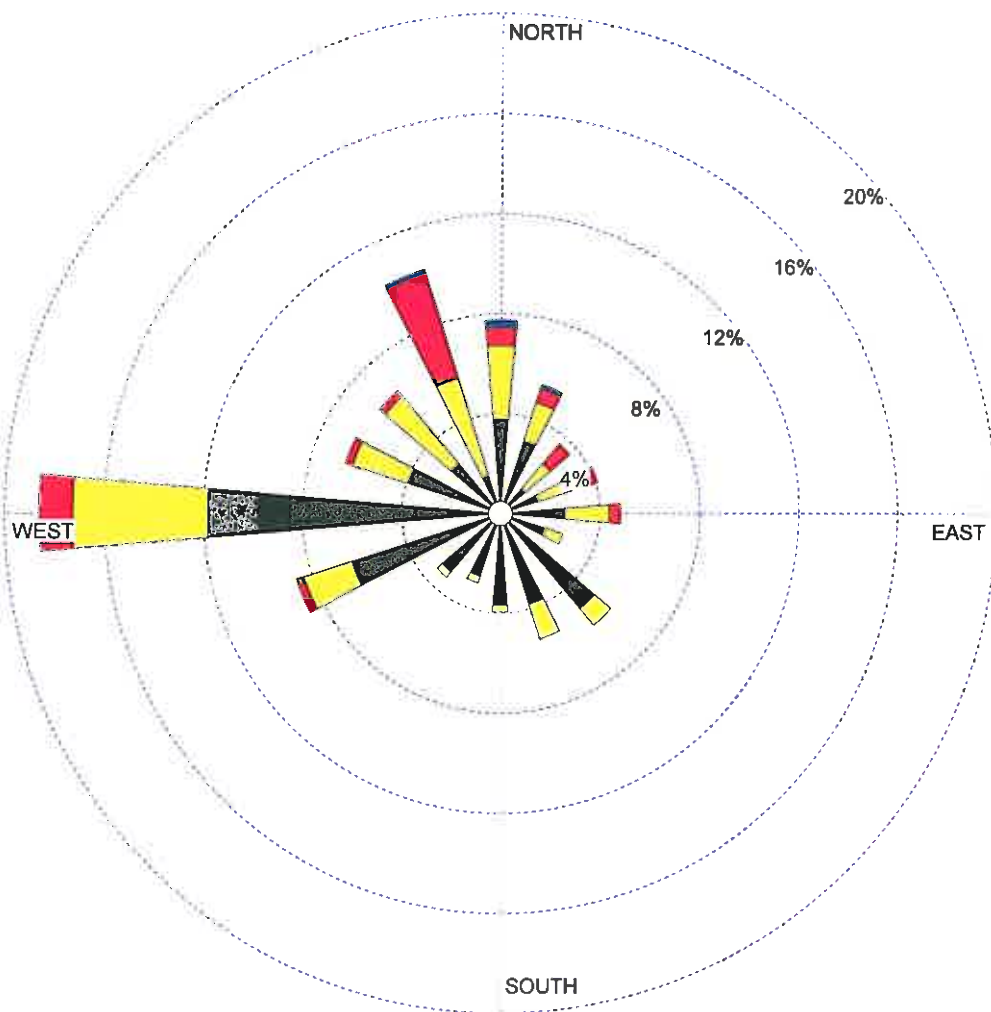
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				<u>OPERATING SCHEDULE</u>	<u>TOTAL HOURS</u>
<u>LAKESHORE/WILLIS AVE 10-METER TOWER</u>					
<u>10-Meter Level</u>					
Vector Wind Speed (mph)	0.1	16.5	4.3	95.1	95.1
Vector Wind Direction (deg)	1	360	209	95.1	95.1
Scalar Wind Speed (mph)	1.1	17.3	4.8	95.1	95.1
Scalar Wind Direction (deg.)	1	360	209	95.1	95.1
Sigma Theta (deg.)	7.4	78.1	25.3	95.1	95.1
Vertical Wind Speed (mph)	-0.24	1.19	0.08	95.1	95.1
Sigma W (mph)	0.13	2.17	0.74	95.1	95.1
Sigma Phi (deg)	2.96	21.0	9.0	95.1	95.1
Temperature (deg-F)	46.2	85.2	64.8	95.1	95.1
<u>2-Meter Level</u>					
Temperature (deg-F)	44.3	86.9	65.7	95.1	95.1
10-m - 2-m Delta Temp (F-deg)	-10.48	4.95	-0.93	95.1	95.1
Relative Humidity (percent)	27.6	97.3	72.7	95.1	95.1
Dew Point Temperature (deg-F)	35.0	72.5	55.5	95.1	95.1
Solar Radiation (W/m ²)	0.0	1221.0	5848.2 (Avg. Daily Total)	95.1	95.1
Barometric Pressure (in. Hg.)	29.18	29.91	29.57	95.1	95.1

WIND ROSE PLOT

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - June 2009

DISPLAY

Wind Speed
Direction (blowing from)



COMMENTS

DATA PERIOD

2009
Jun 1 - Jun 30
00:00 - 23:00

COMPANY NAME

PARSONS

MODELER

CALM WINDS

0.00%

TOTAL COUNT

685 hrs.

AVG WIND SPEED

4.17 Knots

DATE

7/16/2009

PROJECT NO.

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: July 16, 2009																																							
Subject: Submittal of Wastebed 13 Meteorological Data for: JUNE 2009																																								
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters) Attached/Enclosed: ☐ Preliminary Report ☒ Final Report ☒ Data Summaries ☐ AIRS Diskette ☐ Client Data Disk ☐ Other (as noted)																																								
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Climatic Summary: JUNE 2009 General Predominance for winds from: <u>southwest through due west to northwest</u> 10-meter level <table style="width: 100%;"> <tr> <td>Primary Peak WD:</td> <td><u>NW</u></td> <td>Max. Wind Speed :</td> <td><u>14.5 mph</u></td> </tr> <tr> <td>Secondary Peak WD:</td> <td><u>WSW</u></td> <td>Min. Wind Speed :</td> <td><u>1.0 mph</u></td> </tr> </table> 2-meter level <table style="width: 100%;"> <tr> <td>Max. Temperature:</td> <td><u>85.4 °F</u></td> <td>Max. Dew Point Temp.</td> <td><u>70.7 °F</u></td> <td>Max. Relative Humidity</td> <td><u>100%</u></td> </tr> <tr> <td>Min. Temperature:</td> <td><u>36.3 °F</u></td> <td>Min. Dew Point Temp.</td> <td><u>32.8 °F</u></td> <td>Min. Relative Humidity</td> <td><u>30%</u></td> </tr> </table>		Primary Peak WD:	<u>NW</u>	Max. Wind Speed :	<u>14.5 mph</u>	Secondary Peak WD:	<u>WSW</u>	Min. Wind Speed :	<u>1.0 mph</u>	Max. Temperature:	<u>85.4 °F</u>	Max. Dew Point Temp.	<u>70.7 °F</u>	Max. Relative Humidity	<u>100%</u>	Min. Temperature:	<u>36.3 °F</u>	Min. Dew Point Temp.	<u>32.8 °F</u>	Min. Relative Humidity	<u>30%</u>																			
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HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: JUNE 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

PARAMETER	ABBREVIATION	UNITS OF MEASUREMENT
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	--
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: JUNE 2009

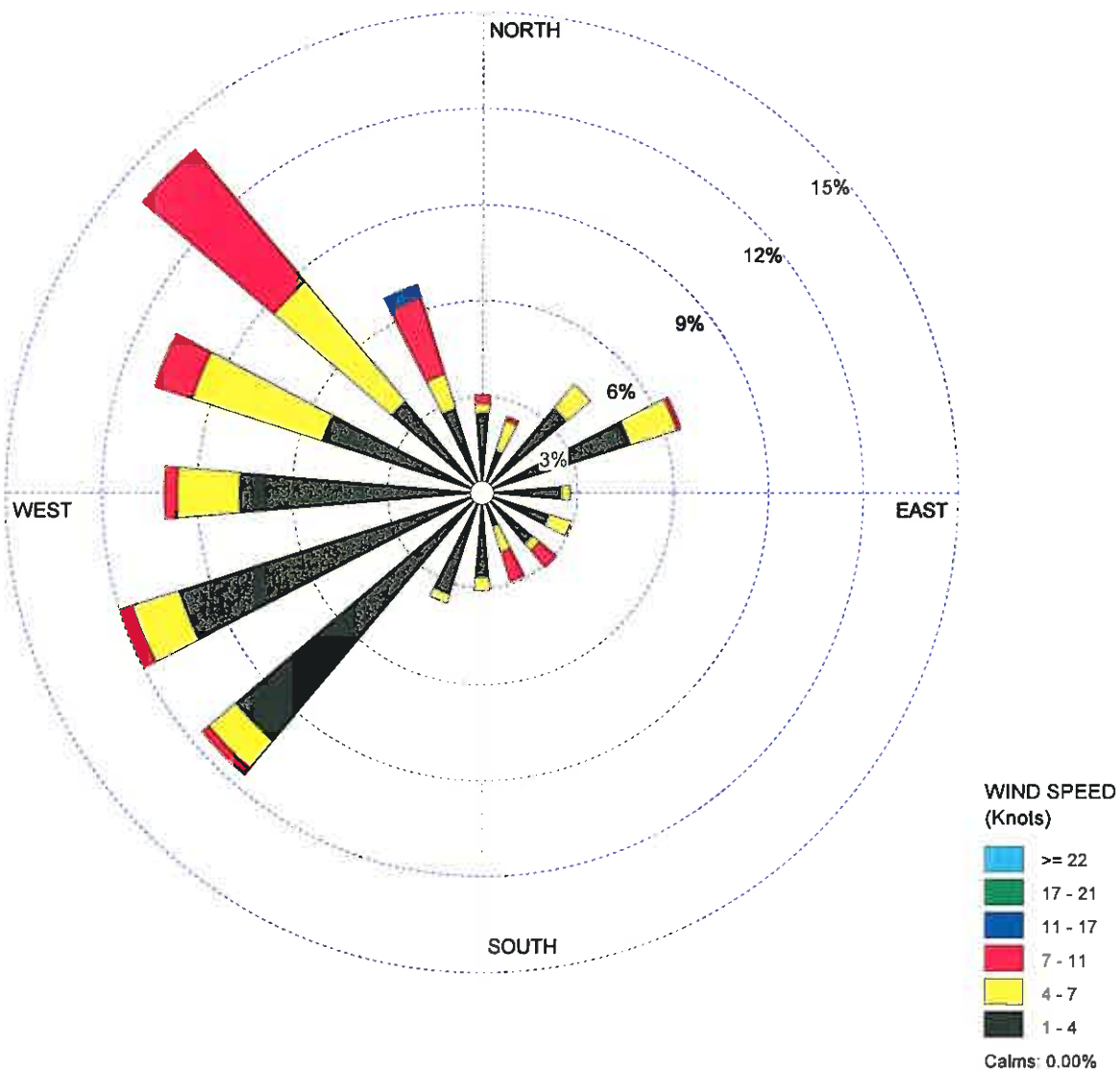
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.1	13.8	4.1	100.0	100.0
Vector Wind Direction (deg)	1	360	220	100.0	100.0
Scalar Wind Speed (mph)	1.0	14.5	4.6	100.0	100.0
Scalar Wind Direction (deg.)	1	359	221	100.0	100.0
Sigma Theta (deg.)	6.9	76.9	24.4	100.0	100.0
Vertical Wind Speed (mph)	-0.18	0.98	0.14	100.0	100.0
Sigma W (mph)	0.06	2.00	0.69	100.0	100.0
Sigma Phi (deg)	2.19	20.9	8.5	100.0	100.0
Temperature (deg-F)	37.1	88.0	63.9	100.0	100.0
2-Meter Level					
Temperature (deg-F)	36.3	85.4	63.4	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-3.44	4.98	0.42	100.0	100.0
Relative Humidity (percent)	30.1	99.9	77.2	100.0	100.0
Dew Point Temperature (deg-F)	32.8	70.7	55.1	100.0	100.0
Net Radiation (W/m ²)	-92.8	653.4	2816.4 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.07	29.80	29.48	100.0	100.0
Surface Level					
Precipitation (Rain in inches)	0.00	0.96	6.80 (Total)	100.0	100.0

WIND ROSE PLOT

Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastedbed 13 Monitoring Site - 10-Meter Tower - June 2009

DISPLAY

Wind Speed
Direction (blowing from)



COMMENTS

DATA PERIOD

2009
Jun 1 - Jun 30
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER

CALM WINDS

0.00%

TOTAL COUNT

720 hrs.

AVG. WIND SPEED

4.04 Knots

DATE:

7/16/2009

PROJECT NO

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: August 20, 2009								
Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: JULY 2009									
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)								
Program Operations/Data Collection Activities Summary: • No operational problems occurred at the Lakeshore/Willis Ave meteorological monitoring site in July and monthly data recovery rates are 100 percent for all parameters.									
Climatic Summary: JULY 2009 General Predominance for winds from: <u>due west</u> <u>10-meter level</u> Primary Peak WD: <u>W</u> Max. Wind Speed : <u>15.1 mph</u> Secondary Peak WD: <u>WSW</u> Min. Wind Speed : <u>0.5 mph</u> <u>2-meter level</u> Max. Temperature: <u>86.3 °F</u> Max. Dew Point Temp. <u>69.5 °F</u> Max. Relative Humidity <u>96%</u> Min. Temperature: <u>50.7 °F</u> Min. Dew Point Temp. <u>39.1 °F</u> Min. Relative Humidity <u>31%</u>									
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Cumulative-to-date Data Recovery Rates</td> <td style="width: 33%;">Period: January 1, 2009 through</td> <td style="width: 33%;">July 31, 2009</td> </tr> <tr> <td colspan="3"> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>89.9</u> % 10-Meter Vector Wind Direction: <u>89.9</u> % 10-Meter Scalar Wind Speed: <u>89.9</u> % 10-Meter Scalar Wind Direction: <u>90.0</u> % 10-Meter Sigma Theta: <u>90.0</u> % 10-Meter Vertical Wind Speed: <u>89.9</u> % Sigma W: <u>89.9</u> % Sigma Phi: <u>89.7</u> % 10-Meter Temperature: <u>78.2</u> % </td> <td style="width: 50%; vertical-align: top;"> <u>2-Meter Level</u> 2-Meter Temperature: <u>78.2</u> % Delta Temperature: <u>78.2</u> % Relative Humidity: <u>90.1</u> % Dew Point Temperature: <u>78.2</u> % Solar Radiation: <u>90.1</u> % Barometric Pressure: <u>90.1</u> % </td> </tr> </table> </td> </tr> </table>		Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	July 31, 2009	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>89.9</u> % 10-Meter Vector Wind Direction: <u>89.9</u> % 10-Meter Scalar Wind Speed: <u>89.9</u> % 10-Meter Scalar Wind Direction: <u>90.0</u> % 10-Meter Sigma Theta: <u>90.0</u> % 10-Meter Vertical Wind Speed: <u>89.9</u> % Sigma W: <u>89.9</u> % Sigma Phi: <u>89.7</u> % 10-Meter Temperature: <u>78.2</u> % </td> <td style="width: 50%; vertical-align: top;"> <u>2-Meter Level</u> 2-Meter Temperature: <u>78.2</u> % Delta Temperature: <u>78.2</u> % Relative Humidity: <u>90.1</u> % Dew Point Temperature: <u>78.2</u> % Solar Radiation: <u>90.1</u> % Barometric Pressure: <u>90.1</u> % </td> </tr> </table>			<u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>89.9</u> % 10-Meter Vector Wind Direction: <u>89.9</u> % 10-Meter Scalar Wind Speed: <u>89.9</u> % 10-Meter Scalar Wind Direction: <u>90.0</u> % 10-Meter Sigma Theta: <u>90.0</u> % 10-Meter Vertical Wind Speed: <u>89.9</u> % Sigma W: <u>89.9</u> % Sigma Phi: <u>89.7</u> % 10-Meter Temperature: <u>78.2</u> %	<u>2-Meter Level</u> 2-Meter Temperature: <u>78.2</u> % Delta Temperature: <u>78.2</u> % Relative Humidity: <u>90.1</u> % Dew Point Temperature: <u>78.2</u> % Solar Radiation: <u>90.1</u> % Barometric Pressure: <u>90.1</u> %
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HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: JULY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

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N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

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RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: JULY 2009

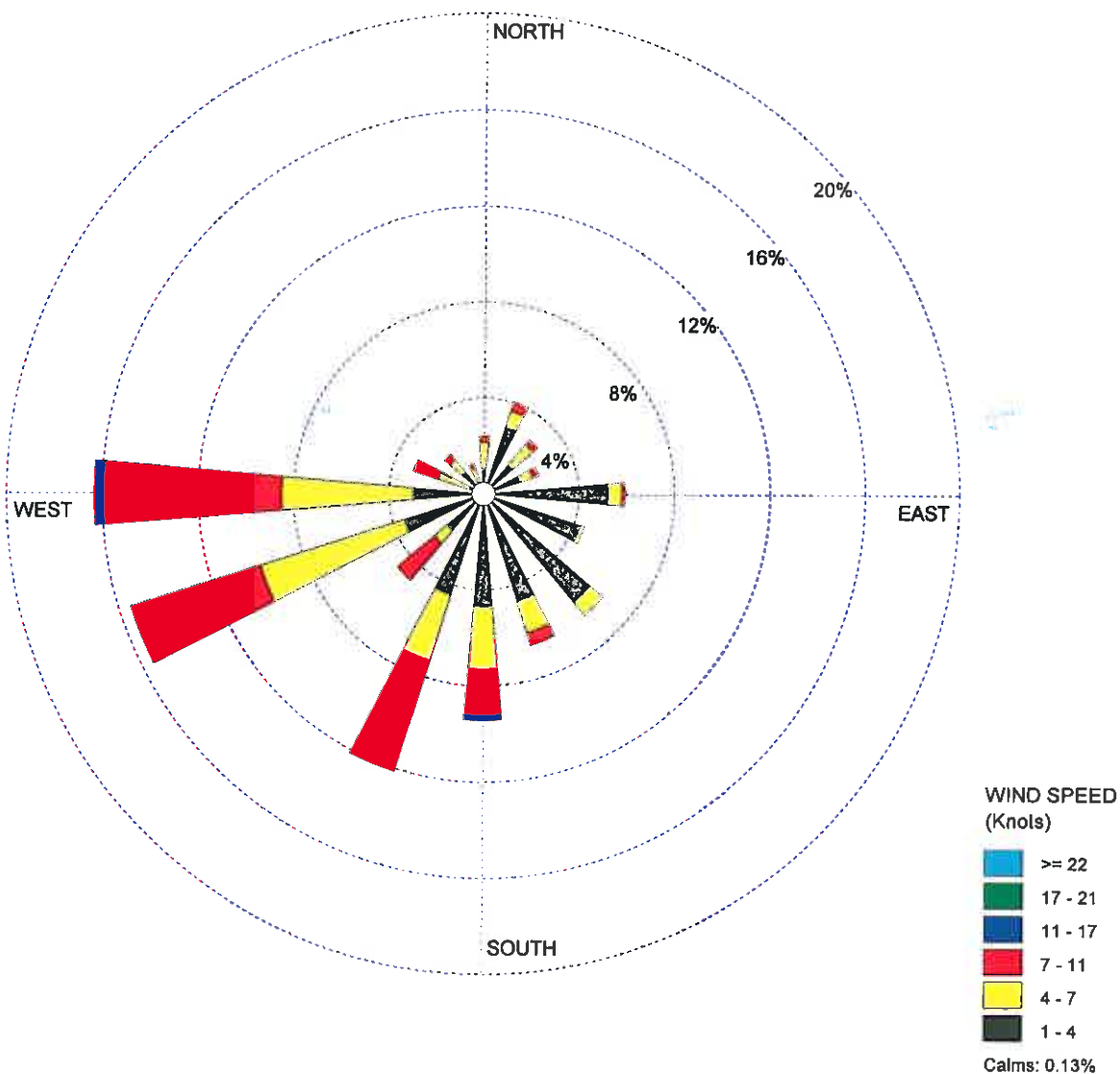
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
LAKESHORE/WILLIS AVE 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.3	14.3	5.1	100.0	100.0
Vector Wind Direction (deg)	4	358	193	100.0	100.0
Scalar Wind Speed (mph)	0.5	15.1	5.6	100.0	100.0
Scalar Wind Direction (deg.)	1	358	193	100.0	100.0
Sigma Theta (deg.)	7.8	68.1	24.6	100.0	100.0
Vertical Wind Speed (mph)	-0.28	0.53	0.10	100.0	100.0
Sigma W (mph)	0.13	2.47	0.84	100.0	100.0
Sigma Phi (deg)	3.35	19.7	9.0	100.0	100.0
Temperature (deg-F)	53.6	85.7	68.1	100.0	100.0
2-Meter Level					
Temperature (deg-F)	50.7	86.3	68.4	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-6.91	4.79	-0.29	100.0	100.0
Relative Humidity (percent)	31.3	96.0	70.9	100.0	100.0
Dew Point Temperature (deg-F)	39.1	69.5	57.6	100.0	100.0
Solar Radiation (W/m ²)	0.0	1074.0	5993.8 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.33	30.00	29.63	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - July 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS

DATA PERIOD:

2009
Jul 1 - Jul 31
00:00 - 23:00

COMPANY NAME

PARSONS

MODELER:

CALM WINDS

0.13%

TOTAL COUNT

744 hrs.

AVG WIND SPEED

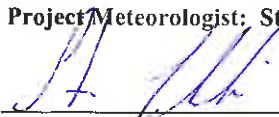
4.85 Knots

DATE:

8/20/2009

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: August 20, 2009																																		
Subject: Submittal of Wastebed 13 Meteorological Data for: JULY 2009																																			
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)																																		
Program Operations/Data Collection Activities Summary: • No operational problems occurred at the Wastebed 13 site in July and monthly data recovery rates are 100 percent for all parameters.																																			
Climatic Summary: JULY 2009 General Predominance for winds from: <u>southwest through due west</u> 10-meter level <table style="width: 100%;"> <tr> <td>Primary Peak WD:</td> <td><u>SW</u></td> <td>Max. Wind Speed :</td> <td><u>16.2 mph</u></td> </tr> <tr> <td>Secondary Peak WD:</td> <td><u>W</u></td> <td>Min. Wind Speed :</td> <td><u>0.7 mph</u></td> </tr> </table> 2-meter level <table style="width: 100%;"> <tr> <td>Max. Temperature:</td> <td><u>85.4 °F</u></td> <td>Max. Dew Point Temp.</td> <td><u>71.3 °F</u></td> <td>Max. Relative Humidity</td> <td><u>100%</u></td> </tr> <tr> <td>Min. Temperature:</td> <td><u>50.3 °F</u></td> <td>Min. Dew Point Temp.</td> <td><u>42.4 °F</u></td> <td>Min. Relative Humidity</td> <td><u>36%</u></td> </tr> </table>		Primary Peak WD:	<u>SW</u>	Max. Wind Speed :	<u>16.2 mph</u>	Secondary Peak WD:	<u>W</u>	Min. Wind Speed :	<u>0.7 mph</u>	Max. Temperature:	<u>85.4 °F</u>	Max. Dew Point Temp.	<u>71.3 °F</u>	Max. Relative Humidity	<u>100%</u>	Min. Temperature:	<u>50.3 °F</u>	Min. Dew Point Temp.	<u>42.4 °F</u>	Min. Relative Humidity	<u>36%</u>														
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Cumulative-to-date Data Recovery Rates Period: January 1, 2009 through July 31, 2009																																			
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Net Radiation:	<u>100</u> %																																		
Barometric Pressure:	<u>100</u> %																																		
Surface																																			
Precipitation (Rain):	<u>100</u> %																																		
Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons T. Fritts - Parsons G. Pacheco - Parsons																																		

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: JULY 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: JULY 2009

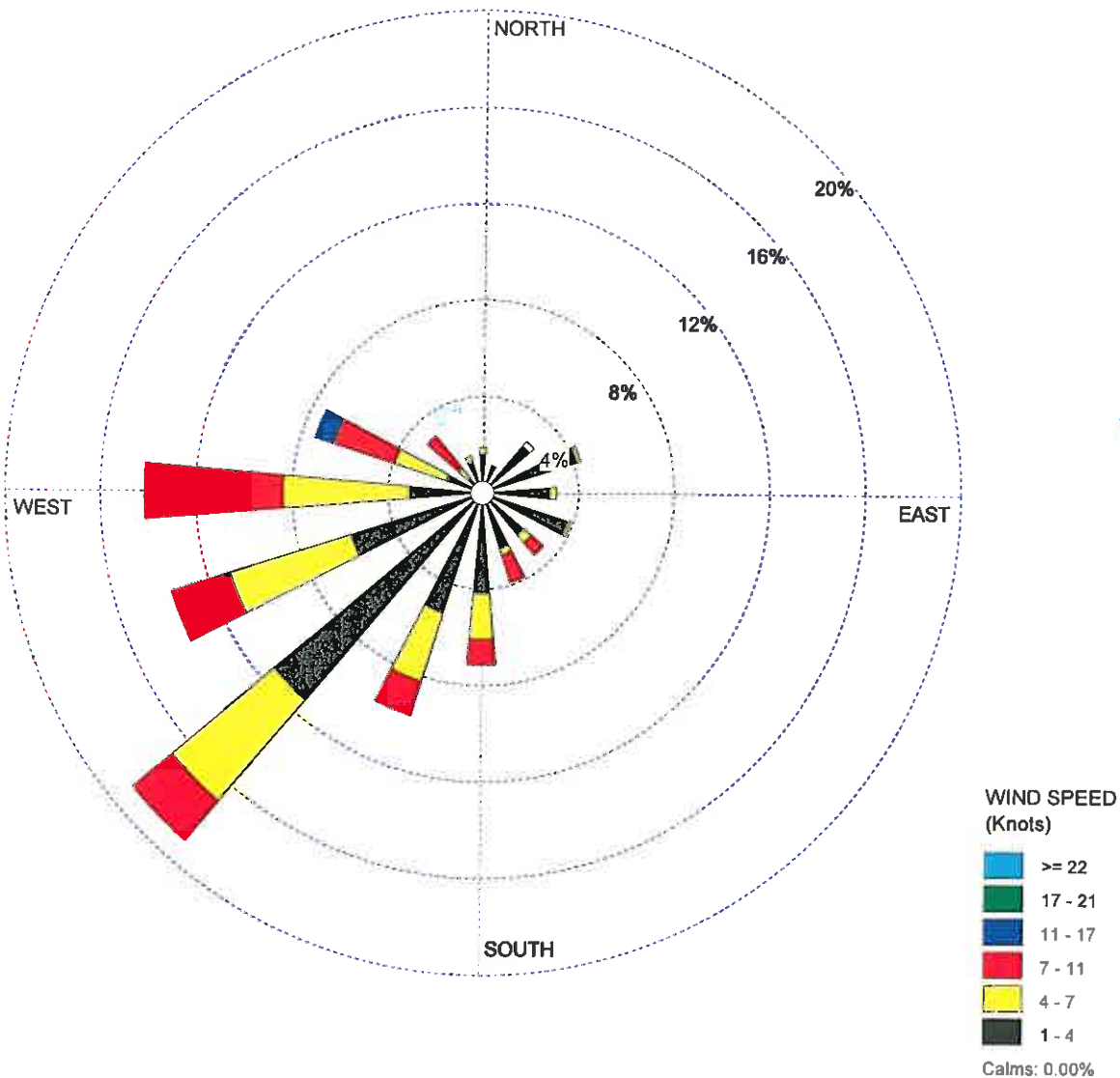
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.0	15.5	4.7	100.0	100.0
Vector Wind Direction (deg)	4	359	211	100.0	100.0
Scalar Wind Speed (mph)	0.7	16.2	5.2	100.0	100.0
Scalar Wind Direction (deg.)	2	358	208	100.0	100.0
Sigma Theta (deg.)	5.5	73.4	23.3	100.0	100.0
Vertical Wind Speed (mph)	-0.25	0.71	0.08	100.0	100.0
Sigma W (mph)	0.02	2.16	0.73	100.0	100.0
Sigma Phi (deg)	0.81	30.5	8.0	100.0	100.0
Temperature (deg-F)	51.3	88.0	68.5	100.0	100.0
2-Meter Level					
Temperature (deg-F)	50.3	85.4	67.1	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-3.37	6.13	1.32	100.0	100.0
Relative Humidity (percent)	35.8	100.0	76.7	100.0	100.0
Dew Point Temperature (deg-F)	42.4	71.3	58.7	100.0	100.0
Net Radiation (W/m ²)	-119.8	664.0	2867.2 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.23	29.90	29.53	100.0	100.0
Surface Level					
Precipitation (Rain in inches)	0.00	0.34	2.88 (Total)	100.0	100.0

WIND ROSE PLOT

Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - July 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS

DATA PERIOD:

2009
Jul 1 - Jul 31
00:00 - 23:00

COMPANY NAME

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

744 hrs.

AVG. WIND SPEED:

4.49 Knots

DATE:

8/20/2009

PROJECT NO

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: September 4, 2009
Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: AUGUST 2009	
Data: _____ Preliminary <u> X </u> Validated _____ Adjusted (list parameters)	Attached/Enclosed: _____ Preliminary Report _____ AIRS Diskette <u> X </u> Final Report _____ Client Data Disk <u> X </u> Data Summaries _____ Other (as noted)
Program Operations/Data Collection Activities Summary: • No operational problems occurred at the Lakeshore/Willis Ave meteorological monitoring site in August and monthly data recovery rates are 100 percent for all parameters.	
Climatic Summary: AUGUST 2009 General Predominance for winds from: <u>west-southwest through due west</u> <u>10-meter level</u> Primary Peak WD: <u>W</u> Max. Wind Speed : <u>13.1 mph</u> Secondary Peak WD: <u>WSW</u> Min. Wind Speed : <u>0.6 mph</u> <u>2-meter level</u> Max. Temperature: <u>91.3 °F</u> Max. Dew Point Temp. <u>74.3 °F</u> Max. Relative Humidity <u>96%</u> Min. Temperature: <u>49.1 °F</u> Min. Dew Point Temp. <u>39.9 °F</u> Min. Relative Humidity <u>33%</u>	
Cumulative-to-date Data Recovery Rates Period: January 1, 2009 through August 31, 2009	
<u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>91.2</u> % 10-Meter Vector Wind Direction: <u>91.2</u> % 10-Meter Scalar Wind Speed: <u>91.2</u> % 10-Meter Scalar Wind Direction: <u>91.3</u> % 10-Meter Sigma Theta: <u>91.3</u> % 10-Meter Vertical Wind Speed: <u>91.2</u> % Sigma W: <u>91.2</u> % Sigma Phi: <u>91.0</u> % 10-Meter Temperature: <u>81.0</u> %	<u>2-Meter Level</u> 2-Meter Temperature: <u>81.0</u> % Delta Temperature: <u>81.0</u> % Relative Humidity: <u>91.3</u> % Dew Point Temperature: <u>81.0</u> % Solar Radiation: <u>91.3</u> % Barometric Pressure: <u>91.3</u> %
Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons T. Fritts - Parsons G. Pacheco - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: AUGUST 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: AUGUST 2009

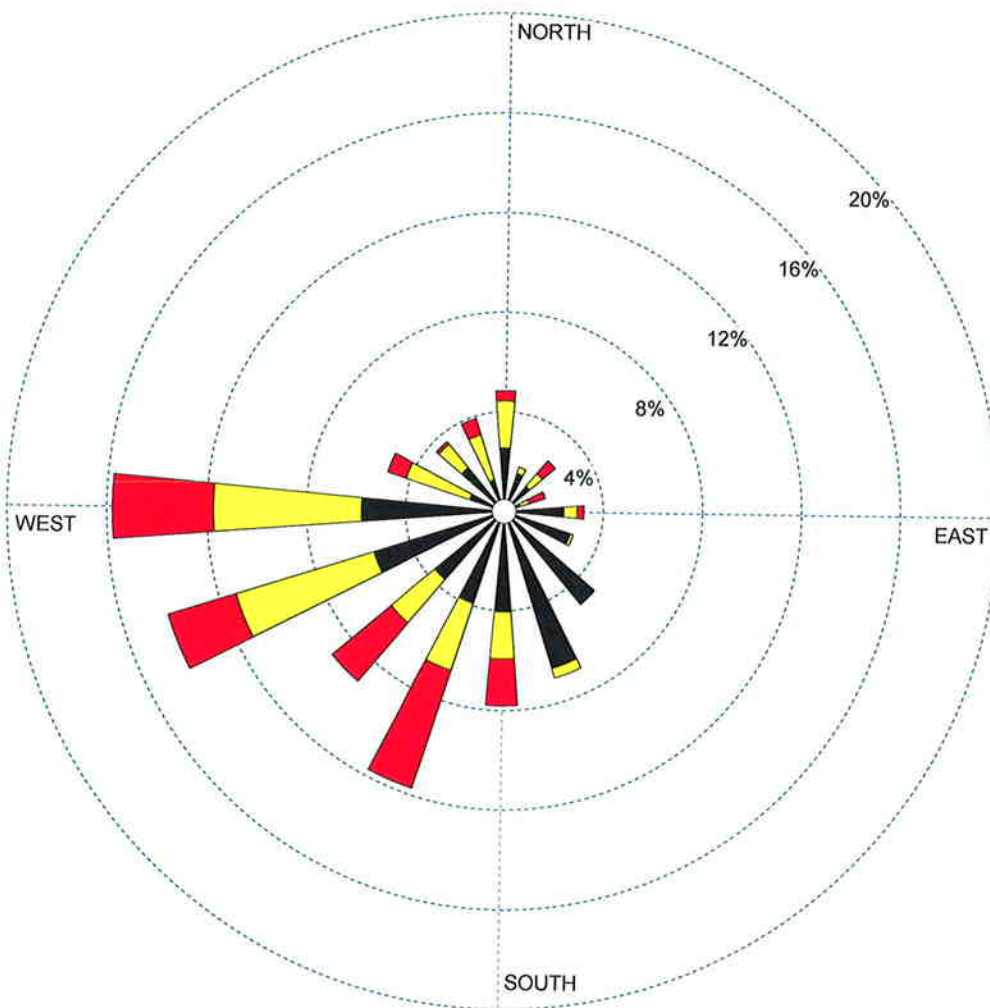
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
LAKESHORE/WILLIS AVE 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.0	12.3	4.7	100.0	100.0
Vector Wind Direction (deg)	2	360	211	100.0	100.0
Scalar Wind Speed (mph)	0.6	13.1	5.1	100.0	100.0
Scalar Wind Direction (deg.)	2	360	210	100.0	100.0
Sigma Theta (deg.)	5.6	71.5	24.1	100.0	100.0
Vertical Wind Speed (mph)	-0.24	0.55	0.10	100.0	100.0
Sigma W (mph)	0.13	1.93	0.77	100.0	100.0
Sigma Phi (deg)	3.16	24.6	9.0	100.0	100.0
Temperature (deg-F)	51.6	90.2	70.9	100.0	100.0
2-Meter Level					
Temperature (deg-F)	49.1	91.3	71.3	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-5.86	3.95	-0.42	100.0	100.0
Relative Humidity (percent)	33.4	96.2	73.3	100.0	100.0
Dew Point Temperature (deg-F)	39.9	74.3	61.2	100.0	100.0
Solar Radiation (W/m ²)	0.0	1015.0	5634.6 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.35	29.98	29.71	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - August 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)



Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
Aug 1 - Aug 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

744 hrs.

AVG. WIND SPEED:

4.46 Knots

DATE:

9/3/2009

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: September 4, 2009
Subject: Submittal of Wastebed 13 Meteorological Data for: AUGUST 2009	
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☒ Final Report ☒ Data Summaries ☐ AIRS Diskette ☐ Client Data Disk ☐ Other (as noted)
Program Operations/Data Collection Activities Summary: • No operational problems occurred at the Wastebed 13 site in August and monthly data recovery rates are 100 percent for all parameters.	
Climatic Summary: AUGUST 2009 General Predominance for winds from: <u>southwest through west-southwest</u> 10-meter level Primary Peak WD: <u>SW</u> Secondary Peak WD: <u>WSW</u> Max. Wind Speed : <u>12.7 mph</u> Min. Wind Speed : <u>0.7 mph</u> 2-meter level Max. Temperature: <u>90.5 °F</u> Min. Temperature: <u>49.2 °F</u> Max. Dew Point Temp. <u>74.6 °F</u> Min. Dew Point Temp. <u>42.3 °F</u> Max. Relative Humidity <u>100%</u> Min. Relative Humidity <u>37%</u>	
Cumulative-to-date Data Recovery Rates Period: January 1, 2009 through August 31, 2009 10-Meter Level 10-Meter Vector Wind Speed: <u>98.9</u> % 10-Meter Vector Wind Direction: <u>98.9</u> % 10-Meter Scalar Wind Speed: <u>98.9</u> % 10-Meter Scalar Wind Direction: <u>99.9</u> % 10-Meter Sigma Theta: <u>99.9</u> % 10-Meter Vertical Wind Speed: <u>99.9</u> % Sigma W: <u>99.9</u> % Sigma Phi: <u>98.9</u> % 10-Meter Temperature: <u>99.9</u> % 2-Meter Level 2-Meter Temperature: <u>99.9</u> % Delta Temperature: <u>99.9</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>99.9</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % Surface Precipitation (Rain): <u>100</u> %	
Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons T. Fritts - Parsons G. Pacheco - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: AUGUST 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

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HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: AUGUST 2009

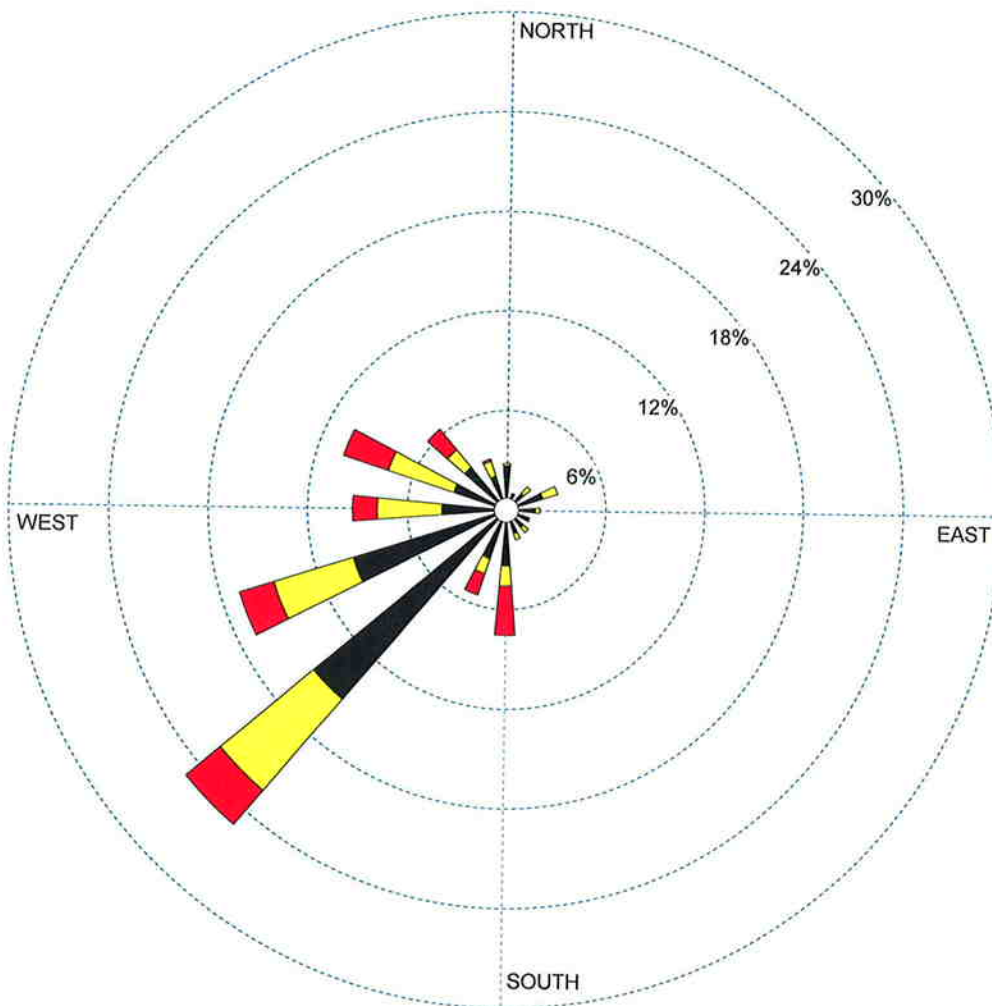
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.0	12.0	4.4	100.0	100.0
Vector Wind Direction (deg)	1	360	227	100.0	100.0
Scalar Wind Speed (mph)	0.7	12.7	4.9	100.0	100.0
Scalar Wind Direction (deg.)	2	360	225	100.0	100.0
Sigma Theta (deg.)	5.7	69.9	22.2	100.0	100.0
Vertical Wind Speed (mph)	-0.27	0.53	0.08	100.0	100.0
Sigma W (mph)	0.01	1.81	0.68	100.0	100.0
Sigma Phi (deg)	0.77	24.0	7.8	100.0	100.0
Temperature (deg-F)	49.1	92.4	70.4	100.0	100.0
2-Meter Level					
Temperature (deg-F)	49.2	90.5	70.0	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-3.71	5.96	0.38	100.0	100.0
Relative Humidity (percent)	37.4	100.0	79.3	100.0	100.0
Dew Point Temperature (deg-F)	42.3	74.6	62.4	100.0	100.0
Net Radiation (W/m²)	-98.0	644.1	2665.6 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.25	29.87	29.61	100.0	100.0
Surface Level					
Precipitation (Rain in inches)	0.00	1.23	6.18 (Total)	100.0	100.0

WIND ROSE PLOT:

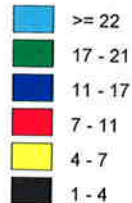
Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - August 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)



Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
Aug 1 - Aug 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

744 hrs.

AVG. WIND SPEED:

4.21 Knots

DATE:

9/3/2009

PROJECT NO.:

445162-04300

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: SEPTEMBER 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	--
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: October 7, 2009
--	---

Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: SEPTEMBER 2009
--

Data:	☐ Preliminary	Attached/Enclosed:	☐ Preliminary Report	☐ AIRS Diskette
	☒ Validated		☒ Final Report	☐ Client Data Disk
	☐ Adjusted (list parameters)		☒ Data Summaries	☐ Other (as noted)

Program Operations/Data Collection Activities Summary:

- A performance audit was conducted at the Lakeshore monitoring site on September 9. Minor periods of data are reported as scheduled down ("S") on this day to reflect audit activities performed at the site.
- No operational problems occurred at the Lakeshore/Willis Ave meteorological monitoring site in September and monthly data recovery rates range from 99.6 to 100 percent.

Climatic Summary: SEPTEMBER 2009General Predominance for winds from: due west**10-meter level**

Primary Peak WD: W Max. Wind Speed: 16.1 mph
 Secondary Peak WD: SSE Min. Wind Speed: 0.7 mph

2-meter level

Max. Temperature: 82.2 °F Max. Dew Point Temp. 71.3 °F Max. Relative Humidity 98%
 Min. Temperature: 37.6 °F Min. Dew Point Temp. 35.7 °F Min. Relative Humidity 27%

Cumulative-to-date Data Recovery Rates

Period: January 1, 2009 through

September 30, 2009

10-Meter Level

10-Meter Vector Wind Speed: 92.1 %
 10-Meter Vector Wind Direction: 92.1 %
 10-Meter Scalar Wind Speed: 92.1 %
 10-Meter Scalar Wind Direction: 92.2 %
 10-Meter Sigma Theta: 92.2 %

10-Meter Vertical Wind Speed: 92.1 %
 Sigma W: 92.1 %
 Sigma Phi: 92.0 %
 10-Meter Temperature: 83.0 %

2-Meter Level

2-Meter Temperature: 83.1 %
 Delta Temperature: 83.0 %
 Relative Humidity: 92.3 %
 Dew Point Temperature: 83.1 %
 Solar Radiation: 92.3 %
 Barometric Pressure: 92.3 %

Project Meteorologist: Steven Coughlin


Distribution:

T. Abrams - Parsons
 P. Petrone - Parsons
 T. Fritts - Parsons
 G. Pacheco - Parsons

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: SEPTEMBER 2009

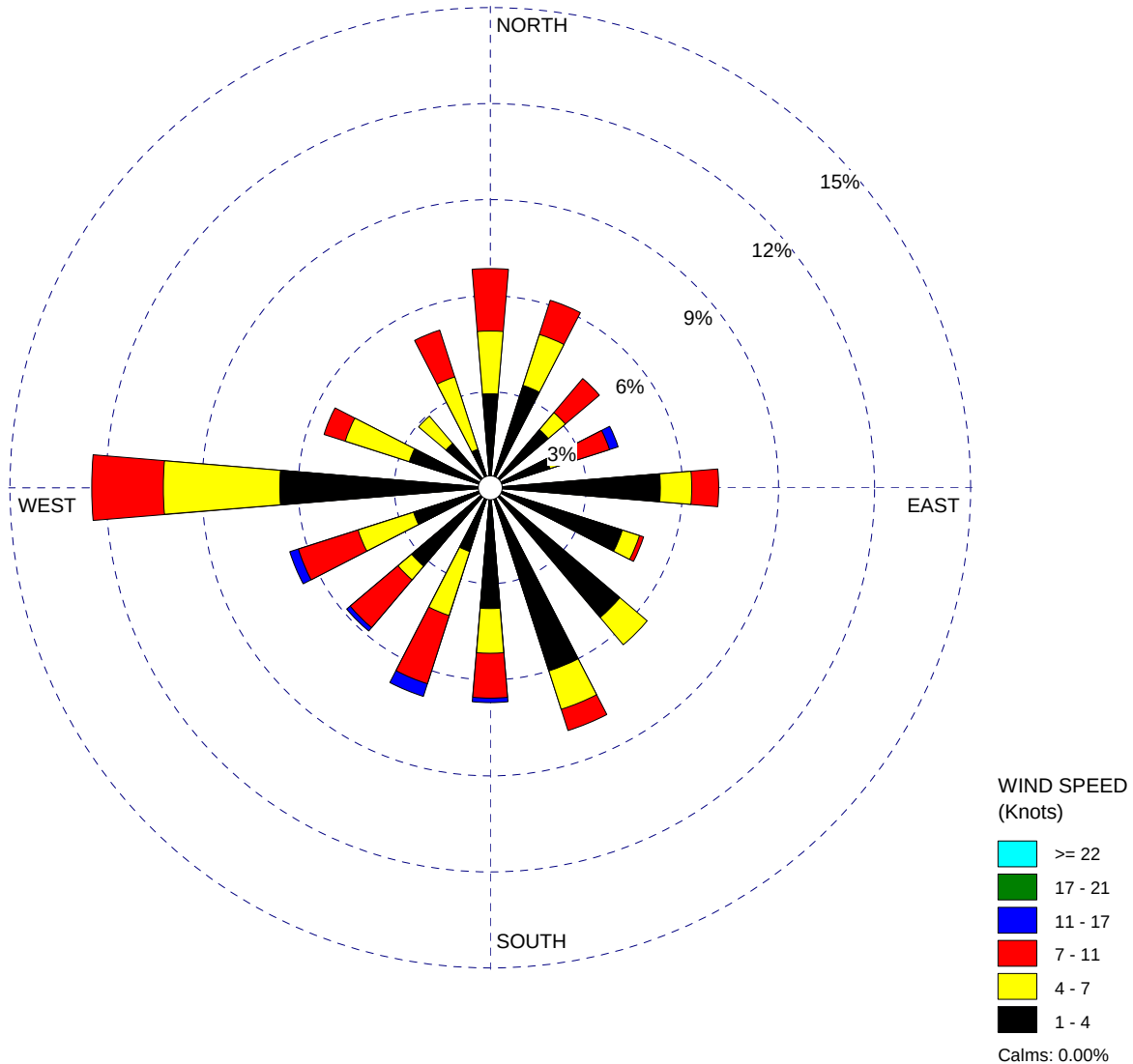
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
LAKESHORE/WILLIS AVE 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.3	15.7	4.8	100.0	99.7
Vector Wind Direction (deg)	1	360	183	100.0	99.7
Scalar Wind Speed (mph)	0.7	16.1	5.2	100.0	99.7
Scalar Wind Direction (deg.)	1	360	184	100.0	99.7
Sigma Theta (deg.)	4.5	71.5	22.9	100.0	99.7
Vertical Wind Speed (mph)	-0.21	0.72	0.11	100.0	99.7
Sigma W (mph)	0.10	2.19	0.76	100.0	99.7
Sigma Phi (deg)	2.29	20.3	8.9	100.0	99.7
Temperature (deg-F)	37.9	81.8	61.5	100.0	99.6
2-Meter Level					
Temperature (deg-F)	37.6	82.2	61.7	100.0	99.9
10-m - 2-m Delta Temp (F-deg)	-5.95	4.49	-0.22	100.0	99.6
Relative Humidity (percent)	27.3	97.5	75.5	100.0	100.0
Dew Point Temperature (deg-F)	35.7	71.3	52.9	100.0	99.9
Solar Radiation (W/m ²)	0.0	916.0	4597.8 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.01	30.16	29.81	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - September 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Sep 1 - Sep 30
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

717 hrs.

AVG. WIND SPEED:

4.50 Knots

DATE:

10/6/2009

PROJECT NO.:

445162-04300

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: SEPTEMBER 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	--
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: October 7, 2009																																				
Subject: Submittal of Wastebed 13 Meteorological Data for: SEPTEMBER 2009																																					
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)																																				
Program Operations/Data Collection Activities Summary: • A performance audit was conducted at the Wastebed 13 monitoring site on September 10. Minor periods of data are reported as scheduled down on this day to reflect audit activities performed at the site. • No operational problems occurred at the Wastebed 13 site in September and monthly data recovery rates are 99.4 to 100 percent.																																					
Climatic Summary: SEPTEMBER 2009 General Predominance for winds from: <u>south-southwest through west-southwest</u> 10-meter level <table style="width: 100%;"> <tr> <td>Primary Peak WD:</td> <td><u>SW</u></td> <td>Max. Wind Speed :</td> <td><u>16.8 mph</u></td> </tr> <tr> <td>Secondary Peak WD:</td> <td><u>WSW</u></td> <td>Min. Wind Speed :</td> <td><u>0.6 mph</u></td> </tr> </table> 2-meter level <table style="width: 100%;"> <tr> <td>Max. Temperature:</td> <td><u>81.9 °F</u></td> <td>Max. Dew Point Temp.</td> <td><u>71.2 °F</u></td> <td>Max. Relative Humidity</td> <td><u>100%</u></td> </tr> <tr> <td>Min. Temperature:</td> <td><u>34.6 °F</u></td> <td>Min. Dew Point Temp.</td> <td><u>34.6 °F</u></td> <td>Min. Relative Humidity</td> <td><u>30%</u></td> </tr> </table>		Primary Peak WD:	<u>SW</u>	Max. Wind Speed :	<u>16.8 mph</u>	Secondary Peak WD:	<u>WSW</u>	Min. Wind Speed :	<u>0.6 mph</u>	Max. Temperature:	<u>81.9 °F</u>	Max. Dew Point Temp.	<u>71.2 °F</u>	Max. Relative Humidity	<u>100%</u>	Min. Temperature:	<u>34.6 °F</u>	Min. Dew Point Temp.	<u>34.6 °F</u>	Min. Relative Humidity	<u>30%</u>																
Primary Peak WD:	<u>SW</u>	Max. Wind Speed :	<u>16.8 mph</u>																																		
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<table style="width: 100%;"> <tr> <td style="text-align: center;">Cumulative-to-date Data Recovery Rates</td> <td style="text-align: center;">Period: January 1, 2009 through</td> <td style="text-align: center;">September 30, 2009</td> </tr> <tr> <td style="text-align: center;">10-Meter Level</td> <td style="text-align: center;">2-Meter Level</td> <td></td> </tr> <tr> <td>10-Meter Vector Wind Speed:</td> <td>2-Meter Temperature:</td> <td><u>99.9</u> %</td> </tr> <tr> <td>10-Meter Vector Wind Direction:</td> <td>Delta Temperature:</td> <td><u>99.9</u> %</td> </tr> <tr> <td>10-Meter Scalar Wind Speed:</td> <td>Relative Humidity:</td> <td><u>100</u> %</td> </tr> <tr> <td>10-Meter Scalar Wind Direction:</td> <td>Dew Point Temperature:</td> <td><u>99.9</u> %</td> </tr> <tr> <td>10-Meter Sigma Theta:</td> <td>Net Radiation:</td> <td><u>100</u> %</td> </tr> <tr> <td></td> <td>Barometric Pressure:</td> <td><u>100</u> %</td> </tr> <tr> <td>10-Meter Vertical Wind Speed:</td> <td style="text-align: center;">Surface</td> <td></td> </tr> <tr> <td>Sigma W:</td> <td>Precipitation (Rain):</td> <td><u>100</u> %</td> </tr> <tr> <td>Sigma Phi:</td> <td></td> <td></td> </tr> <tr> <td>10-Meter Temperature:</td> <td></td> <td></td> </tr> </table>		Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	September 30, 2009	10-Meter Level	2-Meter Level		10-Meter Vector Wind Speed:	2-Meter Temperature:	<u>99.9</u> %	10-Meter Vector Wind Direction:	Delta Temperature:	<u>99.9</u> %	10-Meter Scalar Wind Speed:	Relative Humidity:	<u>100</u> %	10-Meter Scalar Wind Direction:	Dew Point Temperature:	<u>99.9</u> %	10-Meter Sigma Theta:	Net Radiation:	<u>100</u> %		Barometric Pressure:	<u>100</u> %	10-Meter Vertical Wind Speed:	Surface		Sigma W:	Precipitation (Rain):	<u>100</u> %	Sigma Phi:			10-Meter Temperature:		
Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	September 30, 2009																																			
10-Meter Level	2-Meter Level																																				
10-Meter Vector Wind Speed:	2-Meter Temperature:	<u>99.9</u> %																																			
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10-Meter Scalar Wind Speed:	Relative Humidity:	<u>100</u> %																																			
10-Meter Scalar Wind Direction:	Dew Point Temperature:	<u>99.9</u> %																																			
10-Meter Sigma Theta:	Net Radiation:	<u>100</u> %																																			
	Barometric Pressure:	<u>100</u> %																																			
10-Meter Vertical Wind Speed:	Surface																																				
Sigma W:	Precipitation (Rain):	<u>100</u> %																																			
Sigma Phi:																																					
10-Meter Temperature:																																					
Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons T. Fritts - Parsons G. Pacheco - Parsons																																				

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: SEPTEMBER 2009

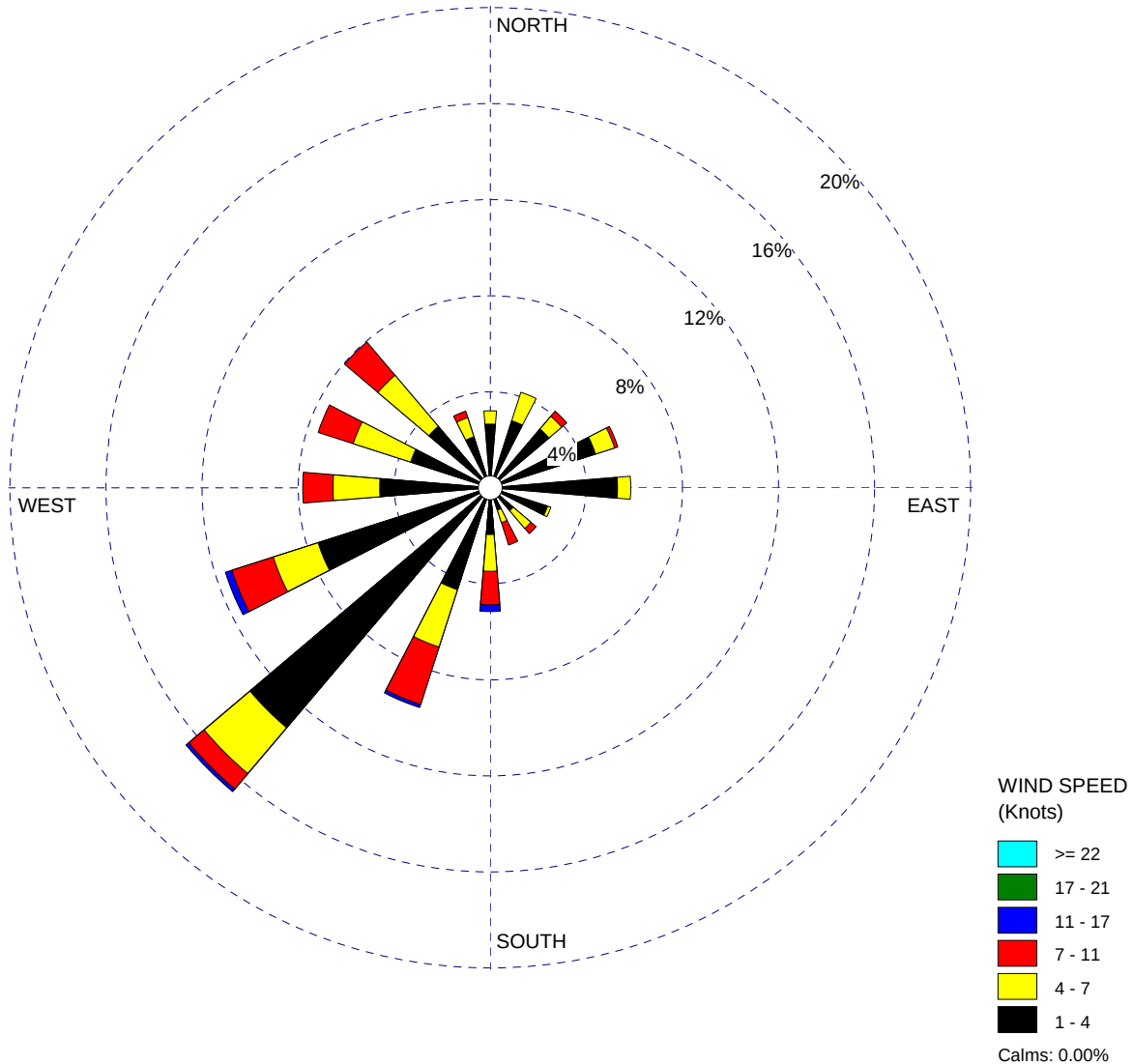
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				BASED ON OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.1	16.0	4.3	100.0	99.9
Vector Wind Direction (deg)	1	356	199	100.0	99.9
Scalar Wind Speed (mph)	0.6	16.8	4.7	100.0	99.9
Scalar Wind Direction (deg.)	4	359	201	100.0	99.9
Sigma Theta (deg.)	5.6	79.0	23.2	100.0	99.9
Vertical Wind Speed (mph)	-0.27	0.54	0.07	100.0	99.9
Sigma W (mph)	0.01	2.67	0.70	100.0	99.9
Sigma Phi (deg)	0.25	28.1	8.3	100.0	99.9
Temperature (deg-F)	37.2	81.3	60.5	100.0	99.4
2-Meter Level					
Temperature (deg-F)	34.6	81.9	60.6	100.0	99.9
10-m - 2-m Delta Temp (F-deg)	-2.94	6.18	-0.01	100.0	99.4
Relative Humidity (percent)	29.8	100.0	81.0	100.0	100.0
Dew Point Temperature (deg-F)	34.6	71.2	53.7	100.0	99.9
Net Radiation (W/m ²)	-109.0	600.6	1934.5 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.90	30.04	29.71	100.0	100.0
Surface Level					
Precipitation (Rain in inches)	0.00	0.17	2.22 (Total)	100.0	100.0

WIND ROSE PLOT:

**Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - September 2009**

DISPLAY:

**Wind Speed
Direction (blowing from)**



COMMENTS:

DATA PERIOD:

**2009
Sep 1 - Sep 30
00:00 - 23:00**

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

719 hrs.

AVG. WIND SPEED:

4.09 Knots

DATE:

10/6/2009

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: November 5, 2009
--	--

Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: OCTOBER 2009
--

Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)
--	--

Program Operations/Data Collection Activities Summary:

- No operational problems occurred at the Lakeshore/Willis Ave meteorological monitoring site in October and monthly data recovery rates are 100 percent for all parameters.

Climatic Summary: OCTOBER 2009

General Predominance for winds from: west-southwest through due west

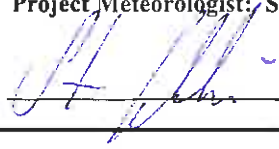
10-meter level

Primary Peak WD:	<u>W</u>	Max. Wind Speed :	<u>20.1 mph</u>
Secondary Peak WD:	<u>WSW</u>	Min. Wind Speed :	<u>0.7 mph</u>

2-meter level

Max. Temperature:	<u>69.9 °F</u>	Max. Dew Point Temp.	<u>59.9 °F</u>	Max. Relative Humidity	<u>98%</u>
Min. Temperature:	<u>30.7 °F</u>	Min. Dew Point Temp.	<u>22.4 °F</u>	Min. Relative Humidity	<u>32%</u>

Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	October 31, 2009
10-Meter Level	2-Meter Level	
10-Meter Vector Wind Speed:	2-Meter Temperature:	<u>84.8 %</u>
10-Meter Vector Wind Direction:	Delta Temperature:	<u>84.8 %</u>
10-Meter Scalar Wind Speed:	Relative Humidity:	<u>93.1 %</u>
10-Meter Scalar Wind Direction:	Dew Point Temperature:	<u>84.8 %</u>
10-Meter Sigma Theta:	Solar Radiation:	<u>93.1 %</u>
	Barometric Pressure:	<u>93.1 %</u>
10-Meter Vertical Wind Speed:		
Sigma W:		
Sigma Phi:		
10-Meter Temperature:		

Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons T. Fritts - Parsons G. Pacheco - Parsons
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HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: OCTOBER 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: OCTOBER 2009

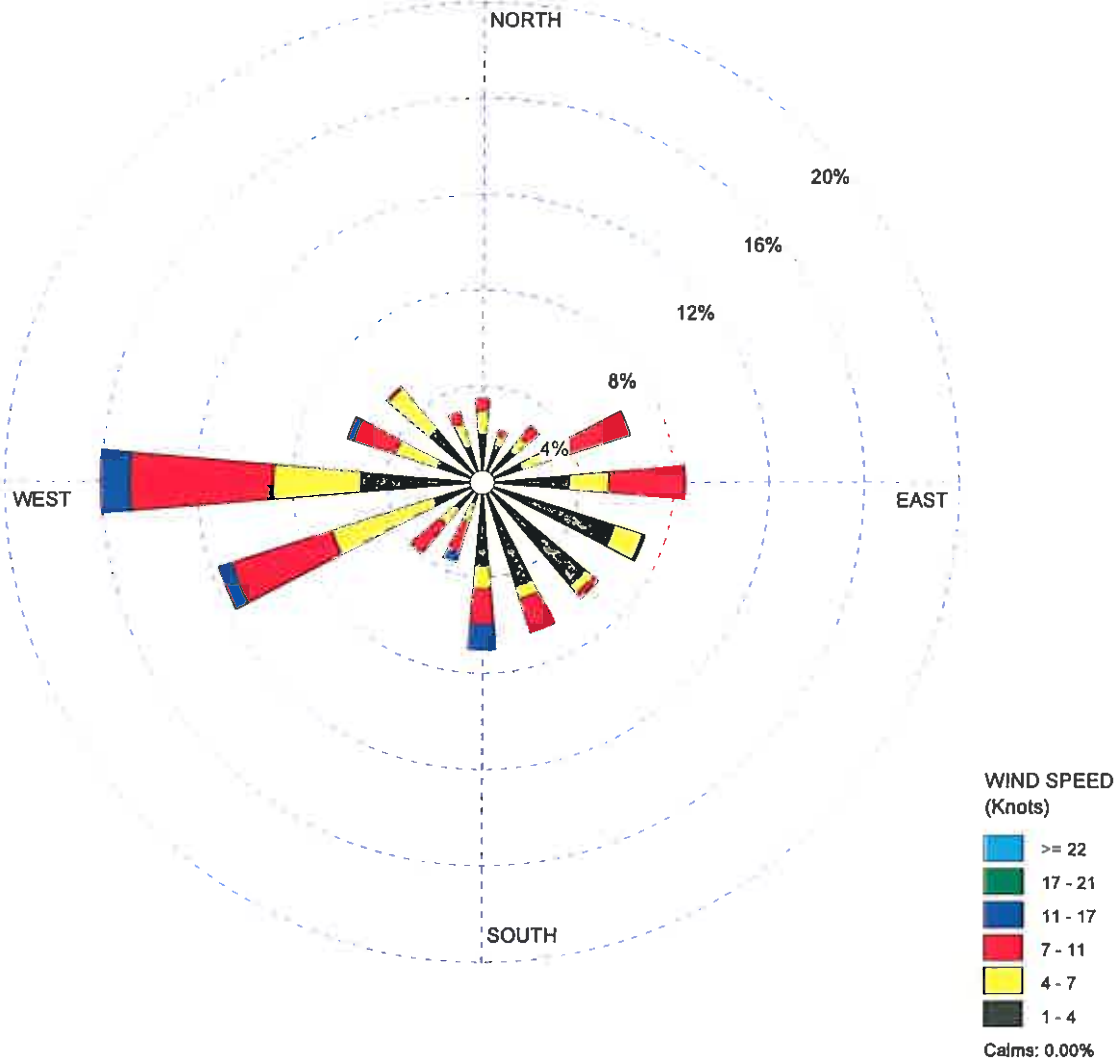
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
LAKESHORE/WILLIS AVE 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.1	19.6	5.6	100.0	100.0
Vector Wind Direction (deg)	1	359	192	100.0	100.0
Scalar Wind Speed (mph)	0.7	20.1	6.0	100.0	100.0
Scalar Wind Direction (deg.)	5	359	193	100.0	100.0
Sigma Theta (deg.)	5.2	75.7	21.8	100.0	100.0
Vertical Wind Speed (mph)	-0.24	1.13	0.16	100.0	100.0
Sigma W (mph)	0.11	2.58	0.80	100.0	100.0
Sigma Phi (deg)	2.73	22.0	8.2	100.0	100.0
Temperature (deg-F)	31.7	69.2	49.5	100.0	100.0
2-Meter Level					
Temperature (deg-F)	30.7	69.9	49.7	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-5.86	3.51	-0.13	100.0	100.0
Relative Humidity (percent)	32.4	97.8	74.1	100.0	100.0
Dew Point Temperature (deg-F)	22.4	59.9	41.0	100.0	100.0
Solar Radiation (W/m ²)	0.0	766.4	2460.7 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.06	30.13	29.73	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - October 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Oct 1 - Oct 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT

744 hrs.

AVG WIND SPEED:

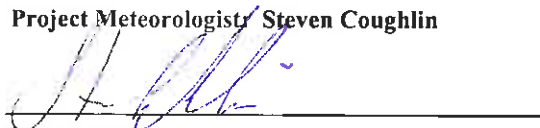
5.25 Knots

DATE:

11/4/2009

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: November 5, 2009																				
Subject: Submittal of Wastedbed 13 Meteorological Data for: OCTOBER 2009																					
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)																				
Program Operations/Data Collection Activities Summary: • No operational problems occurred at the Wastedbed 13 site in October and monthly data recovery rates are 100 percent																					
Climatic Summary: OCTOBER 2009 General Predominance for winds from: <u> southwest through due west </u> <u>10-meter level</u> <table style="width: 100%;"> <tr> <td>Primary Peak WD:</td> <td><u>WSW</u></td> <td>Max. Wind Speed :</td> <td><u>21.6 mph</u></td> </tr> <tr> <td>Secondary Peak WD:</td> <td><u>W</u></td> <td>Min. Wind Speed :</td> <td><u>0.3 mph</u></td> </tr> </table> <u>2-meter level</u> <table style="width: 100%;"> <tr> <td>Max. Temperature:</td> <td><u>69.7 °F</u></td> <td>Max. Dew Point Temp.</td> <td><u>59.4 °F</u></td> <td>Max. Relative Humidity</td> <td><u>100%</u></td> </tr> <tr> <td>Min. Temperature:</td> <td><u>27.0 °F</u></td> <td>Min. Dew Point Temp.</td> <td><u>22.7 °F</u></td> <td>Min. Relative Humidity</td> <td><u>32%</u></td> </tr> </table>		Primary Peak WD:	<u>WSW</u>	Max. Wind Speed :	<u>21.6 mph</u>	Secondary Peak WD:	<u>W</u>	Min. Wind Speed :	<u>0.3 mph</u>	Max. Temperature:	<u>69.7 °F</u>	Max. Dew Point Temp.	<u>59.4 °F</u>	Max. Relative Humidity	<u>100%</u>	Min. Temperature:	<u>27.0 °F</u>	Min. Dew Point Temp.	<u>22.7 °F</u>	Min. Relative Humidity	<u>32%</u>
Primary Peak WD:	<u>WSW</u>	Max. Wind Speed :	<u>21.6 mph</u>																		
Secondary Peak WD:	<u>W</u>	Min. Wind Speed :	<u>0.3 mph</u>																		
Max. Temperature:	<u>69.7 °F</u>	Max. Dew Point Temp.	<u>59.4 °F</u>	Max. Relative Humidity	<u>100%</u>																
Min. Temperature:	<u>27.0 °F</u>	Min. Dew Point Temp.	<u>22.7 °F</u>	Min. Relative Humidity	<u>32%</u>																
Cumulative-to-date Data Recovery Rates Period: January 1, 2009 through October 31, 2009 <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>99.1</u> % 10-Meter Vector Wind Direction: <u>99.1</u> % 10-Meter Scalar Wind Speed: <u>99.1</u> % 10-Meter Scalar Wind Direction: <u>99.9</u> % 10-Meter Sigma Theta: <u>99.9</u> % 10-Meter Vertical Wind Speed: <u>99.9</u> % Sigma W: <u>99.9</u> % Sigma Phi: <u>99.1</u> % 10-Meter Temperature: <u>99.9</u> % </td> <td style="width: 50%; vertical-align: top;"> <u>2-Meter Level</u> 2-Meter Temperature: <u>99.9</u> % Delta Temperature: <u>99.9</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>99.9</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % <u>Surface</u> Precipitation (Rain): <u>100</u> % </td> </tr> </table>		<u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>99.1</u> % 10-Meter Vector Wind Direction: <u>99.1</u> % 10-Meter Scalar Wind Speed: <u>99.1</u> % 10-Meter Scalar Wind Direction: <u>99.9</u> % 10-Meter Sigma Theta: <u>99.9</u> % 10-Meter Vertical Wind Speed: <u>99.9</u> % Sigma W: <u>99.9</u> % Sigma Phi: <u>99.1</u> % 10-Meter Temperature: <u>99.9</u> %	<u>2-Meter Level</u> 2-Meter Temperature: <u>99.9</u> % Delta Temperature: <u>99.9</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>99.9</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % <u>Surface</u> Precipitation (Rain): <u>100</u> %																		
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Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons T. Fritts - Parsons G. Pacheco - Parsons																				

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: OCTOBER 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	--
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: OCTOBER 2009

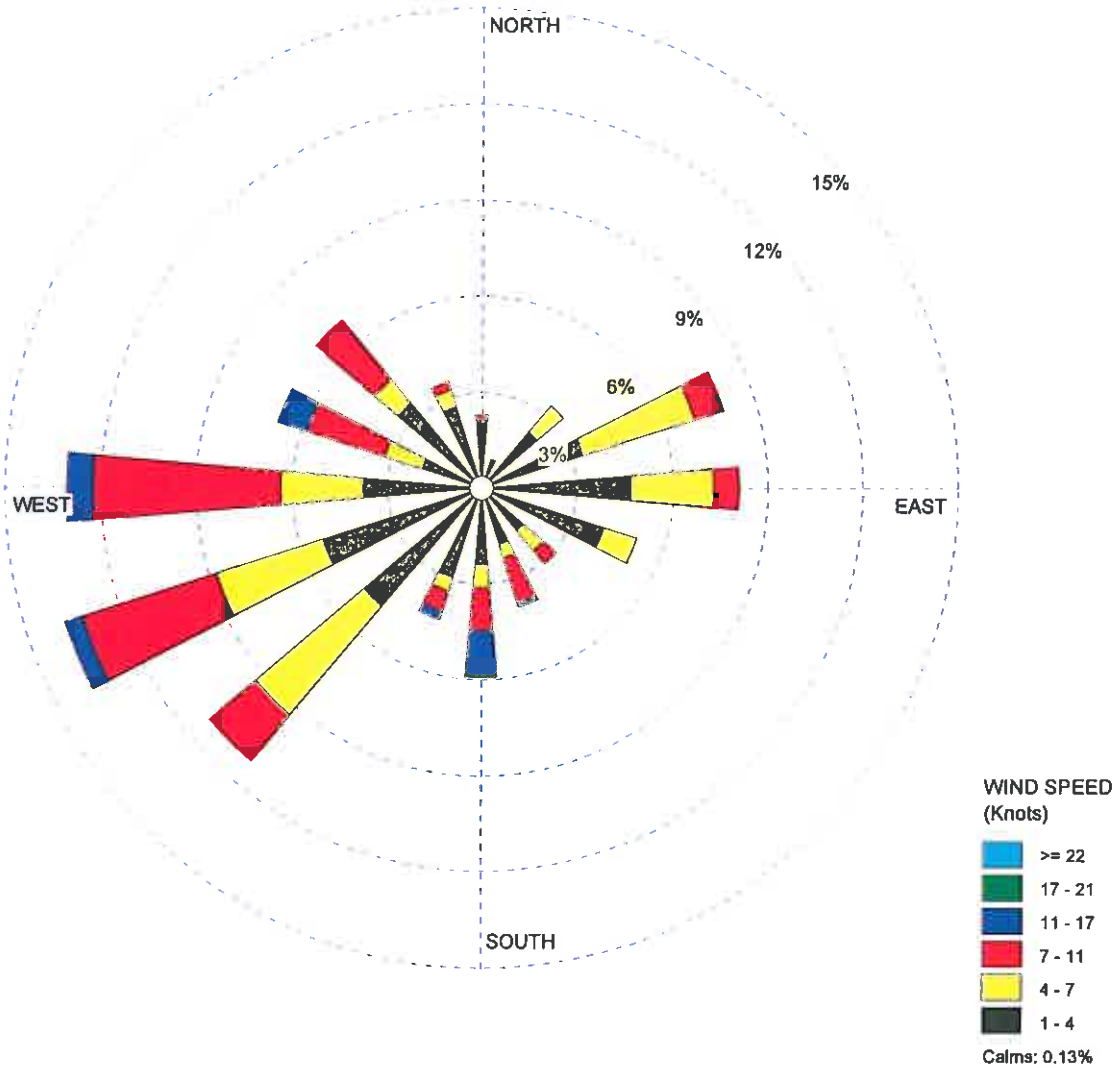
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%)	
				OPERATING SCHEDULE	TOTAL HOURS
WASTEBED 13 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.2	20.9	5.5	100.0	100.0
Vector Wind Direction (deg)	2	360	202	100.0	100.0
Scalar Wind Speed (mph)	0.3	21.6	5.9	100.0	100.0
Scalar Wind Direction (deg.)	1	357	202	100.0	100.0
Sigma Theta (deg.)	4.6	73.3	20.4	100.0	100.0
Vertical Wind Speed (mph)	-0.23	0.99	0.11	100.0	100.0
Sigma W (mph)	0.02	2.70	0.77	100.0	100.0
Sigma Phi (deg)	1.05	25.0	7.4	100.0	100.0
Temperature (deg-F)	30.7	68.6	49.4	100.0	100.0
2-Meter Level					
Temperature (deg-F)	27.0	69.7	48.5	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-2.40	5.84	0.96	100.0	100.0
Relative Humidity (percent)	32.1	100.0	78.9	100.0	100.0
Dew Point Temperature (deg-F)	22.7	59.4	41.4	100.0	100.0
Net Radiation (W/m ²)	-96.1	451.6	753.1 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.96	30.01	29.61	100.0	100.0
Surface Level					
Precipitation (Rain in Inches)	0.00	0.35	3.79 (Total)	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - October 2009

DISPLAY

Wind Speed
Direction (blowing from)



COMMENTS

DATA PERIOD:

2009
Oct 1 - Oct 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.13%

TOTAL COUNT:

744 hrs.

AVG WIND SPEED:

5.13 Knots

DATE:

11/4/2009

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: January 4, 2010						
Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: NOVEMBER 2009							
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)						
Program Operations/Data Collection Activities Summary: • No operational problems occurred at the Lakeshore/Willis Ave meteorological monitoring site in November and monthly data recovery rates are 100 percent for all parameters.							
Climatic Summary: NOVEMBER 2009 General Predominance for winds from: <u>due west through west-northwest</u> 10-meter level Primary Peak WD: <u>W</u> Max. Wind Speed : <u>16.2 mph</u> Secondary Peak WD: <u>WNW</u> Min. Wind Speed : <u>0.6 mph</u> 2-meter level Max. Temperature: <u>70.9 °F</u> Max. Dew Point Temp. <u>52.6 °F</u> Max. Relative Humidity <u>99%</u> Min. Temperature: <u>25.2 °F</u> Min. Dew Point Temp. <u>20.7 °F</u> Min. Relative Humidity <u>26%</u>							
<table style="width: 100%;"> <tr> <th style="text-align: left;">Cumulative-to-date Data Recovery Rates</th> <th style="text-align: left;">Period: January 1, 2009 through</th> <th style="text-align: left;">November 30, 2009</th> </tr> <tr> <td style="vertical-align: top;"> 10-Meter Level 10-Meter Vector Wind Speed: <u>93.5</u> % 10-Meter Vector Wind Direction: <u>93.5</u> % 10-Meter Scalar Wind Speed: <u>93.5</u> % 10-Meter Scalar Wind Direction: <u>93.6</u> % 10-Meter Sigma Theta: <u>93.6</u> % 10-Meter Vertical Wind Speed: <u>93.5</u> % Sigma W: <u>93.5</u> % Sigma Phi: <u>93.4</u> % 10-Meter Temperature: <u>86.1</u> % </td> <td style="vertical-align: top;"> 2-Meter Level 2-Meter Temperature: <u>86.2</u> % Delta Temperature: <u>86.1</u> % Relative Humidity: <u>93.7</u> % Dew Point Temperature: <u>86.2</u> % Solar Radiation: <u>93.7</u> % Barometric Pressure: <u>93.7</u> % </td> <td></td> </tr> </table>		Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	November 30, 2009	10-Meter Level 10-Meter Vector Wind Speed: <u>93.5</u> % 10-Meter Vector Wind Direction: <u>93.5</u> % 10-Meter Scalar Wind Speed: <u>93.5</u> % 10-Meter Scalar Wind Direction: <u>93.6</u> % 10-Meter Sigma Theta: <u>93.6</u> % 10-Meter Vertical Wind Speed: <u>93.5</u> % Sigma W: <u>93.5</u> % Sigma Phi: <u>93.4</u> % 10-Meter Temperature: <u>86.1</u> %	2-Meter Level 2-Meter Temperature: <u>86.2</u> % Delta Temperature: <u>86.1</u> % Relative Humidity: <u>93.7</u> % Dew Point Temperature: <u>86.2</u> % Solar Radiation: <u>93.7</u> % Barometric Pressure: <u>93.7</u> %	
Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	November 30, 2009					
10-Meter Level 10-Meter Vector Wind Speed: <u>93.5</u> % 10-Meter Vector Wind Direction: <u>93.5</u> % 10-Meter Scalar Wind Speed: <u>93.5</u> % 10-Meter Scalar Wind Direction: <u>93.6</u> % 10-Meter Sigma Theta: <u>93.6</u> % 10-Meter Vertical Wind Speed: <u>93.5</u> % Sigma W: <u>93.5</u> % Sigma Phi: <u>93.4</u> % 10-Meter Temperature: <u>86.1</u> %	2-Meter Level 2-Meter Temperature: <u>86.2</u> % Delta Temperature: <u>86.1</u> % Relative Humidity: <u>93.7</u> % Dew Point Temperature: <u>86.2</u> % Solar Radiation: <u>93.7</u> % Barometric Pressure: <u>93.7</u> %						
Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons G. Pacheco - Parsons						

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: NOVEMBER 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

**HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER**

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: NOVEMBER 2009

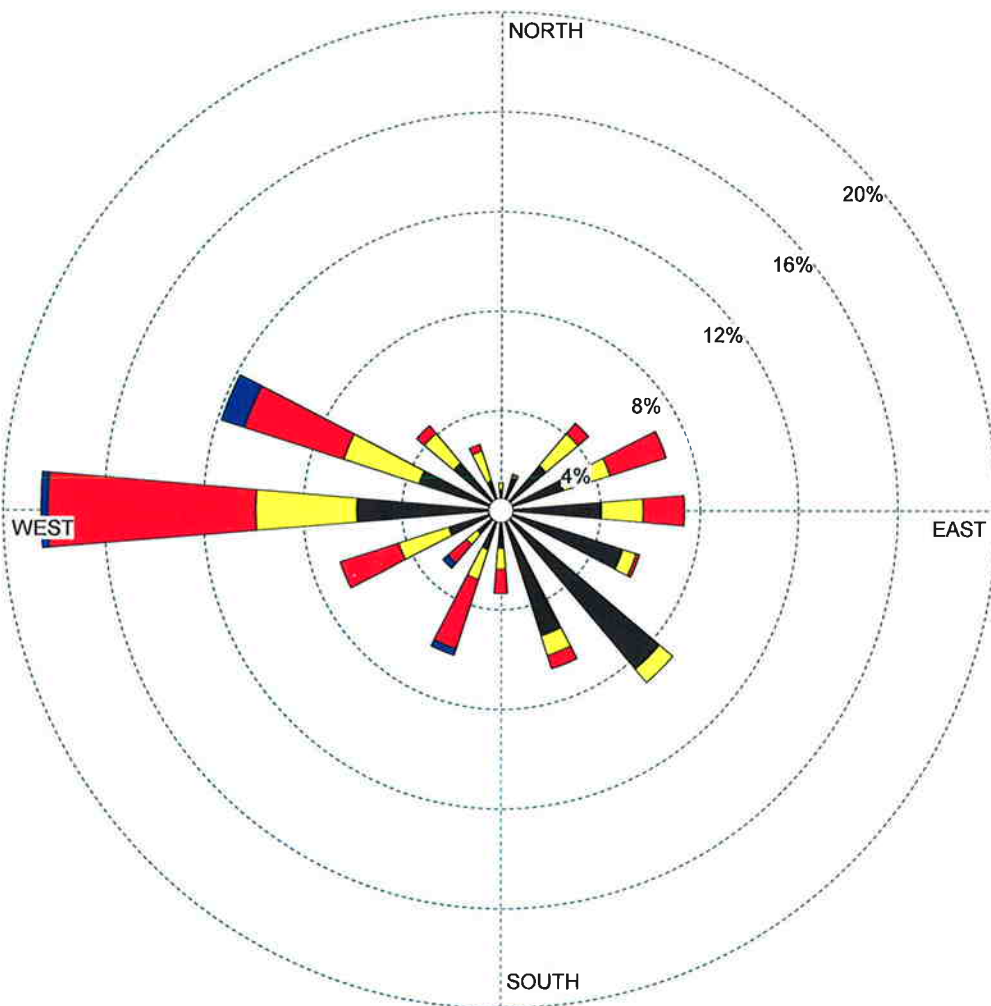
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
LAKESHORE/WILLIS AVE 10-METER TOWER					
10-Meter Level					
Vector Wind Speed (mph)	0.3	15.8	5.3	100.0	100.0
Vector Wind Direction (deg)	6	357	195	100.0	100.0
Scalar Wind Speed (mph)	0.6	16.2	5.7	100.0	100.0
Scalar Wind Direction (deg.)	5	356	195	100.0	100.0
Sigma Theta (deg.)	3.0	64.6	18.5	100.0	100.0
Vertical Wind Speed (mph)	-0.14	0.73	0.16	100.0	100.0
Sigma W (mph)	0.06	2.29	0.66	100.0	100.0
Sigma Phi (deg)	2.06	22.5	6.8	100.0	100.0
Temperature (deg-F)	27.9	70.9	44.8	100.0	100.0
2-Meter Level					
Temperature (deg-F)	25.2	70.9	44.4	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-3.91	4.45	0.34	100.0	100.0
Relative Humidity (percent)	26.3	98.8	74.9	100.0	100.0
Dew Point Temperature (deg-F)	20.7	52.6	36.1	100.0	100.0
Solar Radiation (W/m ²)	0.0	625.8	1892.6 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.26	30.22	29.83	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - November 2009

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

2009
Nov 1 - Nov 30
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.14%

TOTAL COUNT:

720 hrs.

AVG. WIND SPEED:

4.92 Knots

DATE:

1/4/2010

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: January 4, 2010
Subject: Submittal of Wastebed 13 Meteorological Data for: NOVEMBER 2009	
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)
Program Operations/Data Collection Activities Summary: - No operational problems occurred at the Wastebed 13 site in November and monthly data recovery rates are 100 percent. - Precipitation bucket is non-heated, so precipitation amounts generally reflect rain events only.	
Climatic Summary: NOVEMBER 2009 General Predominance for winds from: <u>southwest through due west to west-northwest</u> <u>10-meter level</u> Primary Peak WD: <u>WSW</u> Secondary Peak WD: <u>SW</u> Max. Wind Speed : <u>18.5 mph</u> Min. Wind Speed : <u>0.7 mph</u> <u>2-meter level</u> Max. Temperature: <u>69.8 °F</u> Min. Temperature: <u>21.8 °F</u> Max. Dew Point Temp. <u>52.6 °F</u> Min. Dew Point Temp. <u>17.7 °F</u> Max. Relative Humidity <u>100%</u> Min. Relative Humidity <u>22%</u>	
Cumulative-to-date Data Recovery Rates <u>10-Meter Level</u> 10-Meter Vector Wind Speed: <u>99.2</u> % 10-Meter Vector Wind Direction: <u>99.2</u> % 10-Meter Scalar Wind Speed: <u>99.2</u> % 10-Meter Scalar Wind Direction: <u>99.9</u> % 10-Meter Sigma Theta: <u>99.9</u> % 10-Meter Vertical Wind Speed: <u>99.9</u> % Sigma W: <u>99.9</u> % Sigma Phi: <u>99.2</u> % 10-Meter Temperature: <u>99.9</u> % Period: January 1, 2009 through November 30, 2009 <u>2-Meter Level</u> 2-Meter Temperature: <u>99.9</u> % Delta Temperature: <u>99.9</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>99.9</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % <u>Surface</u> Precipitation (Rain): <u>100</u> %	
Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons G. Pacheco - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: NOVEMBER 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY
SFC PRECIPITATION (RAIN)	RAIN	INCHES OF WATER

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: NOVEMBER 2009

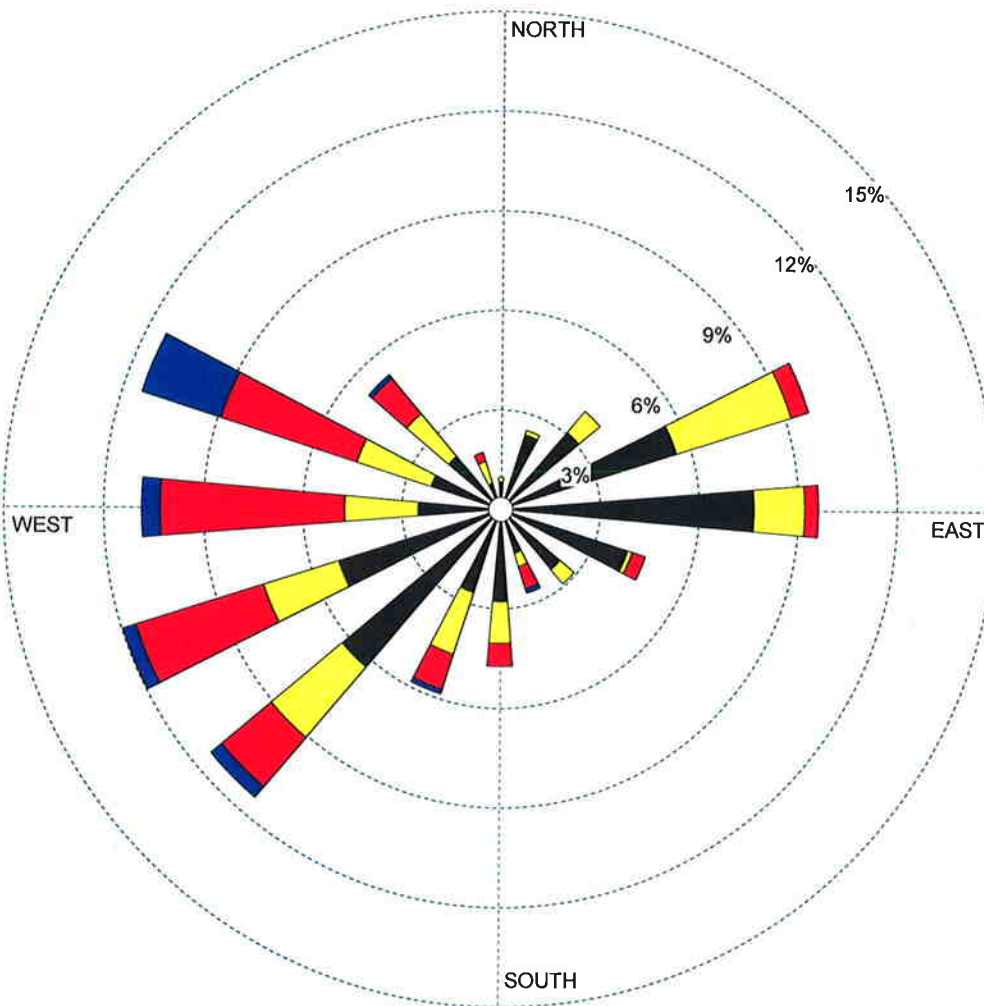
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
<u>WASTEBED 13 10-METER TOWER</u>					
<u>10-Meter Level</u>					
Vector Wind Speed (mph)	0.2	18.0	5.4	100.0	100.0
Vector Wind Direction (deg)	4	360	194	100.0	100.0
Scalar Wind Speed (mph)	0.7	18.5	5.7	100.0	100.0
Scalar Wind Direction (deg.)	2	357	193	100.0	100.0
Sigma Theta (deg.)	5.0	75.4	18.6	100.0	100.0
Vertical Wind Speed (mph)	-0.19	1.08	0.15	100.0	100.0
Sigma W (mph)	0.03	2.16	0.64	100.0	100.0
Sigma Phi (deg)	1.13	34.2	6.4	100.0	100.0
Temperature (deg-F)	25.4	71.2	45.1	100.0	100.0
<u>2-Meter Level</u>					
Temperature (deg-F)	21.8	69.8	43.0	100.0	100.0
10-m - 2-m Delta Temp (F-deg)	-1.23	5.92	2.07	100.0	100.0
Relative Humidity (percent)	22.4	100.0	79.1	100.0	100.0
Dew Point Temperature (deg-F)	17.7	52.6	36.0	100.0	100.0
Net Radiation (W/m ²)	-96.2	364.8	282.0 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	29.14	30.10	29.71	100.0	100.0
<u>Surface Level</u>					
Precipitation (Rain in inches)	0.00	0.24	2.04 (Total)	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - November 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)

- >= 22
- 17 - 21
- 11 - 17
- 7 - 11
- 4 - 7
- 1 - 4

Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
Nov 1 - Nov 30
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

720 hrs.

AVG. WIND SPEED:

4.96 Knots

DATE:

1/4/2010

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: January 8, 2010
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Subject: Submittal of Lakeshore/Willis Ave Meteorological Data for: **DECEMBER 2009**

Data: _____ Preliminary <u> X </u> Validated _____ Adjusted (list parameters)	Attached/Enclosed: _____ Preliminary Report _____ AIRS Diskette <u> X </u> Final Report _____ Client Data Disk <u> X </u> Data Summaries _____ Other (as noted)
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Program Operations/Data Collection Activities Summary:

- A performance audit was conducted at the Lakeshore/Willis Ave site on December 14. A minor period of data is reported as scheduled down ("S") on this day to reflect these audit activities.
- A 3-hour period of wind speed and vertical wind speed data is reported as missing due to a non-scheduled outage ("N") on December 25. This missing data results from a freezing precipitation buildup on the sensors during this period.
- Monthly data recovery rates for all parameters range from 99.5 to 100 percent.

Climatic Summary: DECEMBER 2009

General Predominance for winds from: west-southwest through due west

10-meter level

Primary Peak WD: W Max. Wind Speed : 21.9 mph
 Secondary Peak WD: WSW Min. Wind Speed : 0.8 mph

2-meter level

Max. Temperature: <u>58.1 °F</u>	Max. Dew Point Temp. <u>50.7 °F</u>	Max. Relative Humidity <u>99%</u>
Min. Temperature: <u>6.6 °F</u>	Min. Dew Point Temp. <u>-0.5 °F</u>	Min. Relative Humidity <u>34%</u>

Cumulative-to-date Data Recovery Rates

Period: January 1, 2009 through

December 31, 2009 (Annual)

10-Meter Level

10-Meter Vector Wind Speed:	<u>94.0</u> %
10-Meter Vector Wind Direction:	<u>94.0</u> %
10-Meter Scalar Wind Speed:	<u>94.0</u> %
10-Meter Scalar Wind Direction:	<u>94.2</u> %
10-Meter Sigma Theta:	<u>94.2</u> %
10-Meter Vertical Wind Speed:	<u>94.0</u> %
Sigma W:	<u>94.0</u> %
Sigma Phi:	<u>93.9</u> %
10-Meter Temperature:	<u>87.3</u> %

2-Meter Level

2-Meter Temperature:	<u>87.3</u> %
Delta Temperature:	<u>87.3</u> %
Relative Humidity:	<u>94.2</u> %
Dew Point Temperature:	<u>87.3</u> %
Solar Radiation:	<u>94.2</u> %
Barometric Pressure:	<u>94.2</u> %

Project Meteorologist: Steven Coughlin



Distribution:

T. Abrams - Parsons
 P. Petrone - Parsons
 G. Pacheco - Parsons

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: DECEMBER 2009

PARAMETER IDENTIFICATION AND SITE DESCRIPTION

<u>PARAMETER</u>	<u>ABBREVIATION</u>	<u>UNITS OF MEASUREMENT</u>
10-M WIND SPEED (VECTOR AVERAGE)	VECTOR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (VECTOR AVERAGE)	VECTOR WIND DIR.	DEGREES FROM TRUE NORTH
10-M WIND SPEED (SCALAR AVERAGE)	SCALAR WIND SPEED	MILES PER HOUR
10-M WIND DIRECTION (SCALAR AVERAGE)	SCALAR WIND DIR.	DEGREES FROM TRUE NORTH
10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND DIRECTION	SIGMA PHI	DEGREES
WIND PERSISTENCE FACTOR	WIND PERS.	---
10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
2-M DEW POINT TEMPERATURE	2-M DEW POINT TEMP.	DEGREES FAHRENHEIT
2-M SOLAR RADIATION	SOLAR RAD	WATTS PER SQUARE METER
2-M BAROMETRIC PRESSURE	BAR PRESS	INCHES OF MERCURY

THE FOLLOWING DATA CODES ARE USED IN THIS REPORT:

S SIGNIFIES MISSING DATA AS A RESULT OF A SCHEDULED OUTAGE.

N SIGNIFIES MISSING DATA AS A RESULT OF A NON-SCHEDULED OUTAGE.

A DASH (-) INDICATES INSUFFICIENT DATA TO CALCULATE THE VALUE.

ALL TIMES ARE LOCAL STANDARD TIME (LST) AND INDICATE HOUR STARTING TIMES.

THE DAILY AVERAGE WIND SPEED AND DIRECTION ARE COMPUTED AS THE VECTOR, OR RESULTANT WIND FOR THE DAY BASED ON HOURLY VALUES.

HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
LAKESHORE/WILLIS AVE MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: DECEMBER 2009

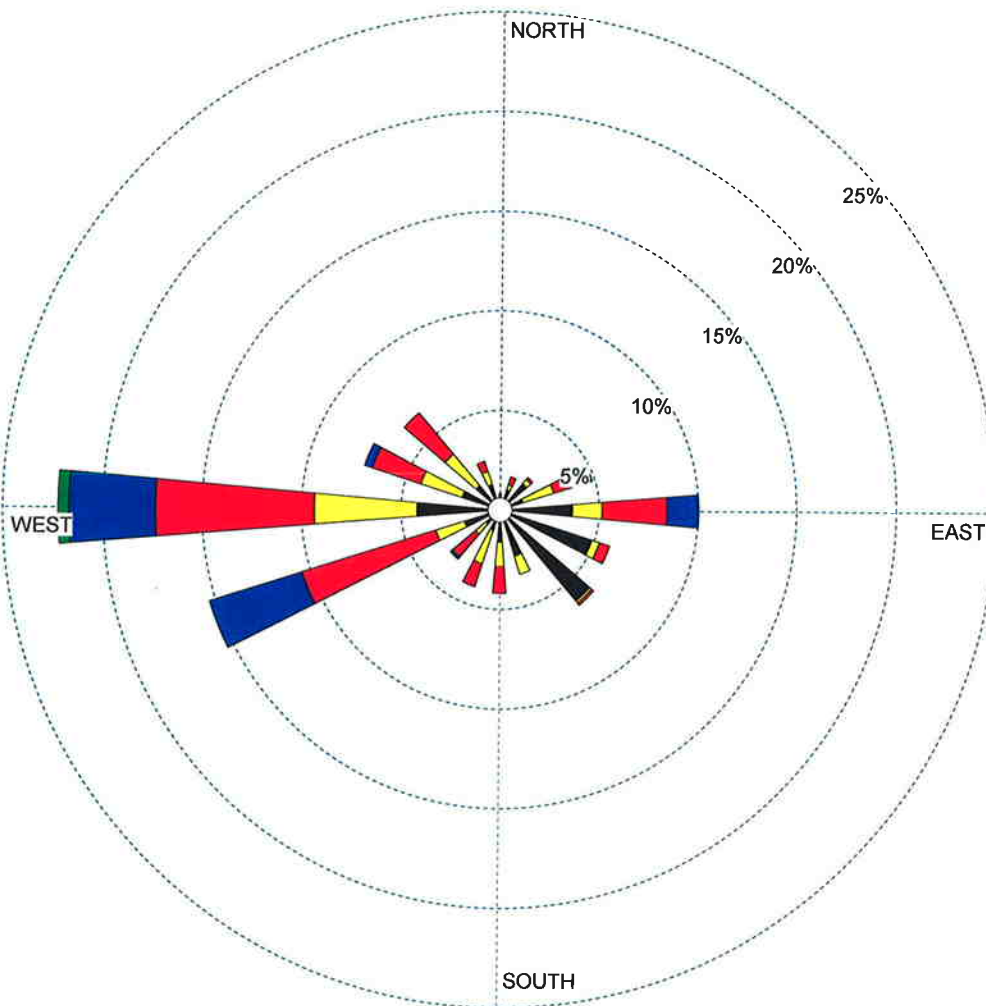
<u>SITE / PARAMETER</u>	<u>MONTHLY MINIMUM VALUE</u>	<u>MONTHLY MAXIMUM VALUE</u>	<u>MONTHLY MEAN VALUE</u>	<u>MONTHLY DATA RECOVERY RATES (%)</u> BASED ON	
				<u>OPERATING SCHEDULE</u>	<u>TOTAL HOURS</u>
<u>LAKESHORE/WILLIS AVE 10-METER TOWER</u>					
<u>10-Meter Level</u>					
Vector Wind Speed (mph)	0.6	21.2	7.3	99.6	99.5
Vector Wind Direction (deg)	3	359	207	99.6	99.5
Scalar Wind Speed (mph)	0.8	21.9	7.7	99.6	99.5
Scalar Wind Direction (deg.)	3	359	206	100.0	99.9
Sigma Theta (deg.)	5.7	60.7	17.1	100.0	99.9
Vertical Wind Speed (mph)	-0.13	1.22	0.24	99.6	99.5
Sigma W (mph)	0.14	2.44	0.89	99.6	99.5
Sigma Phi (deg)	2.52	17.8	7.0	99.6	99.5
Temperature (deg-F)	7.3	58.2	29.4	100.0	99.7
<u>2-Meter Level</u>					
Temperature (deg-F)	6.6	58.1	29.3	100.0	99.9
10-m - 2-m Delta Temp (F-deg)	-2.42	2.09	0.06	100.0	99.7
Relative Humidity (percent)	34.4	98.7	74.3	100.0	100.0
Dew Point Temperature (deg-F)	-0.5	50.7	21.6	100.0	99.9
Solar Radiation (W/m ²)	0.0	535.3	1261.9 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.81	30.20	29.76	100.0	100.0

WIND ROSE PLOT:

Honeywell Onondaga Lake - Meteorological Monitoring Program
Lakeshore/Willis Ave Monitoring Site - 10-Meter Tower - December 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)

- ≥ 22
- 17 - 21
- 11 - 17
- 7 - 11
- 4 - 7
- 1 - 4

Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
Dec 1 - Dec 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

740 hrs.

AVG. WIND SPEED:

6.66 Knots

DATE:

1/7/2010

PROJECT NO.:

445162-04300

To: Mr. Tom Drachenberg Parsons 301 Plainfield Road - Suite 350 Syracuse, NY 13212	Client: Honeywell Project: Onondaga Lake - Meteorological Monitoring Program Job No.: 445162-04300 Date: January 7, 2010						
Subject: Submittal of Wastebed 13 Meteorological Data for: DECEMBER 2009							
Data: ☐ Preliminary ☒ Validated ☐ Adjusted (list parameters)	Attached/Enclosed: ☐ Preliminary Report ☐ AIRS Diskette ☒ Final Report ☐ Client Data Disk ☒ Data Summaries ☐ Other (as noted)						
Program Operations/Data Collection Activities Summary: - A performance audit was conducted at the Wastebed 13 site on December 14 and 15. A minor period of data is reported as scheduled down ("S") on December 14 to reflect these audit activities. - A period of wind speed data and vertical wind speed data is reported as missing due to a non-scheduled outage ("N") on December 25 and 26. This missing data results from a freezing precipitation buildup on the sensors during this period. - Monthly data recovery rates for all parameters ranged from 99.1 to 100 percent. - Precipitation bucket is non-heated, so precipitation amounts generally reflect rain events only.							
Climatic Summary: DECEMBER 2009 General Predominance for winds from: <u>west-southwest through due west</u> 10-meter level Primary Peak WD: <u>WSW</u> Max. Wind Speed : <u>23.1 mph</u> Secondary Peak WD: <u>W</u> Min. Wind Speed : <u>1.0 mph</u> 2-meter level Max. Temperature: <u>57.4 °F</u> Max. Dew Point Temp. <u>50.9 °F</u> Max. Relative Humidity <u>100%</u> Min. Temperature: <u>2.7 °F</u> Min. Dew Point Temp. <u>-1.1 °F</u> Min. Relative Humidity <u>34%</u>							
<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; width: 40%;">Cumulative-to-date Data Recovery Rates</th> <th style="text-align: left; width: 30%;">Period: January 1, 2009 through</th> <th style="text-align: left; width: 30%;">December 31, 2009 (Annual)</th> </tr> <tr> <td style="vertical-align: top;"> 10-Meter Level 10-Meter Vector Wind Speed: <u>99.1</u> % 10-Meter Vector Wind Direction: <u>99.1</u> % 10-Meter Scalar Wind Speed: <u>99.1</u> % 10-Meter Scalar Wind Direction: <u>99.9</u> % 10-Meter Sigma Theta: <u>99.9</u> % 10-Meter Vertical Wind Speed: <u>99.9</u> % Sigma W: <u>99.9</u> % Sigma Phi: <u>99.1</u> % 10-Meter Temperature: <u>99.9</u> % </td> <td style="vertical-align: top;"> 2-Meter Level 2-Meter Temperature: <u>99.9</u> % Delta Temperature: <u>99.9</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>99.9</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % Surface Precipitation (Rain): <u>100</u> % </td> <td></td> </tr> </table>		Cumulative-to-date Data Recovery Rates	Period: January 1, 2009 through	December 31, 2009 (Annual)	10-Meter Level 10-Meter Vector Wind Speed: <u>99.1</u> % 10-Meter Vector Wind Direction: <u>99.1</u> % 10-Meter Scalar Wind Speed: <u>99.1</u> % 10-Meter Scalar Wind Direction: <u>99.9</u> % 10-Meter Sigma Theta: <u>99.9</u> % 10-Meter Vertical Wind Speed: <u>99.9</u> % Sigma W: <u>99.9</u> % Sigma Phi: <u>99.1</u> % 10-Meter Temperature: <u>99.9</u> %	2-Meter Level 2-Meter Temperature: <u>99.9</u> % Delta Temperature: <u>99.9</u> % Relative Humidity: <u>100</u> % Dew Point Temperature: <u>99.9</u> % Net Radiation: <u>100</u> % Barometric Pressure: <u>100</u> % Surface Precipitation (Rain): <u>100</u> %	
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Project Meteorologist: Steven Coughlin 	Distribution: T. Abrams - Parsons P. Petrone - Parsons G. Pacheco - Parsons						

HONEYWELL - ONONDAGA LAKE – METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE – 10-METER TOWER

METEOROLOGICAL DATA SUMMARY FOR: DECEMBER 2009

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10-M STD. DEV. OF HORIZONTAL WIND DIRECTION	SIGMA THETA	DEGREES
10-M VERTICAL WIND SPEED	VERT WIND SPEED	MILES PER HOUR
10-M STD. DEV. OF VERTICAL WIND SPEED	SIGMA W	MILES PER HOUR
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10-METER TEMPERATURE	10-M TEMP.	DEGREES FAHRENHEIT
2-METER TEMPERATURE	2-M TEMP.	DEGREES FAHRENHEIT
DELTA TEMPERATURE	10-M – 2-M DELTA TEMP.	FAHRENHEIT DEGREES
2-M RELATIVE HUMIDITY	2M REL. HUM.	PERCENT
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2-M NET RADIATION	NET RAD	WATTS PER SQUARE METER
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HONEYWELL - ONONDAGA LAKE - METEOROLOGICAL MONITORING PROGRAM
WASTEBED 13 MONITORING SITE - 10-METER TOWER

MONTHLY DATA COLLECTION SUMMARY

DATA COLLECTION SUMMARY FOR THE MONTH OF: DECEMBER 2009

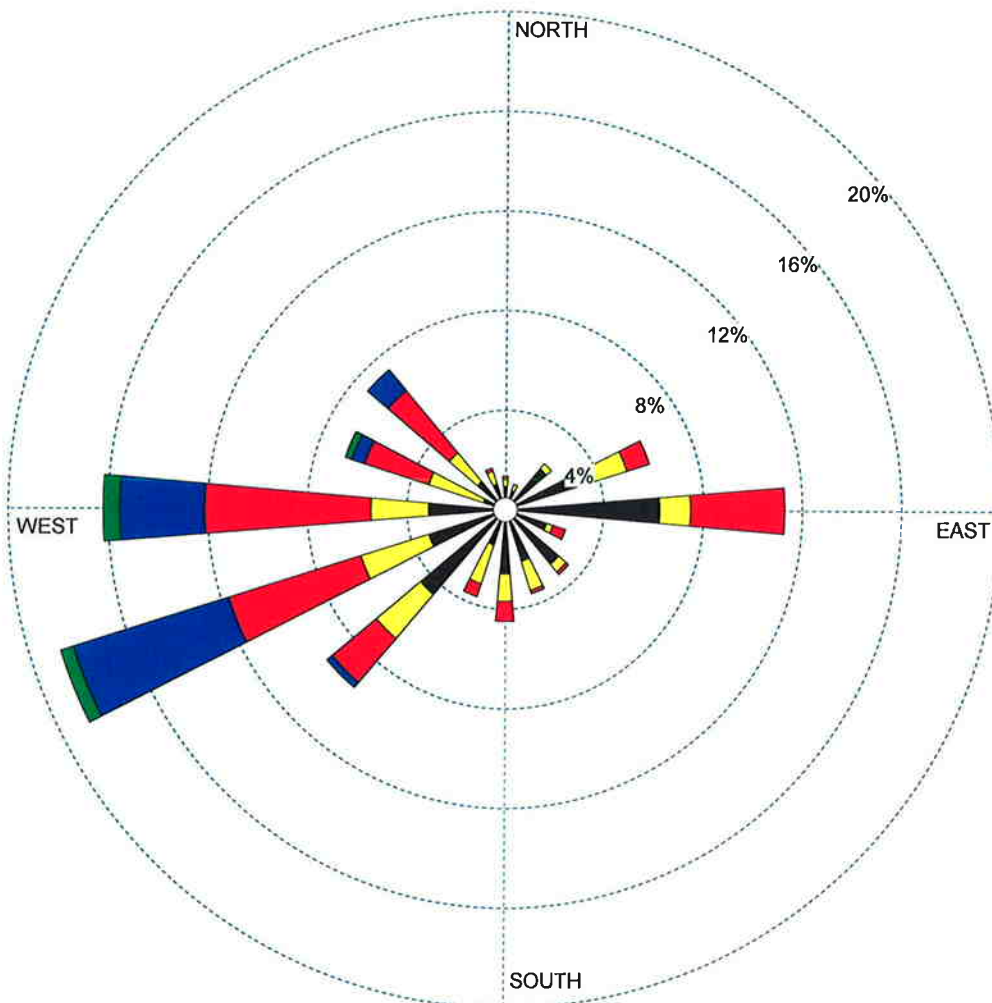
SITE / PARAMETER	MONTHLY MINIMUM VALUE	MONTHLY MAXIMUM VALUE	MONTHLY MEAN VALUE	MONTHLY DATA RECOVERY RATES (%) BASED ON	
				OPERATING SCHEDULE	TOTAL HOURS
<u>WASTEBED 13 10-METER TOWER</u>					
<u>10-Meter Level</u>					
Vector Wind Speed (mph)	0.2	22.5	7.2	99.3	99.1
Vector Wind Direction (deg)	5	360	206	99.3	99.1
Scalar Wind Speed (mph)	1.0	23.1	7.5	99.3	99.1
Scalar Wind Direction (deg.)	1	360	205	100.0	99.7
Sigma Theta (deg.)	4.4	64.3	15.9	100.0	99.7
Vertical Wind Speed (mph)	-0.14	1.27	0.25	99.3	99.1
Sigma W (mph)	0.05	2.36	0.86	99.3	99.1
Sigma Phi (deg)	1.66	24.3	6.7	99.3	99.1
Temperature (deg-F)	5.4	58.5	29.2	100.0	99.7
<u>2-Meter Level</u>					
Temperature (deg-F)	2.7	57.4	28.4	100.0	99.7
10-m - 2-m Delta Temp (F-deg)	-1.22	5.16	0.79	100.0	99.7
Relative Humidity (percent)	34.2	100.0	78.9	100.0	100.0
Dew Point Temperature (deg-F)	-1.1	50.9	22.2	100.0	99.7
Net Radiation (W/m ²)	-105.6	281.7	-49.7 (Avg. Daily Total)	100.0	100.0
Barometric Pressure (in. Hg.)	28.69	30.07	29.63	100.0	100.0
<u>Surface Level</u>					
Precipitation (Rain in inches)	0.00	0.17	2.13 (Total)	100.0	100.0

WIND ROSE PLOT:

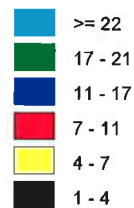
Honeywell Onondaga Lake - Meteorological Monitoring Program
Wastebed 13 Monitoring Site - 10-Meter Tower - December 2009

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(Knots)



Calms: 0.00%

COMMENTS:

DATA PERIOD:

2009
Dec 1 - Dec 31
00:00 - 23:00

COMPANY NAME:

PARSONS

MODELER:

CALM WINDS:

0.00%

TOTAL COUNT:

737 hrs.

AVG. WIND SPEED:

6.56 Knots

DATE:

1/7/2010

PROJECT NO.:

445162-04300