



Prepared for:  
Air Resources Division  
Research & Monitoring Branch  
303-969-2820

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# August 2009 Monthly Report

Final Data

Gaseous Pollutants & Meteorology  
NPS Gaseous Pollutant Monitoring Program

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**Attention:** The data collected by the **NPS Gaseous Pollutant Monitoring Program (GPMP)** during the month of **August 2009** have been fully validated and are considered final. The attached PDF file provides a brief summary of the data collected during the month. Viewing the PDF file requires Adobe Acrobat Reader. If you do not have this software, you can obtain a free download at the following Web link: <http://www.adobe.com/products/acrobat/readstep2.html>

#### **ACCESS TO GPMP DATA AND DATA PRODUCTS ON THE WEB**

If opening email attachments is prohibited on your network, you can find a copy of this and previous months' summaries on the GPMP Project Web Site at: <http://ard-request.air-resource.com/project>. You may also visit this web site for more information about the GPMP.

All validated NPS GPMP data are available on the web at: <http://ard-request.air-resource.com>. From this Web Site you may directly access hourly average data files, stacked data plots, and a variety of other data products. Click on "Get Data Files" or "Get Plots" and follow the directions on the page.

#### **FEEDBACK AND COMMENTS**

We want to hear from you. Please contact us with your questions and comments regarding this month's data. We would also like to hear your comments on the project Web Site. Your feedback is important to us.

Please direct all questions and comments to the GPMP contractor at:

Air Resource Specialists, Inc.  
Information Management Center  
Phone: 800-344-5423  
[Air-Imc@air-resource.com](mailto:Air-Imc@air-resource.com)

Or contact the National Park Service Air Resources Division (NPS ARD):

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**Summary of Ozone Data by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	4 Highest Daily Maximum 8-Hour Average Concentrations <sup>1</sup> (ppb)				# Days with 8-Hour Average O3 Values >=76 ppb <sup>3</sup>	Highest Daily Maximum 1-Hour Average Concentrations <sup>2</sup> (ppb)	
		1st Highest	2nd Highest	3rd Highest	4th Highest		1st Highest	# Days with 1-Hour Average O3 Values >=125 ppb
Agate Fossil Beds	Residence Area	62	62	60	56	0	67	0
Assateague Island	Maintenance Area	58	56	54	52	0	63	0
Big Bend	K-Bar Ranch Road	60	60	54	51	0	62	0
Canyonlands	Island in the Sky	74	69	64	61	0	78	0
Carlsbad Caverns	Maintenance Area	65	60	59	58	0	73	0
Chiricahua	Entrance Station	60	59	58	57	0	65	0
Colorado	Maintenance Yard	60	57	56	56	0	67	0
Craters of the Moon	Visitor Center	57	57	56	56	0	61	0
Cumberland Gap	Hensley Settlement	59	54	54	53	0	62	0
Death Valley	Park Village	86	77	68	67	2	98	0
Denali	Headquarters	37	34	33	32	0	38	0
Devil's Tower	Joyner Ridge Trail	63	62	61	58	0	73	0
Dinosaur	West Entrance Housing	60	59	58	56	0	68	0
Glacier	Saint Mary's Ranger District	56	53	52	50	0	58	0
Glacier	West Glacier Horse Stables	50	47	46	45	0	54	0
Grand Canyon	The Abyss	67	65	64	62	0	69	0
Great Basin	Maintenance Yard	74	73	68	65	0	77	0
Great Smoky Mountains	Clingmans Dome	68	68	63	63	0	73	0
Great Smoky Mountains	Cove Mountain	65	64	63	61	0	70	0
Great Smoky Mountains	Look Rock	65	59	59	58	0	68	0
Joshua Tree	Black Rock	92	91	87	87	18	106	0
Joshua Tree	Cottonwood Canyon	77	75	74	74	1	82	0
Joshua Tree	Pinto Wells	81	75	72	71	1	88	0
Lassen Volcanic	Manzanita Lake Fire Stn.	64	63	63	63	0	79	0
Mammoth Cave	Houchin Meadow	62	58	57	56	0	66	0
Mesa Verde	Resource Mngmt Area	70	68	67	65	0	75	0
Mojave	Kelso Mountains	85	83	81	80	7	92	0
Mount Rainier	Tahoma Woods	59	50	48	47	0	65	0
Natchez Trace	Buzzard Roost Sprints	53	52	49	48	0	62	0
Olympic	Deer Park	58	57	57	54	0	65	0

**Summary of Ozone Data by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	4 Highest Daily Maximum 8-Hour Average Concentrations <sup>1</sup> (ppb)				# Days with 8-Hour Average O3 Values >=76 ppb <sup>3</sup>	Highest Daily Maximum 1-Hour Average Concentrations <sup>2</sup> (ppb)	
		1st Highest	2nd Highest	3rd Highest	4th Highest		1st Highest	# Days with 1-Hour Average O3 Values >=125 ppb
Petrified Forest	South Entrance	60	60	59	58	0	66	0
Pinnacles	SW of East Entrance Stn.	70	69	63	63	0	84	0
Rocky Mountain	Long's Peak	70	68	67	66	0	80	0
Rocky Mountain	Trail Ridge portable	71	66	65	63	0	76	0
Sequoia and Kings Canyon	Ash Mountain	100	98	96	94	15	111	0
Sequoia and Kings Canyon	Lower Kaweah	85	80	79	76	5	96	0
Shenandoah	Big Meadows	54	53	53	51	0	57	0
Shiloh	Russian Tenant Field	49	47	47	46	0	54	0
Voyageurs	Sullivan Bay	51	50	46	46	0	57	0
Yellowstone	Water Tank	58	58	52	51	0	62	0
Yosemite	School Yard	66	64	63	62	0	76	0
Yosemite	Turtleback Dome	86	83	79	78	6	97	0
Yosemite - Mobile	Glacier Point	74	64	63	63	0	87	0
Zion	Dalton's Wash	64	63	62	62	0	68	0

1. The primary and secondary National Ambient Air Quality Standard for ozone is 0.075 ppm over an 8-hour period. (Attainment of the primary standard is reached if the annual fourth highest daily maximum 8-hour ozone concentration, averaged over three years, does not exceed 0.075 ppm, 75 ppb, or 147 µg/m<sup>3</sup>.) (40 CFR 50.10 with reference to Appendix D and I.)

2. The primary and secondary National Ambient Air Quality Standard for ozone is 0.12 ppm over a 1-hour period not to be exceeded more than once per year. (A value greater than 0.12 ppm, 124 ppb, or 235 µg/m<sup>3</sup>.) (40 CFR 50.9 with reference to Appendix D and H.)

3. An exceedance of the National Ambient Air Quality Standard for ozone occurs when an 8-hour average ozone concentration exceeds 0.075 ppm, 75 ppb, or 147µg/m<sup>3</sup>. (40 CFR 50.10 with reference to Appendix D and I.)

**Summary of Sulfur Dioxide Data by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	Highest Hourly Average Concentration (ppb)	Highest Daily Maximum 3-Hour Average Concentrations <sup>1</sup> (ppb)		Highest Daily Maximum 24-Hour Average Concentrations <sup>2</sup> (ppb)	
			1st Highest	# Days with 3-Hour Average SO <sub>2</sub> Values >=550 ppb	1st Highest	# Days with 24-Hour Average SO <sub>2</sub> Values >=145 ppb
Great Smoky Mountains	Cove Mountain	4	2.6	0	1.1	0
Hawaii Volcanoes	Observatory - Additional	462	236.0	0	54.3	0
Hawaii Volcanoes	Visitor Center - Additional	4555	2667.0	2	506.5	2
Mammoth Cave	Houchin Meadow	6	4.7	0	1.8	0

1. The secondary National Ambient Air Quality Standard for sulfur dioxide is 0.5 ppm over a 3-hour period not to be exceeded more than once per year. (A value greater than 0.5 ppm, 549 ppb, or 1300 µg/m<sup>3</sup> exceeds the standard.) (40 CFR 50.5.)

2. The primary National Ambient Air Quality Standard for sulfur dioxide is 0.14 ppm over a 24-hour period not to be exceeded more than once per year. (A value greater than 0.14 ppm, 144 ppb, or 365 µg/m<sup>3</sup> exceeds the standard.) (40 CFR 50.4.)

**Summary of PM<sub>2.5</sub> by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	Sampler Type*	% Valid	Highest Daily 24-Hour Average Concentrations <sup>1</sup> (µg/m <sup>3</sup> )				
				1st Highest	2nd Highest	3rd Highest	4th Highest	No. of days with 24-Hour Average >35 µg/m <sup>3</sup>
Hawaii Volcanoes	Observatory	Sharp	100.0	16	15	12	9	0
Sequoia and Kings Canyon	Ash Mountain	Bam 1020	98.8	20	19	19	19	0
Yellowstone	Old Faithful	Bam 1020	0	-	-	-	-	0
Zion	Dalton's Wash	FRM or FEM	86.8	24	17	17	16	0

1. The primary daily National Ambient Air Quality Standard for PM<sub>2.5</sub> is a 24-hour average concentration of 35 µg/m<sup>3</sup>. (An exceedance of the standard occurs when a 24-hour average PM<sub>2.5</sub> concentration is greater than 35 µg/m<sup>3</sup>. A violation of the standard occurs when the 3-year average of the annual 98th percentile of 24-hour PM<sub>2.5</sub> concentrations is greater than 35 µg/m<sup>3</sup>.) (40 CFR 50.7.)

\*TEOM = tapered element oscillating micro-balance  
 BAM = Beta Attenuation Monitor

**Summary of PM<sub>10</sub> by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	Sampler Type*	% Valid	Highest Daily 24-Hour Average Concentrations <sup>1</sup> (µg/m <sup>3</sup> )				
				1st Highest	2nd Highest	3rd Highest	4th Highest	No. of days with 24-Hour Average >150 µg/m <sup>3</sup>
Joshua Tree	Cottonwood Canyon	E-SAMPLER	98.8	20	10	10	10	0

1. The primary daily National Ambient Air Quality Standard for PM<sub>10</sub> is a 24-hour average concentration of 150 µg/m<sup>3</sup>. (An exceedance of the standard occurs when a 24-hour average PM<sub>10</sub> concentration is greater than 150 µg/m<sup>3</sup>. A violation of the standard occurs when a 24-hour average concentration greater than 150 µg/m<sup>3</sup> occurs more than once in a calendar year.) (40 CFR 50.6.)

\*TEOM = tapered element oscillating micro-balance  
 BAM = Beta Attenuation Monitor

**Summary of Selected Meteorological Data by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	Wind Speed (Scalar) (m/s)	Ambient Temperature (degrees C)			Relative Humidity (%)			Precipitation (mm)
		Average	Average	Maximum	Minimum	Average	Maximum	Minimum	Accumulated during period
Agate Fossil Beds	Residence Area	2.3	18.9	36.0	2.2	63	100	13	50.2
Assateague Island	Maintenance Area	1.1	25.0	33.4	17.2	84	99	49	4.7
Big Bend	K-Bar Ranch Road	3.4	28.6	35.9	19.3	37	82	12	10.7
Canyonlands	Island in the Sky	3.0	24.9	32.9	14.4	20	65	5	0.5
Carlsbad Caverns	Maintenance Area	3.9	26.7	35.6	17.1	42	90	14	13.5
Chiricahua	Entrance Station	2.3	24.4	35.0	16.4	49	96	14	45.4
Colorado	Maintenance Yard	1.7	24.8	34.6	13.7	22	76	7	6.1
Craters of the Moon	Visitor Center	3.1	18.1	32.9	5.4	34	89	8	—
Cumberland Gap	Hensley Settlement	2.1	19.7	26.1	12.1	87	100	59	131.8
Death Valley	Park Village	3.9	37.8	45.8	26.4	10	42	3	0.4
Denali	Headquarters	1.2	9.7	24.9	-2.0	74	100	19	70.5
Devil's Tower	Joyner Ridge Trail	1.3	18.9	35.0	4.1	62	100	13	61.1
Dinosaur	West Entrance Housing	1.3	22.7	37.3	6.8	36	94	7	7.6
Everglades	Beard Center	2.0	27.6	34.1	22.4	79	98	49	32.3
Glacier	Saint Mary's Ranger District	2.1	14.9	28.2	1.9	64	100	19	40.2
Glacier	West Glacier Horse Stables	0.7	16.3	29.8	3.2	68	95	14	38.8
Grand Canyon	The Abyss	2.7	22.5	31.4	11.8	26	98	5	25.9
Great Basin	Maintenance Yard	3.3	21.1	32.1	7.8	23	73	5	1.1
Great Smoky Mountains	Cades Cove	0.8	21.0	27.6	13.5	76	99	43	137.2
Great Smoky Mountains	Clingmans Dome	3.3	12.9	19.0	8.0	95	100	26	186.3
Great Smoky Mountains	Cove Mountain	3.4	18.7	25.2	12.3	85	100	53	132.6
Great Smoky Mountains	Look Rock	1.9	21.2	27.0	13.8	80	100	57	151.1
Hawaii Volcanoes	Observatory	5.9	17.4	25.1	13.3	86	98	61	28.7
Hawaii Volcanoes	Visitor Center	4.4	17.2	25.1	13.3	91	99	59	38.4
Joshua Tree	Black Rock	3.7	27.0	35.6	15.5	21	75	5	0.7
Joshua Tree	Cottonwood Canyon	2.4	29.4	38.0	16.6	22	75	7	0.9
Joshua Tree	Pinto Wells	2.9	34.0	45.1	21.9	19	76	6	1.0
Lassen Volcanic	Manzanita Lake Fire Stn.	1.8	15.5	28.5	4.3	47	95	16	16.3

**Summary of Selected Meteorological Data by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	Wind Speed (Scalar) (m/s)	Ambient Temperature (degrees C)			Relative Humidity (%)			Precipitation (mm)
		Average	Average	Maximum	Minimum	Average	Maximum	Minimum	Accumulated during period
Mammoth Cave	Houchin Meadow	1.3	23.1	31.8	12.0	77	95	46	35.3
Mesa Verde	Resource Mngment Area	3.2	22.0	30.4	12.2	26	93	6	37.8
Mojave	Kelso Mountains	3.2	28.2	37.0	13.9	21	82	8	2.9
Mount Rainier	Tahoma Woods	0.7	16.2	32.4	4.2	79	98	29	26.5
Natchez Trace	Buzzard Roost Sprints	0.3	24.7	35.2	11.9	83	100	36	46.5
Olympic	Deer Park	0.6	12.7	27.9	2.5	66	100	7	25.9
Petrified Forest	South Entrance	4.0	23.6	34.1	13.2	31	97	7	21.8
Pinnacles	SW of East Entrance Str.	2.5	21.5	40.2	3.8	44	87	9	0.0
Rocky Mountain	Long's Peak	2.0	14.2	25.4	3.2	47	98	10	18.3
Rocky Mountain	Trail Ridge portable	2.6	9.9	20.6	1.2	51	98	15	—
Sequoia and Kings Canyon	Ash Mountain	3.1	27.0	36.4	15.4	31	78	8	1.3
Sequoia and Kings Canyon	Lower Kaweah	1.8	17.8	27.1	5.8	43	94	16	9.3
Shenandoah	Big Meadows	1.3	18.9	26.5	9.6	79	95	46	100.0
Shiloh	Russian Tenant Field	0.8	25.2	34.0	15.9	85	99	41	—
Theodore Roosevelt	Painted Cany. VC	4.8	18.5	33.9	7.7	61	95	16	21.0
Voyageurs	Sullivan Bay	2.6	16.8	31.4	7.3	74	97	40	183.1
Wind Cave	Visitor Center	2.8	20.2	33.3	9.4	50	94	10	20.2
Yellowstone	Old Faithful	1.6	12.9	27.5	-2.9	56	97	7	—
Yellowstone	Water Tank	1.6	12.6	26.6	-0.7	58	96	8	32.9
Yosemite	School Yard	0.8	20.3	34.4	7.6	45	96	13	7.8
Yosemite	Turtleback Dome	4.3	20.1	29.7	8.4	33	89	13	6.9
Yosemite - Mobile	Glacier Point	----	16.6	26.2	3.7	34	91	12	—
Zion	Dalton's Wash	4.3	27.1	38.7	15.5	20	86	6	9.9

**Data Collections Statistics by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	Parameter Code													
		O3 % valid <sup>1</sup>	SO2 % valid <sup>1</sup>	SO2Add % valid <sup>1</sup>	PM2.5 % valid <sup>1</sup>	PM10 % valid <sup>1</sup>	VWD % valid <sup>1</sup>	SWS % valid <sup>1</sup>	TMP % valid <sup>1</sup>	RH % valid <sup>1</sup>	RNF % valid <sup>1</sup>	WET % valid <sup>1</sup>	DTP % valid <sup>1</sup>	SOL % valid <sup>1</sup>	FLOW % valid <sup>1</sup>
Agate Fossil Beds	Residence Area	99.7	—	—	—	—	—	99.9	99.9	99.9	99.9	—	—	99.9	—
Assateague Island	Maintenance Area	100.0	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	—
Big Bend	K-Bar Ranch Road	98.9	—	—	—	—	99.3	99.3	99.3	99.3	99.1	98.8	99.3	99.3	99.6
Canyonlands	Island in the Sky	98.4	—	—	—	—	99.6	99.6	99.2	99.9	98.9	99.2	99.2	99.9	100.0
Carlsbad Caverns	Maintenance Area	72.6	—	—	—	—	—	99.9	99.7	99.9	99.9	—	—	99.7	99.7
Chiricahua	Entrance Station	98.7	—	—	—	—	100.0	100.0	100.0	100.0	99.7	99.3	100.0	100.0	100.0
Colorado	Maintenance Yard	100.0	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	—
Craters of the Moon	Visitor Center	98.9	—	—	—	—	100.0	100.0	100.0	100.0	—	—	—	100.0	—
Cumberland Gap	Hensley Settlement	100.0	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	—
Death Valley	Park Village	99.2	—	—	—	—	99.9	99.9	99.9	99.9	98.9	—	—	99.9	—
Denali	Headquarters	99.7	—	—	—	—	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	100.0
Devil's Tower	Joyner Ridge Trail	82.3	—	—	—	—	—	99.9	99.7	99.7	99.9	—	—	99.7	99.7
Dinosaur	West Entrance Housing	99.7	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	100.0
Everglades	Beard Center	—	—	—	—	—	100.0	100.0	100.0	100.0	99.1	99.2	46.8	100.0	100.0
Glacier	Saint Mary's Ranger District	80.4	—	—	—	—	—	99.9	99.9	99.9	99.9	—	—	99.9	—
Glacier	West Glacier Horse Stables	98.5	—	—	—	—	99.5	99.5	99.5	99.5	99.2	99.1	99.5	99.2	99.6
Grand Canyon	The Abyss	99.2	—	—	—	—	100.0	100.0	100.0	100.0	99.5	99.5	100.0	100.0	100.0
Great Basin	Maintenance Yard	98.7	—	—	—	—	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	100.0
Great Smoky Mountains	Cades Cove	—	—	—	—	—	100.0	100.0	100.0	100.0	99.6	—	—	100.0	—
Great Smoky Mountains	Clingmans Dome	99.5	—	—	—	—	100.0	100.0	100.0	100.0	99.7	—	—	100.0	—
Great Smoky Mountains	Cove Mountain	99.7	99.7	—	—	—	100.0	100.0	100.0	100.0	99.9	—	—	—	—
Great Smoky Mountains	Look Rock	99.7	—	—	—	—	100.0	100.0	100.0	100.0	100.0	99.5	100.0	100.0	99.9
Hawaii Volcanoes	Observatory	—	95.8	95.8	100.0	—	100.0	100.0	100.0	100.0	99.5	—	—	—	—
Hawaii Volcanoes	Visitor Center	—	95.8	95.8	—	—	100.0	100.0	100.0	100.0	99.5	—	—	100.0	—
Joshua Tree	Black Rock	98.9	—	—	—	—	100.0	100.0	100.0	100.0	99.7	99.3	100.0	100.0	100.0
Joshua Tree	Cottonwood Canyon	95.8	—	—	—	98.8	100.0	100.0	100.0	100.0	100.0	—	—	100.0	—
Joshua Tree	Pinto Wells	97.7	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	100.0
Lassen Volcanic	Manzanita Lake Fire Str.	98.8	—	—	—	—	99.6	99.6	99.6	99.6	99.2	99.1	99.6	100.0	100.0
Mammoth Cave	Houchin Meadow	95.2	87.8	—	—	—	100.0	100.0	100.0	100.0	99.9	99.6	100.0	100.0	100.0
Mesa Verde	Resource Mngment Area	98.3	—	—	—	—	99.7	99.7	99.6	100.0	99.2	99.6	99.6	100.0	99.3
Mojave	Kelso Mountains	100.0	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	—
Mount Rainier	Tahoma Woods	90.6	—	—	—	—	100.0	100.0	100.0	100.0	100.0	99.9	100.0	100.0	100.0
Natchez Trace	Buzzard Roost Sprints	99.9	—	—	—	—	—	99.9	99.9	99.9	99.9	—	—	99.9	—

**Data Collections Statistics by Site**  
**08/01/2009 - 08/31/2009**  
**National Park Service Gaseous Pollutant Monitoring Program**

National Park Unit	Site Name	Parameter Code													
		O3 % valid <sup>1</sup>	SO2 % valid <sup>1</sup>	SO2Add % valid <sup>1</sup>	PM2.5 % valid <sup>1</sup>	PM10 % valid <sup>1</sup>	VWD % valid <sup>1</sup>	SWS % valid <sup>1</sup>	TMP % valid <sup>1</sup>	RH % valid <sup>1</sup>	RNF % valid <sup>1</sup>	WET % valid <sup>1</sup>	DTP % valid <sup>1</sup>	SOL % valid <sup>1</sup>	FLOW % valid <sup>1</sup>
Olympic	Deer Park	100.0	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	—
Petrified Forest	South Entrance	98.0	—	—	—	—	100.0	100.0	100.0	100.0	99.3	99.9	100.0	100.0	100.0
Pinnacles	SW of East Entrance Stn.	98.9	—	—	—	—	99.7	99.7	99.7	99.3	99.7	98.4	99.7	100.0	99.5
Rocky Mountain	Long's Peak	91.4	—	—	—	—	99.9	99.9	99.3	99.2	99.1	98.5	99.3	100.0	99.3
Rocky Mountain	Trail Ridge portable	100.0	—	—	—	—	—	100.0	100.0	100.0	—	—	—	100.0	—
Sequoia and Kings Canyon	Ash Mountain	97.8	—	—	98.8	—	99.3	99.3	100.0	100.0	98.9	99.1	100.0	100.0	99.9
Sequoia and Kings Canyon	Lower Kaweah	99.3	—	—	—	—	99.7	99.7	99.7	100.0	99.2	—	—	99.7	—
Shenandoah	Big Meadows	99.5	—	—	—	—	100.0	100.0	100.0	100.0	99.9	99.5	100.0	100.0	100.0
Shiloh	Russian Tenant Field	95.6	—	—	—	—	—	68.5	68.5	68.5	—	—	—	—	—
Theodore Roosevelt	Painted Cany. VC	—	—	—	—	—	99.5	99.5	99.5	99.5	98.8	98.8	99.5	99.5	99.9
Voyageurs	Sullivan Bay	96.6	—	—	—	—	99.5	99.5	99.5	99.5	99.3	97.0	99.5	100.0	97.4
Wind Cave	Visitor Center	—	—	—	—	—	100.0	100.0	100.0	100.0	99.9	99.2	100.0	100.0	100.0
Yellowstone	Old Faithful	—	—	—	0.0	—	100.0	100.0	100.0	100.0	—	—	—	—	—
Yellowstone	Water Tank	99.5	—	—	—	—	99.5	99.5	99.5	99.5	99.3	98.9	99.5	99.5	100.0
Yosemite	School Yard	100.0	—	—	—	—	—	100.0	100.0	100.0	100.0	—	—	100.0	—
Yosemite	Turtleback Dome	99.2	—	—	—	—	99.9	99.9	99.9	100.0	99.7	99.3	99.9	100.0	100.0
Yosemite - Mobile	Glacier Point	97.6	—	—	—	—	—	—	99.9	99.9	—	—	—	—	—
Zion	Dalton's Wash	99.7	—	—	86.8	—	100.0	100.0	100.0	100.0	99.6	—	—	100.0	—
<b>Average Network Data Collection</b>		97.1	94.8	95.8	71.4	98.8	99.8	99.2	99.2	99.3	99.6	99.2	97.5	99.9	99.8

**Key:**

O3 = Ozone Analyzer  
SO2 = Sulfur Dioxide Analyzer  
SO2Add = Sulfur Dioxide Analyzer  
VWD = Vector Wind Direction

SWS = Scalar Wind Speed  
TMP = Ambient Temperature  
RH = Relative Humidity  
RNF = Precipitation

WET = Wetness Sensor  
DTP = Delta Temperature  
SOL = Solar Radition  
FLOW = Filter Pack Flow Rate

**Performance Goals:**

Monthly Criteria:

100% of sites, >= 60% valid data capture  
90% of sites, >= 75% valid data capture  
80% of sites, >= 85% valid data capture

Quarterly Criteria:

100% of sites, >= 85% valid data capture  
90% of sites, >= 90% valid data capture  
80% of sites, >= 95% valid data capture

1. Percent valid can be less than 100% due to calibrations, routine maintenance, power failures, audits or other circumstances where the instrument was not available to collect data. For example, automatic zeros and spans are performed daily on most ambient gas analyzers; therefore, no ambient gas data can be collected during this time. As a result, the maximum percent valid for ambient gas data typically cannot be greater than 95.8. Percent valid can also be less than 100% due to influencing factors such as instrument error, operator error, timing problems, flow issues, and other factors that affect instrument operation.

Color shading key:  Acceptable: indicates data recovery of 85% - 100%  
 Marginal: indicates data recovery of 75% - 84.9%  
 Low: indicates data recovery of 60% - 74.9%  
 Unacceptable: indicates data recovery of 0% - 59.9%