2022 – 3rd Quarter Report

Support for Conducting Systems & Performance Audits of Clean Air Status and Trends Network (CASTNET) Sites and National Atmospheric Deposition Program (NADP) Monitoring Stations - II

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List of Acronyms and Abbreviations

% diff	percent difference
A/D	analog to digital converter
ARS	Air Resource Specialists, Inc.
ASTM	American Society for Testing and Materials
BLM	Bureau of Land Management
BLM-WSO	Bureau of Land Management – Wyoming State Office
CAL	Central Analytical Laboratory
CASTNET	Clean Air Status and Trends Network
CMAQ	Community Multiscale Air Quality
DAS	data acquisition system
deg	degree
DVM	digital voltmeter
ECCC	Environment and Climate Change Canada
EEMS	Environmental, Engineering & Measurement Services, Inc.
EPA	U.S. Environmental Protection Agency
ESC	Environmental Systems Corporation
FSA	Field Systems Audit
FSAD	Field Site Audit Database
GPS	geographical positioning system
HAL	Mercury Analytical Laboratory
LADCO	Lake Michigan Air Directors Consortium
lpm	liters per minute
ME DEP	Maine Department of Environmental Protection
MD DNR	Maryland Department of Natural Resources
MLM	Multilayer Model
MN PCA	Minnesota Pollution Control Agency
m/s	meters per second
mv	millivolt
NESCAUM	Northeast States for Coordinated Air Use Management
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NYDEC	New York Department of Conservation
NYSERDA	New York State Energy Research and Development Authority
OH EPA	Ohio Environmental Protection Agency
PE	Performance Evaluation
QAPP	Quality Assurance Project Plan
SCDHEC	South Carolina Department of Health and Environmental Control
SFWMD	South Florida Water Management District
SOP	standard operating procedure
TDEP	Total Deposition
TEI	Thermo Environmental Instruments
USDA-FS	United States Department of Agriculture – Forest Service
USFS	United States Forest Service

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USNO	United States Naval Observatory
VDC	volts direct current
WDEQ	Wyoming Department of Environmental Quality
WDNR	Wisconsin Department of Natural Resources
WRR	World Radiation Reference
WSLH	Wisconsin State Laboratory of Hygiene

1.0 CASTNET Quarterly Report

1.1 Introduction

The Clean Air Status and Trends Network (CASTNET) is a national air monitoring program established in 1988 by the US EPA. Nearly all CASTNET sites measures weekly concentrations of acidic gases and particles to provide accountability for EPA's emission reduction programs. Most sites measure ground-level ozone as well as supplemental measurements such as meteorology and/or other trace gas concentrations.

Ambient concentrations are used to estimate deposition rates of the various pollutants with the objective of determining relationships between emissions, air quality, deposition, and ecological effects. In conjunction with other national monitoring networks, CASTNET data are used to determine the effectiveness of national emissions control programs and to assess temporal trends and spatial deposition patterns in atmospheric pollutants. CASTNET data are also used for long-range transport model evaluations and critical loads research.

Historically, CASTNET pollutant flux measurements have been reported as the aggregate product of weekly measured concentrations and model-estimated deposition velocities. The Multi-layer Model (MLM) was used to derive deposition velocity estimates from on-site meteorological parameters, land use types, and site characteristics. In 2011, EPA discontinued meteorological measurements at most EPA-sponsored CASTNET sites.

Currently, CASTNET pollutant flux estimates are calculated as the aggregate product of weekly measured chemical concentrations and gridded model-estimated deposition velocities. Total deposition is assessed using the NADP's Total Deposition Hybrid Method (TDEP; EPA, 2015c; Schwede and Lear, 2014), which combines data from established ambient monitoring networks and chemical-transport models. To estimate dry deposition, ambient measurement data from CASTNET and other networks were merged with dry deposition rates and flux output from the Community Multiscale Air Quality (CMAQ) modeling system.

Since 2011 nearly all CASTNET ozone monitors have adhered to the requirements for State or Local Air Monitoring Stations (SLAMS) as specified by the EPA in 40 CFR Part 58. As such, the ozone data collected must meet the requirements in 40 CFR Part 58 Appendix A, which defines the quality assurance (QA) requirements for gaseous pollutant ambient air monitoring. The audits performed by EEMS under this contract fulfilled the requirement for annual performance evaluation audits of pollutant monitors in the network. The QA requirements can be found at:
https://www.epa.gov/amtic/regulations-guidance-and-monitoring-plans

Currently 87 CASTNET sites at 85 distinct locations measure ground-level ozone concentrations. Annual performance evaluation (PE), ozone audit data are submitted to the Air Quality System (AQS) database.

EPA suspended the operation of several sites throughout the US in second quarter 2022. They remain suspended as of the date of this report.

As of October 2022, the network is comprised of 110 active rural sampling sites across the United States and Canada, cooperatively operated by the Environmental Protection Agency (EPA), the National Park Service (NPS), Bureau of Land Management – Wyoming State Office (BLM-WSO) and several independent partners. WSP (formally Wood Environment and Infrastructure Solutions) is responsible for operating the EPA sponsored sites, and Air Resource Specialists, Inc. (ARS) is responsible for operating the NPS and BLM-WSO sponsored sites

1.2 Project Objectives

The objectives of this project are to establish an independent and unbiased program of performance and systems audits for all CASTNET sampling sites. Ongoing Quality Assurance (QA) programs are an essential part of any long-term monitoring network.

Performance audits verify that all reported variables are consistent with the accuracy goals as defined in the CASTNET Quality Assurance Project Plan (QAPP). The parameter specific accuracy goals are presented in Table 1.

Table 1. Performance Audit Challenge and Acceptance Criteria

Sensor	Parameter	Audit Challenge	Acceptance Criteria
Precipitation	Response	10 manual tips	1 DAS count per tip
Precipitation	Accuracy	2 introductions of known amounts of water	≤ ±10.0% of input amount
Relative Humidity	Accuracy	Compared to reference instrument or standard solution	≤ ±10.0% RH
Solar Radiation	Accuracy	Compared to WRR traceable standard	≤ ±10.0% of daytime average
Surface Wetness	Response	Distilled water spray mist	Positive response
Surface Wetness	Sensitivity	1% decade resistance	N/A
Temperature	Accuracy	Comparison to 3 NIST measured baths (~ 0° C, ambient, ~ full-scale)	≤ ± 0.5° C

Sensor	Parameter	Audit Challenge	Acceptance Criteria
Temperature Difference	Accuracy	Comparison to station temperature sensor	≤ ± 0.50° C
Shelter Temperature	Accuracy	Comparison to station temperature sensor	≤ ± 2.0° C
Wind Direction	Orientation Accuracy	Parallel to alignment rod/crossarm, or sighted to distant point	≤ ±5° from degrees true
Wind Direction	Linearity	Eight cardinal points on test fixture	≤ ±5° mean absolute error
Wind Direction	Response Threshold	Starting torque tested with torque gauge	< 10 g-cm Climatronics; < 20 g-cm R.M. Young
Wind Speed	Accuracy	Shaft rotational speed generated and measured with certified synchronous motor	≤ ±0.5 mps below 5.0 mps input; ≤ ±5.0% of input at or above 5.0 mps
Wind Speed	Starting Threshold	Starting torque tested with torque gauge	< 0.5 g-cm
Mass Flow Controller	Flow Rate	Comparison with Primary Standard	≤ ± 5.0% of designated rate
Ozone	Slope	Linear regression of multi-point test gas concentration as measured with a certified transfer standard	0.9000 ≤ m ≤ 1.1000
Ozone	Intercept		-5.0 ppb ≤ b ≤ 5.0 ppb
Ozone	Correlation Coefficient		0.9950 ≤ r
Ozone	Percent Difference	Comparison with Level 2 standard concentration	≤ ±15.1% of test gas concentration and ≤ ± 0.0015 ppm actual difference
DAS	Accuracy	Comparison with certified standard	≤ ± 0.003 VDC

Performance audits are conducted using standards that are traceable to the National Institute of Standards and Technology (NIST), or another authoritative organization, at least annually.

Field site systems audits (FSA) are intended to provide a qualitative appraisal of the total measurement system. Site planning, organization, and operation are evaluated to ensure that good Quality Assurance/Quality Control (QA/QC) practices are being applied. At a minimum the following audit issues were addressed at each site systems audit:

- Site locations and configurations match those provided in the CASTNET QAPP.
- Meteorological instruments are in good physical and operational condition and are sited to meet EPA ambient monitoring guidelines (EPA-600/4-82-060).
- Sites are accessible, orderly, and if applicable, compliant with OSHA safety standards.

- Sampling lines are free of leaks, kinks, visible contamination, weathering, and moisture.
- Site shelters provide adequate temperature control.
- All ambient air quality instruments are functional, being operated in the appropriate range, and the zero-air supply desiccant is unsaturated.
- All instruments are in current calibration.
- Site documentation (maintenance schedules, on-site SOPs, etc.) is current and log book records are complete.
- All maintenance and on-site SOPs are performed on schedule.
- Corrective actions are documented and appropriate for required maintenance/repair activity.
- Site operators demonstrate an adequate knowledge and ability to perform required site activities, including documentation and maintenance activities.

1.3 CASTNET Sites Visited Third Quarter 2022

This report consists of the systems and performance, and other audit results from the CASTNET sites visited during the third quarter (July through September) of 2022. The site locations, sponsor, visit dates, and parameters audited, are included in Table 2.

Table 2. CASTNET Site Audit Visits

Site ID	Sponsor	Date	FSA	O3 PE	SO2	CO	NOy	FLOW
ROM206	EPA	7/6/2022					1	
PED108	EPA	7/12/2022		1				
PAR107	EPA	7/14/2022		1				
WSP144	EPA	7/15/2022		1				
CAT175	EPA	7/20/2022	1					1
CHC432	NPS	7/25/2022		1				
EGB181	EPA	8/2/2022	1					1
GLR468	NPS	8/2/2022		1				
CNT169	EPA	8/9/2022		1				
CTH110	EPA	8/16/2022	1	1				1
SHN418	NPS	8/26/2022		1				
ZIO433	NPS	9/9/2022		1				
ALH157	EPA	9/10/2022		1				
BVL130	EPA	9/10/2022		1	1	1	1	
JOT403	NPS	9/13/2022	1	1				1

1.4 Audit Results

The observations and results of the systems, performance, and Ozone PE audits are included in Appendix A, *CASTNET Audit Report Forms* by site, arranged by audit date. Photographs of site conditions are included within each system report where necessary. Copies of the spot reports that were sent following the audit of each site are included as Appendix B, *CASTNET Site Spot Report Forms*.

Results of the PE audits of the gaseous pollutant monitors other than ozone, were submitted immediately following the PE and are not included in this report. All TTP PE results of gaseous pollutant monitors are uploaded to AQS and are available there. All audit data and reports are available from the EPA CASTNET website: https://java.epa.gov/castnet/reportPage.do

2.0 NADP Quarterly Report

2.1 Introduction

The National Atmospheric Deposition Program (NADP) operates two precipitation chemistry networks and two atmospheric concentration networks. The National Trends Network (NTN) has been measuring acidic precipitation since 1978. The network currently has more than 250 sites. The precipitation event-based Atmospheric Integrated Research Monitoring Network (AIRMoN) began operation in 1992, and as of July 2019 is no longer in operation. The Mercury Deposition Network (MDN) measures total mercury in precipitation samples from approximately 90 stations. The MDN began operation in 1996 and includes sites throughout the US and Canada. The Atmospheric Mercury Network (AMNet) and the Ammonia Monitoring Network (AMoN) measure ambient concentrations of mercury and ammonia, respectively.

The NADP and other long-term monitoring networks provide critical information to the EPA regarding evaluating the effectiveness of emission reduction control programs from the power industry. The networks of the NADP are sponsored by several federal, state, and local agencies as well as private organizations.

The NADP Program Office (PO) operates and administers the two precipitation chemistry networks (NTN and MDN), two atmospheric concentration networks (AMNet and AMoN), and two analytical laboratories (CAL and HAL), from the Wisconsin State Lab of Hygiene (WSLH) at the University of Wisconsin in Madison. The network equipment depot (NED) is also located at the WSLH.

2.2 Project Objectives

The objective of this project is to perform independent and unbiased evaluations of the sites and their operation. These evaluations provide quality assurance pertaining to siting, sample collection and handling, equipment operation and maintenance, record keeping and field laboratory procedures.

More specifically, the surveys determine and report findings based on an established methodology consisting of completing a site questionnaire, testing the equipment and documenting with photographs the location, siting criteria, existing equipment, and any issues encountered that require such documentation.

2.3 NADP Sites Visited Third Quarter 2022

This report presents the NADP sites surveyed during the third quarter (July through September) of 2022. The station locations, sponsors, network. and dates of the surveys are presented in Table 3.

Table 3. NADP Site Survey Visits

Site ID	Sponsor	Date	NTN	MDN	AMoN
CO19	National Park Service - NIFA	7/5/2022	1		
CO88	National Park Service - NIFA	7/6/2022			1
CO21	USDA-FS-Fed 7	7/12/2022	1		
VA24	WSP - EPA	7/12/2022			1
CO01	USGS - NIFA	7/13/2022	1		
CO00	USGS - NIFA	7/14/2022	1		
WV18	WSP - EPA	7/14/2022			1
CO10	WSP - EPA	7/15/2022	1		
NJ99	WSP - EPA	7/15/2022			1
CO02	University of Colorado	7/19/2022	1		
CO90	University of Colorado	7/19/2022	1		
CO09	National Park Service - NIFA	7/20/2022	1		
NY91	WSP - EPA	7/20/2022			1
CAN5	USGS - NIFA	7/25/2022	1		
CO96	BLM – NIFA / USDA-FS-Fed 7	7/26/2022	1	1	
NY98	USGS – NIFA / WSP - EPA	7/26/2022	1		1
CO08	WSP - EPA	7/27/2022	1		
UT95	USDA - Forest Service - NIFA	7/28/2022	1		
MT97	USDA-FS-Fed 7	8/1/2022	1		
ON07	Environment Canada	8/2/2022	1		
MT98	USGS - NIFA	8/3/2022	1		
SK31	Saskatchewan Ministry of Environment	8/3/2022			1
ME98	National Park Service - NIFA	8/4/2022	1		
SK20	Saskatchewan Ministry of Environment	8/4/2022	1		
ME94	Passamaquoady Tribe	8/5/2022	1		
SK27	Environment Canada	8/5/2022		1	1
AB34	Wood Buffalo Environmental Association	8/8/2022	1		
AB32	Wood Buffalo Environmental Association	8/9/2022	1		
AB36	Wood Buffalo Environmental Association	8/9/2022	1		

Site ID	Sponsor	Date	NTN	MDN	AMoN
NH02	USDA - Forest Service - NIFA	8/9/2022	1		
VT01	USGS - NIFA	8/9/2022		1	
WY95	USDA - Forest Service – NIFA/ WSP - EPA	8/9/2022	1		1
NY67	NOAA – NIFA / WSP - EPA	8/16/2022	1		1
NY01	USGS - NIFA	8/17/2022	1		
WY00	USDA - Forest Service - NIFA	8/23/2022	1		
VA28	National Park Service - NIFA	8/26/2022	1	1	
CO91	USDA-FS-Fed 7	9/6/2022	**1**		
UT99	National Park Service - NIFA	9/9/2022	**1**		
IL46	WSP - EPA	9/10/2022			**1**
IL11	WSP - EPA	9/11/2022			**1**
CA67	National Park Service - NIFA	9/13/2022			**1**
WI31	Wisconsin Department of Natural Resources	9/13/2022	**1**	**1**	
WI35	WSP - EPA	9/14/2022	**1**		**1**
MN06	Leech Lake Band of Ojibwe	9/25/2022		**1**	
IA23	USGS - NIFA	9/26/2022	**1**		
IA08	USGS - NIFA	9/27/2022	**1**		
SD99	USGS - NIFA	9/29/2022	**1**		
WI37	USDA - Forest Service - NIFA	9/30/2022	**1**		

2.4 Survey Results

Site survey results are entered into a relational database. The database in turn generates Site Spot Reports which are distributed among the interested parties as soon as all the site data has been entered. Database tables with all the data collected and reviewed are then sent to the NADP Program Office and to the U.S. EPA Project Officers.

Other items gathered during the surveys (i.e., photographs, Belfort charts, etc.) are uploaded to the EPA OneDrive account where the NADP PO and the U.S. EPA POs can access them and download them as needed.

Given the volume of data generated, and the fact that data is distributed and/or is available via the internet, no survey results are included in this report.

APPENDIX A

CASTNET Audit Report Forms

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
PED108-Korey Devins-07/12/2022						
1	7/12/2022	DAS	Campbell	000406	CR3000	2511
2	7/12/2022	Ozone	ThermoElectron Inc	000732	49i A1NAA	1105347319
3	7/12/2022	Ozone Standard	ThermoElectron Inc	000214	49i A3NAA	0622717855
4	7/12/2022	Zero air pump	Werther International	06883	C 70/4	000815257

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1105347319	PED108	Korey Devins	07/12/2022	Ozone	000732

Slope:	1.00864	**Slope:**	0.00000
Intercept	0.01000	**Intercept**	0.00000
CorrCoff:	1.00000	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	1180030022	**Tfer Desc.**	Ozone primary stan
Tfer ID	01114		
Slope	1.00120	**Intercept**	0.25470
Cert Date	1/26/2022	**CorrCoff**	0.99999

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.38	0.12	0.19	ppb		0.07
primary	2	16.57	16.24	16.46	ppb		0.22
primary	3	36.58	36.17	36.28	ppb	0.3	
primary	4	68.34	67.80	68.46	ppb	0.97	
primary	5	111.83	111.11	112.10	ppb	0.89	

Sensor Component	Condition	Status
Audit Pressure	745.5 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	-0.1	pass
Span	1.031	pass
Zero Voltage	N/A	pass
Fullscale Voltage	N/A	pass
Cell A Freq.	91.7 kHz	pass
Cell A Noise	0.6 ppb	pass
Cell A Flow	0.64 lpm	pass
Cell A Pressure	701.8 mmHg	pass
Cell A Tmp.	36.0 C	pass
Cell B Freq.	109.1 kHz	pass
Cell B Noise	0.6 ppb	pass
Cell B Flow	0.56 lpm	pass
Cell B Pressure	702.7 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
PAR107-Korey Devins-07/14/2022						
1	7/14/2022	DAS	Campbell	000333	CR3000	2112
2	7/14/2022	Ozone	ThermoElectron Inc	000624	49i A1NAA	1009241792
3	7/14/2022	Ozone Standard	ThermoElectron Inc	000436	49i A3NAA	CM08200012
4	7/14/2022	Zero air pump	Werther International	07291	C 120/TC	001071024

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1009241792	PAR107	Korey Devins	07/14/2022	Ozone	000624

Slope:	0.99287	**Slope:**	0.00000
Intercept	-0.18493	**Intercept**	0.00000
CorrCoff:	1.00000	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	1180030022	**Tfer Desc.**	Ozone primary stan
Tfer ID	01114		
Slope	1.00120	**Intercept**	0.25470
Cert Date	1/26/2022	**CorrCoff**	0.99999

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.48	0.22	0.17	ppb		-0.05
primary	2	16.54	16.21	15.83	ppb		-0.38
primary	3	35.96	35.55	35.10	ppb	-1.27	
primary	4	68.19	67.65	66.82	ppb	-1.23	
primary	5	108.94	108.24	107.40	ppb	-0.78	

Sensor Component	Condition	Status
Audit Pressure	720.6 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	-0.1	pass
Span	1.006	pass
Zero Voltage	N/A	pass
Fullscale Voltage	N/A	pass
Cell A Freq.	93.4 kHz	pass
Cell A Noise	0.8 ppb	pass
Cell A Flow	0.70 lpm	pass
Cell A Pressure	685.8 mmHg	pass
Cell A Tmp.	37.2 C	pass
Cell B Freq.	95.3 kHz	pass
Cell B Noise	0.8 ppb	pass
Cell B Flow	0.70 lpm	pass
Cell B Pressure	686.7 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
WSP144-Korey Devins-07/15/2022						
1	7/15/2022	DAS	Campbell	000430	CR3000	2525
2	7/15/2022	Ozone	ThermoElectron Inc	000745	49i A1NAA	1105347310
3	7/15/2022	Ozone Standard	ThermoElectron Inc	000543	49i A3NAA	0929938240
4	7/15/2022	Zero air pump	Werther International	06880	C 70/4	000814273

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1105347310	WSP144	Korey Devins	07/15/2022	Ozone	000745

Slope:	0.98474	**Slope:**	0.00000
Intercept	0.12681	**Intercept**	0.00000
CorrCoff:	0.99996	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	1180030022	**Tfer Desc.**	Ozone primary stan
Tfer ID	01114		
Slope	1.00120	**Intercept**	0.25470
Cert Date	1/26/2022	**CorrCoff**	0.99999

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.38	0.12	-0.27	ppb		-0.39
primary	2	16.48	16.15	16.45	ppb		0.3
primary	3	36.38	35.97	35.60	ppb	-1.03	
primary	4	68.61	68.07	67.46	ppb	-0.9	
primary	5	113.24	112.52	110.67	ppb	-1.66	

Sensor Component	Audit Pressure	**Condition**	762.5 mmHg	**Status**	pass
Sensor Component	26.6 degree unobstructed rule	**Condition**	True	**Status**	pass
Sensor Component	Tree dewline >10m or below inlet	**Condition**	True	**Status**	pass
Sensor Component	ADT 1000-10000 vehicles further t	**Condition**	True	**Status**	pass
Sensor Component	ADT <1000 vehicles further than 5	**Condition**	True	**Status**	pass
Sensor Component	Sample Train	**Condition**	Good	**Status**	pass
Sensor Component	Inlet Filter Condition	**Condition**	Clean	**Status**	pass
Sensor Component	Offset	**Condition**	0.000	**Status**	pass
Sensor Component	Span	**Condition**	1.013	**Status**	pass
Sensor Component	Zero Voltage	**Condition**	N/A	**Status**	pass
Sensor Component	Fullscale Voltage	**Condition**	N/A	**Status**	pass
Sensor Component	Cell A Freq.	**Condition**	92.5 kHz	**Status**	pass
Sensor Component	Cell A Noise	**Condition**	0.6 ppb	**Status**	pass
Sensor Component	Cell A Flow	**Condition**	0.68 lpm	**Status**	pass
Sensor Component	Cell A Pressure	**Condition**	736.6 mmHg	**Status**	pass
Sensor Component	Cell A Tmp.	**Condition**	36.4 C	**Status**	pass
Sensor Component	Cell B Freq.	**Condition**	96.7 kHz	**Status**	pass
Sensor Component	Cell B Noise	**Condition**	0.6 ppb	**Status**	pass
Sensor Component	Cell B Flow	**Condition**	0.72 lpm	**Status**	pass
Sensor Component	Cell B Pressure	**Condition**	737.5 mmHg	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
CAT175-Korey Devins-07/20/2022						
1	7/20/2022	DAS	Campbell	000412	CR3000	2532
2	7/20/2022	Elevation	Elevation	None	1	None
3	7/20/2022	Filter pack flow pump	Brailsford	none	TD-4X2N	1016
4	7/20/2022	Flow Rate	Apex	000603	AXMC105LPMDPCV	illegible
5	7/20/2022	Infrastructure	Infrastructure	none	none	none
6	7/20/2022	Modem	Digi	07201	LR54	Illegible
7	7/20/2022	Sample Tower	Aluma Tower	666359	B	none
8	7/20/2022	Shield (10 meter)	RM Young	none	41003	none
9	7/20/2022	Siting Criteria	Siting Criteria	None	1	None
10	7/20/2022	Temperature	RM Young	06409	41342VO	14042
11	7/20/2022	UPS	ProSine	04576	1000w	unknown

Flow Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Apex	illegible	CAT175	Korey Devins	07/20/2022	Flow Rate	000603

Mfg	BIOS	**Parameter**	Flow Rate
Serial Number	131818	**Tfer Desc.**	BIOS 220-H
Tfer ID	01417		
Slope	0.99384	**Intercept**	0.00125
Cert Date	2/4/2022	**CorrCoff**	0.99990

DAS 1:		DAS 2:			
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**	**Cal Factor Zero**	0.003
				Cal Factor Full Scale	0.975
34.96%	35.24%			**Rotometer Reading:**	2.5

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalU	PctDifference
primary	pump off	0.000	0.000	0.00	0.000	0.00	l/m	l/m	
primary	leak check	0.000	0.000	0.00	0.000	-0.03	l/m	l/m	
primary	test pt 1	2.293	2.310	1.54	0.000	1.50	l/m	l/m	-34.98%
primary	test pt 2	2.291	2.300	1.54	0.000	1.50	l/m	l/m	-34.65%
primary	test pt 3	2.300	2.310	1.54	0.000	1.50	l/m	l/m	-35.24%

Sensor Component	Leak Test	**Condition**		**Status**	pass
Sensor Component	Tubing Condition	**Condition**	Good	**Status**	pass
Sensor Component	Filter Position	**Condition**	Good	**Status**	pass
Sensor Component	Rotometer Condition	**Condition**	Clean and dry	**Status**	pass
Sensor Component	Moisture Present	**Condition**	No moisture present	**Status**	pass
Sensor Component	Filter Distance	**Condition**	4.0 cm	**Status**	pass
Sensor Component	Filter Depth	**Condition**	2.5 cm	**Status**	pass
Sensor Component	Filter Azimuth	**Condition**	195 cm	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Temperature Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
RM Young	14042	CAT175	Korey Devins	07/20/2022	Temperature	06409

Mfg	Extech	**Parameter**	Temperature
Serial Number	H232734	**Tfer Desc.**	RTD
Tfer ID	01227		
Slope	1.00983	**Intercept**	0.15548
Cert Date	2/10/2022	**CorrCoff**	1.00000

DAS 1:		DAS 2:	
Abs Avg Err	**Abs Max Err**	**Abs Avg Err**	**Abs Max Err**
0.14	0.21		

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Range	0.37	0.21	0.000	0.4	C	0.21
primary	Temp Mid Range	30.65	30.20	0.000	30.1	C	-0.09
primary	Temp High Range	42.80	42.23	0.000	42.1	C	-0.12

Sensor Component	Shield	**Condition**	Moderately clean	**Status**	pass
Sensor Component	Blower	**Condition**	N/A	**Status**	pass
Sensor Component	Properly Sited	**Condition**	Properly sited	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Infrastructure Data For

Site ID	Technician	Site Visit Date
CAT175	Korey Devins	07/20/2022

Shelter Make	Shelter Model	Shelter Size
Ekto	8810 (s/n 1977-1)	640 cuft

Sensor Component	Condition	Status
Sample Tower Type	Type B	pass
Conduit	N/A	pass
Met Tower	N/A	pass
Moisture Trap	Installed	pass
Moisture Trap Type	Glass bottle and filter	pass
Power Cables	Good	pass
Shelter Temp Control	N/A	pass
Rotometer	Installed	pass
Sample Tower	Good	pass
Shelter Condition	Poor	Fail
Shelter Door	Fair	pass
Shelter Roof	Fair	pass
Shelter Floor	Poor	Fail
Shelter walls	Poor	Fail
Excessive mold present	Poor	Fail
Signal Cable	Good	pass
Tubing Type	3/8 teflon	pass
Sample Train	Good	pass
System Memo		pass

Field Systems Comments

1 **Parameter:** DasComments

The shelter is not temperature controlled. The site is solar and DC battery powered. The met tower has been removed and the temperature is being measured from the sample tower at 10 meters above ground.

2 **Parameter:** DocumentationCo

The site copies of the SSRF are no longer kept onsite.

3 **Parameter:** ShelterCleanNotes

The shelter is seriously deteriorated with rot and mold on the walls. The vegetation has been allowed to grow. The shelter roof has been repaired.

4 **Parameter:** PollAnalyzerCom

Ozone monitoring is no longer being conducted at the site.

Siting Criteria Form

Sensor Component	Large point source of So2 or Nox	Condition		Status	pass
Sensor Component	City > 50,000	Condition		Status	pass
Sensor Component	City 1,000 to 10,000	Condition		Status	pass
Sensor Component	City 10,000 to 50,000	Condition		Status	pass
Sensor Component	Feedlot operations	Condition		Status	pass
Sensor Component	Large parking lot	Condition		Status	pass
Sensor Component	Limited agriculture operations	Condition		Status	pass
Sensor Component	Major industrial source	Condition		Status	pass
Sensor Component	Secondary road < or = 100 per da	Condition		Status	pass
Sensor Component	Secondary road >100 vehicles/da	Condition		Status	pass
Sensor Component	Small parking lot	Condition		Status	pass
Sensor Component	System Memo	Condition		Status	pass
Sensor Component	Major highway, airport, or rail yard	Condition		Status	pass
Sensor Component	Intensive agriculture operations	Condition		Status	pass

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID	CAT175	**Technician**	Korey Devins	**Site Visit Date**	07/20/2022

Site Sponsor (agency)	EPA	**USGS Map**	Claryville
Operating Group	private	**Map Scale**	
AQS #		**Map Date**	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone	**QAPP Latitude**	41.9423
Deposition Measurement	dry	**QAPP Longitude**	-74.5519
Land Use	woodland - mixed	**QAPP Elevation Meters**	765
Terrain	complex	**QAPP Declination**	13.5
Conforms to MLM	No	**QAPP Declination Date**	2/22/2006
Site Telephone	(845) 798-0947	**Audit Latitude**	41.942325
Site Address 1	Wildcat Mt. Road	**Audit Longitude**	-74.551999
Site Address 2		**Audit Elevation**	754
County	Ulster	**Audit Declination**	-13.2
City, State	Claryville, NY		
Zip Code	12725	**Fire Extinguisher** ☑	New in 2015
Time Zone	Eastern	**First Aid Kit** ☑	
Primary Operator		**Safety Glasses** ☐	
Primary Op. Phone #		**Safety Hard Hat** ☑	
Primary Op. E-mail		**Climbing Belt** ☐	
Backup Operator		**Security Fence** ☐	
Backup Op. Phone #		**Secure Shelter** ☑	
Backup Op. E-mail		**Stable Entry Steps** ☐	

Shelter Working Room	☑	**Make**	Ekto	**Model**	8810 (s/n 1977-1)	**Shelter Size**	640 cuft
Shelter Clean	☑	**Notes**	The shelter is seriously deteriorated with rot and mold on the walls. The vegetation has been allowed to grow. The shelter roof has been repaired.				
Site OK	☑	**Notes**					

Driving Directions

From Liberty, NY go west on route 52 toward Grahamsville. Just before reaching Grahamsville, turn left onto County Road 19 to Claryville. Stay on 19 through Claryville and turn left on Wildcat Mt Road immediately after crossing the bridge at the far end of town. Bear right and follow the semi-paved road for about 0.7 miles to the fork. Go right at the fork and turn left at the first house on the left. The site is about .75 miles up the dirt road behind the house.

Field Systems Data Form

F-02058-1500-S3-rev002

Site ID	CAT175	Technician	Korey Devins	Site Visit Date	07/20/2022

1	Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?	☑	N/A
2	Are wind sensors mounted so as to minimize tower effects? (i.e. wind sensors should be mounted atop the tower or on a horizontally extended boom >2x the max diameter of the tower into the prevailing wind)	☑	N/A
3	Are the tower and sensors plumb?	☑	N/A
4	Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?	☑	
5	Are temperature and RH sensors sited to avoid unnatural conditions? (i.e. ground below sensors should be natural surface and not steeply sloped. Ridges, hollows, and areas of standing water should be avoided)	☑	
6	Is the solar radiation sensor plumb?	☑	N/A
7	Is it sited to avoid shading, or any artificial or reflected light?	☑	N/A
8	Is the rain gauge plumb?	☑	N/A
9	Is it sited to avoid sheltering effects from buildings, trees, towers, etc?	☑	N/A
10	Is the surface wetness sensor sited with the grid surface facing north?	☑	N/A
11	Is it inclined approximately 30 degrees?	☑	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S4-rev002

Site ID	CAT175	Technician	Korey Devins	Site Visit Date	07/20/2022

1	Do all the meterological sensors appear to be intact, in good condition, and well maintained?	☑	Temperature only
2	Are all the meteorological sensors operational online, and reporting data?	☑	Temperature only
3	Are the shields for the temperature and RH sensors clean?	☑	
4	Are the aspirated motors working?	☑	Natural aspiration
5	Is the solar radiation sensor's lens clean and free of scratches?	☑	N/A
6	Is the surface wetness sensor grid clean and undamaged?	☑	N/A
7	Are the sensor signal and power cables intact, in good condition, and well maintained?	☑	N/A
8	Are the sensor signal and power cable connections protected from the elements and well maintained?	☑	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S5-rev002

Site ID	CAT175	Technician	Korey Devins	Site Visit Date	07/20/2022

Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E

1	Do the sample inlets have at least a 270 degree arc of unrestricted airflow?	☑	
2	Are the sample inlets 3 - 15 meters above the ground?	☑	
3	Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees?	☑	

Pollutant analyzers and deposition equipment operations and maintenance

1	Do the analyzers and equipment appear to be in good condition and well maintained?	☑	Ozone not measured
2	Are the analyzers and monitors operational, on-line, and reporting data?	☑	
3	Describe ozone sample tube.		N/A
4	Describe dry dep sample tube.		3/8 teflon by 18 meters
5	Are in-line filters used in the ozone sample line? (if yes indicate location)	☐	N/A
6	Are sample lines clean, free of kinks, moisture, and obstructions?	☑	
7	Is the zero air supply desiccant unsaturated?	☐	N/A
8	Are there moisture traps in the sample lines?	☐	
9	Is there a rotometer in the dry deposition filter line, and is it clean?	☑	Clean and dry

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Ozone monitoring is no longer being conducted at the site.

Field Systems Data Form

F-02058-1500-S6-rev002

Site ID	CAT175	Technician	Korey Devins	Site Visit Date	07/20/2022

DAS, sensor translators, and peripheral equipment operations and maintenance

1	Do the DAS instruments appear to be in good condition and well maintained?	☑	
2	Are all the components of the DAS operational? (printers, modem, backup, etc)	☑	
3	Do the analyzer and sensor signal leads pass through lightning protection circuitry?	☑	Met sensors only
4	Are the signal connections protected from the weather and well maintained?	☑	
5	Are the signal leads connected to the correct DAS channel?	☑	
6	Are the DAS, sensor translators, and shelter properly grounded?	☑	
7	Does the instrument shelter have a stable power source?	☐	Solar power
8	Is the instrument shelter temperature controlled?	☐	Shelter not temperature controlled

		Stable	Grounded
9	Is the met tower stable and grounded?	☐	☐
10	Is the sample tower stable and grounded?	☑	☑
11	Tower comments?	Met tower removed	

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

The shelter is not temperature controlled. The site is solar and DC battery powered. The met tower has been removed and the temperature is being measured from the sample tower at 10 meters above ground.

Field Systems Data Form

F-02058-1500-S7-rev002

Site ID CAT175 **Technician** Korey Devins **Site Visit Date** 07/20/2022

Documentation

Does the site have the required instrument and equipment manuals?

	Yes	No	N/A		Yes	No	N/A
Wind speed sensor	☐	☐	☑	Data logger	☐	☑	☐
Wind direction sensor	☐	☐	☑	Data logger	☐	☐	☑
Temperature sensor	☑	☐	☐	Strip chart recorder	☐	☐	☑
Relative humidity sensor	☐	☐	☑	Computer	☐	☑	☐
Solar radiation sensor	☐	☐	☑	Modem	☐	☑	☐
Surface wetness sensor	☐	☐	☑	Printer	☐	☐	☑
Wind sensor translator	☐	☐	☑	Zero air pump	☐	☐	☑
Temperature translator	☐	☐	☑	Filter flow pump	☐	☑	☐
Humidity sensor translator	☐	☐	☑	Surge protector	☐	☐	☑
Solar radiation translator	☐	☐	☑	UPS	☑	☐	☐
Tipping bucket rain gauge	☐	☐	☑	Lightning protection device	☐	☑	☐
Ozone analyzer	☐	☐	☑	Shelter heater	☐	☐	☑
Filter pack flow controller	☐	☑	☐	Shelter air conditioner	☐	☐	☑
Filter pack MFC power supply	☐	☐	☑				

Does the site have the required and most recent QC documents and report forms?

	Present		Current
Station Log	☑		☑
SSRF	☑		☑
Site Ops Manual	☑	Oct 2001	☐
HASP	☑	Oct 2015	☑
Field Ops Manual	☐		☐
Calibration Reports	☐		☐
Ozone z/s/p Control Charts	☐	N/A	☐
Preventive maintenance schedule	☐		☐

1	Is the station log properly completed during every site visit?	☑	
2	Are the Site Status Report Forms being completed and current?	☑	Not present
3	Are the chain-of-custody forms properly used to document sample transfer to and from lab?	☑	
4	Are ozone z/s/p control charts properly completed and current?	☐	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

The site copies of the SSRF are no longer kept onsite.

Field Systems Data Form

F-02058-1500-S8-rev002

Site ID	CAT175	Technician	Korey Devins	Site Visit Date	07/20/2022

Site operation procedures

1	Has the site operator attended a formal CASTNET training course? If yes, when and who instructed?	☐	Trained by previous operator
2	Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed?	☐	
3	Is the site visited regularly on the required Tuesday schedule?	☑	
4	Are the standard CASTNET operational procedures being flollowed by the site operator?	☑	
5	Is the site operator(s) knowledgeable of, and able to perform the required site activities? (including documentation)	☑	

Are regular operational QA/QC checks performed on meteorological instruments?

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	☑	Semiannually	☑
Visual Inspections	☑	Weekly	☑
Translator Zero/Span Tests (climatronics)	☐	N/A	☑
Manual Rain Gauge Test	☑	N/A	☑
Confirm Reasonableness of Current Values	☑	Weekly	☑
Test Surface Wetness Response	☑	N/A	☑

Are regular operational QA/QC checks performed on the ozone analyzer?

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	☐	N/A	☑
Automatic Zero/Span Tests	☐	N/A	☑
Manual Zero/Span Tests	☐	N/A	☑
Automatic Precision Level Tests	☐	N/A	☑
Manual Precision Level Test	☐	N/A	☑
Analyzer Diagnostics Tests	☐	N/A	☑
In-line Filter Replacement (at inlet)	☐	N/A	☑
In-line Filter Replacement (at analyze	☐	N/A	☑
Sample Line Check for Dirt/Water	☐	N/A	☑
Zero Air Desiccant Check	☐	N/A	☑

1	Do multi-point calibration gases go through the complete sample train including all filters?	☐	N/A
2	Do automatic and manual z/s/p gasses go through the complete sample train including all filters?	☐	N/A
3	Are the automatic and manual z/s/p checks monitored and reported? If yes, how?	☐	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S9-rev002

Site ID	CAT175	Technician	Korey Devins	Site Visit Date	07/20/2022

Site operation procedures

1	Is the filter pack being changed every Tuesday as scheduled?	☑	Filter changed mornings 95% of the time
2	Are the Site Status Report Forms being completed and filed correctly?	☐	
3	Are data downloads and backups being performed as scheduled?	☐	No longer required
4	Are general observations being made and recorded? How?	☐	
5	Are site supplies on-hand and replenished in a timely fashion?	☑	
6	Are sample flow rates recorded? How?	☑	SSRF, logbook
7	Are samples sent to the lab on a regular schedule in a timely fashion?	☑	
8	Are filters protected from contamination during handling and shipping? How?	☑	Clean gloves on and off
9	Are the site conditions reported regularly to the field operations manager or staff?	☑	

QC Check Performed		Frequency	Compliant
Multi-point MFC Calibrations	☑	Semiannually	☑
Flow System Leak Checks	☑	Weekly	☑
Filter Pack Inspection	☑	Weekly	☑
Flow Rate Setting Checks	☑	Weekly	☑
Visual Check of Flow Rate Rotometer	☑	Weekly	☑
In-line Filter Inspection/Replacement	☑	Semiannually	☑
Sample Line Check for Dirt/Water	☑	Weekly	☑

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S10-rev002

Site ID CAT175 **Technician** Korey Devins **Site Visit Date** 07/20/2022

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Campbell	CR3000	2532	000412
Elevation	Elevation	1	None	None
Filter pack flow pump	Brailsford	TD-4X2N	1016	none
Flow Rate	Apex	AXMC105LPMDPC	illegible	000603
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07201
Sample Tower	Aluma Tower	B	none	666359
Shield (10 meter)	RM Young	41003	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VO	14042	06409
UPS	ProSine	1000w	unknown	04576

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
CHC432-Martin Valvur-07/25/2022						
1	7/25/2022	DAS	Environmental Sys Corp	none	8832	A4871K
2	7/25/2022	Ozone	ThermoElectron Inc	none	49i A3NAA	0733726153
3	7/25/2022	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1152780006
4	7/25/2022	Zero air pump	Werther International	none	P 70/4	000756726

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	0733726153	CHC432	Martin Valvur	07/25/2022	Ozone	none

Slope:	0.96056	**Slope:**	0.00000
Intercept	-1.65060	**Intercept**	0.00000
CorrCoff:	0.99943	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	49CPS-70008-364	**Tfer Desc.**	Ozone primary stan
Tfer ID	01110		
Slope	1.00520	**Intercept**	-0.00890
Cert Date	1/26/2022	**CorrCoff**	1.00000

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.03	0.03	0.13	ppb		0.1
primary	2	15.05	14.97	12.38	ppb		-2.59
primary	3	36.60	36.39	31.33	ppb	-14.94	
primary	4	65.60	65.22	60.67	ppb	-7.23	
primary	5	110.11	109.47	104.40	ppb	-4.74	

Sensor Component	Condition	Status
Audit Pressure	608 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	-0.1	pass
Span	1.004	pass
Zero Voltage	N/A	pass
Fullscale Voltage	N/A	pass
Cell A Freq.	119.6 kHz	pass
Cell A Noise	1.5 ppb	pass
Cell A Flow	0.69 lpm	pass
Cell A Pressure	599.2 mmHg	pass
Cell A Tmp.	39.1 C	pass
Cell B Freq.	78.6 kHz	pass
Cell B Noise	1.1 ppb	pass
Cell B Flow	0.62 lpm	pass
Cell B Pressure	598.9 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

Site Visit Date		*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
GLR468-Martin Valvur-08/02/2022						
1	8/2/2022	DAS	Environmental Sys Corp	None	8864	C2600
2	8/2/2022	Ozone	ThermoElectron Inc	none	49i A3NCA	1201477661
3	8/2/2022	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	0733726104
4	8/2/2022	Zero air pump	Werther International	none	C 120/TC	001007354

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1201477661	GLR468	Martin Valvur	08/02/2022	Ozone	none

Slope:	1.01058	Slope:	0.00000
Intercept	0.11949	Intercept	0.00000
CorrCoff:	0.99999	CorrCoff:	0.00000

Mfg	ThermoElectron Inc	Parameter	ozone
Serial Number	49CPS-70008-364	Tfer Desc.	Ozone primary stan
Tfer ID	01110		
Slope	1.00520	Intercept	-0.00890
Cert Date	1/26/2022	CorrCoff	1.00000

DAS 1:		DAS 2:	
A Avg % Diff:	A Max % Dif	A Avg %Diff	A Max % Dif
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	-0.18	-0.17	0.22	ppb		0.39
primary	2	14.88	14.80	14.92	ppb		0.12
primary	3	35.22	35.02	35.50	ppb	1.36	
primary	4	65.41	65.03	65.54	ppb	0.78	
primary	5	115.85	115.17	116.70	ppb	1.32	

Sensor Component	Condition	Status
Audit Pressure	679 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	0.4	pass
Span	1.035	pass
Zero Voltage	0.0009	pass
Fullscale Voltage	1.0013	pass
Cell A Freq.	136.4 kHz	pass
Cell A Noise	1.1 ppb	pass
Cell A Flow	0.64 lpm	pass
Cell A Pressure	663.8 mmHg	pass
Cell A Tmp.	34.4 C	pass
Cell B Freq.	89.3 kHz	pass
Cell B Noise	0.9 ppb	pass
Cell B Flow	0.66 lpm	pass
Cell B Pressure	663.5 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

Site Visit Date		*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
EGB181-Korey Devins-08/02/2022						
1	8/2/2022	Computer	Dell	07018	Inspiron 15	Unknown
2	8/2/2022	DAS	Campbell	000408	CR3000	2538
3	8/2/2022	Elevation	Elevation	None	1	None
4	8/2/2022	Filter pack flow pump	Thomas	missing	107CAB18	110400000912
5	8/2/2022	Flow Rate	Apex	000469	AXMC105LPMDPCV	illegible
6	8/2/2022	Infrastructure	Infrastructure	none	none	none
7	8/2/2022	Modem	Digi	07170	LR54	Illegible
8	8/2/2022	Sample Tower	Aluma Tower	missing	B	unknown
9	8/2/2022	Shelter Temperature	Campbell	none	107-L	none
10	8/2/2022	Siting Criteria	Siting Criteria	None	1	None
11	8/2/2022	Temperature	RM Young	05044	41342VO	9640

DAS Data Form

DAS Time Max Error: 1.25

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Campbell	2538	EGB181	Korey Devins	08/02/2022	DAS	Primary

Das Date: 8 /2 /2022
Das Time: 08:27:00
Das Day: 214

Audit Date 8 /2 /2022
Audit Time 08:25:45
Audit Day 214

Low Channel:

Avg Diff:	Max Diff:
0.0001	0.0001

High Channel:

Avg Diff:	Max Diff:
0.0001	0.0001

Mfg	Datel	**Parameter**	DAS
Serial Number	15510194	**Tfer Desc.**	Source generator (D
Tfer ID	01320		
Slope	1.00000	**Intercept**	0.00000
Cert Date	2/13/2012	**CorrCoff**	1.00000

Mfg	Fluke	**Parameter**	DAS
Serial Number	95740135	**Tfer Desc.**	DVM
Tfer ID	01311		
Slope	1.00000	**Intercept**	0.00000
Cert Date	2/8/2022	**CorrCoff**	1.00000

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
7	0.0000	-0.0001	0.0000	V	V	0.0001
7	0.1000	0.0999	0.0999	V	V	0.0000
7	0.3000	0.2997	0.2997	V	V	0.0000
7	0.5000	0.4996	0.4995	V	V	-0.0001
7	0.7000	0.6995	0.6994	V	V	-0.0001
7	0.9000	0.8993	0.8992	V	V	-0.0001
7	1.0000	0.9992	0.9991	V	V	-0.0001

Flow Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Apex	illegible	EGB181	Korey Devins	08/02/2022	Flow Rate	000469

Mfg	BIOS	**Parameter**	Flow Rate
Serial Number	131818	**Tfer Desc.**	BIOS 220-H
Tfer ID	01417		
Slope	0.99384	**Intercept**	0.00125
Cert Date	2/4/2022	**CorrCoff**	0.99990

DAS 1:		DAS 2:			
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**	**Cal Factor Zero**	-0.005
				Cal Factor Full Scale	0.995
0.22%	0.40%			**Rotometer Reading:**	1.4

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalE	PctDifference
primary	pump off	0.000	0.000	-0.50	0.000	-0.23	l/m	l/m	
primary	leak check	0.000	0.000	-0.01	0.000	-0.02	l/m	l/m	
primary	test pt 1	1.492	1.500	1.51	0.000	1.49	l/m	l/m	-0.40%
primary	test pt 2	1.491	1.500	1.50	0.000	1.50	l/m	l/m	0.07%
primary	test pt 3	1.495	1.500	1.50	0.000	1.50	l/m	l/m	0.20%

Sensor Component	Leak Test	**Condition**		**Status**	Fail
Sensor Component	Tubing Condition	**Condition**	Good	**Status**	pass
Sensor Component	Filter Position	**Condition**	Good	**Status**	pass
Sensor Component	Rotometer Condition	**Condition**	Clean and dry	**Status**	pass
Sensor Component	Moisture Present	**Condition**	No moisture present	**Status**	pass
Sensor Component	Filter Distance	**Condition**	3.5 cm	**Status**	pass
Sensor Component	Filter Depth	**Condition**	1.0 cm	**Status**	pass
Sensor Component	Filter Azimuth	**Condition**	360 deg	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Temperature Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
RM Young	9640	EGB181	Korey Devins	08/02/2022	Temperature	05044

Mfg	Extech	**Parameter**	Temperature
Serial Number	H232734	**Tfer Desc.**	RTD
Tfer ID	01227		
Slope	1.00983	**Intercept**	0.15548
Cert Date	2/10/2022	**CorrCoff**	1.00000

DAS 1:		DAS 2:	
Abs Avg Err	**Abs Max Err**	**Abs Avg Err**	**Abs Max Err**
0.19	0.21		

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Range	0.44	0.28	0.000	0.1	C	-0.15
primary	Temp Mid Range	26.55	26.14	0.000	25.9	C	-0.2
primary	Temp High Range	44.98	44.39	0.000	44.2	C	-0.21

Sensor Component	Shield	**Condition**	Clean	**Status**	pass
Sensor Component	Blower	**Condition**	N/A	**Status**	pass
Sensor Component	Properly Sited	**Condition**	Properly sited	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Infrastructure Data For

Site ID	Technician	Site Visit Date
EGB181	Korey Devins	08/02/2022

Shelter Make	Shelter Model	Shelter Size
custom	N/A	7200 cuft

Sensor Component		Condition		Status	
Sensor Component	Sample Tower Type	Condition	Type B	Status	pass
Sensor Component	Conduit	Condition	Good	Status	pass
Sensor Component	Met Tower	Condition	N/A	Status	pass
Sensor Component	Moisture Trap	Condition	Installed	Status	pass
Sensor Component	Moisture Trap Type	Condition	Glass bottle and filter	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Shelter Temp Control	Condition	Functioning	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	Good	Status	pass
Sensor Component	Shelter Door	Condition	Good	Status	pass
Sensor Component	Shelter Roof	Condition	Good	Status	pass
Sensor Component	Shelter Floor	Condition	Good	Status	pass
Sensor Component	Shelter walls	Condition	Good	Status	pass
Sensor Component	Excessive mold present	Condition	Good	Status	pass
Sensor Component	Signal Cable	Condition	Good	Status	pass
Sensor Component	Tubing Type	Condition	3/8 teflon	Status	pass
Sensor Component	Sample Train	Condition	Good	Status	pass
Sensor Component	System Memo	Condition		Status	pass

Field Systems Comments

1 **Parameter:** SiteOpsProcComm

Filters are sent 4 at a time and stored in a refrigerator before and after sampling prior to shipment to the lab.

2 **Parameter:** DocumentationCo

The site operator does not use the logbook.

3 **Parameter:** ShelterCleanNotes

The shelter is provided by the Center for Atmospheric Research and is clean, organized, and spacious. The roof has been repaired.

4 **Parameter:** PollAnalyzerCom

Ozone concentration is not measured at EGB181 as part of CASTNET.

Siting Criteria Form

Sensor Component	Large point source of So2 or Nox	Condition		Status	pass
Sensor Component	City > 50,000	Condition		Status	pass
Sensor Component	City 1,000 to 10,000	Condition		Status	pass
Sensor Component	City 10,000 to 50,000	Condition		Status	pass
Sensor Component	Feedlot operations	Condition		Status	pass
Sensor Component	Large parking lot	Condition		Status	pass
Sensor Component	Limited agriculture operations	Condition		Status	pass
Sensor Component	Major industrial source	Condition		Status	pass
Sensor Component	Secondary road < or = 100 per da	Condition		Status	pass
Sensor Component	Secondary road >100 vehicles/da	Condition		Status	pass
Sensor Component	Small parking lot	Condition		Status	pass
Sensor Component	System Memo	Condition		Status	pass
Sensor Component	Major highway, airport, or rail yard	Condition		Status	pass
Sensor Component	Intensive agriculture operations	Condition		Status	pass

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID	EGB181	**Technician**	Korey Devins	**Site Visit Date**	08/02/2022

Site Sponsor (agency)	EPA/Envir Canada	**USGS Map**	
Operating Group	Envir Canada	**Map Scale**	
AQS #		**Map Date**	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	SO2, NOx, NOy, More	**QAPP Latitude**	44.2317
Deposition Measurement	dry, wet, CAPMon	**QAPP Longitude**	-79.7840
Land Use	Agriculture	**QAPP Elevation Meters**	251
Terrain	gentley rolling	**QAPP Declination**	10.75
Conforms to MLM	Yes	**QAPP Declination Date**	9/16/2005
Site Telephone	(705) 458-3309	**Audit Latitude**	44.231071
Site Address 1	Center for Atmospheric Research	**Audit Longitude**	-79.783115
Site Address 2	6248 Eighth Line	**Audit Elevation**	227
County		**Audit Declination**	-10.4
City, State	Egbert, Ontario		
Zip Code	CAN L0L 1N0	**Fire Extinguisher** ☑	inspected Oct 2019
Time Zone	Eastern	**First Aid Kit** ☑	
Primary Operator		**Safety Glasses** ☐	
Primary Op. Phone #		**Safety Hard Hat** ☐	
Primary Op. E-mail		**Climbing Belt** ☑	
Backup Operator		**Security Fence** ☑	
Backup Op. Phone #		**Secure Shelter** ☑	
Backup Op. E-mail		**Stable Entry Steps** ☑	

Shelter Working Room	☑	**Make**	custom	**Model**	N/A	**Shelter Size**	7200 cuft
Shelter Clean	☑	**Notes**	The shelter is provided by the Center for Atmospheric Research and is clean, organized, and spacious. The roof has been repaired.				
Site OK	☑	**Notes**					

Driving Directions

From Toronto take the 403 to the 401 and then go north on the 400 toward Barrie. Go west on Hwy 89 at the Cookstown exit. Turn right (north) on Hwy 27. Continue approximately 3 miles and turn left (west) on Side Road 10 at the sign for Egbert. Continue approximately 3.2 miles and turn right (north) on the dirt road at the Environment Canada, Center for Atmospheric Research. The site is through the locked gate on the left into the complex.

Field Systems Data Form

F-02058-1500-S3-rev002

Site ID	EGB181	Technician	Korey Devins	Site Visit Date	08/02/2022

1	Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?	☑	N/A
2	Are wind sensors mounted so as to minimize tower effects? (i.e. wind sensors should be mounted atop the tower or on a horizontally extended boom >2x the max diameter of the tower into the prevailing wind)	☑	N/A
3	Are the tower and sensors plumb?	☑	N/A
4	Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?	☑	
5	Are temperature and RH sensors sited to avoid unnatural conditions? (i.e. ground below sensors should be natural surface and not steeply sloped. Ridges, hollows, and areas of standing water should be avoided)	☑	
6	Is the solar radiation sensor plumb?	☑	N/A
7	Is it sited to avoid shading, or any artificial or reflected light?	☑	N/A
8	Is the rain gauge plumb?	☑	N/A
9	Is it sited to avoid sheltering effects from buildings, trees, towers, etc?	☑	N/A
10	Is the surface wetness sensor sited with the grid surface facing north?	☑	N/A
11	Is it inclined approximately 30 degrees?	☑	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S4-rev002

Site ID	EGB181	Technician	Korey Devins	Site Visit Date	08/02/2022

1	Do all the meterological sensors appear to be intact, in good condition, and well maintained?	☑	Temperature only
2	Are all the meteorological sensors operational online, and reporting data?	☑	Temperature only
3	Are the shields for the temperature and RH sensors clean?	☑	
4	Are the aspirated motors working?	☑	
5	Is the solar radiation sensor's lens clean and free of scratches?	☑	N/A
6	Is the surface wetness sensor grid clean and undamaged?	☑	N/A
7	Are the sensor signal and power cables intact, in good condition, and well maintained?	☑	
8	Are the sensor signal and power cable connections protected from the elements and well maintained?	☑	

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S5-rev002

Site ID	EGB181	Technician	Korey Devins	Site Visit Date	08/02/2022

Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E

1	Do the sample inlets have at least a 270 degree arc of unrestricted airflow?	☑	
2	Are the sample inlets 3 - 15 meters above the ground?	☑	
3	Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees?	☑	

Pollutant analyzers and deposition equipment operations and maintenance

1	Do the analyzers and equipment appear to be in good condition and well maintained?	☑	
2	Are the analyzers and monitors operational, on-line, and reporting data?	☑	
3	Describe ozone sample tube.		N/A
4	Describe dry dep sample tube.		3/8 teflon by 20 meters
5	Are in-line filters used in the ozone sample line? (if yes indicate location)	☐	N/A
6	Are sample lines clean, free of kinks, moisture, and obstructions?	☑	
7	Is the zero air supply desiccant unsaturated?	☐	N/A
8	Are there moisture traps in the sample lines?	☑	
9	Is there a rotometer in the dry deposition filter line, and is it clean?	☑	Clean and dry

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Ozone concentration is not measured at EGB181 as part of CASTNET.

Field Systems Data Form

F-02058-1500-S6-rev002

Site ID EGB181 **Technician** Korey Devins **Site Visit Date** 08/02/2022

DAS, sensor translators, and peripheral equipment operations and maintenance

1	Do the DAS instruments appear to be in good condition and well maintained?	☑	
2	Are all the components of the DAS operational? (printers, modem, backup, etc)	☑	
3	Do the analyzer and sensor signal leads pass through lightning protection circuitry?	☑	Met sensors only
4	Are the signal connections protected from the weather and well maintained?	☑	
5	Are the signal leads connected to the correct DAS channel?	☑	
6	Are the DAS, sensor translators, and shelter properly grounded?	☑	
7	Does the instrument shelter have a stable power source?	☑	
8	Is the instrument shelter temperature controlled?	☑	

		Stable	Grounded
9	Is the met tower stable and grounded?	☐	☐
10	Is the sample tower stable and grounded?	☑	☑

11 Tower comments?

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S7-rev002

Site ID	EGB181	Technician	Korey Devins	Site Visit Date	08/02/2022

Documentation

Does the site have the required instrument and equipment manuals?

	Yes	No	N/A		Yes	No	N/A
Wind speed sensor	☐	☐	☑	Data logger	☑	☐	☐
Wind direction sensor	☐	☐	☑	Data logger	☐	☐	☑
Temperature sensor	☑	☐	☐	Strip chart recorder	☐	☐	☑
Relative humidity sensor	☐	☐	☑	Computer	☑	☐	☐
Solar radiation sensor	☐	☐	☑	Modem	☑	☐	☐
Surface wetness sensor	☐	☐	☑	Printer	☐	☐	☑
Wind sensor translator	☐	☐	☑	Zero air pump	☐	☐	☑
Temperature translator	☐	☐	☑	Filter flow pump	☑	☐	☐
Humidity sensor translator	☐	☐	☑	Surge protector	☐	☐	☑
Solar radiation translator	☐	☐	☑	UPS	☐	☐	☑
Tipping bucket rain gauge	☐	☐	☑	Lightning protection device	☐	☐	☑
Ozone analyzer	☐	☐	☑	Shelter heater	☐	☐	☑
Filter pack flow controller	☑	☐	☐	Shelter air conditioner	☐	☐	☑
Filter pack MFC power supply	☐	☐	☑				

Does the site have the required and most recent QC documents and report forms?

	Present		Current
Station Log	☑		☐
SSRF	☑		☑
Site Ops Manual	☑	Oct 2001	☐
HASP	☑	March 2015	☐
Field Ops Manual	☑	March 2015	☐
Calibration Reports	☑		☑
Ozone z/s/p Control Charts	☐	N/A	☐
Preventive maintenance schedule	☐		☐

1	Is the station log properly completed during every site visit?	☐	Logbook not used
2	Are the Site Status Report Forms being completed and current?	☑	
3	Are the chain-of-custody forms properly used to document sample transfer to and from lab?	☑	
4	Are ozone z/s/p control charts properly completed and current?	☐	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

The site operator does not use the logbook.

Field Systems Data Form

F-02058-1500-S8-rev002

Site ID	EGB181	Technician	Korey Devins	Site Visit Date	08/02/2022

Site operation procedures

1	Has the site operator attended a formal CASTNET training course? If yes, when and who instructed?	☐	
2	Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed?	☐	
3	Is the site visited regularly on the required Tuesday schedule?	☑	
4	Are the standard CASTNET operational procedures being flollowed by the site operator?	☑	
5	Is the site operator(s) knowledgeable of, and able to perform the required site activities? (including documentation)	☑	

Are regular operational QA/QC checks performed on meteorological instruments?

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	☑	N/A	☑
Visual Inspections	☑	N/A	☑
Translator Zero/Span Tests (climatronics)	☐	N/A	☑
Manual Rain Gauge Test	☑	N/A	☑
Confirm Reasonableness of Current Values	☑	N/A	☑
Test Surface Wetness Response	☑	N/A	☑

Are regular operational QA/QC checks performed on the ozone analyzer?

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	☐	N/A	☑
Automatic Zero/Span Tests	☐	N/A	☑
Manual Zero/Span Tests	☐	N/A	☑
Automatic Precision Level Tests	☐	N/A	☑
Manual Precision Level Test	☐	N/A	☑
Analyzer Diagnostics Tests	☐	N/A	☑
In-line Filter Replacement (at inlet)	☐	N/A	☑
In-line Filter Replacement (at analyze	☐	N/A	☑
Sample Line Check for Dirt/Water	☐	N/A	☑
Zero Air Desiccant Check	☐	N/A	☑

1	Do multi-point calibration gases go through the complete sample train including all filters?	☐	N/A
2	Do automatic and manual z/s/p gasses go through the complete sample train including all filters?	☐	N/A
3	Are the automatic and manual z/s/p checks monitored and reported? If yes, how?	☐	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S9-rev002

Site ID	EGB181	Technician	Korey Devins	Site Visit Date	08/02/2022

Site operation procedures

1	Is the filter pack being changed every Tuesday as scheduled?	☑	Filter changed mornings
2	Are the Site Status Report Forms being completed and filed correctly?	☑	
3	Are data downloads and backups being performed as scheduled?	☐	No longer required
4	Are general observations being made and recorded? How?	☑	SSRF
5	Are site supplies on-hand and replenished in a timely fashion?	☑	
6	Are sample flow rates recorded? How?	☑	SSRF, call-in
7	Are samples sent to the lab on a regular schedule in a timely fashion?	☑	
8	Are filters protected from contamination during handling and shipping? How?	☑	Clean gloves on and off
9	Are the site conditions reported regularly to the field operations manager or staff?	☑	

QC Check Performed		Frequency	Compliant
Multi-point MFC Calibrations	☑	Semiannually	☑
Flow System Leak Checks	☑	Weekly	☑
Filter Pack Inspection	☐		☐
Flow Rate Setting Checks	☑	Daily	☑
Visual Check of Flow Rate Rotometer	☑	Weekly	☑
In-line Filter Inspection/Replacement	☑	Semiannually	☑
Sample Line Check for Dirt/Water	☐		☐

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Filters are sent 4 at a time and stored in a refrigerator before and after sampling prior to shipment to the lab.

Field Systems Data Form

F-02058-1500-S10-rev002

Site ID EGB181 **Technician** Korey Devins **Site Visit Date** 08/02/2022

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	Unknown	07018
DAS	Campbell	CR3000	2538	000408
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	110400000912	missing
Flow Rate	Apex	AXMC105LPMDPC	illegible	000469
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07170
Sample Tower	Aluma Tower	B	unknown	missing
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VO	9640	05044

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
CNT169-Martin Valvur-08/09/2022						
1	8/9/2022	DAS	Campbell	000427	CR3000	2526
2	8/9/2022	Ozone	ThermoElectron Inc	000620	49i A1NAA	1009241793
3	8/9/2022	Ozone Standard	ThermoElectron Inc	000687	49i A3NAA	1030244809
4	8/9/2022	Zero air pump	Werther International	06867	C 70/4	000814279

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1009241793	CNT169	Martin Valvur	08/09/2022	Ozone	000620

Slope:	0.98319	**Slope:**	0.00000
Intercept	-0.01389	**Intercept**	0.00000
CorrCoff:	0.99995	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	49CPS-70008-364	**Tfer Desc.**	Ozone primary stan
Tfer ID	01110		
Slope	1.00520	**Intercept**	-0.00890
Cert Date	1/26/2022	**CorrCoff**	1.00000

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	-0.19	-0.18	0.10	ppb		0.28
primary	2	14.85	14.77	14.66	ppb		-0.11
primary	3	34.80	34.60	33.85	ppb	-2.19	
primary	4	65.30	64.92	63.09	ppb	-2.86	
primary	5	115.69	115.01	113.50	ppb	-1.32	

Sensor Component	Condition	Status
Audit Pressure	533 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	-0.3	pass
Span	1.011	pass
Zero Voltage	N/A	pass
Fullscale Voltage	N/A	pass
Cell A Freq.	91.9 kHz	pass
Cell A Noise	0.4 ppb	pass
Cell A Flow	0.60 lpm	pass
Cell A Pressure	511.6 mmHg	pass
Cell A Tmp.	36.4 C	pass
Cell B Freq.	96.9 kHz	pass
Cell B Noise	0.9 ppb	pass
Cell B Flow	0.59 lpm	pass
Cell B Pressure	511.3 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
CTH110-Eric Hebert-08/16/2022						
1	8/16/2022	Computer	Dell	07044	Inspiron 15	Unknown
2	8/16/2022	DAS	Campbell	000415	CR3000	2510
3	8/16/2022	Elevation	Elevation	None	1	None
4	8/16/2022	Filter pack flow pump	Thomas	02664	107CA18	1092135217
5	8/16/2022	Flow Rate	Apex	000557	AXMC105LPMDPCV	unknown
6	8/16/2022	Infrastructure	Infrastructure	none	none	none
7	8/16/2022	Modem	Digi	07208	LR54	unknown
8	8/16/2022	Ozone	ThermoElectron Inc	000735	49i A1NAA	1105347308
9	8/16/2022	Ozone Standard	ThermoElectron Inc	000447	49i A3NAA	CM08200023
10	8/16/2022	Sample Tower	Aluma Tower	666363	B	AT-5107-E-4-10
11	8/16/2022	Shelter Temperature	Campbell	none	107-L	none
12	8/16/2022	Shield (10 meter)	RM Young	none	unknown	none
13	8/16/2022	Siting Criteria	Siting Criteria	None	1	None
14	8/16/2022	Temperature	RM Young	06301	41342	12540
15	8/16/2022	Zero air pump	Werther International	06864	PC70/4	000815261

DAS Data Form

DAS Time Max Error: 0.02

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Campbell	2510	CTH110	Eric Hebert	08/16/2022	DAS	Primary

Das Date: 8 /16/2022
Das Time: 13:40:59
Das Day: 228

Audit Date 8 /16/2022
Audit Time 13:41:00
Audit Day 228

Low Channel:

Avg Diff:	Max Diff:
0.0001	0.0002

High Channel:

Avg Diff:	Max Diff:
0.0001	0.0002

Mfg	Datel	**Parameter**	DAS
Serial Number	15510194	**Tfer Desc.**	Source generator (D
Tfer ID	01320		
Slope	1.00000	**Intercept**	0.00000
Cert Date	2/13/2012	**CorrCoff**	1.00000

Mfg	Fluke	**Parameter**	DAS
Serial Number	95740135	**Tfer Desc.**	DVM
Tfer ID	01311		
Slope	1.00000	**Intercept**	0.00000
Cert Date	2/8/2022	**CorrCoff**	1.00000

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
7	0.0000	0.0000	0.0000	V	V	0.0000
7	0.1000	0.0998	0.0999	V	V	0.0001
7	0.3000	0.2997	0.2996	V	V	-0.0001
7	0.5000	0.4996	0.4995	V	V	-0.0001
7	0.7000	0.6994	0.6993	V	V	-0.0001
7	0.9000	0.8993	0.8992	V	V	-0.0001
7	1.0000	0.9992	0.9990	V	V	-0.0002

Flow Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Apex	unknown	CTH110	Eric Hebert	08/16/2022	Flow Rate	000557

Mfg	BIOS	**Parameter**	Flow Rate
Serial Number	131818	**Tfer Desc.**	BIOS 220-H
Tfer ID	01417		
Slope	0.99384	**Intercept**	0.00125
Cert Date	2/4/2022	**CorrCoff**	0.99990

DAS 1:		DAS 2:			
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**	**Cal Factor Zero**	0.002
				Cal Factor Full Scale	0.882
1.95%	1.95%			**Rotometer Reading:**	1.55

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalU	PctDifference
primary	pump off	0.000	0.000	-0.01	0.000	0.00	l/m	l/m	
primary	leak check	0.000	0.000	0.00	0.000	0.00	l/m	l/m	
primary	test pt 1	1.535	1.540	1.71	0.000	1.51	l/m	l/m	-1.95%
primary	test pt 2	1.533	1.540	1.71	0.000	1.51	l/m	l/m	-1.95%
primary	test pt 3	1.534	1.540	1.71	0.000	1.51	l/m	l/m	-1.95%

Sensor Component	Leak Test	**Condition**		**Status**	pass
Sensor Component	Tubing Condition	**Condition**	Good	**Status**	pass
Sensor Component	Filter Position	**Condition**	Good	**Status**	pass
Sensor Component	Rotometer Condition	**Condition**	Clean and dry	**Status**	pass
Sensor Component	Moisture Present	**Condition**	No moisture present	**Status**	pass
Sensor Component	Filter Distance	**Condition**	2.0 cm	**Status**	pass
Sensor Component	Filter Depth	**Condition**	2.0 cm	**Status**	pass
Sensor Component	Filter Azimuth	**Condition**	180 deg	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1105347308	CTH110	Eric Hebert	08/16/2022	Ozone	000735

Slope:	1.00502	**Slope:**	0.00000
Intercept	-0.04515	**Intercept**	0.00000
CorrCoff:	1.00000	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	1180030022	**Tfer Desc.**	Ozone primary stan
Tfer ID	01114		
Slope	1.00120	**Intercept**	0.25470
Cert Date	1/26/2022	**CorrCoff**	0.99999

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.37	0.11	0.15	ppb		0.04
primary	2	16.12	15.80	15.69	ppb		-0.11
primary	3	35.93	35.52	35.68	ppb	0.45	
primary	4	69.86	69.32	69.68	ppb	0.52	
primary	5	110.03	109.32	109.80	ppb	0.44	

Sensor Component	Condition	Status
Audit Pressure	721.5 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	-0.10	pass
Span	1.003	pass
Zero Voltage	N/A	pass
Fullscale Voltage	N/A	pass
Cell A Freq.	117.5 kHz	pass
Cell A Noise	1.2 ppb	pass
Cell A Flow	0.67 lpm	pass
Cell A Pressure	679.7 mmHg	pass
Cell A Tmp.	33.6 C	pass
Cell B Freq.	101.4 kHz	pass
Cell B Noise	0.8 ppb	pass
Cell B Flow	0.58 lpm	pass
Cell B Pressure	680.0 kHz	pass
System Memo		pass

Temperature Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
RM Young	12540	CTH110	Eric Hebert	08/16/2022	Temperature	06301

Mfg	Extech	**Parameter**	Temperature
Serial Number	H232734	**Tfer Desc.**	RTD
Tfer ID	01227		
Slope	1.00983	**Intercept**	0.15548
Cert Date	2/10/2022	**CorrCoff**	1.00000

DAS 1:		DAS 2:	
Abs Avg Err	**Abs Max Err**	**Abs Avg Err**	**Abs Max Err**
0.08	0.17		

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Range	0.25	0.09	0.000	0.3	C	0.17
primary	Temp Mid Range	27.71	27.29	0.000	27.3	C	0.01
primary	Temp High Range	48.15	47.53	0.000	47.6	C	0.07

Sensor Component	Shield	**Condition**	Moderately clean	**Status**	pass
Sensor Component	Blower	**Condition**	N/A	**Status**	pass
Sensor Component	Properly Sited	**Condition**	Properly sited	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	CTH110	Eric Hebert	08/16/2022	Shelter Temperature	none

DAS 1:		DAS 2:	
Abs Avg Err	Abs Max Err	Abs Avg Err	Abs Max Err
0.54	0.95		

Mfg	Extech	Parameter	Shelter Temperature
Serial Number	H232734	Tfer Desc.	RTD
Tfer ID	01227		
Slope	1.00983	Intercept	0.15548
Cert Date	2/10/2022	CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	27.31	26.89	0.000	26.8	C	-0.13
primary	Temp Mid Range	25.96	25.55	0.000	26.5	C	0.95

Sensor Component	System Memo	Condition		Status	pass

Infrastructure Data For

Site ID	Technician	Site Visit Date
CTH110	Eric Hebert	08/16/2022

Shelter Make	Shelter Model	Shelter Size
Ekto	8810 (s/n 2116-6)	640 cuft

Sensor Component	Condition	Status
Sample Tower Type	Type B	pass
Conduit	N/A	pass
Met Tower	N/A	pass
Moisture Trap	Installed	pass
Moisture Trap Type	Glass bottle and filter	pass
Power Cables	Good	pass
Shelter Temp Control	Functioning	pass
Rotometer	Installed	pass
Sample Tower	Fair	pass
Shelter Condition	Fair	pass
Shelter Door	Good	pass
Shelter Roof	Fair	pass
Shelter Floor	Fair	pass
Shelter walls	Fair	pass
Excessive mold present	Fair	pass
Signal Cable	Good	pass
Tubing Type	3/8 teflon	pass
Sample Train	Good	pass
System Memo		pass

Field Systems Comments

1 **Parameter:** DasComments

The meteorological tower has been removed and the temperature sensor has been moved to the east leg of the sample tower at 10 meters above the ground. The shield has been changed from aspirated to naturally aspirated.

2 **Parameter:** SiteOpsProcedures

The ozone inlet filter is replaced and a Z/S/P is performed every two weeks.

3 **Parameter:** SitingCriteriaCom

There is a point source north of Ithaca within 40 km of the site. The tree line is less than 50 m from the site. The siting is acceptable even with the noted exceptions. Trees and overgrowth have recently been removed from the site which has improved siting criteria.

4 **Parameter:** ShelterCleanNotes

The condition of the shelter walls are beginning to deteriorate.

5 **Parameter:** MetSensorComme

The temperature sensor is mounted on the east leg of the sample tower.

Siting Criteria Form

Sensor Component	Large point source of So2 or Nox	Condition		Status	pass
Sensor Component	City > 50,000	Condition		Status	pass
Sensor Component	City 1,000 to 10,000	Condition		Status	pass
Sensor Component	City 10,000 to 50,000	Condition		Status	pass
Sensor Component	Feedlot operations	Condition		Status	pass
Sensor Component	Large parking lot	Condition		Status	pass
Sensor Component	Limited agriculture operations	Condition		Status	pass
Sensor Component	Major industrial source	Condition		Status	pass
Sensor Component	Secondary road < or = 100 per da	Condition		Status	pass
Sensor Component	Secondary road >100 vehicles/da	Condition		Status	pass
Sensor Component	Small parking lot	Condition		Status	pass
Sensor Component	System Memo	Condition		Status	pass
Sensor Component	Major highway, airport, or rail yard	Condition		Status	pass
Sensor Component	Intensive agriculture operations	Condition		Status	pass

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID	CTH110	**Technician**	Eric Hebert	**Site Visit Date**	08/16/2022

Site Sponsor (agency)	EPA	**USGS Map**	Mecklenburg
Operating Group	IES	**Map Scale**	
AQS #	36-109-9991	**Map Date**	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone, ammonia	**QAPP Latitude**	42.4010
Deposition Measurement	dry, wet	**QAPP Longitude**	-76.6535
Land Use	woodland - mixed	**QAPP Elevation Meters**	515
Terrain	rolling	**QAPP Declination**	12.3
Conforms to MLM	No	**QAPP Declination Date**	12/28/2004
Site Telephone	(607) 564-7622	**Audit Latitude**	42.400875
Site Address 1	CR 136 (Connecticut Hill Road)	**Audit Longitude**	-76.653516
Site Address 2		**Audit Elevation**	511
County	Tompkins	**Audit Declination**	-12.0
City, State	Newfield, NY		
Zip Code	14867	**Fire Extinguisher** ☑	New in 2015
Time Zone	Eastern	**First Aid Kit** ☑	
Primary Operator		**Safety Glasses** ☐	
Primary Op. Phone #		**Safety Hard Hat** ☑	
Primary Op. E-mail		**Climbing Belt** ☐	
Backup Operator		**Security Fence** ☐	
Backup Op. Phone #		**Secure Shelter** ☑	
Backup Op. E-mail		**Stable Entry Steps** ☑	

Shelter Working Room	☑	**Make**	Ekto	**Model**	8810 (s/n 2116-6)	**Shelter Size**	640 cuft
Shelter Clean	☐	**Notes**	The condition of the shelter walls are beginning to deteriorate.				
Site OK	☑	**Notes**					

Driving Directions

From Ithaca take route 13 south to hwy 327. Bear right onto hwy 327 and go past both the lower and upper entrances for Robert Treman St Park. Turn left at the second left past the upper entrance to the park onto Trumbell Corners Road. Continue on Trumbell Corners Rd for approximately one mile to the stop sign. Turn right at the stop onto Connecticut Hill Road and continue for approximately 1/4 mile where it veers to the right. The site is up the hill on the left just after the turn in the road.

Field Systems Data Form

F-02058-1500-S3-rev002

Site ID	CTH110	Technician	Eric Hebert	Site Visit Date	08/16/2022

1	Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?	☑	N/A
2	Are wind sensors mounted so as to minimize tower effects? (i.e. wind sensors should be mounted atop the tower or on a horizontally extended boom >2x the max diameter of the tower into the prevailing wind)	☑	N/A
3	Are the tower and sensors plumb?	☑	N/A
4	Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?	☑	East
5	Are temperature and RH sensors sited to avoid unnatural conditions? (i.e. ground below sensors should be natural surface and not steeply sloped. Ridges, hollows, and areas of standing water should be avoided)	☑	
6	Is the solar radiation sensor plumb?	☑	N/A
7	Is it sited to avoid shading, or any artificial or reflected light?	☑	N/A
8	Is the rain gauge plumb?	☑	N/A
9	Is it sited to avoid sheltering effects from buildings, trees, towers, etc?	☑	N/A
10	Is the surface wetness sensor sited with the grid surface facing north?	☑	N/A
11	Is it inclined approximately 30 degrees?	☑	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

The temperature sensor is mounted on the east leg of the sample tower.

Field Systems Data Form

F-02058-1500-S4-rev002

Site ID	CTH110	Technician	Eric Hebert	Site Visit Date	08/16/2022

1	Do all the meterological sensors appear to be intact, in good condition, and well maintained?	☑	Temperature only
2	Are all the meteorological sensors operational online, and reporting data?	☑	Temperature only
3	Are the shields for the temperature and RH sensors clean?	☑	
4	Are the aspirated motors working?	☑	N/A
5	Is the solar radiation sensor's lens clean and free of scratches?	☑	N/A
6	Is the surface wetness sensor grid clean and undamaged?	☑	N/A
7	Are the sensor signal and power cables intact, in good condition, and well maintained?	☑	
8	Are the sensor signal and power cable connections protected from the elements and well maintained?	☑	

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S5-rev002

Site ID CTH110 **Technician** Eric Hebert **Site Visit Date** 08/16/2022

Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E

1	Do the sample inlets have at least a 270 degree arc of unrestricted airflow?	☑	
2	Are the sample inlets 3 - 15 meters above the ground?	☑	
3	Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees?	☑	

Pollutant analyzers and deposition equipment operations and maintenance

1	Do the analyzers and equipment appear to be in good condition and well maintained?	☑	
2	Are the analyzers and monitors operational, on-line, and reporting data?	☑	
3	Describe ozone sample tube.		1/4 teflon by 12 meters
4	Describe dry dep sample tube.		3/8 teflon by 12 meters
5	Are in-line filters used in the ozone sample line? (if yes indicate location)	☑	At inlet only
6	Are sample lines clean, free of kinks, moisture, and obstructions?	☑	
7	Is the zero air supply desiccant unsaturated?	☑	
8	Are there moisture traps in the sample lines?	☑	
9	Is there a rotometer in the dry deposition filter line, and is it clean?	☑	Clean and dry

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S6-rev002

Site ID CTH110 **Technician** Eric Hebert **Site Visit Date** 08/16/2022

DAS, sensor translators, and peripheral equipment operations and maintenance

1	Do the DAS instruments appear to be in good condition and well maintained?	☑	
2	Are all the components of the DAS operational? (printers, modem, backup, etc)	☑	
3	Do the analyzer and sensor signal leads pass through lightning protection circuitry?	☑	Met sensors only
4	Are the signal connections protected from the weather and well maintained?	☑	
5	Are the signal leads connected to the correct DAS channel?	☑	
6	Are the DAS, sensor translators, and shelter properly grounded?	☑	
7	Does the instrument shelter have a stable power source?	☑	
8	Is the instrument shelter temperature controlled?	☑	

		Stable	Grounded
9	Is the met tower stable and grounded?	☐	☐
10	Is the sample tower stable and grounded?	☑	☑
11	Tower comments?	Met tower removed	

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

The meteorological tower has been removed and the temperature sensor has been moved to the east leg of the sample tower at 10 meters above the ground. The shield has been changed from aspirated to naturally aspirated.

Field Systems Data Form

F-02058-1500-S7-rev002

Site ID	CTH110	Technician	Eric Hebert	Site Visit Date	08/16/2022

Documentation

Does the site have the required instrument and equipment manuals?

	Yes	No	N/A		Yes	No	N/A
Wind speed sensor	☐	☐	☑	Data logger	☐	☑	☐
Wind direction sensor	☐	☐	☑	Data logger	☐	☐	☑
Temperature sensor	☑	☐	☐	Strip chart recorder	☐	☐	☑
Relative humidity sensor	☐	☐	☑	Computer	☐	☑	☐
Solar radiation sensor	☐	☐	☑	Modem	☐	☑	☐
Surface wetness sensor	☐	☐	☑	Printer	☐	☐	☑
Wind sensor translator	☐	☐	☑	Zero air pump	☐	☑	☐
Temperature translator	☐	☐	☑	Filter flow pump	☐	☑	☐
Humidity sensor translator	☐	☐	☑	Surge protector	☐	☐	☑
Solar radiation translator	☐	☐	☑	UPS	☐	☐	☑
Tipping bucket rain gauge	☐	☐	☑	Lightning protection device	☐	☐	☑
Ozone analyzer	☑	☐	☐	Shelter heater	☐	☑	☐
Filter pack flow controller	☐	☑	☐	Shelter air conditioner	☑	☐	☐
Filter pack MFC power supply	☐	☑	☐				

Does the site have the required and most recent QC documents and report forms?

	Present		Current
Station Log	☑		☑
SSRF	☑		☑
Site Ops Manual	☑	Oct 2001	☐
HASP	☑	Oct 2015	☐
Field Ops Manual	☑	Oct 2015	☐
Calibration Reports	☑		☑
Ozone z/s/p Control Charts	☐		☐
Preventive maintenance schedule	☐		☐

1	Is the station log properly completed during every site visit?	☑	Minimal information
2	Are the Site Status Report Forms being completed and current?	☑	
3	Are the chain-of-custody forms properly used to document sample transfer to and from lab?	☑	
4	Are ozone z/s/p control charts properly completed and current?	☐	Control charts not used

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S8-rev002

Site ID	CTH110	Technician	Eric Hebert	Site Visit Date	08/16/2022

Site operation procedures

1	Has the site operator attended a formal CASTNET training course? If yes, when and who instructed?	☑	Trained at ESE in 1987
2	Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed?	☐	
3	Is the site visited regularly on the required Tuesday schedule?	☑	
4	Are the standard CASTNET operational procedures being flollowed by the site operator?	☑	
5	Is the site operator(s) knowledgeable of, and able to perform the required site activities? (including documentation)	☑	

Are regular operational QA/QC checks performed on meteorological instruments?

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	☑	Semiannually	☑
Visual Inspections	☑	Weekly	☑
Translator Zero/Span Tests (climatronics)	☑	N/A	☑
Manual Rain Gauge Test	☑	N/A	☑
Confirm Reasonableness of Current Values	☑	Weekly	☑
Test Surface Wetness Response	☑	N/A	☑

Are regular operational QA/QC checks performed on the ozone analyzer?

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	☑	Semiannually	☑
Automatic Zero/Span Tests	☑	Daily	☑
Manual Zero/Span Tests	☑		☑
Automatic Precision Level Tests	☑	Daily	☑
Manual Precision Level Test	☑		☑
Analyzer Diagnostics Tests	☑	Weekly	☑
In-line Filter Replacement (at inlet)	☑	Every 2 weeks	☑
In-line Filter Replacement (at analyze	☑	N/A	☑
Sample Line Check for Dirt/Water	☑	Weekly	☑
Zero Air Desiccant Check	☑	Weekly	☑

1	Do multi-point calibration gases go through the complete sample train including all filters?	☐	Unknown
2	Do automatic and manual z/s/p gasses go through the complete sample train including all filters?	☑	
3	Are the automatic and manual z/s/p checks monitored and reported? If yes, how?	☑	SSRF, call-in

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

The ozone inlet filter is replaced and a Z/S/P is performed every two weeks.

Field Systems Data Form

F-02058-1500-S9-rev002

Site ID	CTH110	Technician	Eric Hebert	Site Visit Date	08/16/2022

Site operation procedures

1	Is the filter pack being changed every Tuesday as scheduled?	☑	Filter changed mornings
2	Are the Site Status Report Forms being completed and filed correctly?	☑	
3	Are data downloads and backups being performed as scheduled?	☐	No longer required
4	Are general observations being made and recorded? How?	☑	SSRF
5	Are site supplies on-hand and replenished in a timely fashion?	☑	
6	Are sample flow rates recorded? How?	☑	SSRF, call-in
7	Are samples sent to the lab on a regular schedule in a timely fashion?	☑	
8	Are filters protected from contamination during handling and shipping? How?	☑	Clean gloves on and off
9	Are the site conditions reported regularly to the field operations manager or staff?	☑	

QC Check Performed		Frequency	Compliant
Multi-point MFC Calibrations	☑	Semiannually	☑
Flow System Leak Checks	☑	Weekly	☑
Filter Pack Inspection	☐		☐
Flow Rate Setting Checks	☑	Weekly	☑
Visual Check of Flow Rate Rotometer	☑	Weekly	☑
In-line Filter Inspection/Replacement	☑	Semiannually	☑
Sample Line Check for Dirt/Water	☑	Weekly	☑

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S10-rev002

Site ID CTH110 **Technician** Eric Hebert **Site Visit Date** 08/16/2022

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	Unknown	07044
DAS	Campbell	CR3000	2510	000415
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CA18	1092135217	02664
Flow Rate	Apex	AXMC105LPMDPC	unknown	000557
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	unknown	07208
Ozone	ThermoElectron Inc	49i A1NAA	1105347308	000735
Ozone Standard	ThermoElectron Inc	49i A3NAA	CM08200023	000447
Sample Tower	Aluma Tower	B	AT-5107-E-4-10	666363
Shelter Temperature	Campbell	107-L	none	none
Shield (10 meter)	RM Young	unknown	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342	12540	06301
Zero air pump	Werther International	PC70/4	000815261	06864

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
SHN418-Eric Hebert-08/26/2022						
1	8/26/2022	DAS	Environmental Sys Corp	90658	8816	2643
2	8/26/2022	Ozone	ThermoElectron Inc	none	49i A3NAA	0903334535
3	8/26/2022	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1030745083
4	8/26/2022	Zero air pump	Werther International	none	C 70/4	000855578

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	0903334535	SHN418	Eric Hebert	08/26/2022	Ozone	none

Slope:	1.00263	**Slope:**	0.00000
Intercept	0.17359	**Intercept**	0.00000
CorrCoff:	1.00000	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	1180030022	**Tfer Desc.**	Ozone primary stan
Tfer ID	01114		
Slope	1.00120	**Intercept**	0.25470
Cert Date	1/26/2022	**CorrCoff**	0.99999

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.47	0.21	0.50	ppb		0.29
primary	2	16.84	16.51	16.67	ppb		0.16
primary	3	37.17	36.76	36.90	ppb	0.38	
primary	4	69.84	69.30	69.71	ppb	0.59	
primary	5	114.64	113.91	114.40	ppb	0.43	

Sensor Component	Condition	Status
Audit Pressure	681.5 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	0.1	pass
Span	1.008	pass
Zero Voltage	0.000	pass
Fullscale Voltage	1.0002	pass
Cell A Freq.	78.8 kHz	pass
Cell A Noise	0.6 ppb	pass
Cell A Flow	0.71 lpm	pass
Cell A Pressure	665.6 mmHg	pass
Cell A Tmp.	38.2 C	pass
Cell B Freq.	122 kHz	pass
Cell B Noise	0.9 ppb	pass
Cell B Flow	0.69 lpm	pass
Cell B Pressure	663.3 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
ZIO433-Martin Valvur-09/09/2022					
1 9/9/2022	DAS	Environmental Sys Corp	none	8816	4296
2 9/9/2022	Ozone	ThermoElectron Inc	90568	49C	49C-59348-322
3 9/9/2022	Ozone Standard	ThermoElectron Inc	90728	49C	49C-70528-366
4 9/9/2022	Zero air pump	Werther International	none	PC 70/4	000706556

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	49C-59348-322	ZIO433	Martin Valvur	09/09/2022	Ozone	90568

Slope:	0.98813	**Slope:**	0.00000
Intercept	-0.29081	**Intercept**	0.00000
CorrCoff:	0.99997	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	49CPS-70008-364	**Tfer Desc.**	Ozone primary stan
Tfer ID	01110		
Slope	1.00520	**Intercept**	-0.00890
Cert Date	1/26/2022	**CorrCoff**	1.00000

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.10	0.10	0.18	ppb		0.08
primary	2	16.87	16.74	15.93	ppb		-0.81
primary	3	38.53	38.23	37.11	ppb	-2.97	
primary	4	68.11	67.59	66.87	ppb	-1.07	
primary	5	112.84	111.97	110.30	ppb	-1.5	

Sensor Component	Condition	Status
Audit Pressure	657 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Not tested	pass
Offset	0.3	pass
Span	1.013	pass
Zero Voltage	-0.1553	pass
Fullscale Voltage	2.5	pass
Cell A Freq.	63.8 kHz	pass
Cell A Noise	0.9 ppb	pass
Cell A Flow	0.70 lpm	pass
Cell A Pressure	641.0 mmHg	pass
Cell A Tmp.	35.9 C	pass
Cell B Freq.	63.7 kHz	pass
Cell B Noise	0.5 ppb	pass
Cell B Flow	0.69 lpm	pass
Cell B Pressure	640.9 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
BVL130-Eric Hebert-09/10/2022						
1	9/10/2022	DAS	Campbell	000332	CR3000	2111
2	9/10/2022	Ozone	ThermoElectron Inc	000738	49i A1NAA	1105347307
3	9/10/2022	Ozone Standard	ThermoElectron Inc	000219	49i A3NAA	0622717857
4	9/10/2022	Zero air pump	Werther International	06926	PC70/4	000836218

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1105347307	BVL130	Eric Hebert	09/10/2022	Ozone	000738

Slope:	1.00532	**Slope:**	0.00000
Intercept	-1.49059	**Intercept**	0.00000
CorrCoff:	1.00000	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	1180030022	**Tfer Desc.**	Ozone primary stan
Tfer ID	01114		
Slope	1.00120	**Intercept**	0.25470
Cert Date	1/26/2022	**CorrCoff**	0.99999

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.40	0.14	-1.36	ppb		-1.5
primary	2	15.90	15.58	14.10	ppb		-1.48
primary	3	35.25	34.85	33.56	ppb	-3.77	
primary	4	69.96	69.41	68.46	ppb	-1.38	
primary	5	108.92	108.22	107.20	ppb	-0.95	

Sensor Component	Condition	Status
Audit Pressure	719 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Clean	pass
Offset	0.000	pass
Span	1.031	pass
Zero Voltage	N/A	pass
Fullscale Voltage	N/A	pass
Cell A Freq.	94.8 kHz	pass
Cell A Noise	Not tested	pass
Cell A Flow	0.67 lpm	pass
Cell A Pressure	709.4 mmHg	pass
Cell A Tmp.	37.3 C	pass
Cell B Freq.	93.2 kHz	pass
Cell B Noise	Not tested	pass
Cell B Flow	0.74 lpm	pass
Cell B Pressure	709.9 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
ALH157-Eric Hebert-09/10/2022						
1	9/10/2022	DAS	Campbell	000428	CR3000	2534
2	9/10/2022	Ozone	ThermoElectron Inc	000703	49i A1NAA	1030244805
3	9/10/2022	Ozone Standard	ThermoElectron Inc	000329	49i A3NAA	0622717853
4	9/10/2022	Zero air pump	Werther International	06925	C 70/4	000836220

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1030244805	ALH157	Eric Hebert	09/10/2022	Ozone	000703

Slope:	0.98810	**Slope:**	0.00000
Intercept	-1.31060	**Intercept**	0.00000
CorrCoff:	0.99999	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	1180030022	**Tfer Desc.**	Ozone primary stan
Tfer ID	01114		
Slope	1.00120	**Intercept**	0.25470
Cert Date	1/26/2022	**CorrCoff**	0.99999

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.43	0.17	-0.81	ppb		-0.98
primary	2	15.74	15.42	13.72	ppb		-1.7
primary	3	34.65	34.25	32.39	ppb	-5.58	
primary	4	70.56	70.01	67.73	ppb	-3.31	
primary	5	116.68	115.94	113.40	ppb	-2.22	

Sensor Component	Condition	Status
Audit Pressure	749.0 mmHg	pass
26.6 degree unobstructed rule	True	pass
Tree dewline >10m or below inlet	True	pass
ADT 1000-10000 vehicles further t	True	pass
ADT <1000 vehicles further than 5	True	pass
Sample Train	Good	pass
Inlet Filter Condition	Dirty	Fail
Offset	0.1	pass
Span	1.007	pass
Zero Voltage	N/A	pass
Fullscale Voltage	N/A	pass
Cell A Freq.	101.9 kHz	pass
Cell A Noise	0.7 ppb	pass
Cell A Flow	0.72 lpm	pass
Cell A Pressure	719.1 mmHg	pass
Cell A Tmp.	35.9 C	pass
Cell B Freq.	98.0 kHz	pass
Cell B Noise	0.8 ppb	pass
Cell B Flow	0.70 lpm	pass
Cell B Pressure	719.7 mmHg	pass
System Memo		pass

Site Inventory by Site Visit

	Site Visit Date	*Parameter*	*Mfg*	*Owner ID*	*Model Number*	*Serial Number*
JOT403-Martin Valvur-09/13/2022						
1	9/13/2022	DAS	Environmental Sys Corp	90599	8816	2271
2	9/13/2022	Elevation	Elevation	None	1	None
3	9/13/2022	Filter pack flow pump	Thomas	none	illegible	illegible
4	9/13/2022	flow rate	Tylan	03378	FC280AV	AW9403016
5	9/13/2022	Infrastructure	Infrastructure	none	none	none
6	9/13/2022	MFC power supply	Tylan	03683	RO-32	FP9403017
7	9/13/2022	Modem	Sierra wireless	none	GX450	Unknown
8	9/13/2022	Ozone	ThermoElectron Inc	none	49i A3NAA	1160770010
9	9/13/2022	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1130950194
10	9/13/2022	Sample Tower	Aluma Tower	923310	B	none
11	9/13/2022	Shelter Temperature	ARS	none	none	none
12	9/13/2022	Siting Criteria	Siting Criteria	None	1	None
13	9/13/2022	Temperature2meter	RM Young	none	41342	14960
14	9/13/2022	Zero air pump	Werther International	none	PC70/4	606491

DAS Data Form

DAS Time Max Error: 0.5

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	2271	JOT403	Martin Valvur	09/13/2022	DAS	Primary

Das Date: 9 /13/2022 **Audit Date** 9 /13/2022
Das Time: 12:28:00 **Audit Time** 12:28:30
Das Day: 256 **Audit Day** 256

Low Channel:		High Channel:	
Avg Diff:	**Max Diff:**	**Avg Diff:**	**Max Diff:**
0.0002	0.0003	0.0002	0.0003

Mfg	HY	**Parameter**	DAS
Serial Number	12010039329	**Tfer Desc.**	Source generator (D
Tfer ID	01322		
Slope	1.00000	**Intercept**	0.00000
Cert Date	6/15/2014	**CorrCoff**	1.00000

Mfg	Fluke	**Parameter**	DAS
Serial Number	95740243	**Tfer Desc.**	DVM
Tfer ID	01312		
Slope	1.00000	**Intercept**	0.00000
Cert Date	1/12/2022	**CorrCoff**	1.00000

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
2	0.0000	-0.0003	-0.0002	V	V	0.0001
2	0.1000	0.1001	0.0998	V	V	-0.0003
2	0.3000	0.3000	0.2999	V	V	-0.0001
2	0.5000	0.4999	0.4996	V	V	-0.0003
2	0.7000	0.7004	0.7005	V	V	0.0001
2	0.9000	0.8999	0.9002	V	V	0.0003
2	1.0000	1.0008	1.0007	V	V	-0.0001

Flow Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Tylan	AW9403016	JOT403	Martin Valvur	09/13/2022	flow rate	03378

Mfg	Tylan	
SN/Owner ID	FP9403017	03683
Parameter:	MFC power supply	

Mfg	BIOS	**Parameter**	Flow Rate
Serial Number	148613	**Tfer Desc.**	BIOS 220-H
Tfer ID	01421		
Slope	1.00789	**Intercept**	-0.00064
Cert Date	1/12/2022	**CorrCoff**	0.99990

DAS 1:		DAS 2:			
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**	**Cal Factor Zero**	0.072
				Cal Factor Full Scale	5.522
1.12%	1.45%			**Rotometer Reading:**	3.2

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalU	PctDifference
primary	pump off	0.000	0.000	-0.08	0.000	0.03	l/m	l/m	
primary	leak check	0.000	0.000	-0.07	0.000	0.04	l/m	l/m	
primary	test pt 1	2.996	2.970	2.95	0.000	3.01	l/m	l/m	1.45%
primary	test pt 2	3.003	2.980	2.96	0.000	3.01	l/m	l/m	1.04%
primary	test pt 3	3.001	2.980	2.94	0.000	3.01	l/m	l/m	0.87%

Sensor Component	Leak Test	**Condition**		**Status**	pass
Sensor Component	Tubing Condition	**Condition**	Good	**Status**	pass
Sensor Component	Filter Position	**Condition**	Good	**Status**	pass
Sensor Component	Rotometer Condition	**Condition**	Clean and dry	**Status**	pass
Sensor Component	Moisture Present	**Condition**	No moisture present	**Status**	pass
Sensor Component	Filter Distance	**Condition**	5.5 cm	**Status**	pass
Sensor Component	Filter Depth	**Condition**	0.3 cm	**Status**	pass
Sensor Component	Filter Azimuth	**Condition**	180 deg	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

Ozone Data Form

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1160770010	JOT403	Martin Valvur	09/13/2022	Ozone	none

Slope:	0.96908	**Slope:**	0.00000
Intercept	-0.39839	**Intercept**	0.00000
CorrCoff:	0.99998	**CorrCoff:**	0.00000

Mfg	ThermoElectron Inc	**Parameter**	ozone
Serial Number	49CPS-70008-364	**Tfer Desc.**	Ozone primary stan
Tfer ID	01110		
Slope	1.00520	**Intercept**	-0.00890
Cert Date	1/26/2022	**CorrCoff**	1.00000

DAS 1:		DAS 2:	
A Avg % Diff:	**A Max % Dif**	**A Avg %Diff**	**A Max % Dif**
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.25	0.25	0.18	ppb		-0.07
primary	2	15.15	15.04	14.02	ppb		-1.02
primary	3	39.47	39.17	37.41	ppb	-4.6	
primary	4	65.00	64.50	61.85	ppb	-4.19	
primary	5	109.48	108.63	105.10	ppb	-3.3	

Sensor Component	Audit Pressure	**Condition**	658 mmHg	**Status**	pass
Sensor Component	26.6 degree unobstructed rule	**Condition**	True	**Status**	pass
Sensor Component	Tree dewline >10m or below inlet	**Condition**	True	**Status**	pass
Sensor Component	ADT 1000-10000 vehicles further t	**Condition**	True	**Status**	pass
Sensor Component	ADT <1000 vehicles further than 5	**Condition**	True	**Status**	pass
Sensor Component	Sample Train	**Condition**	Good	**Status**	pass
Sensor Component	Inlet Filter Condition	**Condition**	Clean	**Status**	pass
Sensor Component	Offset	**Condition**	-0.1	**Status**	pass
Sensor Component	Span	**Condition**	0.998	**Status**	pass
Sensor Component	Zero Voltage	**Condition**	0.000	**Status**	pass
Sensor Component	Fullscale Voltage	**Condition**	1.0005	**Status**	pass
Sensor Component	Cell A Freq.	**Condition**	108.9 kHz	**Status**	pass
Sensor Component	Cell A Noise	**Condition**	0.8 ppb	**Status**	pass
Sensor Component	Cell A Flow	**Condition**	0.61 lpm	**Status**	pass
Sensor Component	Cell A Pressure	**Condition**	642.6 mmHg	**Status**	pass
Sensor Component	Cell A Tmp.	**Condition**	38.8 C	**Status**	pass
Sensor Component	Cell B Freq.	**Condition**	62.0 kHz	**Status**	pass
Sensor Component	Cell B Noise	**Condition**	0.6 ppb	**Status**	pass
Sensor Component	Cell B Flow	**Condition**	0.65 lpm	**Status**	pass
Sensor Component	Cell B Pressure	**Condition**	642.0 mmHg	**Status**	pass
Sensor Component	System Memo	**Condition**		**Status**	pass

2 Meter Temperature Data Form

Calc. Difference

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
RM Young	14960	JOT403	Martin Valvur	09/13/2022	Temperature2meter	none

Mfg	Fluke	Parameter	Temperature
Serial Number	3275143	Tfer Desc.	RTD
Tfer ID	01229		
Slope	0.99980	Intercept	-0.01168
Cert Date	1/12/2022	CorrCoff	1.00000

DAS 1:		DAS 2:	
Abs Avg Err	Abs Max Err	Abs Avg Err	Abs Max Err
0.24	0.41		

UseDescription	Test type	InputTmpRaw	InputTmpCorrected	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Rang	0.15	0.16	0.000	0.57	C	0.41
primary	Temp Mid Range	21.88	21.90	0.000	21.72	C	-0.18
primary	Temp High Rang	48.42	48.44	0.000	48.56	C	0.12

Sensor Component	Shield	Condition	Clean	Status	pass
Sensor Component	Properly Sited	Condition	Properly sited	Status	pass
Sensor Component	Blower	Condition	Functioning	Status	pass
Sensor Component	System Memo	Condition		Status	pass

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	none	JOT403	Martin Valvur	09/13/2022	Shelter Temperature	none

DAS 1:		DAS 2:	
Abs Avg Err	Abs Max Err	Abs Avg Err	Abs Max Err
0.55	1.14		

Mfg	Fluke	Parameter	Shelter Temperature
Serial Number	3275143	Tfer Desc.	RTD
Tfer ID	01229		
Slope	0.99980	Intercept	-0.01168
Cert Date	1/12/2022	CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	23.27	23.29	0.000	23.5	C	0.17
primary	Temp Mid Range	23.42	23.44	0.000	23.8	C	0.35
primary	Temp Mid Range	22.91	22.93	0.000	24.1	C	1.14

Sensor Component	System Memo	Condition		Status	pass

Infrastructure Data For

Site ID	Technician	Site Visit Date
JOT403	Martin Valvur	09/13/2022

Shelter Make	Shelter Model	Shelter Size
ShelterOne	E8129-28036	768 cuft

Sensor Component	Condition	Status
Sample Tower Type	Type B	pass
Conduit	Good	pass
Met Tower	Good	pass
Moisture Trap	Installed	pass
Moisture Trap Type	Filter	pass
Power Cables	Good	pass
Shelter Temp Control	Functioning	pass
Rotometer	Installed	pass
Sample Tower	Good	pass
Shelter Condition	Good	pass
Shelter Door	Good	pass
Shelter Roof	Good	pass
Shelter Floor	Good	pass
Shelter walls	Good	pass
Excessive mold present	Good	pass
Signal Cable	Fair	pass
Tubing Type	3/8 teflon	pass
Sample Train	Good	pass
System Memo		pass

Field Systems Comments

1 **Parameter:** DocumentationCo

Hardcopies of manuals and documentation are no longer maintained on site. All information is maintained on the internet.

2 **Parameter:** ShelterCleanNotes

The shelter is in good condition, clean and well organized but not grounded.

3 **Parameter:** MetOpMaintCom

The temperature sensor signal cable is in poor condition and should be replaced.

Siting Criteria Form

Sensor Component	Large point source of So2 or Nox	Condition		Status	pass
Sensor Component	City > 50,000	Condition		Status	pass
Sensor Component	City 1,000 to 10,000	Condition		Status	pass
Sensor Component	City 10,000 to 50,000	Condition		Status	pass
Sensor Component	Feedlot operations	Condition		Status	pass
Sensor Component	Large parking lot	Condition		Status	pass
Sensor Component	Limited agriculture operations	Condition		Status	pass
Sensor Component	Major industrial source	Condition		Status	pass
Sensor Component	Secondary road < or = 100 per da	Condition		Status	pass
Sensor Component	Secondary road >100 vehicles/da	Condition		Status	pass
Sensor Component	Small parking lot	Condition		Status	pass
Sensor Component	System Memo	Condition		Status	pass
Sensor Component	Major highway, airport, or rail yard	Condition		Status	pass
Sensor Component	Intensive agriculture operations	Condition		Status	pass

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID	JOT403	**Technician**	Martin Valvur	**Site Visit Date**	09/13/2022

Site Sponsor (agency)	NPS	**USGS Map**	Yucca Valley South
Operating Group	NPS	**Map Scale**	
AQS #	06-071-9002	**Map Date**	
Meteorological Type	RM Young		
Air Pollutant Analyzer	Ozone, IMPROVE	**QAPP Latitude**	34.0714
Deposition Measurement	dry, wet	**QAPP Longitude**	-116.3906
Land Use	desert	**QAPP Elevation Meters**	1244
Terrain	complex	**QAPP Declination**	
Conforms to MLM	No	**QAPP Declination Date**	
Site Telephone	(760) 228-1927	**Audit Latitude**	34.069569
Site Address 1		**Audit Longitude**	-116.388933
Site Address 2		**Audit Elevation**	1243
County	San Bernardino	**Audit Declination**	12
City, State	Yacca Valley, CA		
Zip Code	92284	**Fire Extinguisher** ☑	Inspected Sept 2022
Time Zone	Pacific	**First Aid Kit** ☑	
Primary Operator		**Safety Glasses** ☐	
Primary Op. Phone #		**Safety Hard Hat** ☐	
Primary Op. E-mail		**Climbing Belt** ☐	
Backup Operator		**Security Fence** ☐	
Backup Op. Phone #		**Secure Shelter** ☑	
Backup Op. E-mail		**Stable Entry Steps** ☑	

(Present)

Shelter Working Room ☑	**Make**	ShelterOne	**Model**	E8129-28036	**Shelter Size**	768 cuft
Shelter Clean ☑	**Notes**	The shelter is in good condition, clean and well organized but not grounded.				
Site OK ☑	**Notes**					

Driving Directions At the intersection of route 62 and route 247 in Yucca Valley, take Joshua Lane south (route 247). Follow the signs for Joshua Tree National Monument. The site is up the dirt road through the locked gate (cable) toward the water tower. (gate lock = 1123 shelter lock = 5570)

Field Systems Data Form

F-02058-1500-S3-rev002

Site ID	JOT403	Technician	Martin Valvur	Site Visit Date	09/13/2022

1	Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?	☑	N/A
2	Are wind sensors mounted so as to minimize tower effects? (i.e. wind sensors should be mounted atop the tower or on a horizontally extended boom >2x the max diameter of the tower into the prevailing wind)	☑	N/A
3	Are the tower and sensors plumb?	☑	N/A
4	Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?	☑	
5	Are temperature and RH sensors sited to avoid unnatural conditions? (i.e. ground below sensors should be natural surface and not steeply sloped. Ridges, hollows, and areas of standing water should be avoided)	☑	
6	Is the solar radiation sensor plumb?	☑	N/A
7	Is it sited to avoid shading, or any artificial or reflected light?	☑	N/A
8	Is the rain gauge plumb?	☑	N/A
9	Is it sited to avoid sheltering effects from buildings, trees, towers, etc?	☑	N/A
10	Is the surface wetness sensor sited with the grid surface facing north?	☑	N/A
11	Is it inclined approximately 30 degrees?	☑	N/A

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S4-rev002

Site ID	JOT403	Technician	Martin Valvur	Site Visit Date	09/13/2022

1	Do all the meterological sensors appear to be intact, in good condition, and well maintained?	☑	N/A
2	Are all the meteorological sensors operational online, and reporting data?	☑	N/A
3	Are the shields for the temperature and RH sensors clean?	☑	
4	Are the aspirated motors working?	☑	
5	Is the solar radiation sensor's lens clean and free of scratches?	☑	N/A
6	Is the surface wetness sensor grid clean and undamaged?	☑	N/A
7	Are the sensor signal and power cables intact, in good condition, and well maintained?	☐	Signs of wear
8	Are the sensor signal and power cable connections protected from the elements and well maintained?	☑	

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

The temperature sensor signal cable is in poor condition and should be replaced.

Field Systems Data Form

F-02058-1500-S5-rev002

Site ID	JOT403	Technician	Martin Valvur	Site Visit Date	09/13/2022

Siting Criteria: Are the pollutant analyzers and deposition equipment sited in accordance with 40 CFR 58, Appendix E

1	Do the sample inlets have at least a 270 degree arc of unrestricted airflow?	☑	
2	Are the sample inlets 3 - 15 meters above the ground?	☑	
3	Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees?	☑	

Pollutant analyzers and deposition equipment operations and maintenance

1	Do the analyzers and equipment appear to be in good condition and well maintained?	☑	
2	Are the analyzers and monitors operational, on-line, and reporting data?	☑	
3	Describe ozone sample tube.		1/4 teflon by 12 meters
4	Describe dry dep sample tube.		3/8 teflon by 12 meters
5	Are in-line filters used in the ozone sample line? (if yes indicate location)	☑	At inlet only
6	Are sample lines clean, free of kinks, moisture, and obstructions?	☑	
7	Is the zero air supply desiccant unsaturated?	☑	
8	Are there moisture traps in the sample lines?	☑	
9	Is there a rotometer in the dry deposition filter line, and is it clean?	☑	Clean and dry

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S6-rev002

Site ID JOT403 **Technician** Martin Valvur **Site Visit Date** 09/13/2022

DAS, sensor translators, and peripheral equipment operations and maintenance

1	Do the DAS instruments appear to be in good condition and well maintained?	☑	
2	Are all the components of the DAS operational? (printers, modem, backup, etc)	☑	
3	Do the analyzer and sensor signal leads pass through lightning protection circuitry?	☑	Met sensors only
4	Are the signal connections protected from the weather and well maintained?	☑	
5	Are the signal leads connected to the correct DAS channel?	☑	
6	Are the DAS, sensor translators, and shelter properly grounded?	☐	Shelter not grounded
7	Does the instrument shelter have a stable power source?	☑	
8	Is the instrument shelter temperature controlled?	☑	

		Stable	Grounded
9	Is the met tower stable and grounded?	☑	☑
10	Is the sample tower stable and grounded?	☑	☐

11 **Tower comments?** The sample tower is bolted to the shelter

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S7-rev002

Site ID	JOT403	Technician	Martin Valvur	Site Visit Date	09/13/2022

Documentation

Does the site have the required instrument and equipment manuals?

	Yes	No	N/A		Yes	No	N/A
Wind speed sensor	☐	☐	☑	Data logger	☑	☐	☐
Wind direction sensor	☐	☐	☑	Data logger	☐	☐	☑
Temperature sensor	☑	☐	☐	Strip chart recorder	☐	☐	☑
Relative humidity sensor	☐	☐	☑	Computer	☑	☐	☐
Solar radiation sensor	☐	☐	☑	Modem	☑	☐	☐
Surface wetness sensor	☐	☐	☑	Printer	☐	☐	☑
Wind sensor translator	☐	☐	☑	Zero air pump	☑	☐	☐
Temperature translator	☐	☐	☑	Filter flow pump	☑	☐	☐
Humidity sensor translator	☐	☐	☑	Surge protector	☐	☐	☑
Solar radiation translator	☐	☐	☑	UPS	☐	☐	☑
Tipping bucket rain gauge	☐	☐	☑	Lightning protection device	☐	☑	☐
Ozone analyzer	☐	☑	☐	Shelter heater	☐	☑	☐
Filter pack flow controller	☐	☑	☐	Shelter air conditioner	☐	☑	☐
Filter pack MFC power supply	☐	☑	☐				

Does the site have the required and most recent QC documents and report forms?

	Present		Current
Station Log	☑	Dataview	☑
SSRF	☑		☑
Site Ops Manual	☑		☑
HASP	☐		☐
Field Ops Manual	☐		☐
Calibration Reports	☑		☐
Ozone z/s/p Control Charts	☐		☐
Preventive maintenance schedule	☐		☐

1	Is the station log properly completed during every site visit?	☑	Dataview
2	Are the Site Status Report Forms being completed and current?	☑	Flow & observation sections
3	Are the chain-of-custody forms properly used to document sample transfer to and from lab?	☑	
4	Are ozone z/s/p control charts properly completed and current?	☐	Control charts not used

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Hardcopies of manuals and documentation are no longer maintained on site. All information is maintained on the internet.

Field Systems Data Form

F-02058-1500-S8-rev002

Site ID	JOT403	Technician	Martin Valvur	Site Visit Date	09/13/2022

Site operation procedures

1	Has the site operator attended a formal CASTNET training course? If yes, when and who instructed?	☑	ARS provides refresher training during maintenance visits
2	Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed?	☐	Trained by previous operator
3	Is the site visited regularly on the required Tuesday schedule?	☑	
4	Are the standard CASTNET operational procedures being flollowed by the site operator?	☑	
5	Is the site operator(s) knowledgeable of, and able to perform the required site activities? (including documentation)	☑	

Are regular operational QA/QC checks performed on meteorological instruments?

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	☑	N/A	☑
Visual Inspections	☑	N/A	☑
Translator Zero/Span Tests (climatronics)	☐	N/A	☑
Manual Rain Gauge Test	☑	N/A	☑
Confirm Reasonableness of Current Values	☑	N/A	☑
Test Surface Wetness Response	☑	N/A	☑

Are regular operational QA/QC checks performed on the ozone analyzer?

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	☑	Semiannually	☑
Automatic Zero/Span Tests	☑	Daily	☑
Manual Zero/Span Tests	☑	Every 2 weeks	☑
Automatic Precision Level Tests	☑	Daily	☑
Manual Precision Level Test	☐		☐
Analyzer Diagnostics Tests	☐	Alarm values only	☑
In-line Filter Replacement (at inlet)	☑	Every 2 weeks	☑
In-line Filter Replacement (at analyze	☐	N/A	☑
Sample Line Check for Dirt/Water	☐		☐
Zero Air Desiccant Check	☑	Weekly	☑

1	Do multi-point calibration gases go through the complete sample train including all filters?	☐	Unknown
2	Do automatic and manual z/s/p gasses go through the complete sample train including all filters?	☑	
3	Are the automatic and manual z/s/p checks monitored and reported? If yes, how?	☑	Dataview

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S9-rev002

Site ID	JOT403	Technician	Martin Valvur	Site Visit Date	09/13/2022

Site operation procedures

1	Is the filter pack being changed every Tuesday as scheduled?	☑	Filter changed morinings
2	Are the Site Status Report Forms being completed and filed correctly?	☑	
3	Are data downloads and backups being performed as scheduled?	☐	No longer required
4	Are general observations being made and recorded? How?	☑	SSRF
5	Are site supplies on-hand and replenished in a timely fashion?	☑	
6	Are sample flow rates recorded? How?	☑	SSRF
7	Are samples sent to the lab on a regular schedule in a timely fashion?	☑	
8	Are filters protected from contamination during handling and shipping? How?	☑	Clean gloves on and off
9	Are the site conditions reported regularly to the field operations manager or staff?	☐	

QC Check Performed		Frequency	Compliant
Multi-point MFC Calibrations	☑	Semiannually	☑
Flow System Leak Checks	☑	Weekly	☑
Filter Pack Inspection	☐		☐
Flow Rate Setting Checks	☑	Weekly	☑
Visual Check of Flow Rate Rotometer	☑	Weekly	☑
In-line Filter Inspection/Replacement	☑	Every 2 weeks	☑
Sample Line Check for Dirt/Water	☐		☐

Provide any additional explanation (photograph or sketch if necessary) regarding conditions listed above, or any other features, natural or man-made, that may affect the monitoring parameters:

Field Systems Data Form

F-02058-1500-S10-rev002

Site ID JOT403 **Technician** Martin Valvur **Site Visit Date** 09/13/2022

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Environmental Sys Corp	8816	2271	90599
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	illegible	illegible	none
flow rate	Tylan	FC280AV	AW9403016	03378
Infrastructure	Infrastructure	none	none	none
MFC power supply	Tylan	RO-32	FP9403017	03683
Modem	Sierra wireless	GX450	Unknown	none
Ozone	ThermoElectron Inc	49i A3NAA	1160770010	none
Ozone Standard	ThermoElectron Inc	49i A1NAA	1130950194	none
Sample Tower	Aluma Tower	B	none	923310
Shelter Temperature	ARS	none	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	RM Young	41342	14960	none
Zero air pump	Werther International	PC70/4	606491	none

APPENDIX B

CASTNET Site Spot Report Forms

EEMS Spot Report

Data Compiled: 2/14/2023 18:30:39

SiteVisitDate	Site	Technician
09/10/2022	ALH157	Eric Hebert

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.98810	unitless	**P**
2	Ozone Intercept	P	0	5	4	-1.3106	ppb	**P**
3	Ozone correlation	P	0	0.995	4	0.99999	unitless	**P**
4	Ozone % difference avg	P	7	10	4	5.5	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	-0.98	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	-1.7	ppb	**Fail**

EEMS Spot Report

Data Compiled: 2/14/2023 18:22:15

SiteVisitDate	Site	Technician
09/10/2022	BVL130	Eric Hebert

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00532	unitless	**P**
2	Ozone Intercept	P	0	5	4	-1.49059	ppb	**P**
3	Ozone correlation	P	0	0.995	4	1.00000	unitless	**P**
4	Ozone % difference avg	P	7	10	4	3.9	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	-1.5	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	-1.48	ppb	**P**

EEMS Spot Report

Data Compiled: 2/14/2023 20:52:48

SiteVisitDate	Site	Technician
07/20/2022	CAT175	Korey Devins

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	24	0.14	c	**P**
2	Temperature max error	P	4	0.5	24	0.21	c	**P**
3	Flow Rate average % difference	P	10	5	2	34.96	%	**Fail**
4	Flow Rate max % difference	P	10	5	2	35.24	%	**Fail**

SiteVisitDate	Site	Technician
07/20/2022	CAT175	Korey Devins

Field Systems Comments

1 **Parameter:** DasComments

The shelter is not temperature controlled. The site is solar and DC battery powered. The met tower has been removed and the temperature is being measured from the sample tower at 10 meters above ground.

2 **Parameter:** DocumentationCo

The site copies of the SSRF are no longer kept onsite.

3 **Parameter:** ShelterCleanNotes

The shelter is seriously deteriorated with rot and mold on the walls. The vegetation has been allowed to grow. The shelter roof has been repaired.

4 **Parameter:** PollAnalyzerCom

Ozone monitoring is no longer being conducted at the site.

EEMS Spot Report

Data Compiled: 2/14/2023 15:39:45

SiteVisitDate	Site	Technician
07/25/2022	CHC432	Martin Valvur

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.96056	unitless	**P**
2	Ozone Intercept	P	0	5	4	-1.6506	ppb	**P**
3	Ozone correlation	P	0	0.995	4	0.99943	unitless	**P**
4	Ozone % difference avg	P	7	10	4	10.7	%	**Fail**
5	Ozone Absolute Difference g1	P	7	3	1	0.10	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	-2.59	ppb	**Fail**

EEMS Spot Report

Data Compiled: 2/14/2023 16:46:51

SiteVisitDate	Site	Technician
08/09/2022	CNT169	Martin Valvur

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.98319	unitless	**P**
2	Ozone Intercept	P	0	5	4	-0.01389	ppb	**P**
3	Ozone correlation	P	0	0.995	4	0.99995	unitless	**P**
4	Ozone % difference avg	P	7	10	4	1.8	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	0.28	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	-0.11	ppb	**P**

EEMS Spot Report

Data Compiled: 2/14/2023 17:17:48

SiteVisitDate	Site	Technician
08/16/2022	CTH110	Eric Hebert

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	12	0.08	c	**P**
2	Temperature max error	P	4	0.5	12	0.17	c	**P**
3	Ozone Slope	P	0	1.1	4	1.00502	unitless	**P**
4	Ozone Intercept	P	0	5	4	-0.04515	ppb	**P**
5	Ozone correlation	P	0	0.995	4	1.00000	unitless	**P**
6	Ozone % difference avg	P	7	10	4	0.5	%	**P**
7	Ozone Absolute Difference g1	P	7	3	1	0.04	ppb	**P**
8	Ozone Absolute Difference g2	P	7	1.5	1	-0.11	ppb	**P**
9	Flow Rate average % difference	P	10	5	8	1.95	%	**P**
10	Flow Rate max % difference	P	10	5	8	1.95	%	**P**
11	DAS Voltage average error	P	7	0.003	84	0.0001	V	**P**
12	Shelter Temperature average error	P	5	2	14	0.54	c	**P**
13	Shelter Temperature max error	P	5	2	14	0.95	c	**P**

SiteVisitDate	Site	Technician
08/16/2022	CTH110	Eric Hebert

Field Systems Comments

1 **Parameter:** DasComments

The meteorological tower has been removed and the temperature sensor has been moved to the east leg of the sample tower at 10 meters above the ground. The shield has been changed from aspirated to naturally aspirated.

2 **Parameter:** SiteOpsProcedures

The ozone inlet filter is replaced and a Z/S/P is performed every two weeks.

3 **Parameter:** SitingCriteriaCom

There is a point source north of Ithaca within 40 km of the site. The tree line is less than 50 m from the site. The siting is acceptable even with the noted exceptions. Trees and overgrowth have recently been removed from the site which has improved siting criteria.

4 **Parameter:** ShelterCleanNotes

The condition of the shelter walls are beginning to deteriorate.

5 **Parameter:** MetSensorComme

The temperature sensor is mounted on the east leg of the sample tower.

EEMS Spot Report

Data Compiled: 2/14/2023 21:20:00

SiteVisitDate	Site	Technician
08/02/2022	EGB181	Korey Devins

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	9	0.19	c	**P**
2	Temperature max error	P	4	0.5	9	0.21	c	**P**
3	Flow Rate average % difference	P	10	5	3	0.22	%	**P**
4	Flow Rate max % difference	P	10	5	3	0.40	%	**P**
5	DAS Voltage average error	P	7	0.003	42	0.0001	V	**P**

SiteVisitDate	Site	Technician
08/02/2022	EGB181	Korey Devins

Field Systems Comments

1 **Parameter:** SiteOpsProcComm

Filters are sent 4 at a time and stored in a refrigerator before and after sampling prior to shipment to the lab.

2 **Parameter:** DocumentationCo

The site operator does not use the logbook.

3 **Parameter:** ShelterCleanNotes

The shelter is provided by the Center for Atmospheric Research and is clean, organized, and spacious. The roof has been repaired.

4 **Parameter:** PollAnalyzerCom

Ozone concentration is not measured at EGB181 as part of CASTNET.

EEMS Spot Report

Data Compiled: 2/14/2023 15:56:16

SiteVisitDate	Site	Technician
08/02/2022	GLR468	Martin Valvur

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.01058	unitless	**P**
2	Ozone Intercept	P	0	5	4	0.11949	ppb	**P**
3	Ozone correlation	P	0	0.995	4	0.99999	unitless	**P**
4	Ozone % difference avg	P	7	10	4	1.1	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	0.39	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	0.12	ppb	**P**

EEMS Spot Report

Data Compiled: 2/14/2023 20:30:11

SiteVisitDate	Site	Technician
09/13/2022	JOT403	Martin Valvur

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	P	5	0.5	3	0.24	c	**P**
2	Temperature2meter max error	P	5	0.5	3	0.41	c	**P**
3	Ozone Slope	P	0	1.1	4	0.96908	unitless	**P**
4	Ozone Intercept	P	0	5	4	-0.39839	ppb	**P**
5	Ozone correlation	P	0	0.995	4	0.99998	unitless	**P**
6	Ozone % difference avg	P	7	10	4	4.7	%	**P**
7	Ozone Absolute Difference g1	P	7	3	1	-0.07	ppb	**P**
8	Ozone Absolute Difference g2	P	7	1.5	1	-1.02	ppb	**P**
9	Flow Rate average % difference	P	10	5	14	1.12	%	**P**
10	Flow Rate max % difference	P	10	5	14	1.45	%	**P**
11	DAS Voltage average error	P	2	0.003	70	0.0002	V	**P**
12	Shelter Temperature average error	P	5	2	24	0.55	c	**P**
13	Shelter Temperature max error	P	5	2	24	1.14	c	**P**

SiteVisitDate	Site	Technician
09/13/2022	JOT403	Martin Valvur

Field Systems Comments

1 **Parameter:** DocumentationCo

Hardcopies of manuals and documentation are no longer maintained on site. All information is maintained on the internet.

2 **Parameter:** ShelterCleanNotes

The shelter is in good condition, clean and well organized but not grounded.

3 **Parameter:** MetOpMaintCom

The temperature sensor signal cable is in poor condition and should be replaced.

EEMS Spot Report

Data Compiled: 2/14/2023 14:58:43

SiteVisitDate	Site	Technician
07/14/2022	PAR107	Korey Devins

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.99287	unitless	**P**
2	Ozone Intercept	P	0	5	4	-0.18493	ppb	**P**
3	Ozone correlation	P	0	0.995	4	1.00000	unitless	**P**
4	Ozone % difference avg	P	7	10	4	1.4	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	-0.05	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	-0.38	ppb	**P**

EEMS Spot Report

Data Compiled: 2/14/2023 14:33:22

SiteVisitDate	Site	Technician
07/12/2022	PED108	Korey Devins

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00864	unitless	**P**
2	Ozone Intercept	P	0	5	4	0.01000	ppb	**P**
3	Ozone correlation	P	0	0.995	4	1.00000	unitless	**P**
4	Ozone % difference avg	P	7	10	4	0.9	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	0.07	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	0.22	ppb	**P**

EEMS Spot Report

Data Compiled: 2/14/2023 17:41:13

SiteVisitDate	Site	Technician
08/26/2022	SHN418	Eric Hebert

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00263	unitless	**P**
2	Ozone Intercept	P	0	5	4	0.17359	ppb	**P**
3	Ozone correlation	P	0	0.995	4	1.00000	unitless	**P**
4	Ozone % difference avg	P	7	10	4	0.6	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	0.29	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	0.16	ppb	**P**

EEMS Spot Report

Data Compiled: 2/14/2023 15:12:20

SiteVisitDate	Site	Technician
07/15/2022	WSP144	Korey Devins

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.98474	unitless	**P**
2	Ozone Intercept	P	0	5	4	0.12681	ppb	**P**
3	Ozone correlation	P	0	0.995	4	0.99996	unitless	**P**
4	Ozone % difference avg	P	7	10	4	1.4	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	-0.39	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	0.30	ppb	**P**

EEMS Spot Report

Data Compiled: 2/14/2023 18:00:44

SiteVisitDate	Site	Technician
09/09/2022	ZIO433	Martin Valvur

Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.98813	unitless	**P**
2	Ozone Intercept	P	0	5	4	-0.29081	ppb	**P**
3	Ozone correlation	P	0	0.995	4	0.99997	unitless	**P**
4	Ozone % difference avg	P	7	10	4	2.6	%	**P**
5	Ozone Absolute Difference g1	P	7	3	1	0.08	ppb	**P**
6	Ozone Absolute Difference g2	P	7	1.5	1	-0.81	ppb	**P**