2021 – 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 EPA Contract No. EP-W-18-005

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List of Acronyms and Abbreviations

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% 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.

As of December 2020, the network is comprised of 97 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. Wood Environment and Infrastructure Solutions (Wood) 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.

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	\leq ±10.0% of input amount
Relative Humidity	Accuracy	Compared to reference instrument or standard solution	\leq ±10.0% RH
Solar Radiation	Accuracy	Compared to WRR traceable standard	$\leq \pm 10.0\%$ 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
Temperature Difference	Accuracy	Comparison to station temperature sensor	$\leq \pm 0.50^{\circ} \mathrm{C}$

 Table 1. Performance Audit Challenge and Acceptance Criteria

Sensor	Parameter	Audit Challenge	Acceptance Criteria
Shelter Temperature	Accuracy	Comparison to station temperature sensor	$\leq \pm 2.0^{\circ} \mathrm{C}$
Wind Direction	Orientation Accuracy	Parallel to alignment rod/crossarm, or sighted to distant point	$\leq \pm 5^{\circ}$ from degrees true
Wind Direction	Linearity	Eight cardinal points on test fixture	$\leq \pm 5^{\circ}$ 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	$\leq \pm 0.5$ mps below 5.0 mps input; $\leq \pm 5.0\%$ 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	$\leq \pm 5.0\%$ of designated rate
Ozone	Slope	Linear regression of multi-	$0.9000 \le m \le 1.1000$
Ozone	Intercept	point test gas concentration as	-5.0 ppb ≤b ≤5.0 ppb
Ozone	Correlation Coefficient	transfer standard	$0.9950 \le r$
Ozone	Percent Difference	Comparison with Level 2 standard concentration	$\leq \pm 15.1\%$ of test gas concentration and $\leq \pm 0.0015$ ppm actual difference
DAS	Accuracy	Comparison with certified standard	$\leq \pm 0.003 \text{ VDC}$

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 2021

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 2021. The site locations, sponsor, visit dates, and parameters audited, are included in Table 2.

Site ID	Sponsor	Date	FSA	O3 PE	NOy	FLOW
WFM105	EPA	7/1/2021	1			1
HWF187	EPA	7/8/2021		1	1	
UND002	EPA	7/13/2021	1			1
PIN414	NPS	7/14/2021	1	1		1
YOS404	NPS	7/15/2021	1	1		1
CNT169	EPA	7/27/2021	1	1		1
NIC001	EPA	7/27/2021	1			1
CRM435	NPS	8/3/2021		1		
GLR468	NPS	8/5/2021	1	1		1
UMA009	EPA	8/9/2021		1		
VIN140	EPA	8/9/2021	1	1		1
NPT006	EPA	8/10/2021		1		
MAC426	NPS	8/11/2021	1	1	1	1

Table 2. CASTNET Site Audit Visits

Site ID	Sponsor	Date	FSA	O3 PE	NOy	FLOW
UVL124	EPA	8/11/2021		1		
CDZ171	EPA	8/12/2021	1	1		1
CKT136	EPA	8/13/2021	1	1		1
HOX148	EPA	8/16/2021		1		
ROM206	EPA	8/17/2021	1	1	1	1
ANA115	EPA	8/18/2021		1		
PRK134	EPA	8/22/2021	1	1		1
GRB411	NPS	8/23/2021		1		
VOY413	NPS	8/25/2021	1	1		1
SND152	EPA	8/29/2021		1		
ACA416	NPS	9/27/2021	1			1
PET427	NPS	9/28/2021		1		
ASH135	EPA	9/29/2021		1		
GRC474	NPS	9/29/2021		1		
WST109	EPA	9/30/2021		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: <u>https://java.epa.gov/castnet/reportPage.do</u>

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 2021

This report presents the NADP sites surveyed during the third quarter (July through September) of 2021. The station locations, sponsors, network. and dates of the surveys are presented in Table 3.

Site ID	Sponsor	Date	NTN	MDN	AMoN
NY98	USGS	7/1/2021			1
OK29	USGS	7/1/2021	1		
NY20	NYSERDA	7/8/2021	1	1	1
VT99	USGS / EPA/ University of VT	7/13/2021	1	1	1
CA99	NPS	7/15/2021	1		1
NY06	NYDEC	7/20/2021	1	1	
NY99	USGS	7/20/2021	1		
NY94	NYSERDA	7/27/2021	1		1
WY95	EPA	7/27/2021			1
ID03	NPS	8/3/2021			1
MT05	NPS	8/4/2021	1		
IN22	LADCO	8/9/2021			1
WA04	EPA	8/9/2021			1
ID07	EPA	8/10/2021			1
MI51	EPA	8/11/2021			1
MT07	USGS	8/11/2021	1		
KY98	EPA	8/12/2021			1
KY29	EPA	8/13/2021			1
MI95	EPA	8/16/2021			1
CO88	NPS	8/17/2021			1
MI52	EPA	8/18/2021			1
OH52	OH EPA	8/19/2021		1	
WI35	EPA	8/22/2021			1

 Table 3. NADP Site Survey Visits

Site ID	Sponsor	Date	NTN	MDN	AMoN
MN16	USDA / USFS	8/23/2021	1	1	
MN28	MN PCA	8/23/2021	1		
MN18	EPA / MN PCA	8/24/2021	1	1	1
AL99	EPA	8/29/2021	1		1
NY08	Cornell University	9/8/2021	1		
MA98	Harvard University	9/16/2021	1		
MA22	Boston University	9/17/2021	1		
MA08	NESCAUM	9/20/2021	1		
NY68	USGS	9/21/2021	1	1	
CO97	USDA / USFS	9/21/2021	1	1	
ME00	ME DEP	9/28/2021	1	1	
AZ97	NPS	9/28/2021	1		
ME93	EPA	9/29/2021			1
NH02	EPA	9/30/2021			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 Vi	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
WFMI	05-Korey	Devins-07/01/2021				
1	7/1/2021	DAS	Campbell	000803	CR850	23270
2	7/1/2021	elevation	Elevation	none	none	none
3	7/1/2021	Filter pack flow pump	Permotec	none	BL30EB	Illegible
4	7/1/2021	Flow Rate	Арех	000651	AXMC105LPMDPCV	illegible
5	7/1/2021	Infrastructure	Infrastructure	none	none	none
6	7/1/2021	Modem	Sierra wireless	06983	unknown	unknown
7	7/1/2021	siting criteria	Siting Criteria	none	none	None
8	7/1/2021	Temperature	RM Young	04683	41342VC	6697

DAS Time Max Error:

01320

1.00000

2/13/2012

Intercept

CorrCoff

0

0.00000

1.00000

DAS Data Form

Mfg **Serial Number** Site Technician Site Visit Date Parameter Use Desc. DAS Primary Campbell 23270 WFM105 Korey Devins 07/01/2021 Das Date: 7 /1 /2021 **Audit Date** 7 /1 /2021 Fluke Parameter DAS Mfg 07:27:00 07:27:00 **Das Time:** Audit Time 95740135 Tfer Desc. DVM Serial Number 182 Das Day: 182 Audit Day Tfer ID 01311 Low Channel: High Channel: Avg Diff: Avg Diff: Max Diff: Max Diff: 0.00000 Slope 1.00000 Intercept 0.0000 0.0000 0.0000 0.0000 2/11/2021 1.00000 **Cert Date CorrCoff** Datel **Parameter** DAS Mfg Tfer Desc. Source generator (D **Serial Number** 15510194

Tfer ID

Slope

Cert Date

Flow Data Form

Mfg	Serial Num	ıber Tag	Site	Тес	chnician	Site Visit D	ate Param	eter	Owner ID		
Apex	illegible		WFM105	Ko	rey Devins	07/01/2021	Flow R	ate	000651		
			Mfg Serial Number	BIOS 131818	BIOS P: 131818 T1		v Rate S 220-H				
					Tfer ID	01417					
					Slope	0.9	99756 Inte	ercept	-0.00058		
					Cert Date	2/10)/2021 Cor	rCoff	0.99993		
DAS 1:		DAS 2:		L	Cal Factor Z	ero		0			
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	x % Dif	Cal Factor F	ull Scale		0			
0.30%	0.33%				Rotometer R	eading:	3	.2			
Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignall	PctDifference		
primary	pump off	0.000	0.000	0.00	0.000	-0.02	l/m	l/m			
primary	leak check	0.000	0.000	0.00	0.000	-0.02	l/m	l/m			
primary	test pt 1	2.985	2.990	2.78	0.000	3.00	l/m	l/m	0.33%		
primary	test pt 2	2.985	2.990	2.78	0.000	3.00	l/m	l/m	0.33%		
primary	test pt 3	2.989	3.000	2.78	0.000	3.01	l/m	l/m	0.23%		
Sensor Comp	onent Leak Tes	t		Conditio	on		Status	pass			
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Status	pass			
Sensor Comp	onent Filter Pos	ition		Conditio	Good		Status	pass			
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	Clean and dry		Status	pass			
Sensor Comp	onent Moisture	Present		Conditio	n See comments	3	Status	pass			
Sensor Component Filter Distance Condition				tion 2.0 cm Sta			us pass				
Sensor Comp	onent Filter Dep	oth		Conditio	an 4.0 cm	Status	pass				
Sensor Comp	onent Filter Azir	nuth		Conditio	n 255 deg		Status	pass			
Sensor Comp	onent System M	lemo		Conditio	n		Status	pass			

Temperature Data Form

Mfg	Serial Number	Tag Site	Т	Technician		Site V	isit Date	Param	eter	Owner ID	
RM Young	6697	WFM105	ŀ	Korey	Devins	07/01/	/2021	Temper	ature	04683	
				Mf	g	Extech		Pa	rameter Te	mperature	
				Ser	ial Number	H2327	34	Tf	er Desc. RTD		
				Tfe	er ID	01227					
DAS 1:	DAS		Slo	ре		1.00743 Intercept		rcept	0.21666		
Abs Avg Err Abs Max Err Abs Avg Err Abs Ma				Err Cert Date			2/18/202	1 Cor	rCoff	1.0000	00
0.08	0.12										
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	OutputSig	gnalEng	OSE Unit	Difference	
primary	Temp Low Range	0.24	0.02		0.000		0.1		С	0.12	
primary	Temp Mid Range	25.76	25.35		0.000		25.	4	С	0.05	
primary	Temp High Range	45.48	44.93		0.000		45.	0	С	0.06	
Sensor Com	ponent Shield		Condi	tion C	Clean			Status	pass		
Sensor Component Blower				Condition N/A				Status	t <mark>us</mark> pass		
Sensor Component Properly Sited				Condition Properly sited				Status	tus pass		
Sensor Com	ponent System Memo)	Condi	Condition				Status pass			

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	Condition	Status pass
Sensor Component Major industrial source	Condition	Status pass
Sensor Component Secondary road < or = 100 per da	Condition 75 m	Status Fail
Sensor Component Secondary road >100 vehicles/da	Condition	Status pass
Sensor Component Small parking lot	Condition 75 m	Status Fail
Sensor Component System Memo	Condition	Status pass
Sensor Component Large parking lot	Condition	Status pass

Infrastructure Data For

Site ID WFM105	Technician Korey	Devins Site Visit Date 07/01/2021
Shelter Make	Shelter Model	Shelter Size

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	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	Filter	Status	pass
Sensor Component Power Cables	Condition	Good	Status	pass
Sensor Component Shelter Temp Control	Condition	N/A	Status	pass
Sensor Component Rotometer	Condition	Installed	Status	pass
Sensor Component Sample Tower	Condition	Good	Status	pass
Sensor Component Shelter Condition	Condition	N/A	Status	pass
Sensor Component Shelter Door	Condition	N/A	Status	pass
Sensor Component Shelter Roof	Condition	N/A	Status	pass
Sensor Component Shelter Floor	Condition	N/A	Status	pass
Sensor Component Shelter walls	Condition	N/A	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

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem	
Flow Rate	WFM105	Korey Devins	07/01/2021	Moisture Present	Apex	3810			
The filter sample tubing has drops of moisture in low sections outside the shelter.									

Field Systems Comments

1 Parameter: DasComments

Single tower, with filter pack at 10 meters and temperature at 9 meters.

2 Parameter: SitingCriteriaCom

The site is located at the Atmospheric Science Research Center (ASRC) operated by the NY University (SUNY) system.

3 Parameter: ShelterCleanNotes

Small footprint site with no shelter. Equipment housed in enclosure on sample tower.

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID WFM105	Technician Korey Devins	Site Visit Date 07/01	/2021
		r	
Site Sponsor (agency)	EPA	USGS Map	
Operating Group	SUNY	Map Scale	
AQS #		Map Date	
Meteorological Type			
Air Pollutant Analyzer		QAPP Latitude	
Deposition Measurement	dry, wet	QAPP Longitude	
Land Use	Woodland - mixed	QAPP Elevation Meters	
Terrain	Complex	QAPP Declination	
Conforms to MLM	No	QAPP Declination Date	
Site Telephone		Audit Latitude	44.39322
Site Address 1		Audit Longitude	-73.85874
Site Address 2		Audit Elevation	608
County		Audit Declination	
City, State	Wilmington, NY	Present	
Zip Code	12997	Fire Extinguisher 🔽	
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 Mo	odel	Shelter Size
Shelter Clean	Notes Small footprint site with no she	lter. Equipment housed in enclo	osure on sample tower.
Site OK	Notes		
Driving Directions			

Site ID WFM105 Technician Korey Devins Site Visit Date 07/01/2021 1 Are wind speed and direction sensors sited so as to avoid Image: N/A	
1 Are wind speed and direction sensors sited so as to avoid ☑ N/A	
being influenced by obstructions?	
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?	
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?	
7 Is it sited to avoid shading, or any artificial or reflected light? 🗹 N/A	
8 Is the rain gauge plumb?	
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 	

Field Systems Data Form

F-02058-1500-S4-rev002

Site	e ID	WFM105	Technician	Korey Devins		Site Visit Date 07/01/2021					
1 2 3	Do all th condition Are all th reporting Are the s	e meterological sensor 1, and well maintained he meteorological sens g data? shields for the temper	rs appear to be 1? sors operationa ature and RH s	intact, in good l online, and ensors clean?	>	Temperature only Temperature only					
4	Are the a	aspirated motors worl	king?		✓	✓ N/A					
5	5 Is the solar radiation sensor's lens clean and free of scratches?					N/A					
6	Is the su	rface wetness sensor g	grid clean and u	indamaged?	✓	N/A					
7	Are the s condition	ensor signal and pow 1, and well maintained	er cables intact 1?	, in good							
8	Are the s from the	ensor signal and pow elements and well ma	er cable connec aintained?	tions protected							

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-S5-rev0					
Site	e ID	WFM105	Technician	Korey Devins		Site Visit Date 07/01/2021				
	<u>Siting (</u>	Criteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipr</u>	nent sited in accordance with 40 CFR 58, Appendix E				
1	Do the sunrestr	sample inlets have at le icted airflow?	east a 270 degre	e arc of	✓					
2	Are the	sample inlets 3 - 15 m	eters above the	ground?	✓					
3	Are the and 20	sample inlets > 1 mete meters from trees?	er from any maj	jor obstruction,	✓					
	Polluta	nt analyzers and depos	ition equipmen	t operations and	mai	intenance				
1	Do the a condition	analyzers and equipme on and well maintained	ent appear to be ?	e in good	✓					
2	Are the reportion	analyzers and monitoning data?	rs operational, (on-line, and	✓					
3	Describ	e ozone sample tube.				N/A				
4	Describ	e dry dep sample tube.				3/8 Teflon by 10 meters				
5	Are in-l indicate	ine filters used in the o location)	ozone sample lir	ne? (if yes	✓	N/A				
6	Are san obstruc	nple lines clean, free of tions?	kinks, moistur	e, and	✓					
7	Is the zo	ero air supply desiccan	t unsaturated?		✓	N/A				
8	Are the	re moisture traps in th	e sample lines?		✓	inline filter				
9	Is there clean?	a rotometer in the dry	deposition filte	er line, and is it						

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-S6-rev002					
Site	e ID	WFM105	Technician	Korey Devins		Site Visit Date	07/01/2021				
	DAS, se	nsor translators, and g	peripheral equi	pment operation	ns and	<u>l maintenance</u>					
1	Do the I well ma	DAS instruments appe intained?	ar to be in good	l condition and							
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?											
4	Are the well ma	signal connections pro intained?	e weather and								
5	5 Are the signal leads connected to the correct DAS channel?										
6	Are the grounde	DAS, sensor translato ed?	rs, and shelter	properly							
7	Does the	e instrument shelter ha	ave a stable pov	ver source?							
8	Is the in	strument shelter temp	erature contro	lled?		I/A					
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded			
10	Is the sa	mple tower stable and	l grounded?								
11	Tower c	omments?						<u> </u>			

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:

Single tower, with filter pack at 10 meters and temperature at 9 meters.

Field	Systems Data	For	·m			F-02058-1500-S7-re					
Site ID	WFM105		Techn	ician K	Corey Devins	Site Visit Date	07/01/202	1			
<u>Docun</u>	nentation										
Does t	<u>he site have the requi</u>	<u>red ins</u>	trumen	t and e	<u>quipment manuals?</u>						
Wind spe Wind dir Tempera Relative I Solar rad Surface v Wind sen Tempera Humidity Solar rad Tipping I Ozone an Filter pao	eed sensor rection sensor ature sensor humidity sensor liation sensor vetness sensor asor translator ature translator y sensor translator liation translator bucket rain gauge nalyzer ck flow controller	Yes			Data logg Data logg Strip char Computer Modem Printer Zero air p Filter flow Surge pro UPS Lightning Shelter he Shelter air	er er er er t recorder ump 7 pump tector protection device ater r conditioner	Yes		N/A V V V V V V V V V V V V V V V V V V		
Filter pao	ck MFC power supply	y 🗆		\checkmark							
Does	the site have the requ	<u>iired a</u>	nd most	t recent	OC documents and	l report forms?					
		Pres	ent				Curr	ent			
Station L SSRF Site Ops HASP Field Ops Calibrati Ozone z/s Preventiv	.og Manual s Manual ion Reports s/p Control Charts ve maintenance sched	1 [[[[ule [
1 Is th	e station log properly	/ comp	leted du	iring ev	rery site visit? 🔽						
2 Are curr	the Site Status Repor ent?	't Form	is being	comple	eted and 🔽						
3 Are sam	the chain-of-custody ple transfer to and fr	forms om lab	properl ?	y used t	to document 🗹						
4 Are curr	ozone z/s/p control cł ·ent?	iarts p	roperly	comple	eted and	I/A					
Provide a natural o	any additional explan or man-made, that ma	ation (J ly affec	photogr t the mo	aph or onitorir	sketch if necessary) 1g parameters:	regarding conditi	ons listed	above,	or any other features,		

Field Systems Data Form

WFM105 Technician Korey Devins Site Visit Date 07/01/2021 Site ID Site operation procedures Trained onsite by AMEC personnel Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 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	\checkmark
Visual Inspections	\checkmark		
Translator Zero/Span Tests (climatronics)		N/A	\checkmark
Manual Rain Gauge Test		N/A	\checkmark
Confirm Reasonableness of Current Values		N/A	\checkmark
Test Surface Wetness Response		N/A	\checkmark

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	\checkmark
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	\checkmark
Sample Line Check for Dirt/Water	N/A	\checkmark
Zero Air Desiccant Check	N/A	\checkmark

- **1** Do multi-point calibration gases go through the complete sample train including all filters?
- 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?

\checkmark	N/A
✓	N/A
✓	N/A

F-02058-1500-S8-rev002

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-S9-rev(
Site	e ID	WFM105	Technician	Korey Devins	 Site Visit Date	07/01/2021		
	<u>Site oper</u>	ration procedures						
1	Is the fil	ter pack being change	d every Tuesda	ay as scheduled?	Filter changed morr	iings		
2	Are the correctly	Site Status Report For y?	ms being com	pleted and filed				
3	Are data	a downloads and back ed?	ups being perfo	ormed as	No longer required			

 \checkmark

 \checkmark

✓

✓

SSRF, logbook

SSRF, logbook

Clean gloves on and off

Compliant

5	Are site supplies on-hand and replenished in a timely
	fashion?

Are sample flow rates recorded? How?

Are general observations being made and recorded? How?

		_
7	Are samples sent to the lab on a regular schedule in a timely	✓
	fashion?	

- Are filters protected from contamination during handling 8 and shipping? How?
- 9 Are the site conditions reported regularly to the field operations manager or staff?

QC Check Performe	d
-------------------	---

4

6

Frequency

Multi-point MFC Calibrations	Semiannually	✓
Flow System Leak Checks	Weekly	✓
Filter Pack Inspection	✓ Weekly	\checkmark
Flow Rate Setting Checks	✓ Weekly	✓
Visual Check of Flow Rate Rotometer	✓ Weekly	✓
In-line Filter Inspection/Replacement	✓ As needed	\checkmark
Sample Line Check for Dirt/Water	✓ Weekly	\checkmark

Field Systems Data Form					F-02058-1500-S10-rev002			
	Site ID	WFM105	Technician	Korey Devins	Site Visit Date	07/01/2021		

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Campbell	CR850	23270	000803
elevation	Elevation	none	none	none
Filter pack flow pump	Permotec	BL30EB	Illegible	none
Flow Rate	Арех	AXMC105LPMDPC	illegible	000651
Infrastructure	Infrastructure	none	none	none
Modem	Sierra wireless	unknown	unknown	06983
siting criteria	Siting Criteria	none	None	none
Temperature	RM Young	41342VC	6697	04683

Site Inventory by Site Visit

Site V	isit Date/	Parameter	Mfg	Owner ID	Model Number	Serial Number
HWF	187-Korey	, Devins-07/08/2021				
1	7/8/2021	DAS	Campbell	000356	CR3000	2134
2	7/8/2021	Ozone	ThermoElectron Inc	000731	49i A1NAA	1105347309
3	7/8/2021	Ozone Standard	ThermoElectron Inc	000450	49i A3NAA	CM08200026
4	7/8/2021	Zero air pump	Werther International	06931	C 70/4	000836212

Ozone Data Form

Mfg		Serial Numb	er Tag Site		Tecl	hnician	Site Visit Date	Parameter	Owner ID
ThermoElec	tron Inc	1105347309	HWF18	7	Kor	ey Devins	07/08/2021	Ozone	000731
Slope: [Intercept [CorrCoff: [0.95611 Slop -0.22108 Inte 1.00000 Cor	pe: ercept rCoff:	0.00000 0.00000 0.00000	ת ג ר	Mfg Serial Number Гfer ID	ThermoElectron 1180030022 01114	Inc Paramete	er ozone c. Ozone primary stan
DAS 1:		D	AS 2:		5	Slope	1.0003	0 Intercept	0.30550
A Avg % D	iff: A I	Max % Dif A	Avg %Diff A	Max % D	if	Cont Data	1/20/202		1,00000
0.0)%	0.0%				Cert Date	1/20/202	Correon	1.00000
UseDescri	ption	ConcGroup	Tfer Raw	Tfer C	orr	Site	Site Unit	RelPerDif	AbsDif
primar	'y	1	0.38	0.07	7	-0.19	ppb		-0.26
primar	y	2	14.66	14.2	8	13.43	ppb		-0.85
primar	y	3	35.30	34.8	1	33.00	ppb	-5.34	
primar	y	4	68.07	67.42	2	64.44	ppb	-4.52	
primar	y	5	112.91	112.0)4	106.80	ppb	-4.79	
Sensor Co	ompon	ent Audit Press	sure	Co	nditio	n 717.5 mmHg		Status pass	
Sensor Co	ompon	ent 26.6 degree	e unobstructed ru	le Co	nditio	n True		Status pass	
Sensor Co	ompon	ent Tree dewlin	ie >10m or below	v inlet Co	nditio	n True		Status pass	
Sensor Co	ompon	ent ADT <100	vehicles further t	han 20 Co	nditio	n True		Status pass	
Sensor Co	ompon	ent ADT >100	vehicles further t	han 50 Co	nditio	<mark>n</mark> 290 m		Status Fail	
Sensor Co	ompon	ent Sample Tra	ain	Co	nditio	n Good		Status pass	
Sensor Co	ompon	ent Inlet Filter (Condition	Co	nditio	n Clean		Status pass	
Sensor Co	ompon	ent Offset		Co	nditio	n -0.2		Status pass	
Sensor Co	ompon	ent Span		Co	nditio	n 1.075		Status pass	
Sensor Co	ompon	ent Zero Voltag	je	Co	nditio	n N/A		Status pass	
Sensor Co	ompon	ent Fullscale V	oltage	Co	nditio	n N/A		Status pass	
Sensor Co	ompon	ent Cell A Freq		Co	nditio	n 97.4 kHz		Status pass	
Sensor Co	ompon	ent Cell A Nois	e	Co	nditio	n 0.9 ppb		Status pass	
Sensor Co	ompon	ent Cell A Flow	,	Co	nditio	n 0.72 lpm		Status pass	
Sensor Co	ompon	ent Cell A Pres	sure	Co	nditio	n 701.5 mmHg		Status pass	
Sensor Co	ompon	ent Cell A Tmp	•	Co	nditio	n 37.6 C		Status pass	
Sensor Co	ompon	ent Cell B Freq	•	Co	nditio	n 95.8 kHz		Status pass	
Sensor Co	ompon	ent Cell B Nois	e	Co	nditio	n 0.8 ppb		Status pass	
Sensor Co	ompon	ent Cell B Flow		Co	nditio	n 0.65 lpm		Status pass	
Sensor Co	ompon	ent Cell B Pres	sure	Co	nditio	n 702.1 mmHg		Status pass	
Sensor Co	ompon	ent System Me	mo	Co	nditio	n		Status pass	

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
UND	002-Korey	Devins-07/13/2021				
1	7/13/2021	DAS	Campbell	000802	CR850	23269
2	7/13/2021	elevation	Elevation	none	none	none
3	7/13/2021	Filter pack flow pump	Permotec	none	BL30EB	Illegible
4	7/13/2021	Flow Rate	Арех	000528	AXMC105LPMDPCV	48097
5	7/13/2021	Infrastructure	Infrastructure	none	none	none
6	7/13/2021	Modem	Sierra wireless	06982	unknown	unknown
7	7/13/2021	Sample Tower	Aluma Tower	000778	В	AT-212125X77
8	7/13/2021	siting criteria	Siting Criteria	none	none	None
9	7/13/2021	Temperature	RM Young	04688	41342	6702

DAS Time Max Error:

01320

1.00000

2/13/2012

Intercept

CorrCoff

0

0.00000

1.00000

DAS Data Form

Mfg **Serial Number** Site Technician Site Visit Date Parameter Use Desc. UND002 DAS Primary Campbell 23269 Korey Devins 07/13/2021 7 /13/2021 Das Date: **Audit Date** 7 /13/2021 Fluke Parameter DAS Mfg 09:55:00 09:55:00 **Das Time:** Audit Time 95740135 Tfer Desc. DVM Serial Number 194 194 Das Day: Audit Day Tfer ID 01311 Low Channel: High Channel: Avg Diff: Avg Diff: Max Diff: Max Diff: 0.00000 1.00000 Slope Intercept 0.0000 0.0000 0.0000 0.0000 2/11/2021 1.00000 **Cert Date CorrCoff** Datel **Parameter** DAS Mfg Tfer Desc. Source generator (D **Serial Number** 15510194

Tfer ID

Slope

Cert Date

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit Da	te Paran	neter	Owner ID	
Apex	ex 48097		UND002	Ko	rey Devins	07/13/2021	Flow F	Rate	000528	
				Mfg	BIOS	BIOS Pa		arameter Flow Rate		
					Serial Number	131818	Г	fer Desc. BIO	S 220-H	
					Tfer ID	01417				
				Slope		0.99756 Inte		ercept -0.00058		
					Cert Date	2/10/2	2021 Co	rrCoff	0.99993	
DAS 1: DAS 2:					Cal Factor Zero					
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	: % Dif	Cal Factor F	ull Scale		0		
1.13%	1.32%				Rotometer R	eading:		3		
Desc.	Test type	Input l/n	n Input Corr_	MfcDisp.	OutputSignal	Output S E I	nputUnit	OutputSignalI	PctDifference	
primary	pump off	0.000	0.000	0.00	0.000	-0.01	l/m	l/m		
primary	leak check	0.000	0.000	0.00	0.000	-0.10	l/m	l/m		
primary	test pt 1	2.945	2.950	2.91	0.000	2.99	l/m	l/m	1.32%	
primary	test pt 2	2.954	2.960	2.90	0.000	2.99	l/m	l/m	1.08%	
primary	test pt 3	2.948	2.960	2.91	0.000	2.99	l/m	l/m	0.98%	
Sensor Component Leak Test			Conditio	Condition			Status pass			
Sensor Component Tubing Condition			Conditio	Condition Good			Status pass			
Sensor Component Filter Position			Condition Good		Status		pass			
Sensor Component Rotometer Condition			Conditio	Condition Clean and dry			us pass			
Sensor Component Moisture Present				Conditio	ondition See comments			s pass		
Sensor Component Filter Distance				Conditio	ition 4.0 cm			atus pass		
Sensor Component Filter Depth				Conditio	n 1.5 cm	Statu	atus pass			
Sensor Component Filter Azimuth			Conditio	n 165 deg		Statu	Status pass			
Sensor Comp	onent System M	/lemo		Conditio	lition			atus pass		

Temperature Data Form

Mfg	Serial Number	Tag Site	T	ſechni	ician	Site V	isit Date	Param	eter	Owner ID	
RM Young	6702	UND002		Korey	Devins	07/13	/2021	Temper	ature	04688	
				Mf	g	Extech	1	Pa	rameter Te	mperature	
			Serial Number		H232734 Tf		fer Desc. RTD				
				Tfe	er ID	01227					
DAS 1: DAS 2:				Slope			1.00743 Inte		ercept 0.21666		
Abs Avg Err Abs Max Err Abs Avg Err Abs Ma			Max Err	cr Cert Date			2/18/2021 CorrCoff 1.0			1.00000	
0.11 0.14											
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	OutputSig	gnalEng	OSE Unit	Difference	
primary	Temp Low Range	0.29	0.07		0.000		0.2	2	С	0.14	
primary	Temp Mid Range	25.39	24.99)	0.000		25.1		С	0.14	
primary	primary Temp High Range 45.48			.93 0.000			44.	9	С	-0.05	
Sensor Component Shield				Condition Clean				Status	pass		
Sensor Component Blower			Condi	Condition N/A				Status	; pass		
Sensor Component Properly Sited			Condi	Condition Properly sited				Status	, pass		
Sensor Component System Memo			Condi	Condition				Status	is pass		
Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	Condition	Status pass
Sensor Component Major industrial source	Condition	Status pass
Sensor Component Secondary road < or = 100 per da	Condition 32 m	Status Fail
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 Large parking lot	Condition	Status pass

Infrastructure Data For

Site ID	UND002	Technician Korey [Devins Site Visit Date 07/13/2021
Shelter I	Make	Shelter Model	Shelter Size

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	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	Filter	Status	pass
Sensor Component Power Cables	Condition	Good	Status	pass
Sensor Component Shelter Temp Control	Condition	N/A	Status	pass
Sensor Component Rotometer	Condition	Installed	Status	pass
Sensor Component Sample Tower	Condition	Good	Status	pass
Sensor Component Shelter Condition	Condition	N/A	Status	pass
Sensor Component Shelter Door	Condition	N/A	Status	pass
Sensor Component Shelter Roof	Condition	N/A	Status	N
Sensor Component Shelter Floor	Condition	N/A	Status	pass
Sensor Component Shelter walls	Condition	N/A	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

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem	
Flow Rate	UND002	Korey Devins	07/13/2021	Moisture Present	Apex	3351			
The filter sample tubing has drops of moisture in low sections outside the shelter.									

Field Systems Comments

1 Parameter: DasComments

Single tower with filer pack mounted at 10 meters and temperature mounted at 9 meters.

2 Parameter: DocumentationCo

Although there is no CASTNET logbook present onsite, the site operator records CASTNET information in the VT Monitoring Coop logbook.

3 Parameter: ShelterCleanNotes

Small footprint site with no shelter. Equipment housed in enclosure on sample tower.

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Site ID UND002	Technician Korey Devins	Site Visit Date 07/13	/2021
Site Sponsor (agency)	EPA	USGS Map	
Operating Group	VT Monitoring Coop	Map Scale	
AQS #		Map Date	
Meteorological Type			
Air Pollutant Analyzer		QAPP Latitude	
Deposition Measurement	dry, wet	QAPP Longitude	
Land Use	Woodland - mixed	QAPP Elevation Meters	
Terrain	Complex	QAPP Declination	
Conforms to MLM	No	QAPP Declination Date	
Site Telephone		Audit Latitude	44.52843
Site Address 1		Audit Longitude	-72.86804
Site Address 2		Audit Elevation	402
County	Chittenden	Audit Declination	
City, State	Underhill Center, VT	Present	
Zip Code	05489	Fire Extinguisher	
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 Mo	odel	Shelter Size
Shelter Clean	Notes Small footprint site with no she	ter. Equipment housed in enclo	osure on sample tower.
Site OK	Notes		
Driving Directions			

Fiel	d Sys	stems Data Fo	orm			F-02058-1500-S3-rev002				
Site I	D	UND002	Technician	Korey Devins		Site Visit Date	07/13/2021]	
1 A b	Are wind being inf	l speed and direction luenced by obstructio	sensors sited so ons?	as to avoid		N/A				
2 A (i h to	Are wind i.e. wind orizont ower int	l sensors mounted so l sensors should be m ally extended boom > to the prevailing wind	as to minimize t ounted atop the 2x the max dian l)	tower effects? tower or on a neter of the		N/A				
3 A	Are the t	ower and sensors plu	mb?		✓	N/A				
4 A a	Are the t void rad	emperature shields p liated heat sources su	ointed north or Ich as buildings,	positioned to walls, etc?						
5 A co si	Are temp ondition urface a tanding	berature and RH sens is? (i.e. ground below ind not steeply sloped water should be avoi	ors sited to avoid sensors should . Ridges, hollow ded)	id unnatural be natural ⁄s, and areas of						
6 Is	s the sol	ar radiation sensor p	lumb?		✓	N/A				
7 Is	s it sited	to avoid shading, or	any artificial or	reflected light?	✓	N/A				
8 Is	s the rai	n gauge plumb?			✓	N/A				
9 Is to	s it sited owers, e	to avoid sheltering e tc?	ffects from buil	dings, trees,		N/A				
10 Is fa	s the sur acing no	rface wetness sensor s orth?	sited with the gr	id surface	✓	N/A				
11 Is	s it incl	ined approximately 3	0 degrees?		✓	N/A				

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Site	e ID	UND002	Technician	Korey Devins		Site Visit Date 07/13/2021
1	Do all the condition	e meterological sensor 1, and well maintained	rs appear to be l?	intact, in good	✓	Temperature only
2	Are all th reporting	ne meteorological sens g data?	ors operationa	l online, and	✓	Temperature only
3	Are the s	hields for the tempera	ature and RH s	ensors clean?	✓	
4	Are the a	spirated motors work	king?		✓	N/A
5	Is the sol scratches	ar radiation sensor's	lens clean and f	ree of		N/A
6	Is the sur	rface wetness sensor g	rid clean and u	ndamaged?	✓	N/A
7	Are the s condition	ensor signal and powe	er cables intact 1?	, in good		
8	Are the s from the	ensor signal and powe elements and well ma	er cable connec intained?	tions protected		

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-S5-rev002				
Sit	e ID	UND002	Technician	Korey Devins		Site Visit Date 07/13/2021			
	<u>Siting (</u>	Criteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipr</u>	nent sited in accordance with 40 CFR 58, Appendix E			
1	Do the sunrestr	sample inlets have at le icted airflow?	east a 270 degre	e arc of	✓				
2	Are the	sample inlets 3 - 15 m	eters above the	ground?	✓				
3	Are the and 20	sample inlets > 1 mete meters from trees?	er from any maj	or obstruction,	✓				
	Polluta	nt analyzers and depos	ition equipmen	t operations and	mai	ntenance			
1	Do the a condition	analyzers and equipme on and well maintained	ent appear to be l?	in good					
2	Are the reportion	analyzers and monitoning data?	rs operational, (on-line, and					
3	Describ	e ozone sample tube.				N/A			
4	Describ	e dry dep sample tube.				3/8 Teflon by 10 meters			
5	Are in-l indicate	ine filters used in the o location)	ozone sample lir	ie? (if yes		N/A			
6	Are san obstruc	nple lines clean, free of tions?	'kinks, moistur	e, and	✓				
7	Is the zo	ero air supply desiccan	it unsaturated?		✓	N/A			
8	Are the	re moisture traps in th	e sample lines?		✓	inline filter			
9	Is there clean?	a rotometer in the dry	deposition filto	er line, and is it					

Fi	eld Sy	stems Data Fo			F-02058-1500-S6-rev002				
Site	e ID	UND002	Technician	Korey Devins		Site Visit Da	te 07/13/202	1	
	<u>DAS, se</u>	nsor translators, and j	peripheral equi	pment operation	<u>is ar</u>	<u>id maintenance</u>			
1	Do the l well ma	DAS instruments appe intained?	ear to be in good	l condition and	✓				
2	Are all t modem,	the components of the backup, etc)	DAS operation	al? (printers,	✓				
3	Do the a lightnin	nalyzer and sensor sig g protection circuitry	gnal leads pass ?	through	✓				
4	Are the well ma	signal connections pro intained?	otected from the	e weather and	✓				
5	Are the	signal leads connected	l to the correct	DAS channel?	✓				
6	Are the grounde	DAS, sensor translato ed?	ors, and shelter	properly	✓				
7	Does the	e instrument shelter h	ave a stable pov	ver source?	✓	GFI circuit breake	er trips freque	ntly	
8	Is the in	strument shelter temp	perature contro	lled?	✓	N/A			
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	mple tower stable and	l grounded?						
11	Tower o	comments?							

Single tower with filer pack mounted at 10 meters and temperature mounted at 9 meters.

Field Systems Data	For	'n			F-02	2058-	1500-S7-rev002		
Site ID UND002		Technician	Korey Devins	Site Visit Date)7/13/202 <i>°</i>	1			
Documentation									
Does the site have the required instrument and equipment manuals?									
Wind speed sensor Wind direction sensor Temperature sensor Relative humidity sensor Solar radiation sensor Surface wetness sensor Wind sensor translator Temperature translator Humidity sensor translator Solar radiation translator Solar radiation translator Tipping bucket rain gauge Ozone analyzer Filter pack flow controller Filter pack MFC power supply			A Data lo Data lo Data lo Strip cl Compu Modem Printer Zero ai Filter f Surge p UPS Lightni Shelter	egger egger hart recorder iter r pump low pump protector ing protection device heater air conditioner	Yes		N/A V V V V V V V V V V V V V V V V V V		
Does the site have the requir	red ar	nd most rece	ent QC documents a	and report forms?					
	Prese	ent			Curre	ent			
Station Log SSRF Site Ops Manual HASP Field Ops Manual Calibration Reports Ozone z/s/p Control Charts Preventive maintenance schedul	• • •								
1 Is the station log properly c	ompl	leted during	every site visit?]					
2 Are the Site Status Report current?	Form	is being com	pleted and						
3 Are the chain-of-custody fo sample transfer to and from	rms p a lab?	properly use ?	d to document 🔽]					
4 Are ozone z/s/p control cha current?	rts pr	roperly com	pleted and] N/A					
Provide any additional explanat natural or man-made, that may	ion (p affec	photograph o t the monito	or sketch if necessa ring parameters:	ry) regarding condition	ons listed	above, o	or any other features,		

Although there is no CASTNET logbook present onsite, the site operator records CASTNET information in the VT Monitoring Coop logbook.

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Site	ID	UND002	Technician	Korey Devins		Site Visit Date	07/13/2021]	
	<u>Site ope</u>	ration procedures							
1	Has the course?	site operator attended If yes, when and who	d a formal CAS instructed?	TNET training					
2	Has the training	backup operator atte course? If yes, when	nded a formal (and who instru	CASTNET cted?					
3	Is the site schedule	e visited regularly on ?	the required T ı	uesday					
4	Are the s flollowed	tandard CASTNET of by the site operator?	perational pro	cedures being					
5	Is the site the requi	e operator(s) knowled ired site activities? (in	geable of, and a	able to perform entation)					
	<u>Are regu</u>	lar operational QA/Q	C checks perfo	rmed on meteor	rologic	al instruments?			

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

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	\checkmark
Manual Zero/Span Tests	N/A	\checkmark
Automatic Precision Level Tests	N/A	\checkmark
Manual Precision Level Test	N/A	\checkmark
Analyzer Diagnostics Tests	N/A	\checkmark
In-line Filter Replacement (at inlet)	N/A	\checkmark
In-line Filter Replacement (at analyze	N/A	\checkmark
Sample Line Check for Dirt/Water	N/A	\checkmark
Zero Air Desiccant Check	N/A	\checkmark

- **1** Do multi-point calibration gases go through the complete sample train including all filters?
- 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?

\checkmark	N/A
✓	N/A
✓	N/A

Field Systems Data Form	F-02058-1500-S9-rev002

Sit	e ID	UND002	Techni	cian	Korey Devins		Site Visit Date	07/13/2021	
	<u>Site ope</u>	ration procedures							
1	Is the fil	ter pack being change	d every Tu	iesd	ay as scheduled	? ✓	Filter changed morn	ings	
2	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, logbook		
5	Are site supplies on-hand and replenished in a timely fashion?								
6	5 Are sample flow rates recorded? How?						SSRF, logbook		
7	Are sam fashion?	ples sent to the lab on	a regular	sche	edule in a timely				
8	Are filte and ship	rs protected from cont pping? How?	aminatio	n du	ring handling	✓	Clean gloves on and	d off	
9	Are the operation	site conditions reporte ns manager or staff?	d regularl	y to	the field	✓			
QC	Check Pe	erformed		Fre	quency			Compliant	
I	Multi-poir	nt MFC Calibrations	\checkmark	Sen	niannually				
1	Flow Syste	em Leak Checks	\checkmark	Wee	ekly				
]	Filter Pacl	k Inspection	\checkmark	Wee	ekly				
]	Flow Rate Setting Checks								
	Visual Ch	eck of Flow Rate Rotor	meter 🗹	Wee	ekly			\checkmark	
1	In-line Fil	ter Inspection/Replace	ment 🗹	As r	needed			\checkmark	
5	Sample Li	ne Check for Dirt/Wat	er 🗸	Wee	ekly				

Field Sys	stems Data Fo	rm			F-02058-15 0	0-S10-rev002
Site ID	UND002	Technician	Korey Devins	Site Visit Date	07/13/2021	

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Campbell	CR850	23269	000802
elevation	Elevation	none	none	none
Filter pack flow pump	Permotec	BL30EB	Illegible	none
Flow Rate	Apex	AXMC105LPMDPC	48097	000528
Infrastructure	Infrastructure	none	none	none
Modem	Sierra wireless	unknown	unknown	06982
Sample Tower	Aluma Tower	В	AT-212125X77	000778
siting criteria	Siting Criteria	none	None	none
Temperature	RM Young	41342	6702	04688

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
PIN4	14-Martin	Valvur-07/14/2021				
1	7/14/2021	Computer	Hewlett Packard	none	8460 elitebook	CNU136077G
2	7/14/2021	DAS	Environmental Sys Corp	90612	8816	2615
3	7/14/2021	Elevation	Elevation	None	1	None
4	7/14/2021	Filter pack flow pump	Thomas	none	107CAB18	00001528
5	7/14/2021	Flow Rate	Alicat	none	Unknown	Unknown
6	7/14/2021	Infrastructure	Infrastructure	none	none	none
7	7/14/2021	Modem	Hughesnet	none	Unknown	Unknown
8	7/14/2021	Ozone	ThermoElectron Inc	none	49i A3NCA	1201477659
9	7/14/2021	Ozone Standard	ThermoElectron Inc	none	49C	0425208055
10	7/14/2021	Sample Tower	Aluma Tower	928348	В	AT-5381-F9-3
11	7/14/2021	Shelter Temperature	ARS	none	none	none
12	7/14/2021	Siting Criteria	Siting Criteria	None	1	None
13	7/14/2021	Temperature2meter	RM Young	none	41342VC	029459
14	7/14/2021	Zero air pump	Werther International	none	PC70/4	000665778

DAS Data Form

DAS Time Max Error: 0.4

Mfg	Serial Number Site Te		Fechnician	Site Visit Date	Parameter	Use Desc.	
Environmental	Sys 2615	PIN	1414	Martin Valvur	07/14/2021	DAS	Primary
Das Date:	7 /14/2021	Audit Date	7 /14/2021	Mfg	HY	Parameter	DAS
Das Time: Das Day:	08:17:24 195	Audit Time Audit Day	195	Serial Number	12010039329	Tfer Desc.	Source generator (D
Low Channel	:	High Channe	el:	Tfer ID	01322		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0000	0.00	0.0000	0.0001	Cert Date	6/15/201	4 CorrCoff	1.00000
				Mfg	Fluke	Parameter	DAS
				Serial Number	95740243	Tfer Desc.	DVM
				Tfer ID	01312		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/11/202	CorrCoff	1.00000
Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference	
9	0.0000	0.0003	0.0003	3 V	V	0.0000	
9	0.1000	0.1002	0.1002	2 V	V	0.0000	
9	0.3000	0.2999	0.3000	0 V	V	0.0001	
9	0.5000	0.4997	0.4997	7 V	V	0.0000	
9	0.7000	0.7000	0.700	1 V	V	0.0001	
9	0.9000	0.9005	0.9005	5 V	V	0.0000	
9	1.0000	1.0000	1.000	1 V	V	0.0001	

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit I	Date Paran	neter	Owner ID
Alicat	Unknown		PIN414	Ma	artin Valvur	07/14/2021	1 Flow F	Rate	none
					Mfg	BIOS	F	arameter Flo	w Rate
					Serial Number	148613	1	fer Desc. BIC	DS 220-H
					Tfer ID	01421			
					Slope	1.	.00850 Int	ercept	0.00160
					Cert Date	2/1	0/2021 Co	rrCoff	0.99999
DAS 1:		DAS 2:			Cal Factor Z	ero	-0.0	72	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	x % Dif	Cal Factor F	ull Scale	5.1	15	
0.32%	0.91%				Rotometer R	eading:	3.	15	
Desc.	Test type	Input l/n	n Input Corr_	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignall	PctDifference
primary	pump off	0.000	0.000	-0.01	0.0000	-0.03	l/m	l/m	
primary	leak check	0.000	0.000	0.00	0.0000	-0.02	l/m	l/m	
primary	test pt 1	2.996	2.970	2.96	0.0000	3.00	l/m	l/m	0.91%
primary	test pt 2	3.029	3.000	2.96	0.0000	3.00	l/m	l/m	0.03%
primary	test pt 3	3.026	3.000	2.96	0.0000	3.00	l/m	l/m	-0.03%
Sensor Comp	onent Leak Tes	t		Conditio	n		Statu	s pass	
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Statu	<mark>s</mark> pass	
Sensor Comp	onent Filter Pos	ition		Conditio	n Good		Statu	s pass	
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	Clean and dry		Statu	s pass	
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	resent	Statu	s pass	
Sensor Comp	onent Filter Dist	tance		Conditio	n 5.0 cm		Statu	s pass	
Sensor Comp	onent Filter Dep	oth		Conditio	n 1.0 cm		Statu	s pass	
Sensor Comp	onent Filter Azir	muth		Conditio	270 deg		Statu	s pass	
Sensor Comp	onent System M	lemo		Conditio	n		Statu	s pass	

Ozone Data Form

Mfg		Serial Numb	er Tag Site		Tec	hnician	Site Visit Date	Parameter	Owner ID
ThermoElec	tron Inc	1201477659	PIN414		Ма	rtin Valvur	07/14/2021	Ozone	none
Slope: 1.02535 Slope: 0.00000 Intercept -0.07108 Intercept 0.00000 CorrCoff: 0.99997 CorrCoff: 0.00000		0.00000 0.00000 0.00000		Mfg Serial Number Tfer ID	ThermoElectron 49CPS-70008-3 01110	Inc Parameter	er ozone c. Ozone primary stan		
DAS 1:		D	AS 2:			Slope	1.0034	0 Intercept	0.02230
A Avg % D	iff: A I	Max % Dif A	Avg %Diff A	Max % I	Dif	Cert Date	1/20/202	21 CorrCoff	1.00000
0.0)%	0.0%							
UseDescri	iption	ConcGroup	Tfer Raw	Tfer (Corr	Site	Site Unit	RelPerDif	AbsDif
primar	ry .	1	0.10	0.0	7	0.13	ppb		0.06
primar	ry 🛛	2	14.80	14.0	58	15.04	ppb		0.36
primar	ry	3	34.86	34.0	51	35.49	ppb	2.51	
primar	ry	4	64.75	64.3	30	65.30	ppb	1.54	
primar	ry	5	110.14	109.	40	112.40	ppb	2.71	
Sensor Co	ompon	ent Audit Press	sure	Co	onditio	n 737 mmHg		Status pass	
Sensor Co	ompon	ent 26.6 degree	e unobstructed ru	ule Co	onditio	n True		Status pass	
Sensor Co	ompon	ent Tree dewlin	ne >10m or below	v inlet Co	onditio	n True		Status pass	
Sensor Co	ompon	ent ADT <100	vehicles further t	han 20 Co	onditio	n 85 m		Status Fail	
Sensor Co	ompon	ent ADT >100	vehicles further t	han 50 Co	onditio	on 85 m		Status Fail	
Sensor Co	ompon	ent Sample Tra	ain	Co	onditio	n Good		Status pass	
Sensor Co	ompon	ent Inlet Filter (Condition	Co	onditio	n Clean		Status pass	
Sensor Co	ompon	ent Offset		Co	onditio	n 0.000		Status pass	
Sensor Co	ompon	ent Span		Co	onditio	n 1.000		Status pass	
Sensor Co	ompon	ent Zero Voltag	ge	Co	onditio	n 0.000		Status pass	
Sensor Co	ompon	ent Fullscale V	oltage	Co	onditio	n 1.0009		Status pass	
Sensor Co	ompon	ent Cell A Freq	l.	Co	onditio	n 105.1 kHz		Status pass	
Sensor Co	ompon	ent Cell A Nois	e	Co	onditio	on 0.8 ppb		Status pass	
Sensor Co	ompon	ent Cell A Flow	I	Co	onditio	n 0.70 lpm		Status pass	
Sensor Co	ompon	ent Cell A Pres	sure	Co	onditio	n 719.5 mmHg		Status pass	
Sensor Co	ompon	ent Cell A Tmp).	Co	onditio	n 29.7 C		Status pass	
Sensor Co	ompon	ent Cell B Freq	l.	Co	onditio	n 83.0 kHz		Status pass	
Sensor Co	ompon	ent Cell B Nois	e	Co	onditio	n 0.7 ppb		Status pass	
Sensor Co	ompon	ent Cell B Flow	1	Co	onditio	n 0.71 lpm		Status pass	
Sensor Co	ompon	ent Cell B Pres	sure	Co	onditio	n 718.9 mmHg		Status pass	
Sensor Co	ompon	ent System Me	emo	Co	onditio	n		Status pass	

2 Meter Temperature Data Form

0 1		D		20					
1 0	0		11		01	-0	n	c	Δ
V.a	U .				C			U	c

Mfg	Serial Number Tag	g Site	Т	Fechnician		Site Vis	Site Visit Date Pa		r	Owner ID	
RM Young	029459	PIN414	I	Martin Va	lvur	07/14/2	4/2021 Tempe		ure2meter	none	
				Mfg		Fluke		Parameter Temperature			
				Serial	Number	3275143 Tfer Desc. RTD					
				Tfer I	D	01229					
DAS 1:		Slope		0.99975 Intercept		ept	ot -0.00824				
Abs Avg Err Abs Max Err Abs Avg Err Abs Max				r Cert Date			2/9/2021	CorrC	off	1.00000	
0.1	0.2										
UseDescription	Test type Inpu	ıtTmpRaw Inp	outTmpCo	orrected	OutputTm	pSignal	OutputSi	gnalEng	OSE Unit	Difference	
primary 7	Cemp Low Rang	0.02		0.03		0.0000		0.07	С	0.04	
primary T	Temp Mid Range	23.57		23.58		0.0000		23.38	С	-0.2	
primary T	emp High Rang	46.50		46.52		0.0000		46.47	С	-0.05	
Sensor Compon	ent Shield		Condi	tion Clea	in			Status pa	ass		
Sensor Component Properly Sited				tion Prop	erly sited			Status pa	ass		
Sensor Component Blower				adition Functioning Status pass							
Sensor Compon	ent System Memo		Condi	Condition Status pass							

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	none PIN414		Martin Valvur	07/14/2021	e none	
DAS 1:	DAS 2:		Mfg	Fluke	Parameter SI	helter Temperature
Abs Avg ErrAbs1.36	S Max Err Abs Avg 1.93	Err Abs Max Err	Serial Number	3275143	Tfer Desc. R	TD
			Tfer ID	01229		
			Slope	0.9997	75 Intercept	-0.00824
			Cert Date	2/9/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	20.84	20.85	0.000	22.7	С	1.88
primary	Temp Mid Range	23.90	23.91	0.000	23.7	С	-0.26
primary	Temp Mid Range	21.90	21.91	0.000	23.8	С	1.93
Sensor Con	nponent System Memo	•	Condition	N Status pass			

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	Condition	Status pass
Sensor Component Major industrial source	Condition	Status pass
Sensor Component Secondary road < or = 100 per da	Condition 85 m	Status Fail
Sensor Component Secondary road >100 vehicles/da	Condition 85 m	Status Fail
Sensor Component Small parking lot	Condition	Status pass
Sensor Component System Memo	Condition	Status pass
Sensor Component Large parking lot	Condition	Status pass

Infrastructure Data For

Site ID PI	N414	Technician M	lartin Valvur	Site Visit Date	07/14/2021
Shelter Make	e S	helter Model	Sh	elter Size	
Alan pre-fab	s/	n 861168 1808	51	2 cuft	
				5.7053.509.00954.5154.656.468.468.	

Sensor Component	Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component	Conduit	Condition	Good	Status	pass
Sensor Component	Met Tower	Condition	Good	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: SiteOpsProcedures

The site operator reviews data each week to ensure proper operation of sensors and instruments.

2 Parameter: ShelterCleanNotes

The lighting has been repaired. The shelter has been cleaned and organized.

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Site ID PIN414	Technician Martin Valvur	Site Visit Date 07/14	1/2021		
Site Sponsor (agency)	NPS	USGS Map	North Chalone Peak		
One sponsor (agency)	NIDS	Man Scale			
Operating Group		Man Data			
AQS #	06-069-0003	Map Date	I		
Meteorological Type	Climatronics				
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude	36.4850		
Deposition Measurement	dry, wet	QAPP Longitude	-121.1556		
Land Use	woodland - scrub	QAPP Elevation Meters	335		
Terrain	complex	QAPP Declination			
Conforms to MLM	Marginally	QAPP Declination Date			
Site Telephone	(831) 389-4586	Audit Latitude	36.483235		
Site Address 1	5000 Hwy 146	Audit Longitude	-121.156876		
Site Address 2		Audit Elevation	317		
County	San Benito	Audit Declination	13.5		
City, State	Paicines, CA	Present			
Zip Code	95043	Fire Extinguisher 🔽	Inspected June 2021		
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 ✓			
Shelter Working Room	Make Alan pre-fab Mo	odel s/n 861168 1808	Shelter Size 512 cuft		
Shelter Clean	Notes The lighting has been repaired.	. The shelter has been cleaned	and organized.		
Site OK	Notes				
Driving Directions From I west o from the	Hollister proceed south on route 25 to hig n 146 and continue to the fee station. Le ne road on the right up a hill.	hway 146 and the entrance to F ss than 1/2 mile from the fee st	Pinnacles National Monument. Turn ation the site will be visible 100 yards		

F 1(eld Sy	stems Data Fo	orm			F-02058-1500-55-rev002
Site	e ID	PIN414	Technician	Martin Valvur		Site Visit Date 07/14/2021
1	Are wind being inf	d speed and direction s fluenced by obstructio	sensors sited so ns?	as to avoid	✓	N/A
2	Are wind (i.e. wind horizont tower in	d sensors mounted so a l sensors should be mo ally extended boom >2 to the prevailing wind	as to minimize f ounted atop the Ex the max diar)	tower effects? tower or on a neter of the		N/A
3	Are the	tower and sensors plui	nb?		✓	N/A
4	Are the avoid ra	temperature shields po diated heat sources su	binted north or ch as buildings	positioned to , walls, etc?	✓]
5	Are temp condition surface a standing	perature and RH sense ns? (i.e. ground below and not steeply sloped. swater should be avoid	ors sited to avo sensors should Ridges, hollow led)	id unnatural be natural /s, and areas of		
6	Is the so	lar radiation sensor pl	umb?		✓	N/A
7	Is it sited	to avoid shading, or	any artificial oi	r reflected light?	✓	N/A
8	Is the ra	in gauge plumb?			✓) N/A
9	Is it sited towers, d	d to avoid sheltering ef etc?	fects from buil	dings, trees,	✓	N/A
10	Is the su facing no	rface wetness sensor s orth?	ited with the gr	id surface	✓	N/A
11	Is it incl	lined approximately 3) degrees?		✓	N/A

Field Swat Data F

E 02050 1500 82 .003

F-02058-1500-S4-rev002

Site	e ID	PIN414	Technician	Martin Valvur		Site Visit Date 07/14/2021
1	Do all th condition	e meterological sensor 1, and well maintained	rs appear to be l?	intact, in good		Temperature only
2	Are all the reporting	he meteorological sens g data?	ors operationa	l online, and	✓	Temperature only
3	Are the s	hields for the tempera	ature and RH s	ensors clean?	✓	
4	Are the a	aspirated motors work	king?			
5	Is the solar radiation sensor's lens clean and free of scratches?					N/A
6	Is the su	rface wetness sensor g	rid clean and u	ndamaged?	✓	N/A
7	Are the s condition	sensor signal and powe	er cables intact l?	, in good	✓	
8	Are the s from the	ensor signal and power elements and well ma	er cable connec intained?	tions protected		

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-S5-rev002
Sit	e ID	PIN414	Technician	Martin Valvur		Site Visit Date 07/14/2021
	Siting C	riteria: Are the pollut	<u>ant analyzers a</u>	nd deposition eq	<u>uipn</u>	ment sited in accordance with 40 CFR 58, Appendix E
1	Do the s unrestri	ample inlets have at le cted airflow?	east a 270 degre	e arc of		
2	Are the	sample inlets 3 - 15 mo	eters above the	ground?		
3	Are the and 20 1	sample inlets > 1 mete neters from trees?	er from any maj	jor obstruction,		
	Pollutar	nt analyzers and depos	ition equipmen	t operations and	mai	aintenance
1	Do the a conditio	nalyzers and equipme n and well maintained	ent appear to be ?	e in good		
2	Are the reportin	analyzers and monitor ig data?	rs operational,	on-line, and		
3	Describ	e ozone sample tube.				1/4 teflon by 12 meters
4	Describ	e dry dep sample tube.				3/8 teflon by 10 meters
5	Are in-li indicate	ine filters used in the o location)	ozone sample lin	ne? (if yes		At inlet only
6	Are sam obstruct	ple lines clean, free of tions?	'kinks, moistur	e, and	✓	
7	Is the ze	ero air supply desiccan	t unsaturated?		✓	
8	Are the	re moisture traps in th	e sample lines?			Flow line only
9	Is there clean?	a rotometer in the dry	deposition filt	er line, and is it	✓	Clean and dry

Fi	eld Sy	stems Data Fo	orm				F-0 2	2058-15	00-S6-rev002
Site	e ID	PIN414	Technician	Martin Valvur		Site Visit	Date 07/14/202	1	
	DAS, se	nsor translators, and j	peripheral equi	pment operatior	<u>15 ai</u>	<u>id maintenanc</u>	<u>:e</u>		
1	Do the I well ma	DAS instruments appe intained?	ear to be in good	l condition and					
2	Are all t modem,	he components of the backup, etc)	DAS operation	al? (printers,					
3	Do the a lightnin	nalyzer and sensor sig g protection circuitry	gnal leads pass (?	through	✓	Met sensors of	nly		
4	Are the well ma	signal connections pro intained?	otected from the	e weather and					
5	Are the	signal leads connected	l to the correct	DAS channel?	✓				
6	Are the grounde	DAS, sensor translato d?	ors, and shelter	properly	✓				
7	Does the	e instrument shelter h	ave a stable pow	ver source?	✓				
8	Is the in	strument shelter temp	oerature control	lled?					
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	mple tower stable and	l grounded?						
11	Tower c	omments?						<u> </u>	

Fie	eld Systems Data Form									F-02058-1500-S7-rev002			
Site	ID	PIN414		Tecł	nician	Martin Valvu	r	Site Visit Date	07/14/2021				
D	ocument	ation											
D	oes the s	ite have the requi	red ins	strum	ent and	equipment r	manuals?						
_			Yes	No	N/.	A			Yes	No	N/A		
Win	d speed s	sensor				E	Data logge	r					
Win	d directi	on sensor			\checkmark	Ľ	Data logge	r					
Tem	perature	esensor		✓		S	trip chart	recorder			\checkmark		
Rela	tive hum	nidity sensor			\checkmark	C	Computer			\checkmark			
Sola	r radiati	on sensor			\checkmark	Ν	Iodem			\checkmark			
Surf	ace wetn	ess sensor			\checkmark	Р	Printer						
Win	d sensor	translator			\checkmark	Z	Lero air pu	ımp					
Tem	perature	e translator			\checkmark	F	ilter flow	pump		\checkmark			
Hun	nidity ser	isor translator			\checkmark	S	urge prot	ector					
Sola	r radiati	on translator			\checkmark	τ	JPS						
Tipp	oing buck	xet rain gauge			\checkmark	I	.ightning _I	protection device					
Ozoi	ne analyz	zer		✓		S	helter hea	iter		\checkmark			
Filte	r pack fl	ow controller		\checkmark		S	helter air	conditioner		\checkmark			
Filte	r pack M	IFC power supply	у 🗌	\checkmark									
]	Does the	site have the requ	iired a	nd m	ost rece	nt QC docun	nents and	<u>report forms?</u>					
			Pres	ent					Currer	nt			
Stati	ion Log		•	✓	DataVie	ew2							
SSR	F		•	✓					\checkmark				
Site	Ops Mai	nual	•	✓					\checkmark				
HAS	SP		[
Field	l Ops Ma	anual	[
Cali	bration H	Reports	ŀ	✓									
Ozoi	ne z/s/p (Control Charts	[
Prev	entive m	aintenance sched	ule [
1	Is the sta	ation log properly	or comp	leted	during	every site vis	sit? 🔽 Da	ataview checklists	;				
2	Are the current	Site Status Repor ?	t Forn	ıs bei	ng comj	oleted and	✓ Floor	ow section only					
3	Are the sample t	chain-of-custody transfer to and fro	forms om lab	prope ?	erly used	l to documer	nt 🗸						
4	Are ozor current	ne z/s/p control cł ?	arts p	roper	ly comp	leted and		ontrol charts not u	sed				
Prov natu	vide any a ral or ma	additional explan an-made, that ma	ation (j y affec	photo ct the	graph o monitoi	or sketch if n ing paramet	ecessary) ı ters:	regarding condit	ions listed a	bove, o	or any other features,		

PIN414 Technician Martin Valvur Site Visit Date 07/14/2021 Site ID Site operation procedures Trained by previous operator, ARS provides updates Has the site operator attended a formal CASTNET training 1 semiannually course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

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

00	CI I	D C I
U U	Check	Performed

Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at inlet) In-line Filter Replacement (at analyze Sample Line Check for Dirt/Water **Zero Air Desiccant Check**

Frequency	Со
Semiannually	
Daily	
Every 2 weeks	
Daily	
As needed	
Alarm values only	
Every 2 weeks	
N/A	
Weekly	
Weekly	

Unknown

Datalogger only

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

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

✓

✓

The site operator reviews data each week to ensure proper operation of sensors and instruments.

Compliant

 \checkmark \checkmark \checkmark \checkmark ✓ \checkmark

mpliant

F-02058-1500-S8-rev002

Field Systems Data Form					F-02058-1500-S9-rev002				
Sit	te ID	PIN414 Tec	hnician Martin Valvur		Site Visit Date 07/14/2021				
	<u>Site ope</u>	eration procedures							
1	Is the fi	lter pack being changed ever	y Tuesday as scheduled?		Filter changed mornings 90%				
2	Are the correctl	Site Status Report Forms be y?	ing completed and filed						
3	Are dat schedul	a downloads and backups be ed?	ing performed as		No longer required				
4	4 Are general observations being made and recorded? How?				SSRF and dataview checklists				
5	5 Are site supplies on-hand and replenished in a timely fashion?								
6	Are san	nple flow rates recorded? How	w?	✓	SSRF				
7	Are san fashion	nples sent to the lab on a regu ?	llar schedule in a timely	✓	2				
8	Are filte and shij	ers protected from contamina pping? How?	ntion during handling	✓	Clean gloves on and off				
9	Are the operation	site conditions reported reguons manager or staff?	larly to the field						
QC	C Check P	erformed	Frequency		Compliant				
	Multi-poi	nt MFC Calibrations	Semiannually						
	Flow Syst	em Leak Checks	✓ Weekly						
	Filter Pac	k Inspection							
	Flow Rate	e Setting Checks	✓ Weekly						
	Visual Ch	eck of Flow Rate Rotometer	✓ Weekly						
	In-line Fil	ter Inspection/Replacement	✓ As needed						
	Sample L	ine Check for Dirt/Water	✓ Weekly	kly 🖌					

PIN414

F-02058-1500-S10-rev002

Site	ID	
Site	\mathbf{n}	

Techr

Technician Martin Valvur

Site Visit Date 07/14/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Hewlett Packard	8460 elitebook	CNU136077G	none
DAS	Environmental Sys Corp	8816	2615	90612
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	00001528	none
Flow Rate	Alicat	Unknown	Unknown	none
Infrastructure	Infrastructure	none	none	none
Modem	Hughesnet	Unknown	Unknown	none
Ozone	ThermoElectron Inc	49i A3NCA	1201477659	none
Ozone Standard	ThermoElectron Inc	49C	0425208055	none
Sample Tower	Aluma Tower	В	AT-5381-F9-3	928348
Shelter Temperature	ARS	none	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	RM Young	41342VC	029459	none
Zero air pump	Werther International	PC70/4	000665778	none

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
YOS4	04-Martin	Valvur-07/15/2021				
1	7/15/2021	DAS	Environmental Sys Corp	90645	8816	2558
2	7/15/2021	Elevation	Elevation	None	1	None
3	7/15/2021	Filter pack flow pump	Thomas	none	107CAB18	12000014455
4	7/15/2021	Flow Rate	Alicat	none	Unknown	150929
5	7/15/2021	Infrastructure	Infrastructure	none	none	none
6	7/15/2021	Met tower	unknown	none	unknown	none
7	7/15/2021	Modem	Sierra wireless	none	GX450	Unknown
8	7/15/2021	Ozone	ThermoElectron Inc	none	49i A3NCA	1201477663
9	7/15/2021	Ozone Standard	ThermoElectron Inc	90524	49C	49C-58308-318
10	7/15/2021	Sample Tower	Aluma Tower	none	В	none
11	7/15/2021	Shelter Temperature	ARS	none	none	none
12	7/15/2021	Siting Criteria	Siting Criteria	None	1	None
13	7/15/2021	Temperature	RM Young	none	41342	031822
14	7/15/2021	Zero air pump	Werther International	none	PC70/4	531397

DAS Data Form

DAS Time Max Error: 1.55

Mfg	g Serial Number Site		Т	echnician	Site Visit Date	Parameter	Use Desc.	
Environmental \$	Sys 2558	YOS	404	Martin Valvur	07/15/2021	DAS	Primary	
Das Date:	7 /15/2021	Audit Date	7 /15/2021	Mfg	HY	Parameter	DAS	
Das Time:	196	Audit Time Audit Day	196	Serial Number	12010039329	Tfer Desc.	Source generator (D	
Low Channel:		High Channel	:	Tfer ID	01322			
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000	
0.0002	0.0004	0.0002	0.0004	Cert Date	6/15/201	4 CorrCoff	1.00000	
				Mfg	Fluke	Parameter	DAS	
				Serial Number	95740243	Tfer Desc.	DVM	
				Tfer ID	01312			
				Slope	1.0000	0 Intercept	0.00000	
				Cert Date	2/11/202	CorrCoff	1.00000	
Channel	Input DV	VM Output	DAS Output	InputUnit	OutputUnit	Difference		
2	0.0000	0.0001	0.0000	V	V	-0.0001		
2	0.1000	0.1000	0.0999	V	V	-0.0001		
2	0.3000	0.2999	0.2995	V	V	-0.0004		
2	0.5000	0.4998	0.4998	V	V	0.0000		
2	0.7000	0.6997	0.6996	V	V	-0.0001		
2	0.9000	0.8999	0.8997	V V	V	-0.0002		
2	1.0000	1.0005	1.0002	2 V	V	-0.0003		

Flow Data Form

Mfg	Serial Nun	nber Tag	Site	Тес	chnician	Site Visit D	ate Param	ieter	Owner ID
Alicat	150929		YOS404	Ma	artin Valvur	07/15/2021	Flow R	ate	none
					Mfg	BIOS	P	arameter Flo	ow Rate
					Serial Number	148613	Т	fer Desc. Blo	OS 220-H
					Tfer ID	01421			
					Slope	1.	00850 Inte	ercept	0.00160
					Cert Date	2/10)/2021 Cor	rCoff	0.99999
DAS 1:		DAS 2:			Cal Factor Z	ero	-0.06	61	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	% Dif	Cal Factor F	ull Scale	5.04	19	
0.76%	1.38%				Rotometer R	eading:	3	.3	
Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignal	I PctDifference
primary	pump off	0.000	0.000	0.07	0.0000	0.05	l/m	l/m	
primary	leak check	0.000	0.000	0.07	0.0000	0.01	l/m	l/m	
primary	test pt 1	3.016	2.990	3.90	0.0000	3.00	l/m	l/m	0.40%
primary	test pt 2	3.016	2.990	3.90	0.0000	3.01	l/m	l/m	0.50%
primary	test pt 3	3.073	3.050	3.89	0.0000	3.01	l/m	l/m	-1.38%
Sensor Comp	onent Leak Tes	t		Conditio	Condition		Status pass		
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Status	pass	
Sensor Comp	onent Filter Pos	sition		Conditio	n Good		Status	pass	
Sensor Comp	onent Rotomete	er Conditio	า	Conditio	Clean and dry		Status	pass	
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	esent	Status	pass	
Sensor Comp	onent Filter Dist	tance		Conditio	dition 3.5 cm		Status	pass	
Sensor Comp	onent Filter Dep	oth		Conditio	n 1.5 cm	Status	pass		
Sensor Comp	onent Filter Azir	muth		Conditio	225 deg		Status	pass	
Sensor Comp	onent System M	/lemo		Conditio	on	Status	pass		

Ozone Data Form

Mfg	Serial Number Tag Site			Tech	nnician	Site Visit Date	Parameter	Owner ID	
ThermoElec	ermoElectron Inc 1201477663 YOS404		1	Martin Valvur		07/15/2021	Ozone	none	
Slope: Intercept CorrCoff:		1.01061 Slope: 0.00000 0.92352 Intercept 0.00000 0.99999 CorrCoff: 0.00000		0.00000 0.00000 0.00000	Mfg Serial Number Tfer ID		ThermoElectron IncParame49CPS-70008-364Tfer De01110		er ozone c. Ozone primary stan
DAS 1:		D	DAS 2:		S	Slope	1.0034	0 Intercept	0.02230
A Avg % D	iff: A I	Max % Dif A	Avg %Diff A	Max % Dif			4/20/202		1.00000
0.0	0%	0.0%]	Cert Date	1/20/202	CorrCoff	1.00000
UseDescri	intion	ConcGroup	Tfer Raw	Tfer Cor	rr	Site	Site Unit	RelPerDif	AbsDif
prima	ry	1	0.10	0.07		1.02	ppb		0.95
prima	ry	2	14.90	14.78		16.02	ppb		1.24
prima	ry	3	35.76	35.50		36.56	ppb	2.94	
primai	ry	4	65.40	64.95		66.56	ppb	2.45	
primai	ry	5	110.90	110.15		112.30	ppb	1.93	
Sensor C	ompon	ent Audit Press	sure	Conc	ditior	n 636 mmHg		Status pass	
Sensor C	ompon	ent 26.6 degree	e unobstructed ru	le Conc	ditior	n True		Status pass	
Sensor C	ompon	ent Tree dewlir	ne >10m or below	inlet Conc	ditior	n True		Status pass	
Sensor C	ompon	ent ADT <100	vehicles further th	nan 20 Conc	litior	n True		Status pass	
Sensor C	ompon	ent ADT >100	vehicles further th	nan 50 Conc	ditior	n 250 m		Status Fail	
Sensor C	ompon	ent Sample Tra	ain	Conc	litior	n Good		Status pass	
Sensor C	ompon	ent Inlet Filter (Condition	Cond	ditior	n Clean		Status pass	
Sensor C	ompon	ent Offset		Conc	ditior	n -0.9		Status pass	
Sensor C	ompon	ent Span		Conc	ditior	n 1.017		Status pass	
Sensor C	ompon	ent Zero Voltag	де	Cond	ditior	n 0.000		Status pass	
Sensor C	ompon	ent Fullscale V	oltage	Cond	ditior	n 1.0001		Status pass	
Sensor C	ompon	ent Cell A Freq	1.	Conc	ditior	n 104.9 kHz		Status pass	
Sensor C	ompon	ent Cell A Nois	e	Conc	litior	n 0.9 ppb		Status pass	
Sensor C	ompon	ent Cell A Flow	/	Conc	ditior	n 0.63 lpm		Status pass	
Sensor C	ompon	ent Cell A Pres	sure	Conc	ditior	n 622.8 mmHg		Status pass	
Sensor C	ompon	ent Cell A Tmp).	Conc	ditior	n 37.3 C		Status pass	
Sensor C	ompon	ent Cell B Freq	Į.	Conc	ditior	n 85.3 kHz		Status pass	
Sensor C	ompon	ent Cell B Nois	e	Conc	ditior	n 0.6 ppb		Status pass	
Sensor C	ompon	ent Cell B Flow	/	Conc	ditior	n 0.61 lpm		Status pass	
Sensor C	ompon	ent Cell B Pres	sure	Conc	ditior	n 622.5 mmHg		Status pass	
Sensor C	ompon	ent System Me	emo	Conc	ditior	n		Status pass	

Temperature Data Form

Mfg	Serial Number Tag Site		Т	Technician S		Site Visit Date		Param	eter	Owner ID	
RM Young	031822	YOS404	I	Martin	Valvur	07/15	07/15/2021 Temp		ature	none	
				Mf	g	Fluke	ke Parameter Te		mperature		
				Ser	rial Number	32751	43	Tf	er Desc. R	D	
				Tfe	er ID	01229					
DAS 1:	DAS		Slo	pe		0.9997	5 Inte	rcept	-0.00824	ł	
Abs Avg Err	Abs Max Err Abs	Avg Err Abs	Max Err	Err Cert Date		2/9/2021 CorrCoff 1		1.00000)		
0.26	0.39										
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	OutputSig	gnalEng	OSE Unit	Difference	
primary	Temp Low Range	0.22	0.23		0.0000		0.3	5	С	0.08	
primary	Temp Mid Range	22.29	22.30		0.0000		22.	6	С	0.31	
primary	Temp High Range	48.62	48.64		0.0000		49.	0	С	0.39	
Sensor Component Shield				tion C	Clean			Status	pass		
Sensor Component Blower			Condi	Condition Functioning				Status	pass		
Sensor Com	ponent Properly Sited		Condi	tion S	See comments	;		Status	pass		
Sensor Com	iponent System Memo)	Condi	Condition				Status	pass		
Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	RS none YOS404		Martin Valvur	07/15/2021	Shelter Temperatur	e none
DAS 1:	DAS 2:		Mfg	Fluke	Parameter SI	helter Temperature
Abs Avg Err Abs	2.53 Abs Avg	Err Abs Max Err	Serial Number	3275143	Tfer Desc. R	TD
			Tfer ID	01229		
			Slope	0.9997	75 Intercept	-0.00824
			Cert Date	2/9/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	25.83	25.84	0.000	24.5	С	-1.31
primary	Temp Mid Range	26.38	26.39	0.000	24.4	С	-1.95
primary	Temp Mid Range	26.26	26.27	0.000	23.7	С	-2.53
Sensor Con	n <mark>ponent</mark> System Memo	•	Condition	Status pass			

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 250 m	Status Fail
Sensor Component Small parking lot	Condition	Status pass
Sensor Component System Memo	Condition	Status pass
Sensor Component Large parking lot	Condition	Status pass

Infrastructure Data For

Site ID	YOS404	Technician Martin V	alvur Site Visit Date 07/15/2021
Shelter	Make	Shelter Model	Shelter Size
Ekto		8812 (s/n 3515-2)	768 cuft
19 JAC BAYARS			

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	Good	Status	pass
Sensor Component Met Tower	Condition	Good	Status	pass
Sensor Component Moisture Trap	Condition	Installed	Status	pass
Sensor Component Moisture Trap Type	Condition	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

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component Mfg		Serial No.	Hazard Problem				
Temperature	YOS404	Martin Valvur	07/15/2021	Properly Sited	RM Young	4668					
The temperature sensor is mounted directly above the shelter roof.											

Field Systems Comments

1 **Parameter:** ShelterCleanNotes

The site is neat, clean, and well organized. The shelter roof is currently covered with tar paper.

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Site ID	YOS404		Technician Martin Va	lvur	Site Visit D	ate 07/1	5/2021			
Site Sponsor ((agency)	NPS			USGS Map		El Capitan			
Operating Gr	oup	NPS			Map Scale					
AQS #		06-043-00	003		Map Date					
Meteorologica	al Type	Climatron	ics							
Air Pollutant	Analyzer	Ozone, C	O, NOx, IMPROVE		QAPP Latitude		37.7133			
Deposition M	easurement	dry			QAPP Longitude	-119.7061				
Land Use		mountain top, woodland - evergreen			QAPP Elevation M	Meters	1605			
Terrain		complex			QAPP Declination	1				
Conforms to 1	MLM	Marginall	y		QAPP Declination	n Date				
Site Telephon	e	(209) 372-4411			Audit Latitude		37.71325			
Site Address	1	Turtlebac	k Dome		Audit Longitude		-119.706196			
Site Address 2	2				Audit Elevation		1599			
County	County Marip				Audit Declination		13.5			
City, State		Yosemite	National Park, CA		Р	Present				
Zip Code		95389			Fire Extinguisher		Not present			
Time Zone		Pacific			First Aid Kit	First Aid Kit				
Primary Oper	rator				Safety Glasses		Not present			
Primary Op.	Phone #				Safety Hard Hat		Not present			
Primary Op.	E-mail				Climbing Belt	\checkmark				
Backup Oper	ator				Security Fence					
Backup Op.	Phone #				Secure Shelter	\checkmark				
Backup Op.	E-mail				Stable Entry Step	s 🗸				
Shelter Work	ing Room 🗹	Make	Ekto	Mo	odel 8812 (s/n 3515	5-2)	Shelter Size 768 cuft			
Shelter Clean		Notes The site is neat, clean, and v			l organized. The she	elter roof is	s currently covered with tar paper.			
Site OK	\checkmark	Notes								
Driving Direc	ite OK Notes Priving Directions From Mariposa take route 140 into Yosemite. From the loop road, take route 41 toward Oakhurst. Continue uphill and through the tunnel. Approximately one mile past the tunnel look for a dirt road on the left. Continue approximately 1/2 mile past the gate to the communication station at the top of Turtleback Dome. The site is another 100 yards on the path behind the station.									

Fie	eld Sy	stems Data Fo	orm				F-020 :	58-1:	500-S3	8-rev002
Site	e ID	YOS404	Technician	Martin Valvur		Site Visit Date	07/15/2021]	
1 2	Are wind being inf Are wind (i.e. wind	d speed and direction fluenced by obstructio d sensors mounted so d sensors should be mo	sensors sited so ns? as to minimize ounted atop the	o as to avoid tower effects? e tower or on a	✓	N/A N/A				
3	horizont tower in Are the	ally extended boom > to the prevailing wind tower and sensors plu	2x the max dian) mb?	meter of the		N/A				
4	Are the avoid ra	temperature shields p diated heat sources su	ointed north or ch as buildings	positioned to , walls, etc?		Above shelter				
5	Are tem condition surface a standing	perature and RH sens ns? (i.e. ground below and not steeply sloped swater should be avoi	ors sited to avo sensors should . Ridges, hollov ded)	id unnatural be natural vs, and areas of		Above shelter				
6	Is the so	lar radiation sensor p	lumb?		✓	N/A				
7	Is it sited	l to avoid shading, or	any artificial o	r reflected light?	✓	N/A				
8	Is the ra	in gauge plumb?			✓	N/A				
9	Is it sited towers, d	l to avoid sheltering e etc?	ffects from buil	ldings, trees,		N/A				
10	Is the su facing no	rface wetness sensor s orth?	ited with the g	rid surface	✓	N/A				
11	Is it incl	lined approximately 3	0 degrees?			N/A				

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Site	e ID	YOS404	Technician	Martin Valvur		Site Visit Date 07/15/2021
1	Do all th condition	e meterological sensoi 1, and well maintained	rs appear to be 1?	intact, in good		Temperature only
2	Are all the reporting	he meteorological sens g data?	ors operationa	l online, and	✓	Temperature only
3	Are the s	hields for the tempera	ature and RH s	ensors clean?	✓	
4	Are the a	aspirated motors work	cing?		✓	
5	Is the sol scratches	ar radiation sensor's	lens clean and f	ree of		N/A
6	Is the su	rface wetness sensor g	rid clean and u	ndamaged?		N/A
7	Are the s condition	sensor signal and powe	er cables intact. 1?	, in good	✓	
8	Are the s from the	ensor signal and powe elements and well ma	er cable connec iintained?	tions protected		

Fi	eld Sy	stems Data F	orm			F-02058	-1500-S5-rev002
Sit	e ID	YOS404	Technician Marti	n Valvur	Site Visit Date	07/15/2021	
	<u>Siting C</u>	Criteria: Are the pollu	tant analyzers and de	position equip	nent sited in accor	dance with 40 CF	<u>R 58, Appendix E</u>
1	Do the s unrestri	sample inlets have at icted airflow?	least a 270 degree arc	of 🗸			
2	Are the	sample inlets 3 - 15 n	neters above the groun	nd?			
3	Are the and 20 r	sample inlets > 1 met meters from trees?	ter from any major ob	ostruction, 🗹			
	<u>Pollutar</u>	nt analyzers and depo	osition equipment oper	rations and ma	intenance		
1	Do the a conditio	analyzers and equipm on and well maintaine	ent appear to be in go d?	ood 🗸			
2	Are the reportin	analyzers and moniting data?	ors operational, on-lin	e, and			
3	Describ	e ozone sample tube.			1/4 teflon by 10 me	ters	
4	Describ	e dry dep sample tub	e.		3/8 teflon by 10 me	ters	
5	Are in-li indicate	ine filters used in the location)	ozone sample line? (if	f yes 🗸	At inlet only		
6	Are sam obstruct	nple lines clean, free o tions?	of kinks, moisture, an	d 🗸			
7	Is the ze	ero air supply desicca	nt unsaturated?				
8	Are the	re moisture traps in t	he sample lines?				
9	Is there clean?	a rotometer in the di	y deposition filter line	e, and is it 🗹	Clean and dry		

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-S6-rev002					
Site	e ID	YOS404	Technician	Martin Valvur		Site Visit Date	07/15/202	1			
	DAS, se	nsor translators, and j	peripheral equi	pment operation	<u>15 ar</u>	<u>id maintenance</u>					
1	Do the I well mai	OAS instruments appe intained?	ear to be in good	l condition and							
2	Are all t modem,	he components of the backup, etc)	DAS operation	al? (printers,	✓						
3	Do the a lightning	nalyzer and sensor sig g protection circuitry?	gnal leads pass (?	through		Met sensors only					
4	Are the well mai	signal connections pro intained?	otected from the	e weather and	✓						
5	Are the	signal leads connected	l to the correct	DAS channel?	✓						
6	Are the grounde	DAS, sensor translato d?	ors, and shelter	properly	✓						
7	Does the	e instrument shelter h	ave a stable pov	ver source?	✓						
8	Is the in	strument shelter temp	oerature contro	lled?							
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded			
10	Is the sa	mple tower stable and	l grounded?								
11	Tower c	omments?									

Field	Systems Data	Fo	rm				F-02058-1500-87-rev002			
Site ID	YOS404		Technician Martin Valvur Site Visit Date 07			07/15/2021				
<u>Docu</u>	<u>mentation</u>									
Does	the site have the requi	red in	strumei	nt and	equipment manuals?					
	-	Yes	No	N/ /	A		Yes	No	N/A	
Wind sp	oeed sensor			✓	Data logge	er	✓			
Wind di	rection sensor			✓	Data logge	er			\checkmark	
Temper	ature sensor		\checkmark		Strip char	rt recorder			\checkmark	
Relative	e humidity sensor			\checkmark	Computer			\checkmark		
Solar ra	diation sensor			\checkmark	Modem			\checkmark		
Surface	wetness sensor			\checkmark	Printer				\checkmark	
Wind se	nsor translator			\checkmark	Zero air p	ump				
Temper	ature translator				Filter flow	/ pump				
Humidit	ty sensor translator			\checkmark	Surge pro	tector			\checkmark	
Solar ra	diation translator			\checkmark	UPS				\checkmark	
Tipping	bucket rain gauge			\checkmark	Lightning	protection device			\checkmark	
Ozone a	nalyzer	✓			Shelter he	ater		\checkmark		
Filter pa	ack flow controller		\checkmark		Shelter air	r conditioner		\checkmark		
Filter pa	ack MFC power supply	γ 🗌		\checkmark]					
Doe	<u>s the site have the requ</u>	uired a	and mos	t rece	nt QC documents and	l report forms?				
		Pres	sent				Curre	nt		
Station 1	Log)ataVie	ew2		\checkmark			
SSRF							\checkmark			
Site Ops	s Manual						\checkmark			
HASP										
Field O _I	os Manual									
Calibrat	tion Reports									
Ozone z	/s/p Control Charts									
Prevent	ive maintenance sched	ule								
1 Is t	he station log properly	, comp	pleted d	uring	every site visit? 🗹 🛛	Dataview				
2 Arc	e the Site Status Repor rent?	t Fori	ms beinş	g comp	pleted and 🔽 F	low section only				
3 Arc san	e the chain-of-custody nple transfer to and fr	forms om lat	proper b?	ly used	d to document 🔽					
4 Are	e ozone z/s/p control ch rrent?	arts p	properly	comp	oleted and 🔲 C	Control charts not u	sed			
Provide natural	any additional explan or man-made, that ma	ation (y affe	(photog ct the m	raph o onitor	or sketch if necessary) ring parameters:	regarding condit	ions listed	above,	or any other features,	,
										-

Site ID YOS404 Technician Martin Valvur Site Visit Date 07/15/2021 Site operation procedures Trained by previous operator Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

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

QC Check Performed		Frequency	Compliant
Multi-point Calibrations		Semiannually	
Automatic Zero/Span Tests	\checkmark	Daily	
Manual Zero/Span Tests			\checkmark
Automatic Precision Level Tests	\checkmark	Daily	\checkmark
Manual Precision Level Test			
Analyzer Diagnostics Tests	\checkmark	Alarm values only	
In-line Filter Replacement (at inlet)	\checkmark	Monthly	\checkmark
In-line Filter Replacement (at analyze		N/A	
Sample Line Check for Dirt/Water	\checkmark	Weekly	
Zero Air Desiccant Check	\checkmark	Weekly	
1 Do multi-point calibration gases go the	rough the	complete Unknown	

- **1** Do multi-point calibration gases go through the complete sample train including all filters?
- 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?

	Unknown
✓	
✓	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:

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Site	e ID	YOS404	Technicia	n Martin Valvur		Site Visit Date	e 07/15/2021		
	<u>Site oper</u>	ation procedures							
1	Is the file	ter pack being change	d every Tue	sday as scheduled	? ✓	Filter changed afte	rnoons		
2	Are the s correctly	Site Status Report For ?	rms being co	mpleted and filed	✓	Flow section only			
3	Are data schedule	downloads and back d?	ups being pe	erformed as		No longer required			
4	Are gene	eral observations bein	g made and	recorded? How?	✓	SSRF, dataview			
5	Are site fashion?	supplies on-hand and	replenished	in a timely	✓				
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 soperatio	site conditions reporte ns manager or staff?	ed regularly	to the field					
QC	Check Pe	rformed	F	requency			Compliant		
N	Aulti-poin	t MFC Calibrations	✓ s	emiannually					
F	Flow Syste	m Leak Checks	v	/eekly					
F	Filter Pack	Inspection	✓ w	/eekly			\checkmark		
F	low Rate	Setting Checks	v	/eekly					
V	isual Che	eck of Flow Rate Roto	Rotometer 🔽 Weekly				\checkmark		
Ι	n-line Filt	er Inspection/Replace	ement 🗹 🛛	lonthly					
S	ample Li	ne Check for Dirt/Wa	ter 🗹 🛛	/eekly					

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YOS404

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Sito	IN
SILE	ID

Techn

Technician Martin Valvur

Site Visit Date 07/15/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Environmental Sys Corp	8816	2558	90645
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	12000014455	none
Flow Rate	Alicat	Unknown	150929	none
Infrastructure	Infrastructure	none	none	none
Met tower	unknown	unknown	none	none
Modem	Sierra wireless	GX450	Unknown	none
Ozone	ThermoElectron Inc	49i A3NCA	1201477663	none
Ozone Standard	ThermoElectron Inc	49C	49C-58308-318	90524
Sample Tower	Aluma Tower	В	none	none
Shelter Temperature	ARS	none	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342	031822	none
Zero air pump	Werther International	PC70/4	531397	none

Site Inventory by Site Visit

Site V	isit Date/	Parameter	Mfg	Owner ID	Model Number	Serial Number
NICO	01-Korey I	Devins-07/27/2021				
1	7/27/2021	DAS	Campbell	000801	CR850	23268
2	7/27/2021	elevation	Elevation	none	none	none
3	7/27/2021	Filter pack flow pump	Permotec	none	BL30EB	Illegible
4	7/27/2021	Flow Rate	Арех	000597	AXMC105LPMDPCV	illegible
5	7/27/2021	Infrastructure	Infrastructure	none	none	none
6	7/27/2021	Modem	Sierra wireless	06989	GX440	Unknown
7	7/27/2021	Sample Tower	Aluma Tower	000785	В	AT-212125X73
8	7/27/2021	siting criteria	Siting Criteria	none	none	None
9	7/27/2021	Temperature	RM Young	04943	41342	none

DAS Time Max Error:

1.00000

2/13/2012

Intercept

CorrCoff

0.00000

1.00000

0

DAS	Data	Form
-----	------	------

Mfg **Serial Number** Site Technician Site Visit Date Parameter Use Desc. 23268 NIC001 07/27/2021 DAS Campbell Korey Devins Primary Das Date: Audit Date Fluke Parameter DAS Mfg **Das Time:** Audit Time Tfer Desc. DVM 95740135 Serial Number 0 0 Das Day: Audit Day 01311 Tfer ID Low Channel: High Channel: Avg Diff: Avg Diff: Max Diff: Max Diff: 0.00000 Slope 1.00000 Intercept 0.0000 0.0000 0.0000 0.0000 **Cert Date** 2/11/2021 1.00000 **CorrCoff Parameter** DAS Datel Mfg Tfer Desc. Source generator (D **Serial Number** 15510194 01320 Tfer ID

Slope

Cert Date

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit Da	Site Visit Date Parame		Owner ID
Apex	illegible		NIC001	Ko	orey Devins	07/27/2021	Flow F	late	000597
					Mfg	BIOS	P	arameter Flov	v Rate
					Serial Number	131818	Г	fer Desc. BIO	S 220-H
					Tfer ID	01417			
					Slope	0.9	9756 Int	ercept	-0.00058
					Cert Date	2/10/	2021 Co	rrCoff	0.99993
DAS 1:		DAS 2:			Cal Factor Z	ero		0	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	w Dif	Cal Factor F	ull Scale		0	
0.04%	0.10%				Rotometer R	eading:		0	
Desc.	Test type	Input l/m	n Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference
primary	pump off	0.000	0.000	0.00	0.000	-0.01	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	2.995	3.000	3.00	0.000	3.00	l/m	l/m	0.00%
primary	test pt 2	2.993	3.000	2.99	0.000	3.00	l/m	l/m	-0.10%
primary	test pt 3	2.995	3.000	3.00	0.000	3.00	l/m	l/m	-0.03%
Sensor Comp	<mark>onent</mark> Leak Tes	t		Conditio	on		Statu	s pass	
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Statu	s pass	
Sensor Comp	onent Filter Pos	ition		Conditio	n Good		Statu	s pass	
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	Clean and dry		Statu	s pass	
Sensor Comp	onent Moisture	Present		Condition See commen		Status pass		s pass	
Sensor Comp	onent Filter Dist	tance		Conditio	91 4.0 cm		Statu	s pass	
Sensor Comp	onent Filter Dep	oth		Conditio	n 1.0 cm		Statu	s pass	
Sensor Comp	onent Filter Azir	muth		Conditio	300 deg		Statu	s pass	
Sensor Comp	onent System M	lemo		Conditio	on		Statu	s pass	

Temperature Data Form

Mfg	Serial Number	Tag Site]	Fechn i	ician	Site V	isit Date	Param	eter	Owner ID
RM Young	none	NIC001		Korey	Devins	07/27	/2021	Temper	ature	04943
				Mf	g	Extect	ı	Pa	rameter Te	mperature
				Ser	ial Number	H2327	'34	Tf	er Desc. R	D
				Tfe	er ID	01227				
DAS 1:	DA	S 2:		Slo	ре		1.0074	3 Inte	rcept	0.21666
Abs Avg Err	Abs Max Err Abs	s Avg Err Abs	Max Err	Cei	rt Date		2/18/202	Cor	rCoff	1.00000
0.12	2 0.26									
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	OutputSig	gnalEng	OSE Unit	Difference
primary	Temp Low Range	0.51	0.29		0.000		0.6	5	С	0.26
primary	Temp Mid Range	25.73	25.33	3	0.000		25.	4	С	0.05
primary	Temp High Range	45.79	45.24	1	0.000		45.	2	С	-0.06
Sensor Con	nponent Shield		Condi	ition N	loderately cle	an		Status	pass	
Sensor Con	nponent Blower		Condi	ition N	J/A			Status	pass	
Sensor Con	nponent Properly Sited	b	Condi	ition F	Properly sited			Status	pass	
Sensor Con	nponent System Mem	0	Condi	ition				Status	pass	

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	Condition	Status pass
Sensor Component Major industrial source	Condition	Status pass
Sensor Component Secondary road < or = 100 per da	Condition 70 m	Status Fail
Sensor Component Secondary road >100 vehicles/da	Condition 365 m	Status Fail
Sensor Component Small parking lot	Condition 20 m	Status Fail
Sensor Component System Memo	Condition	Status pass
Sensor Component Large parking lot	Condition	Status pass

Infrastructure Data For

Site ID	NIC001	Technician Korey [Devins Site Visit Date 07/27/2021
Shelter	Make	Shelter Model	Shelter Size

Sensor Component	Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component	Conduit	Condition	N/A	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	Filter	Status	pass
Sensor Component	Power Cables	Condition	Good	Status	pass
Sensor Component	Shelter Temp Control	Condition	N/A	Status	pass
Sensor Component	Rotometer	Condition	Installed	Status	pass
Sensor Component	Sample Tower	Condition	Good	Status	pass
Sensor Component	Shelter Condition	Condition	N/A	Status	pass
Sensor Component	Shelter Door	Condition	N/A	Status	pass
Sensor Component	Shelter Roof	Condition	N/A	Status	pass
Sensor Component	Shelter Floor	Condition	N/A	Status	pass
Sensor Component	Shelter walls	Condition	N/A	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

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem		
Flow Rate	NIC001	Korey Devins	07/27/2021	Moisture Present	Apex	4305				
The filter sample tubing has drops of moisture in low sections outside the shelter.										

Field Systems Comments

1 Parameter: DasComments

Single tower with filter pack mounted at 10 meters and temperature mounted at 9 meters.

2 Parameter: DocumentationCo

There is no logbook onsite to record information regarding site status or filter information.

3 Parameter: ShelterCleanNotes

Small footprint site with no shelter. Equipment housed in enclosure on sample tower.

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Site ID NIC001	Technician Korey Devins	Site Visit Date 07/27	/2021
		USCS Man	
Site Sponsor (agency)	EPA		
Operating Group	NY DEC	Map Scale	
AQS #		Map Date	
Meteorological Type			
Air Pollutant Analyzer		QAPP Latitude	
Deposition Measurement	dry	QAPP Longitude	
Land Use	Woodland - mixed	QAPP Elevation Meters	
Terrain	Complex	QAPP Declination	
Conforms to MLM	No	QAPP Declination Date	
Site Telephone		Audit Latitude	43.68596
Site Address 1		Audit Longitude	-74.9857
Site Address 2		Audit Elevation	526
County	Herkimer	Audit Declination	
City, State	Old Forge, NY	Present	
Zip Code	13420	Fire Extinguisher 🔽	
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 Me	odel	Shelter Size
Shelter Clean	Notes Small footprint site with no she	lter. Equipment housed in enclo	osure on sample tower.
Site OK	Notes		
Driving Directions			

Fie	eld Sy	stems Data F	orm		F-02058-1500-S3-rev00				8-rev002	
Site	e ID	NIC001	Technician	Korey Devins		Site Visit Date)7/27/2021]	
1	Are win being in	d speed and directior fluenced by obstructi	sensors sited so ons?	as to avoid	✓	N/A				
2	Are win (i.e. win horizon tower in	d sensors mounted so d sensors should be n tally extended boom ² ito the prevailing win	as to minimize nounted atop the >2x the max dian d)	tower effects? e tower or on a meter of the		N/A				
3	Are the	tower and sensors pl	umb?		✓	N/A				
4	Are the avoid ra	temperature shields j idiated heat sources s	pointed north or uch as buildings	positioned to , walls, etc?	✓					
5	Are tem condition surface standing	perature and RH sen ns? (i.e. ground belov and not steeply slope g water should be avo	sors sited to avo v sensors should d. Ridges, hollov ided)	id unnatural be natural vs, and areas of						
6	Is the so	lar radiation sensor	plumb?		✓	N/A				
7	Is it site	d to avoid shading, or	r any artificial o	r reflected light?		N/A				
8	Is the ra	iin gauge plumb?			✓	N/A				
9	Is it site towers,	d to avoid sheltering etc?	effects from buil	ldings, trees,	✓	N/A				
10	Is the su facing n	urface wetness sensor orth?	sited with the g	rid surface	✓	N/A				
11	Is it inc	lined approximately	30 degrees?		✓	N/A				

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Site	e ID	NIC001	Technician	Korey Devins		Site Visit Date 07/27/2021
1 2 3	Do all th condition Are all th reporting Are the s	e meterological sensor 1, and well maintained 1e meteorological sens g data? hields for the tempera	rs appear to be 1? sors operationa ature and RH s	intact, in good l online, and eensors clean?	>	Temperature only Temperature only
4	Are the a	spirated motors worl	king?		✓	N/A
5	Is the sol scratches	ar radiation sensor's	lens clean and f	free of	✓	N/A
6	Is the su	rface wetness sensor g	rid clean and u	indamaged?	✓	N/A
7	Are the s condition	ensor signal and pow 1, and well maintained	er cables intact 1?	, in good		
8	Are the s from the	ensor signal and pow elements and well ma	er cable connec iintained?	ctions protected		

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-S5-rev002				
Sit	e ID	NIC001	Technician	Korey Devins		Site Visit Date 07/27/2021			
	<u>Siting C</u>	Criteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipr</u>	nent sited in accordance with 40 CFR 58, Appendix E			
1	Do the s unrestri	sample inlets have at lo icted airflow?	east a 270 degre	e arc of					
2	Are the	sample inlets 3 - 15 m	eters above the	ground?	✓				
3	Are the and 20 1	sample inlets > 1 meto meters from trees?	er from any maj	or obstruction,					
	Pollutar	nt analyzers and depos	sition equipmen	t operations and	mai	ntenance			
1	Do the a condition	analyzers and equipmo on and well maintained	ent appear to be 1?	in good					
2	Are the reportin	analyzers and monito ng data?	rs operational, o	on-line, and					
3	Describ	e ozone sample tube.				N/A			
4	Describ	e dry dep sample tube	•			3/8 Teflon by 10 meters			
5	Are in-l indicate	line filters used in the o e location)	ozone sample lir	ne? (if yes		N/A			
6	Are sam obstruct	nple lines clean, free of tions?	f kinks, moistur	e, and	✓				
7	Is the ze	ero air supply desiccar	nt unsaturated?		✓	N/A			
8	Are the	re moisture traps in th	e sample lines?			Flow line only (balston filter)			
9	Is there clean?	a rotometer in the dry	y deposition filte	er line, and is it					

Fi	eld Sy	stems Data Fo	orm				F-0 2	2058-15	00-S6-rev002
Site	e ID	NIC001	Technician	Korey Devins		Site Visit Date	07/27/202	1	
	<u>DAS, se</u>	nsor translators, and	peripheral equi	pment operatio	ns an	<u>d maintenance</u>			
1	Do the l well ma	DAS instruments appe intained?	ear to be in good	l condition and					
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?									
4	Are the well ma	signal connections pro intained?	e weather and						
5	5 Are the signal leads connected to the correct DAS channel?								
6	Are the ground	DAS, sensor translato ed?	ors, and shelter	properly					
7	Does th	e instrument shelter h	ave a stable pov	ver source?					
8	Is the in	strument shelter temp	oerature contro	lled?		N/A			
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	ample tower stable and	l grounded?						
11	Tower o	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:

Single tower with filter pack mounted at 10 meters and temperature mounted at 9 meters.

Fi	eld Systems Data	Foi	rm				F-02	058-	-1500-S7-rev00
Site	e ID NIC001		Techn	ician	Korey Devins	Site Visit Date	07/27/2021		
<u>[</u>	<u>Documentation</u>								
Ľ	Does the site have the require	ed in	strumen	t and	equipment manuals	<u>?</u>			
		Yes	No	N/ /	Α		Yes	No	N/A
Win	nd speed sensor				Data logg	er			
Win	nd direction sensor				Data logg	er			
Ten	nperature sensor				Strip cha	rt recorder			
Rela	ative humidity sensor				Compute	r			
Sola	ar radiation sensor				Modem				
Sur	face wetness sensor				Printer				
Win	id sensor translator				Zero air j	oump			
Ten	nperature translator				Filter flow	v pump			
Hur	midity sensor translator				Surge pro	otector			
Sola	ar radiation translator				UPS				
Tip	ping bucket rain gauge				Lightning	g protection device			
Uzo	one analyzer				Shelter h	eater			
Filt	er pack flow controller				Shelter a	r conditioner			V
Filt	er pack MFC power supply]				
	Does the site have the requi	red a	ind mos	t rece	ent QC documents an	<u>d report forms?</u>			
		Pres	ent				Curre	nt	
Stat	tion Log		N	o logb	book				
SSR	RE		✓						
Site	Ops Manual								
HAS	SP								
Fiel	d Ops Manual								
Cali	ibration Reports								
Ozo	one z/s/p Control Charts								
Prev	ventive maintenance schedu	le							
1	Is the station log properly	comp	leted du	iring	every site visit?	No logbook			
2	Are the Site Status Report current?	Forn	ns being	comp	pleted and 🔽				
3	Are the chain-of-custody for sample transfer to and from	orms n lab	properl ?	y useo	d to document 🔽				
4	Are ozone z/s/p control cha current?	rts p	roperly	comp	oleted and 🔽	N/A			
Pro ^r nati	vide any additional explanat ural or man-made, that may	tion (affee	photogr et the m	aph o onitor	or sketch if necessary ring parameters:) regarding condit	ions listed a	above, o	or any other features,
The	ro is no logbook onoito to ross	rd inf	ormatics	roger	rding cito status or filto	rinformation			

There is no logbook onsite to record information regarding site status or filter information.

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Site	ID	NIC001	Technician	Korey Devins	Site Visit Date	07/27/2021		
1	<u>Site ope</u>	ration procedures		TNET to ining				
1	course?	If yes, when and who	instructed?	INET training				
2	Has the training	backup operator atte course? If yes, when	nded a formal (and who instru	CASTNET cted?				
3	Is the site schedule	e visited regularly on ?	the required T u	ıesday				
4	Are the s flollowed	tandard CASTNET o by the site operator?	perational proc	cedures being				
5	Is the site the requi	e operator(s) knowled ired site activities? (in	geable of, and a	able to perform entation)				
		1	Calar		 1			

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

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

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	\checkmark
Manual Zero/Span Tests	N/A	\checkmark
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	\checkmark
In-line Filter Replacement (at analyze	N/A	\checkmark
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?
- 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?

✓	N/A
	N/A
✓	N/A

Field Sy	stems Data Foi	· m		F-02058-1500-S9-rev(
Site ID	NIC001	Technician Kor	ey Devins	Site Visit Date	07/27/2021			

	Site operation procedures						
1	Is the filter pack being changed every	Tuesday as scheduled?		✓ Filter changed mornings			
2	Are the Site Status Report Forms bei correctly?	ng completed and filed	✓				
3	Are data downloads and backups bei scheduled?	ng performed as	✓	No longer required			
4	Are general observations being made	and recorded? How?		SSRF			
5	Are site supplies on-hand and replen fashion?	ished in a timely					
6	Are sample flow rates recorded? How	v?	✓	SSRF	_		
7	Are samples sent to the lab on a regu fashion?	lar schedule in a timely		2	_		
8	Are filters protected from contamina and shipping? How?	tion during handling	✓	✓ Clean gloves on and off			
9	Are the site conditions reported reguloperations manager or staff?	larly to the field					
QC	Check Performed	Frequency		Compliant			
	Multi-point MFC Calibrations	Semiannually					
Flow System Leak Checks		✓ Weekly					
Filter Pack Inspection Veekly							
	Flow Rate Setting Checks Image: Weekly						
	Visual Check of Flow Rate Rotometer Veekly						
	In-line Filter Inspection/Replacement	✓ As needed					
	Sample Line Check for Dirt/Water	✓ Weekly					

Field Systems Data Form						F-02058-150	0-S10-rev002
	Site ID	NIC001	Technician	Korey Devins	Site Visit Date	07/27/2021	

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Campbell	CR850	23268	000801
elevation	Elevation	none	none	none
Filter pack flow pump	Permotec	BL30EB	Illegible	none
Flow Rate	Арех	AXMC105LPMDPC	illegible	000597
Infrastructure	Infrastructure	none	none	none
Modem	Sierra wireless	GX440	Unknown	06989
Sample Tower	Aluma Tower	В	AT-212125X73	000785
siting criteria	Siting Criteria	none	None	none
Temperature	RM Young	41342	none	04943

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
CNT	169-Martin	Valvur-07/27/2021				
1	7/27/2021	Computer	Dell	07038	Inspiron 15	Unknown
2	7/27/2021	DAS	Campbell	000427	CR3000	2526
3	7/27/2021	Elevation	Elevation	None	1	None
4	7/27/2021	Filter pack flow pump	Thomas	06024	107CAB18	060400022662
5	7/27/2021	Flow Rate	Арех	000559	AXMC105LPMDPCV	illegible
6	7/27/2021	Infrastructure	Infrastructure	none	none	none
7	7/27/2021	Ozone	ThermoElectron Inc	000620	49i A1NAA	1009241793
8	7/27/2021	Ozone Standard	ThermoElectron Inc	000687	49i A3NAA	1030244809
9	7/27/2021	Sample Tower	Aluma Tower	000179	В	unknown
10	7/27/2021	Shelter Temperature	Campbell	none	107-L	none
11	7/27/2021	Siting Criteria	Siting Criteria	None	1	None
12	7/27/2021	Temperature	RM Young	06501	41342	14606
13	7/27/2021	Zero air pump	Werther International	06867	C 70/4	000814279

DAS Data Form

DAS Time Max Error: 0

Mfg	Serial Nu	mber Site	ſ	Fechnician	Site Visit Date	Parameter	Use Desc.
Campbell	2526	CNT	169	Martin Valvur	07/27/2021	DAS	Primary
Das Date:	7 /27/2021	Audit Date	7 /27/2021	Mfg	HY	Parameter	DAS
Das Time: Das Day:	208	Audit Time Audit Day	208	Serial Number	12010039329	Tfer Desc.	Source generator (D
Low Channel:		High Channel	:	Tfer ID	01322		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0002	0.0004	0.0002	0.0004	Cert Date	6/15/201	4 CorrCoff	1.00000
				Mfg	Fluke	Parameter	DAS
				Serial Number	95740243	Tfer Desc.	DVM
				Tfer ID	01312		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/11/202	1 CorrCoff	1.00000
Channel	Input D	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
7	0.0000	-0.0008	-0.0008	8 V	V	0.0000	
7	0.1000	0.0993	0.0996	5 V	V	0.0003	
7	0.3000	0.2997	0.2993	8 V	V	-0.0004	
7	0.5000	0.4996	0.4995	5 V	V	-0.0001	
7	0.7000	0.6998	0.6996	5 V	V	-0.0002	
7	0.9000	0.8996	0.8996	5 V	V	0.0000	
7	1.0000	1.0015	1.0016	5 V	V	0.0001	

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit Da	te Param	ieter	Owner ID
Apex	illegible		CNT169	Ma	artin Valvur	07/27/2021	Flow R	ate	000559
					Mfg Serial Number	BIOS 148613	P	arameter Flow fer Desc. BIO	v Rate S 220-H
					Tfer ID	01421			
					Slope	1.0	0850 Inte	ercept	0.00160
					Cert Date	2/10/	2021 Cor	rCoff	0.99999
DAS 1: A Avg % Diff:	A Max % Dif	DAS 2: A Avg %	Diff A Max	3 % Dif	Cal Factor Z Cal Factor F	ero	-0.0 .0)2)9	
0.55%	0.99%	T (1/			Rotometer R	eading:	T .TT .	4	
Desc.	Test type	Input I/n	n Input Corr	MtcDisp.	OutputSignal	Output S E	InputUnit	OutputSignall	PctDifference
primary	laak chack	0.000	0.000	0.00	0.000	-0.02	1/111 1/m	1/m	
primary	test nt 1	3.055	3 030	2 99	0.000	3.02	1/m	1/m	-0.33%
primary	test pt 2	3.055	3.030	2.99	0.000	3.00	1/m	1/m	-0.99%
primary	test pt 3	3.056	3.030	2.99	0.000	3.02	l/m	l/m	-0.33%
Sensor Comp	onent Leak Tes	t		Conditio	on	· · · · ·	Status	pass	
Sensor Comp	onent Tubing C	ondition		Conditio	on Good		Status	pass	
Sensor Comp	onent Filter Pos	ition		Conditio	on Good		Status	pass	
Sensor Comp	onent Rotomete	er Conditio	'n	Conditio	Clean and dry		Status	pass	
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	resent	Status	pass	
Sensor Comp	onent Filter Dist	tance		Conditio	6.0 cm		Status	pass	
Sensor Comp	onent Filter Dep	oth		Conditio)n 1.5 cm		Status	pass	
Sensor Comp	onent Filter Azir	muth		Conditio	n 20 deg		Status	pass	
Sensor Comp	onent System M	lemo		Conditio	on		Status	pass	

Ozone Data Form

Mfg	Serial Number Ta	ag Site	Т	echnician	Site Visit Date	Parameter	Owner ID
ThermoElectron In	c 1009241793	CNT169	9	Martin Valvur	07/27/2021	Ozone	000620
Slope: Intercept CorrCoff:	0.99810 Slope: -0.65088 Intercep 0.99975 CorrCon	t	0.00000 0.00000 0.00000	Mfg Serial Number Tfer ID	ThermoElectron 49CPS-70008-3 01110	Inc Paramete 64 Tfer Desc	er ozone . Ozone primary stan
DAS 1.		•					
A Avg % Diff· A	Max % Dif A Avo	%Diff A	Max % Dif	Slope	1.0034	0 Intercept	0.02230
0.0%	0.0%			Cert Date	1/20/202	21 CorrCoff	1.00000
LiseDescription	ConcGroup	fer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	-0 20	-0.22	0.05	nnh	KellerDh	0.27
primary	2	14 87	14 75	14 10	ppb		-0.65
primary	3	34.76	34 51	33.19	nnh	_3.9	0.05
primary	<u> </u>	65.38	64.93	62.85	nnh	-3.26	
primary	5	110 54	109.80	109.90	ppb	0.09	
Sensor Compor	ent Audit Pressure		Condi	tion 530 mmHg		Status pass	
Sensor Compon	ent 26.6 degree und	bstructed ru	le Condi	tion True		Status pass	
Sensor Compon	ent Tree dewline >1	0m or below	vinlet Condi	tion True		Status pass	
Sensor Compor	ent ADT <100 vehic	les further tl	nan 20 Condi	tion 193 m		Status Fail	
Sensor Compon	ent ADT >100 vehic	les further tl	han 50 Condi	tion True		Status pass	
Sensor Compon	ent Sample Train		Condi	tion Good		Status pass	
Sensor Compon	Inlet Filter Cond	tion	Condi	tion Not tested		Status pass	
Sensor Compon	ent Offset		Condi	tion -0.3		Status pass	
Sensor Compon	lent Span		Condi	tion 1.011		Status pass	
Sensor Compon	ent Zero Voltage		Condi	tion N/A		Status pass	
Sensor Compon	ent Fullscale Voltage	e	Condi	tion N/A		Status pass	
Sensor Compon	tent Cell A Freq.		Condi	tion 95.2 kHz		Status pass	
Sensor Compor	ent Cell A Noise		Condi	tion 0.6 ppb		Status pass	
Sensor Compon	ent Cell A Flow		Condi	tion 0.56 lpm		Status pass	
Sensor Compon	tent Cell A Pressure		Condi	tion 510.7 mmHg		Status pass	
Sensor Compon	tent Cell A Tmp.		Condi	tion 37.7 C		Status pass	
Sensor Compor	ent Cell B Freq.		Condi	tion 99.8 kHz		Status pass	
Sensor Compor	ent Cell B Noise		Condi	tion 0.6 ppb		Status pass	
Sensor Compon	ent Cell B Flow		Condi	tion 0.55 lpm		Status pass	
Sensor Compon	ent Cell B Pressure		Condi	tion 510.4 mmHg		Status pass	
Sensor Compor	System Memo		Condi	tion		Status pass	

Temperature Data Form

Mfg	Serial Number	Tag Site	Т	echni	ician	Site V	isit Date	Param	eter	Owner ID
RM Young	14606	CNT169	I	Martin	Valvur	07/27	/2021	Temper	ature	06501
				Mf	g	Fluke		Pa	rameter Te	mperature
				Ser	ial Number	32751	43	Tf	er Desc. RI	D
				Tfe	er ID	01229	I			
DAS 1:	DAS 1: DAS 2: Slope 0.99975 Intercept -0.00824							-0.00824		
Abs Avg Err Abs Max Err Abs Avg Err Abs Ma			Max Err	r Cert Date 2/9/20			2/9/202	Cor	rCoff	1.00000
0.07	0.11			L						
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	OutputSig	gnalEng	OSE Unit	Difference
primary	Temp Low Range	0.12	0.13		0.000		0.0)	С	-0.11
primary	Temp Mid Range	23.47	23.48		0.000	23.5		С	0.04	
primary	Temp High Range	47.05	47.07		0.000		47.	1	С	0.06
Sensor Com	ponent Shield		Condi	tion C	Clean			Status	pass	
Sensor Com	Sensor Component Blower				I/A			Status	pass	
Sensor Component Properly Sited			Condi	tion F	Properly sited			Status	pass	
Sensor Com	ponent System Memo)	Condi	Condition				Status	pass	
Shelter Temperature Data For

Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
none	CNT169	Martin Valvur	07/27/2021	Shelter Temperatur	e none
DAS 2:		Mfg	Fluke	Parameter SI	helter Temperature
Max Err Abs Avg 1.04	Err Abs Max Err	Serial Number	3275143	Tfer Desc. R	TD
		Tfer ID	01229		
		Slope	0.9997	75 Intercept	-0.00824
		Cert Date	2/9/202	21 CorrCoff	1.00000
	Serial Number Tag none DAS 2: Max Err Abs Avg 1.04	Serial Number Tag Site none CNT169 DAS 2: Max Err Abs Avg Err Abs Max Err 1.04	Serial Number Tag Site Technician none CNT169 Martin Valvur DAS 2: Mfg Max Err Abs Avg Err Abs Max Err 1.04 Image: Comparison of the second	Serial Number Tag SiteTechnicianSite Visit DatenoneCNT169Martin Valvur07/27/2021DAS 2:MfgFlukeax ErrAbs Avg ErrAbs Max Err1.04100010001.0410001	Serial Number Tag SiteTechnicianSite Visit DateParameternoneCNT169Martin Valvur07/27/2021Shelter TemperaturDAS 2:MfgFlukeParameter SiMax ErrAbs Avg ErrAbs Max ErrSerial Number3275143Tfer Desc. R1.04Tfer ID01229Tfer Desc. RSlope0.99975InterceptCert Date2/9/2021CorrCoffCorrCoff

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference	
primary	Temp Mid Range	27.59	27.61	0.000	26.8	С	-0.77	
primary	Temp Mid Range	26.79	26.81	0.000	27.1	С	0.28	
primary	Temp Mid Range	26.02	26.03	0.000	27.1	С	1.04	
Sensor Component System Memo Condition Status pass								

Infrastructure Data For

Site ID	CNT169	Technician Martin Va	Ilvur Site Visit Date 07/27/2021
Shelter	Make	Shelter Model	Shelter Size
Ekto		8810 (s/n 2149-19)	640 cuft

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	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	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	Fair	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

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	Condition	Status pass
Sensor Component Major industrial source	Condition	Status pass
Sensor Component Secondary road < or = 100 per da	Condition 193 m	Status Fail
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 Large parking lot	Condition	Status pass

Field Systems Comments

1 **Parameter:** SiteOpsProcedures

The ozone inlet filter is changed once each month.

2 Parameter: ShelterCleanNotes

The shelter is dirty. Many floor tiles are old and broken, the floor is deteriorating.

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Site ID	CNT169		Technician Mar	nician Martin Valvur		Site Visit Date 07/27/2021					
							Quatanaist				
Site Sponsor ((agency)	EPA			USGS Map		Centennial				
Operating Gr	oup	Forest Service			Map Scale						
AQS #		56-001-9	991		Map Date						
Meteorological Type R.M.			ing								
Air Pollutant	Analyzer	Ozone			QAPP Latitude		41.3722				
Deposition M	easurement	dry, wet			QAPP Longitude	e	-106.2422				
Land Use		woodland	I - evergreen		QAPP Elevation	Meters	3178	3178			
Terrain		complex			QAPP Declinatio	n	10.9				
Conforms to I	MLM	Marginall	у		QAPP Declinatio	on Date	12/28/2004				
Site Telephon	e	(307) 742	2-7229		Audit Latitude			4	41.364531		
Site Address	1	Brooklyn	Lake Guard Station		Audit Longitude				106.24002		
Site Address 2	e Address 2 Medicine Bow National Forest				Audit Elevation				3175		
County		Albany			Audit Declination	n	9.5				
City, State		Centenni	al, WY			Present					
Zip Code		82055			Fire Extinguisher	r 🗸	New in 2015				
Time Zone		Mountain			First Aid Kit	\checkmark					
Primary Oper	rator				Safety Glasses						
Primary Op.	Phone #				Safety Hard Hat						
Primary Op.	E-mail				Climbing Belt						
Backup Opera	ator				Security Fence						
Backup Op. 1	Phone #				Secure Shelter	\checkmark					
Backup Op. 1	E-mail				Stable Entry Step	ps✓					
Shelter Work	ing Room 🗹	Make	Ekto	Mo	del 8810 (s/n 214	9-19)	Shelter Size	640 cuft			
Shelter Clean		Notes	The shelter is dirty.	Many floor	tiles are old and bro	oken, the fl	oor is deterioratir	ng.			
Site OK	\checkmark	Notes									
Driving Direc	tions From I Turn r miles t 200 m	_aramie ta ight near t o Little Br eters up t	ake route 130 west to he summit onto a di ooklyn Lake. There he hill past the chap	o Centennia rt road at the will be a sm el to the site	I. Continue through e sign for Brooklyn I nall chapel on the rig	n town and Lake Camp ght. Park a	into the Medicine oground. Continu at the chapel and	Bow Nationa e approximat walk approxir	ll Forest. ely 1.5 nately		

Fie	eld Sy	stems Data Fo	orm		F-02058-1500-S3-rev00				
Site	e ID	CNT169	Technician	Martin Valvur		Site Visit Date 07/27/2021			
1	Are wind being inf	d speed and direction fluenced by obstructio	sensors sited so ons?	as to avoid		N/A			
2	Are wind (i.e. wind horizont tower in	d sensors mounted so 1 sensors should be m ally extended boom > to the prevailing wind	as to minimize ounted atop the 2x the max dian	tower effects? e tower or on a meter of the	V	N/A			
3	Are the	tower and sensors plu	mb?		✓	N/A			
4	Are the avoid ra	temperature shields p diated heat sources su	ointed north or ch as buildings	positioned to , walls, etc?		Above shelter			
5	Are temp condition surface a standing	perature and RH sens ns? (i.e. ground below and not steeply sloped swater should be avoi	ors sited to avo sensors should . Ridges, hollov ded)	id unnatural be natural vs, and areas of		Above shelter			
6	Is the so	lar radiation sensor p	lumb?		✓	N/A			
7	Is it sited	l to avoid shading, or	any artificial o	r reflected light?		N/A			
8	Is the ra	in gauge plumb?			✓	N/A			
9	Is it sited towers, o	l to avoid sheltering e etc?	ffects from buil	ldings, trees,	✓	N/A			
10	Is the su facing no	rface wetness sensor s orth?	ited with the g	rid surface		N/A			
11	Is it incl	lined approximately 3	0 degrees?			N/A			

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Site	e ID	CNT169	Technician	Martin Valvur		Site Visit Date 07/27/2021
1 2	Do all th condition Are all t	e meterological senso 1, and well maintained he meteorological sens	rs appear to be 1? sors operationa	intact, in good l online, and	>	Temperature only Temperature only
3	reporting	g data? shields for the temper:	ature and RH s	ensors clean?	✓	
4	Are the a	aspirated motors worl	king?) N/A
5	5 Is the solar radiation sensor's lens clean and free of scratches?					N/A
6	Is the su	rface wetness sensor g	rid clean and u	indamaged?	✓	N/A
7	Are the s condition	sensor signal and pow n, and well maintained	er cables intact 1?	, in good	✓	
8	Are the s from the	sensor signal and pow elements and well ma	er cable connec hintained?	ctions protected		

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-85-rev0				
Site	e ID	CNT169	Technician	Martin Valvur		Site Visit Date 07/27/2021			
	<u>Siting C</u>	riteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipn</u>	nent sited in accordance with 40 CFR 58, Appendix E			
1	Do the s unrestri	ample inlets have at le cted airflow?	east a 270 degre	e arc of					
2	Are the	sample inlets 3 - 15 mo	eters above the	ground?	✓				
3	Are the and 20 1	sample inlets > 1 mete neters from trees?	r from any maj	or obstruction,					
	<u>Pollutar</u>	nt analyzers and depos	ition equipmen	t operations and	mai	intenance			
1	Do the a condition	nalyzers and equipme on and well maintained	ent appear to be ?	in good					
2	Are the reportin	analyzers and moniton ng data?	rs operational, o	on-line, and	✓				
3	Describ	e ozone sample tube.				1/4 teflon by 12 meters			
4	Describ	e dry dep sample tube.				3/8 teflon by 12 meters			
5	Are in-l indicate	ine filters used in the o location)	ozone sample lir	ie? (if yes		At inlet only			
6	Are sam obstruct	ple lines clean, free of tions?	kinks, moistur	e, and					
7	Is the ze	ero air supply desiccan	t unsaturated?		✓				
8	Are the	re moisture traps in th	e sample lines?			Flow line only			
9	Is there clean?	a rotometer in the dry	deposition filte	er line, and is it		Clean and dry			

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-S6-rev002				
Site	e ID	CNT169	Technician	Martin Valvur		Site Visit Date	07/27/2021			
	DAS, sei	<u>isor translators, and j</u>	peripheral equi	pment operation	<u>15 ai</u>	nd maintenance				
1	Do the D well mai	OAS instruments appe ntained?	ar to be in good	l condition and						
2	Are all t modem,	he components of the backup, etc)	DAS operation	al? (printers,						
3	Do the a lightning	nalyzer and sensor sig g protection circuitry?	gnal leads pass t	through	✓	Met sensors only				
4	4 Are the signal connections protected from the weather and well maintained?									
5	5 Are the signal leads connected to the correct DAS channel?									
6	Are the grounde	DAS, sensor translato d?	rs, and shelter	properly	✓					
7	Does the	instrument shelter ha	ave a stable pov	ver source?	✓					
8 Is the instrument shelter temperature controlled?				lled?						
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded		
10	Is the sa	mple tower stable and	l grounded?							
11	Tower c	omments?								

Fie	ld Systems Data	Foi	m				F-02	2058- 1	1500-S7-rev002
Site	ID CNT169		Technic	ian Martir	n Valvur	Site Visit Date	07/27/2021		
De	ocumentation								
De	oes the site have the requir	ed ins	strument	and equip	ment manuals	2			
Wind Wind Temj Relat Solar Surfa Wind Temj Hum Solar Tipp Ozon	d speed sensor d direction sensor perature sensor tive humidity sensor r radiation sensor ace wetness sensor d sensor translator perature translator idity sensor translator r radiation translator ing bucket rain gauge he analyzer	Yes □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □		N/A V V V V V V V V V V V	Data logg Data logg Strip cha Compute Modem Printer Zero air p Filter flow Surge pro UPS Lightning Shelter ho	- er er rt recorder r pump v pump otector ; protection device eater	Yes □ □ □ □ □ □		N/A V V V V V V V V V V V V V V V V V V
Filte	r pack flow controller				Shelter ai	r conditioner		\checkmark	
Filte	r pack MFC power supply								
Ī	Does the site have the requi	ired a	nd most i	recent QC	documents an	<u>d report forms?</u>			
		Pres	ent				Curre	ent	
Static SSRI Site C HAS Field Calit Ozon Prevo	on Log F Ops Manual P I Ops Manual oration Reports ne z/s/p Control Charts entive maintenance schedu	[[[[[] []					 Y Y Y Y Y 		
1 2	Is the station log properly Are the Site Status Report	comp Forn	leted dur ns being c	ing every	site visit? 🔽				
3	current: Are the chain-of-custody for sample transfer to and fro	orms m lab	properly ?	used to do	ocument 🗹				
4	Are ozone z/s/p control ch: current?	arts p	roperly c	ompleted	and	Control charts not us	ed		
Prov	ide any additional explana	tion (photogra	ph or sket	ch if necessary) regarding condition	ons listed	above, oi	r any other features,

natural or man-made, that may affect the monitoring parameters:

CNT169 Technician Martin Valvur Site Visit Date 07/27/2021 Site ID Site operation procedures Trained by previous operator Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

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

00	Check	Performed
VV.	Unter	I ci ioi meu

Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at inlet) In-line Filter Replacement (at analyze Sample Line Check for Dirt/Water **Zero Air Desiccant Check**

Frequency	Co
Semiannually	
Daily	
As needed	
Daily	
As needed	
Weekly	
Monthly	
N/A	
Weekly	
Weekly	

- 1 Do multi-point calibration gases go through the complete sample train including all filters?
- 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	I
	reported? If yes, how?	

Unknown
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 changed once each month.

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mpliant

Fi	eld Sy	stems Data Form			F-02058-1500-S9-rev				
Sit	Site ID CNT169 Tec		chnician Martin Valvur		Site Visit Date	07/27/2021]		
	<u>Site ope</u>	ration procedures							
1	Is the fi	lter pack being changed ever	y Tuesday as scheduled?		filter changed afterr	noons, 80% of the time			
2	Are the correctl	Site Status Report Forms be y?	ing completed and filed						
3	Are dat schedul	a downloads and backups be ed?	ing performed as		No longer required				
4	Are gen	eral observations being mad	e and recorded? How?	✓	SSRF, logbook				
5	Are site fashion	supplies on-hand and repler ?	nished in a timely						
6	Are sample flow rates recorded? How?				SSRF, call-in				
7	Are san fashion	nples sent to the lab on a regu ?	ılar schedule in a timely	✓					
8	Are filte and shij	ers protected from contamination protected from contamination protected from the second statement of t	ation during handling	✓	Clean gloves on and off				
9	Are the operation	site conditions reported regu ons manager or staff?	llarly to the field						
QC	Check P	erformed	Frequency			Compliant			
1	Multi-poi	nt MFC Calibrations	Semiannually						
]	Flow Syst	em Leak Checks	✓ Weekly						
]	Filter Pac	k Inspection							
]	Flow Rate	e Setting Checks	✓ Weekly						
1	Visual Ch	eck of Flow Rate Rotometer	✓ Weekly			\checkmark			
]	In-line Fil	ter Inspection/Replacement	Semiannually			\checkmark			
5	Sample Li	ine Check for Dirt/Water	✓ Weekly						

CNT169

F-02058-1500-S10-rev002

Site ID	
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Techni

Technician Martin Valvur

Site Visit Date 07/27/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	Unknown	07038
DAS	Campbell	CR3000	2526	000427
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	060400022662	06024
Flow Rate	Apex	AXMC105LPMDPC	illegible	000559
Infrastructure	Infrastructure	none	none	none
Ozone	ThermoElectron Inc	49i A1NAA	1009241793	000620
Ozone Standard	ThermoElectron Inc	49i A3NAA	1030244809	000687
Sample Tower	Aluma Tower	В	unknown	000179
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342	14606	06501
Zero air pump	Werther International	C 70/4	000814279	06867

Site Inventory by Site Visit

Site Vi	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
CRM4	35-Martii	n Valvur-08/03/2021				
1	8/3/2021	DAS	Environmental Sys Corp	none	8816	3504
2	8/3/2021	Ozone	ThermoElectron Inc	none	49i A3NCA	1201477662
3	8/3/2021	Ozone Standard	ThermoElectron Inc	90605	49C	49C-62025-333
4	8/3/2021	Zero air pump	Werther International	none	C 70/4	000847661

Ozone Data Form

Mfg		Serial Numbe	er Tag	Site		Te	chnician	Site Visit Date	Parameter	Owner ID
ThermoElecti	ron Inc	1201477662		CRM43	5	М	artin Valvur	08/03/2021	Ozone	none
Slope: Intercept CorrCoff:		1.00903 Slop 0.42203 Inte 0.99999 Corr	e: rcept rCoff:		0.00000 0.00000 0.00000)))	Mfg Serial Number Tfer ID	ThermoElectron 49CPS-70008-3 01110	Inc Param 64 Tfer D	eter ozone
DAS 1:		D	AS 2:				Slope	1.0034	40 Intercept	t 0.02230
A Avg % Di	ff: A N	Max % Dif A	Avg %	Diff A	Max %	% Dif	Cart Data	1/20/20	21 ComCof	1 00000
0.0	%	0.0%					Cert Date	1720/202		1 1.00000
UseDescrip	otion	ConcGroup	Tfe	r Raw	Tf	er Corr	Site	Site Unit	RelPerDif	AbsDif
primary	y	1	0	.02	-	-0.04	-0.37	ppb		-0.33
primary	y	2	17	7.52	1	17.38	17.26	ppb		-0.12
primary	y	3	36	5.82	3	36.55	36.21	ppb	-0.9	93
primary	y	4	65	5.76	6	55.31	65.36	ppb	0.0	08
primary	/	5	11	2.04	1	11.29	112.00	ppb	0.6	64
Sensor Co	mpone	ent Audit Press	ure			Conditi	on 624 mmHg		Status pass	s
Sensor Co	mpone	ent 26.6 degree	unobst	tructed ru	le	Conditi	on True		Status pass	S
Sensor Co	mpone	ent Tree dewline	e >10m	or below	/ inlet	Conditi	on True		Status pass	S
Sensor Co	mpone	ent ADT <100 v	ehicles	further th	nan 20	Conditi	on 52 m		Status Fail	
Sensor Co	mpone	ent ADT >100 v	ehicles	further th	nan 50	Conditi	on 52 m		Status Fail	
Sensor Co	mpone	ent Sample Tra	in			Conditi	on Good		Status pass	S
Sensor Co	mpone	ent Inlet Filter C	onditio	n		Conditi	on Clean		Status pase	S
Sensor Co	mpone	ent Offset				Conditi	on 0.7		Status pase	S
Sensor Co	mpone	ent Span				Conditi	on 1.012		Status pase	S
Sensor Co	mpone	ent Zero Voltag	е			Conditi	on -0.0001		Status pass	S
Sensor Co	mpone	ent Fullscale Vo	ltage			Conditi	on 1.0001		Status pass	S
Sensor Co	mpone	ent Cell A Freq.				Conditi	on 79.2 kHz		Status pass	S
Sensor Co	mpone	ent Cell A Noise	;			Conditi	on 0.9 ppb		Status pase	S
Sensor Co	mpone	ent Cell A Flow				Conditi	on 0.65 lpm		Status pass	S
Sensor Co	mpone	ent Cell A Press	sure			Conditi	on 610.3 mmHg		Status pass	S
Sensor Co	mpone	ent Cell A Tmp.				Conditi	on 35.5 C		Status pass	S
Sensor Co	mpone	ent Cell B Freq.				Conditi	on 46.6 kHz		Status Fail	
Sensor Co	mpone	ent Cell B Noise	;			Conditi	on 0.6 ppb		Status pass	S
Sensor Co	mpone	Cell B Flow				Conditi	on 0.62 lpm		Status pass	S
Sensor Co	mpone	ent Cell B Press	sure			Conditi	on 610.0 mmHg		Status pass	S
Sensor Co	mpone	ent System Mer	no			Conditi	on See commen	ts	Status pass	S

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem		
Ozone	CRM435	Martin Valvur	08/03/2021	Cell B Freq.	ThermoElectron	4670				
This analyzer diagnostic check is outside the manufacturer's recommended value.										

Site Inventory by Site Visit

Site V	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
GLR4	68-Martin	v Valvur-08/05/2021				
1	8/5/2021	Computer	Hewlett Packard	ACAD	6730b	CNU9335F7W
2	8/5/2021	DAS	Environmental Sys Corp	None	8864	C2600
3	8/5/2021	Elevation	Elevation	None	1	None
4	8/5/2021	Filter pack flow pump	Thomas	none	107CAB18B	070000013426
5	8/5/2021	Flow Rate	Tylan	none	FC280	AW9710138
6	8/5/2021	Infrastructure	Infrastructure	none	none	none
7	8/5/2021	MFC power supply	Tylan	03944	RO-32	FP9605010
8	8/5/2021	Ozone	ThermoElectron Inc	none	49i A3NCA	1201477661
9	8/5/2021	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	0733726104
10	8/5/2021	Sample Tower	Aluma Tower	none	В	none
11	8/5/2021	Shelter Temperature	ARS	77	none	none
12	8/5/2021	Siting Criteria	Siting Criteria	None	1	None
13	8/5/2021	Temperature2meter	RM Young	none	41342	17625
14	8/5/2021	Zero air pump	Werther International	none	PC70/4	000756725

DAS Data Form

DAS Time Max Error: 0.03

Mfg	Serial Nu	mber Site	ſ	Fechnician	Site Visit Date	Parameter	Use Desc.
Environmental	Sys C2600	GLR	468	Martin Valvur	08/05/2021	DAS	Primary
Das Date:	8 /5 /2021	Audit Date	8 /5 /2021	Mfg	HY	Parameter	DAS
Das Time: Das Day:	08:04:58 217	Audit Time_ Audit Day	08:05:00	Serial Number	12010039329	Tfer Desc.	Source generator (D
Low Channel:		High Channel	:	Tfer ID	01322		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0003	0.0007	0.0003	0.0007	Cert Date	6/15/201	4 CorrCoff	1.00000
				Mfg	Fluke	Parameter	DAS
				Serial Number	95740243	Tfer Desc.	DVM
				Tfer ID	01312		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/11/202	CorrCoff	1.00000
Channel	Input D	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
15	0.0000	0.0001	0.0000	0 V	V	-0.0001	
15	0.1000	0.0997	0.0997	7 V	V	0.0000	
15	0.3000	0.2999	0.2999	9 V	V	0.0000	
15	0.5000	0.4997	0.4994	4 V	V	-0.0003	
15	0.7000	0.7000	0.6990	6 V	V	-0.0004	
15	0.9000	0.8997	0.8993	3 V	V	-0.0004	
15	1.0000	1.0003	0.9990	6 V	V	-0.0007	

Flow Data Form

Mfg	Serial Nun	nber Tag	Site	Тес	chnician	Site Visit I	Date Param	ieter	Owner ID	
Tylan	AW971013	38	GLR468	Ma	artin Valvur	08/05/202	I Flow R	ate	none	
Mfg	Tylan			Mfg	BIOS	BIOS Paramet		v Rate		
SN/Owner ID	FP9605010	03944			Serial Number	148613	Т	fer Desc. BIO	S 220-H	
Parameter:	MFC power su	oply			Tfer ID 01421					
					Slope	1.	00850 Inte	ercept	0.00160	
					Cert Date	2/1	0/2021 Cor	rCoff	0.99999	
DAS 1:		DAS 2:		L	Cal Factor Z	ero	0.03	39		
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	3 % Dif	Cal Factor F	ull Scale	5.48	33		
0.29%	0.54%				Rotometer R	eading:	3	.2		
Desc.	Test type	Input l/n	n Input Corr_	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference	
primary	pump off	0.000	0.000	-0.03	0.000	0.04	l/m	l/m		
primary	leak check	0.000	0.000	-0.04	0.000	0.03	l/m	l/m		
primary	test pt 1	3.002	2.980	2.71	0.000	3.00	l/m	l/m	0.54%	
primary	test pt 2	3.012	2.990	2.71	0.000	3.00	l/m	l/m	0.20%	
primary	test pt 3	3.029	3.000	2.71	0.000	3.00	l/m	l/m	-0.13%	
Sensor Comp	onent Leak Tes	st		Conditio	on		Status	Status pass		
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Status	pass		
Sensor Comp	onent Filter Pos	sition		Conditio	n Good		Status	pass		
Sensor Comp	onent Rotomete	er Conditic	n	Conditio	Clean and dry		Status	pass		
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	resent	Status	pass		
Sensor Comp	onent Filter Dis	tance		Conditio	n 6.0 cm		Status	atus pass		
Sensor Component Filter Depth			Conditio	0.5 cm		Status	Status pass			
Sensor Comp	onent Filter Azi	muth		Conditio	n 360 deg		Status	Status pass		
Sensor Comp	onent System M	Лето		Conditio	n		Status	pass		

Ozone Data Form

Mfg	Serial Numbe	er Tag Site	Т	echnician	Site Visit Date	Parameter	Owner ID
ThermoElectron	Inc 1201477661	GLR468	3 N	/artin Valvur	08/05/2021	Ozone	none
Slope: Intercept CorrCoff:	0.98037 Slop 0.04967 Inter 0.99996 Cort	e:	0.00000 0.00000 0.00000	Mfg Serial Number	ThermoElectron 49CPS-70008-3	Inc Paramete	er ozone . Ozone primary stan
				Tfer ID	01110		
DAS 1:	D	AS 2:		Slope	1.0034	0 Intercept	0.02230
A Avg % Diff:	A Max % Dif A	Avg %Diff A	Max % Dif	Cert Date	1/20/202	21 CorrCoff	1.00000
0.0%	0.0%						
UseDescription	n ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	-0.02	-0.04	0.54	ppb		0.58
primary	2	15.42	15.29	14.65	ppb		-0.64
primary	3	33.40	33.16	32.41	ppb	-2.29	
primary	4	66.43	65.97	64.51	ppb	-2.24	
primary	5	112.99	112.23	110.30	ppb	-1.73	
Sensor Comp	onent Audit Press	ure	Condit	ion 681 mmHg		Status pass	
Sensor Comp	onent 26.6 degree	unobstructed ru	le Condit	ion True		Status pass	
Sensor Comp	onent Tree dewline	e >10m or below	inlet Condit	ion True		Status pass	
Sensor Comp	onent ADT <100 v	ehicles further th	nan 20 Condit	ion 50 m		Status Fail	
Sensor Comp	onent ADT >100 v	ehicles further th	nan 50 Condit	ion True		Status pass	
Sensor Comp	onent Sample Trai	'n	Condit	ion Good		Status pass	
Sensor Comp	onent Inlet Filter C	ondition	Condit	ion Clean		Status pass	
Sensor Comp	onent Offset		Condit	ion -0.2		Status pass	
Sensor Comp	onent Span		Condit	ion 0.999		Status pass	
Sensor Comp	onent Zero Voltago	9	Condit	ion 0.0005		Status pass	
Sensor Comp	onent Fullscale Vo	ltage	Condit	ion 1.0008		Status pass	
Sensor Comp	onent Cell A Freq.		Condit	ion 95.4 kHz		Status pass	
Sensor Comp	onent Cell A Noise	;	Condit	ion 1.1 ppb		Status pass	
Sensor Comp	onent Cell A Flow		Condit	ion 0.65 lpm		Status pass	
Sensor Comp	onent Cell A Press	sure	Condit	tion 669.3 mmHg		Status pass	
Sensor Comp	onent Cell A Tmp.		Condit	ion 34.1 C		Status pass	
Sensor Comp	onent Cell B Freq.		Condit	ion 65.2 kHz		Status pass	
Sensor Comp	onent Cell B Noise	;	Condit	ion 1.1 ppb		Status pass	
Sensor Comp	onent Cell B Flow		Condit	ion 0.67 lpm		Status pass	
Sensor Comp	onent Cell B Press	sure	Condit	ion 668.7 mmHg		Status pass	
Sensor Comp	onent System Mer	no	Condit	ion		Status pass	

2 Meter Temperature Data Form

0 1		D		20					
1 9	0		11		01	-0	n	c	Δ
V.a	U .				C			U	c

Mfg	Serial Number	Tag Site	T	echnician		Site Vis	it Date 1	Paramete	er	Owner ID
RM Young	17625	GLR468	N	Martin Valvur		08/05/2	021	Temperati	ure2meter	none
				Mfg Serial Nu	mber	Fluke 3275143	3	Para Tfer	meter Tem	perature
				Tfer ID		01229]		
DAS 1:	DA	S 2:		Slope			0.99975	Interco	ept	-0.00824
Abs Avg Err A	bs Max Err Abs	Avg Err Ab	s Max Err	Cert Date	e		2/9/2021	CorrC	off	1.00000
0.15	0.27									
UseDescription	Test type	InputTmpRaw	InputTmpCo	rrected Ou	tputTm	pSignal	OutputSi	gnalEng	OSE Unit	Difference
primary	Temp Low Rang	0.17		0.18		0.000		0.06	С	-0.12
primary	Temp Mid Range	23.34		23.35		0.000		23.41	С	0.06
primary	Temp High Rang	48.39		48.41		0.000		48.14	С	-0.27
Sensor Compo	nent Shield		Condit	ion Clean				Status pa	ass	
Sensor Compo	nent Properly Sited	1	Condit	ion Properly	/ sited			Status pa	ass	
Sensor Compo	nent Blower		Condit	ion Function	ning			Status pa	ass	
Sensor Compo	nent System Memo	0	Condit	ion				Status pa	ass	

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	none	GLR468	Martin Valvur	08/05/2021	Shelter Temperatur	e 77
DAS 1:	DAS 2:		Mfg	Fluke	Parameter St	nelter Temperature
Abs Avg Err Abs	Max Err Abs Avg 0.76	Err Abs Max Err	Serial Number	3275143	Tfer Desc. R	TD
			Tfer ID	01229		
			Slope	0.9997	75 Intercept	-0.00824
			Cert Date	2/9/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	23.82	23.83	0.000	24.0	С	0.18
primary	Temp Mid Range	23.62	23.63	0.000	24.2	С	0.52
primary	Temp Mid Range	25.68	25.69	0.000	26.5	С	0.76
Sensor Con	nponent System Memo		Condition	Status pass			

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	Condition	Status pass
Sensor Component Major industrial source	Condition 20 km	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 Large parking lot	Condition	Status pass

Infrastructure Data For

Site ID	GLR468	Technician Martin Va	alvur Site Visit Date 08/05/2021
Shelter	Make	Shelter Model	Shelter Size
Ekto		8810 (s/n 2149-20)	640 cuft

Sensor Component Sample Tower Type	Condition	Туре В	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	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	Fair	Status	pass
Sensor Component Shelter Door	Condition	Good	Status	pass
Sensor Component Shelter Roof	Condition	Fair	Status	pass
Sensor Component Shelter Floor	Condition	Fair	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: SitingCriteriaCom

The site is located in a small clearing within 100 meters of a horse stable. There is a plywood and aluminum processing plant within 20 km of the site.

2 Parameter: ShelterCleanNotes

The shelter is in fair condition. Evidence of repairs to roof leaks attempted. Some floor tiles are loose.

3 Parameter: PollAnalyzerCom

The desiccant for the zero air system is saturated.

4 Parameter: MetSensorComme

The recorded temperature data at this site is measured at approximately 2 meters above the ground.

F-02058-1500-S1-rev002

Site ID GLR468	Technician Martin Valvur	Site Visit Date 08/09	5/2021			
Sita Spansor (aganay)	NPS	USGS Map	Lake McDonald West			
Site Sponsor (agency)		Man Scale				
Operating Group		M D (
AQS #	30-029-8001	Map Date				
Meteorological Type	R.M. Young					
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude	48.5103			
Deposition Measurement	dry, wet, Hg	QAPP Longitude	-113.9956			
Land Use	woodland - mixed	QAPP Elevation Meters	976			
Terrain	complex	QAPP Declination	18			
Conforms to MLM	No	QAPP Declination Date	12/27/2004			
Site Telephone	(406) 888-7983	Audit Latitude	48.510301			
Site Address 1	Horse Stables	Audit Longitude	-113.996807			
Site Address 2	Quarter Circle Bridge Rd	Audit Elevation	964			
County	Flathead	Audit Declination	14.1			
City, State	West Glacier, MT	Present				
Zip Code	59936	Fire Extinguisher 🔽	Inspected June 2011			
Time Zone	Mountain	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 Mo	odel 8810 (s/n 2149-20)	Shelter Size 640 cuft			
Shelter Clean	Notes The shelter is in fair condition. loose.	Evidence of repairs to roof leak	s attempted. Some floor tiles are			
Site OK	Notes					
Driving Directions From Kalispell proceed north on route 2 to West Glacier. Turn left onto Going To The Sun Road into Glacier National Park. Proceed approximately 0.2 miles past the entrance and fee station, and turn left toward the horse stables. Bear right at the fork and continue through the gate past the stables. The site is visible in the clearing on the left.						

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-83-rev002					
Site	e ID	GLR468	Technician Martin Valvur		Site Visit Date 08/05/2021					
1	Are win being in	d speed and direction fluenced by obstructio	sensors sited so as to avoid ns?	✓	N/A					
2	Are wind (i.e. wind horizont tower in	d sensors mounted so d sensors should be m tally extended boom > to the prevailing wind	as to minimize tower effects? ounted atop the tower or on a 2x the max diameter of the)		N/A					
3	Are the	tower and sensors plu	mb?	✓	N/A					
4	Are the avoid ra	temperature shields p diated heat sources su	pinted north or positioned to ch as buildings, walls, etc?	✓						
5	Are tem conditio surface a standing	perature and RH sens ns? (i.e. ground below and not steeply sloped g water should be avoid	ors sited to avoid unnatural sensors should be natural . Ridges, hollows, and areas of ded)		Temperature now at 2 meters					
6	Is the so	lar radiation sensor p	umb?		N/A					
7	Is it site	d to avoid shading, or	any artificial or reflected light?		N/A					
8	Is the ra	in gauge plumb?		✓	N/A					
9	Is it site towers,	d to avoid sheltering e etc?	ffects from buildings, trees,	✓	N/A					
10	Is the su facing n	rface wetness sensor s orth?	ited with the grid surface	✓	N/A					
11	Is it inc	lined approximately 3	0 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 recorded temperature data at this site is measured at approximately 2 meters above the ground.

F-02058-1500-S4-rev002

Site	e ID	GLR468	Technician	Martin Valvur		Site Visit Date 08/05/2021
1	Do all th condition	e meterological sensor 1, and well maintained	rs appear to be l?	intact, in good		Temperature only
2	Are all the reporting	he meteorological sens g data?	ors operationa	l online, and	✓	Temperature only
3	3 Are the shields for the temperature and RH sensors clean?				✓	
4	Are the a	aspirated motors work	king?		✓	
5	Is the sol scratche	ar radiation sensor's	lens clean and f	ree of		N/A
6	Is the su	rface wetness sensor g	rid clean and u	ndamaged?	✓	N/A
7	Are the s condition	ensor signal and powe	er cables intact l?	, in good	✓	
8	Are the s from the	ensor signal and powe elements and well ma	er cable connec iintained?	tions protected		

Field Systems Data Form						F-02058-1500-S5-rev0				
Site	e ID	GLR468	Technician	Martin Valvur		Site Visit Date 08/05/2021				
	<u>Siting C</u>	riteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipr</u>	nent sited in accordance with 40 CFR	58, Appendix E			
1	Do the s unrestri	ample inlets have at le cted airflow?	east a 270 degre	e arc of						
2	Are the	sample inlets 3 - 15 m	eters above the	ground?	✓					
3	Are the and 20 r	sample inlets > 1 mete neters from trees?	er from any maj	or obstruction,						
	<u>Pollutar</u>	it analyzers and depos	ition equipmen	t operations and	mai	ntenance				
1	Do the a conditio	nalyzers and equipme n and well maintained	ent appear to be ?	in good	✓					
2	Are the reportin	analyzers and monitor og data?	rs operational, o	on-line, and						
3	Describe	e ozone sample tube.				1/4 teflon by 15 meters				
4	Describ	e dry dep sample tube				3/8 Teflon by 12 meters				
5	Are in-li indicate	ine filters used in the o location)	ozone sample lin	ne? (if yes		At inlet only				
6	Are sam obstruct	ple lines clean, free of tions?	kinks, moistur	e, and	✓					
7	Is the ze	ero air supply desiccan	t unsaturated?							
8	Are the	re moisture traps in th	e sample lines?		✓	Flow line only				
9	Is there clean?	a rotometer in the dry	deposition filte	er line, and is it		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:

The desiccant for the zero air system is saturated.

Fi	eld Sy	stems Data Fo	orm		F-0 2	2058-15	00-S6-rev002		
Site	e ID	GLR468	Technician	Martin Valvur		Site Visit D	ate 08/05/202	1	
	DAS, se	nsor translators, and	peripheral equi	pment operation	<u>15 ar</u>	<u>ıd maintenance</u>	2		
1	Do the l well ma	DAS instruments appe intained?	ear to be in good	l condition and					
2	Are all modem	the components of the , backup, etc)	DAS operation	al? (printers,	✓				
3	Do the a lightnin	analyzer and sensor signaly and sensor signal sensor signal sensor signal sensor signal sensor signal sensor si	gnal leads pass ?	through	✓	Met sensors on	ly		
4	Are the signal connections protected from the weather and well maintained?			e weather and					
5	Are the	signal leads connected	d to the correct	DAS channel?	✓				
6	Are the ground	DAS, sensor translate ed?	ors, and shelter	properly	✓				
7	Does th	e instrument shelter h	ave a stable pov	ver source?	✓				
8	Is the in	istrument shelter temj	perature contro	lled?					
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	ample tower stable and	d grounded?						
11	Tower o	comments?							

Field S	ystems Data F	orm				F-02	058-1	1500- S7-rev 002
Site ID	GLR468	Те	chnician	Martin Valvur	Site Visit Date	08/05/2021		
Docume	<u>ntation</u>							
Does the	site have the required	instru	nent and	equipment manuals?				
Wind speed Wind direct Temperatu Relative hu Solar radia Surface we Wind senso Temperatu Humidity s Solar radia	Y I sensor ition sensor re sensor umidity sensor umidity sensor tion sensor thess sensor or translator re translator ensor translator tion translator			A Data logger Data logger Strip chart Computer Modem Printer Zero air pu Filter flow Surge prot UPS	r r recorder imp pump ector	Yes ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		N/A □ ✓ ✓ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
Tipping bu Ozone anal Filter pack Filter pack <u>Does th</u>	cket rain gauge [yzer [flow controller [MFC power supply [ne site have the require [] [] [] [] [] [Image: most recent	Lightning _J Shelter hea Shelter air <u>nt QC documents and</u>	protection device ter conditioner <u>report forms?</u>			
	Р	resent				Currer	it	
Station Log SSRF Site Ops M HASP Field Ops M Calibration Ozone z/s/p	g anual Manual 1 Reports 9 Control Charts	> > > > > >	Datavie Oct 201 April 20 April 20	ew 16 104 104				
Preventive	maintenance schedule							
1 Is the	station log properly co	mpleteo	l during	every site visit? ✔ D	ataview			
 Are the current Are the sample 	e Site Status Report F ht? e chain-of-custody for e transfer to and from	orms be ms proj lab?	eing comp berly used	oleted and Image: Colored state d to document Image: Colored state				

4 Are ozone z/s/p control charts properly completed and current?

Control charts not used	

Site ID GLR468 Technician Martin Valvur Site Visit Date 08/05/2021 Site operation procedures Trained by previous site operator Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

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

QC Check Performed		Frequency	Compliant			
Multi-point Calibrations	\checkmark	Semiannually	\checkmark			
Automatic Zero/Span Tests	\checkmark	Daily				
Manual Zero/Span Tests	\checkmark	Every 2 weeks				
Automatic Precision Level Tests	\checkmark	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	\checkmark	Weekly	\checkmark			
1 Do multi-point calibration gases go through the complete						

- sample train including all filters? Do automatic and manual z/s/p gasses go through the 2
- complete sample train including all filters?
- Are the automatic and manual z/s/p checks monitored and 3 reported? If yes, how?

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

F-02058-1500-S8-rev002

✓ Dataview

✓

eld Sy	stems Data Fo	rm		F-02058-1500-S9-rev			002
ID	GLR468	Technician	Martin Valvur	Site Visit Date	08/05/2021		
<u>Site ope</u>	ration procedures						
Is the fil	ter pack being changed	l every Tuesda	y as scheduled? 🗹	Filter changed vario	ous times		

✓

 \checkmark

✓

Dataview

SSRF

No longer required

One set of gloves only

Compliant

- Are the Site Status Report Forms being completed and filed 2 correctly?
- 3 Are data downloads and backups being performed as scheduled?
- Are general observations being made and recorded? How? 4
- Are site supplies on-hand and replenished in a timely 5 fashion?

Are sample flow rates recorded? How?

- Are samples sent to the lab on a regular schedule in a timely 7
- Are filters protected from contamination during handling 8 and shipping? How?
- Are the site conditions reported regularly to the field 9 operations manager or staff?

QC Check Performed

fashion?

Field S

Site ID

1

6

Frequency

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	✓ As needed	
Sample Line Check for Dirt/Water		

GLR468

F-02058-1500-S10-rev002

Site ID	
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Techn

Technician Martin Valvur

Site Visit Date 08/05/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Hewlett Packard	6730b	CNU9335F7W	ACAD
DAS	Environmental Sys Corp	8864	C2600	None
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18B	07000013426	none
Flow Rate	Tylan	FC280	AW9710138	none
Infrastructure	Infrastructure	none	none	none
MFC power supply	Tylan	RO-32	FP9605010	03944
Ozone	ThermoElectron Inc	49i A3NCA	1201477661	none
Ozone Standard	ThermoElectron Inc	49i A1NAA	0733726104	none
Sample Tower	Aluma Tower	В	none	none
Shelter Temperature	ARS	none	none	77
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	RM Young	41342	17625	none
Zero air pump	Werther International	PC70/4	000756725	none

Site Inventory by Site Visit

Site Vi	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
UMA0	09-Martii	n Valvur-08/09/2021				
1	8/9/2021	DAS	Campbell	000883	CR6	13312
2	8/9/2021	Ozone	ThermoElectron Inc	000881	49i A1ZCA	1200706581
3	8/9/2021	Ozone Standard	ThermoElectron Inc	000882	49i A3NAA	1200706582
4	8/9/2021	Zero air pump	Werther International	06914	C 70/4	000829156

Ozone Data Form

Mfg		Serial Numbe	er Tag Site		Te	chnician	Site Visit Date	Parameter	Owner ID
ThermoElectr	on Inc	1200706581	UMA	009	Ma	artin Valvur	08/09/2021	Ozone	000881
Slope: Intercept CorrCoff:	-	1.02422 Slop 0.00247 Integet 1.00000 Corr	e: rcept rCoff:	0.00000)))	Mfg Serial Number Tfer ID	ThermoElectron 49CPS-70008-3 01110	Inc Paramete	r ozone Ozone primary stan
DAS 1: DAS 2:						Slope	1 003/	0 Intercent	0.02230
A Avg % Diff: A Max % Dif A Avg %Diff A Max %					% Dif	Slope	1.0004	intercept	0.02200
0.04	%	0.0%	0			Cert Date	1/20/202	21 CorrCoff	1.00000
UseDescrip	otion	ConcGroup	Tfer Raw	Tf	er Corr	Site	Site Unit	RelPerDif	AbsDif
primary	7	1	0.04		0.01	0.18	ppb		0.17
primary	7	2	15.35	1	15.22	15.49	ppb		0.27
primary	7	3	36.93	3	36.66	37.47	ppb	2.19	
primary	7	4	65.77	(65.32	66.81	ppb	2.26	
primary	7	5	114.24	1	13.27	116.10	ppb	2.47	
Sensor Co	mpone	nt Audit Press	ure		Conditi	on 707.7 mmHg		Status pass	
Sensor Component 26.6 degree unobstructed rule					Conditi	on True		Status pass	
Sensor Component Tree dewline >10m or below inlet					Conditio	on True		Status pass	
Sensor Component ADT <100 vehicles further than 20					Conditio	on 158 m		Status fail	
Sensor Component ADT >100 vehicles further than 50					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 Co	mpone	nt Span	Span			Condition 1.026		Status pass	
Sensor Co	mpone	nt Zero Voltag	Zero Voltage		Condition N/A			Status pass	
Sensor Component Fullscale Voltage			Conditio	ndition N/A		Status pass			
Sensor Co	mpone	nt Cell A Freq.			Conditio	on 104.3 kHz		Status pass	
Sensor Component Cell A Noise			Conditio	ondition 0.8 ppb		Status pass			
Sensor Component Cell A Flow				Conditi	Condition 0.70 lpm		Status pass		
Sensor Component Cell A Pressure			Conditi	Condition 691.9 mmHg		Status pass			
Sensor Component Cell A Tmp.			Conditi	Condition 31.1 C		Status pass			
Sensor Component Cell B Freq.				Condition 93.2 kHz			Status pass		
Sensor Component Cell B Noise				Condition 1.0 ppb			Status pass		
Sensor Component Cell B Flow				Condition 0.68 lpm			Status pass		
Sensor Component Cell B Pressure				Condition 691.3 mmHg			Status pass		
Sensor Component System Memo					Conditio	on		Status pass	
Site Inventory by Site Visit

Site Vi	isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
VIN14	0-Korey l	Devins-08/09/2021				
1	8/9/2021	Computer	Dell	07040	Inspiron 15	6K2MC12
2	8/9/2021	DAS	Campbell	000358	CR3000	2136
3	8/9/2021	Elevation	Elevation	None	1	None
4	8/9/2021	Filter pack flow pump	Thomas	04920	107CAB18	060300019956
5	8/9/2021	Flow Rate	Арех	000465	AXMC105LPMDPCV	43974
6	8/9/2021	Infrastructure	Infrastructure	none	none	none
7	8/9/2021	Modem	Digi	07166	LR54	Illegible
8	8/9/2021	Ozone	ThermoElectron Inc	000740	49i A1NAA	1105347311
9	8/9/2021	Ozone Standard	ThermoElectron Inc	000546	49i A3NAA	0929938239
10	8/9/2021	Sample Tower	Aluma Tower	000137	В	none
11	8/9/2021	Shelter Temperature	Campbell	none	107-L	none
12	8/9/2021	Siting Criteria	Siting Criteria	None	1	None
13	8/9/2021	Temperature	RM Young	04685	41342VC	6699
14	8/9/2021	Zero air pump	Werther International	06906	C 70/4	000821908

DAS Data Form

DAS Time Max Error: 0

Mfg	Serial Nu	mber Site	Т	Technician	Site Visit Date Parameter		Use Desc.
Campbell	2136	VIN1	40	Korey Devins	08/09/2021	DAS	Primary
Das Date:	8 /9 /2021	Audit Date	8 /9 /2021	Mfg	Fluke	Parameter	DAS
Das Time:	14:32:45	Audit Time	14:32:45	Serial Number	95740135	Tfer Desc.	DVM
Low Channel	:	High Channel	:	Tfer ID	01311		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0000	0.0000	0.0000	0.0000	Cert Date	2/11/202	1 CorrCoff	1.00000
				Mfg	Datel	Parameter	DAS
				Serial Number	15510194	Tfer Desc.	Source generator (D
				Tfer ID	01320		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/13/201	2 CorrCoff	1.00000
Channel	Input D	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
7	0.0000	0.0000	0.0000) V	V	0.0000	
7	0.1000	0.0999	0.0999	V	V	0.0000	
7	0.3000	0.2998	0.2998	8 V	V	0.0000	
7	0.5000	0.4996	0.4996	5 V	V	0.0000	
7	0.7000	0.6995	0.6995	5 V	V	0.0000	
7	0.9000	0.8994	0.8994	V	V	0.0000	
7	1.0000	0.9992	0.9992	2 V	V	0.0000	

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit D	Site Visit Date Parameter		Owner ID
Apex	43974		VIN140	Ko	rey Devins	08/09/2021	Flow F	Rate	000465
					Mfg Seriel Number	BIOS	F	arameter Flo	w Rate
					Tfer ID	01417		101 Desc. <u>210</u>	
					Slope	0.	99756 Int	ercept	-0.00058
					Cert Date	2/10	0/2021 Co	rrCoff	0.99993
DAS 1:		DAS 2:			Cal Factor Z	ero		0	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	: % Dif	Cal Factor F	ull Scale	0.	98	
0.67%	0.67%				Rotometer R	eading:		1.5	
Desc.	Test type	Input l/n	n Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference
primary	pump off	0.000	0.000	0.01	0.000	0.01	l/m	l/m	
primary	leak check	0.000	0.000	0.01	0.000	0.00	l/m	l/m	
primary	test pt 1	1.485	1.490	1.52	0.000	1.50	l/m	l/m	0.67%
primary	test pt 2	1.488	1.490	1.52	0.000	1.50	l/m	l/m	0.67%
primary	test pt 3	1.490	1.490	1.53	0.000	1.50	l/m	l/m	0.67%
Sensor Comp	onent Leak Tes	t		Conditio	on		Statu	<mark>s</mark> pass	
Sensor Comp	onent Tubing C	ondition		Conditio	Good		Statu	<mark>s</mark> pass	
Sensor Comp	onent Filter Pos	sition		Conditio	n Good		Statu	s pass	
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	Clean and dry		Statu	<mark>s</mark> pass	
Sensor Comp	onent Moisture	Present		Conditio	n See comments	3	Statu	<mark>s</mark> pass	
Sensor Comp	onent Filter Dis	tance		Conditio	n 5.0 cm		Statu	<mark>s</mark> pass	
Sensor Comp	onent Filter Dep	oth		Conditio	2.0 cm		Statu	<mark>s</mark> pass	
Sensor Comp	onent Filter Azi	muth		Conditio	290 deg		Statu	<mark>s</mark> pass	
Sensor Comp	onent System N	/lemo		Conditio	n		Statu	s pass	

Ozone Data Form

Mfg		Serial Numbe	er Tag Site		Тес	chnician	Site Visit Date	Parameter	Owner ID
ThermoElec	tron Inc	1105347311	VIN140		Ko	rey Devins	08/09/2021	Ozone	000740
Slope: Intercept CorrCoff:		0.99932 Slop -0.05724 Inte 1.00000 Cor	e: rcept rCoff:	0.00000 0.00000 0.00000		Mfg Serial Number Tfer ID	ThermoElectron 1180030022 01114	Inc Parameter	er ozone c. Ozone primary stan
DAS 1:		D	AS 2:			Slope	1.0003	30 Intercept	0.30550
A Avg % D	iff: A I	Max % Dif A	Avg %Diff A	Max %	Dif	stope			
0.0	0%	0.0%				Cert Date	1/20/202	21 CorrCoff	1.00000
UseDescri	intion	ConcGroup	Tfer Raw	Tfer	Corr	Site	Site Unit	RelPerDif	AbsDif
primar	rv	1	0.35	0.0	04	0.14	ppb	Ren erbit	0.1
prima	ry	2	14.82	14.	.43	14.25	ppb		-0.18
prima	ry	3	34.51	34.	.02	33.92	ppb	-0.29	
prima	ry	4	67.60	66.	.93	66.71	ppb	-0.33	
prima	ry	5	110.67	109	.77	109.73	ppb	-0.04	
Sensor C	ompon	ent Audit Press	ure	С	onditio	n 748 mmHg		Status pass	
Sensor C	ompon	ent 26.6 degree	unobstructed ru	le C	onditio	n True		Status pass	
Sensor C	ompon	ent Tree dewlin	e >10m or below	inlet C	onditio	n True		Status pass	
Sensor C	ompon	ent ADT <100 v	ehicles further t	nan 20 C	onditio	n True		Status pass	
Sensor C	ompon	ent ADT >100 v	ehicles further t	nan 50 C	onditio)n 365 m		Status Fail	
Sensor C	ompon	ent Sample Tra	in	C	onditio	n Good		Status pass	
Sensor C	ompon	ent Inlet Filter C	Condition	C	onditio	Moderately cle	an	Status pass	
Sensor C	ompon	ent Offset		C	onditio	n -0.2		Status pass	
Sensor C	ompon	ent Span		C	onditio	n 1.015		Status pass	
Sensor C	ompon	ent Zero Voltag	e	C	onditio	n N/A		Status pass	
Sensor C	ompon	ent Fullscale Vo	oltage	C	onditio	n N/A		Status pass	
Sensor C	ompon	ent Cell A Freq.		C	onditio	98.5 kHz		Status pass	
Sensor C	ompon	ent Cell A Noise	9	C	onditio)n 0.6 ppb		Status pass	
Sensor C	ompon	ent Cell A Flow		C	onditio	n 0.69 lpm		Status pass	
Sensor C	ompon	ent Cell A Press	sure	C	onditio	704.1 mmHg		Status pass	
Sensor C	ompon	ent Cell A Tmp.		C	onditio	37.0 C		Status pass	
Sensor C	ompon	ent Cell B Freq		C	onditio	n 87.1 kHz		Status pass	
Sensor C	ompon	ent Cell B Noise	9	C	onditio	on 0.4 ppb		Status pass	
Sensor C	ompon	ent Cell B Flow		C	onditio)n 0.69 lpm		Status pass	
Sensor C	ompon	ent Cell B Press	sure	C	onditio	704.7 mmHg		Status pass	
Sensor C	ompon	ent System Me	mo	C	onditio	on		Status pass	

Temperature Data Form

Mfg	Serial Number	Tag Site	1	Fechni	ician	Site V	isit Date	Param	eter	Owner ID	
RM Young	6699	VIN140		Korey	Devins	08/09	/2021	Temper	ature	04685	
				Mf	g	Extect	1	Pa	rameter Te	mperature	
				Ser	ial Number	H2327	'34	Tf	er Desc. R	D	
				Tfe	er ID	01227					
DAS 1:	DAS	S 2:		Slo	ре		1.0074	3 Inte	rcept	0.21666	6
Abs Avg Err	Abs Max Err Abs	Avg Err Abs	Max Err	Cer	rt Date		2/18/202	1 Cor	rCoff	1.00000	C
0.12	0.26										
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmp	Signal	OutputSig	gnalEng	OSE Unit	Difference	
primary T	emp Low Range	0.19	-0.03	}	0.000		0.2	2	С	0.26	
primary T	emp Mid Range	27.80	27.38	3	0.000		27.	3	С	-0.05	
primary T	emp High Range	46.98	46.42	2	0.000		46.	4	С	-0.05	
Sensor Comp	onent Shield		Condi	ition C	Clean			Status pass			
Sensor Component Blower			Condi	Condition N/A				Status	Status pass		
Sensor Component Properly Sited				Condition Properly sited				Status	tus pass		
Sensor Comp	onent System Memo)	Condi	ition				Status	pass		

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	VIN140	Korey Devins	08/09/2021	Shelter Temperatu	re none
DAS 1:	DAS 2:		Mfg	Extech	Parameter S	helter Temperature
Abs Avg Err Abs	Max Err Abs Avg 0.24	Err Abs Max Err	Serial Number	H232734	Tfer Desc. R	TD
			Tfer ID	01227		
			Slope	1.0074	3 Intercept	0.21666
			Cert Date	2/18/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	28.15	27.73	0.000	28.0	С	0.24
primary	Temp Mid Range	28.42	28.00	0.000	28.1	С	0.1
primary	Temp Mid Range	28.97	28.54	0.000	28.7	С	0.19
Sensor Con	nponent System Memo	•	Condition		Status	pass	

Siting Criteria Form

Sensor Component Limited agriculture operations	Condition 10 m	Status	Fail
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 Intensive agriculture operations	Condition 200 m	Status	Fail
Sensor Component Large point source of So2 or Nox	Condition	Status	pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status	pass

Infrastructure Data For

Site ID VIN1	40 Technici	an Korey Devins	Site Visit Date 08/09/2021
Shelter Make	Shelter Mo	del Sh	nelter Size
Ekto	8810 (s/n 21	16-1) 640	IO cuft

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	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	Fair	Status	pass
Sensor Component Shelter Door	Condition	Good	Status	pass
Sensor Component Shelter Roof	Condition	Good	Status	pass
Sensor Component Shelter Floor	Condition	Fair	Status	pass
Sensor Component Shelter walls	Condition	Fair	Status	pass
Sensor Component Excessive mold present	Condition	Fair	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

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Flow Rate	VIN140	Korey Devins	08/09/2021	Moisture Present	Apex	3203		
The filter sample tubing has drops of moisture in low sections outside the shelter.								

Field Systems Comments

1 Parameter: SitingCriteriaCom

The site is in an agricultural research center with farm activities adjacent to the site. A train track is approximately 200 meters to the north.

2 Parameter: ShelterCleanNotes

The shelter is in fair condition and well maintained, however rot is forming at the bottom of the walls.

3 Parameter: MetSensorComme

The temperature sensor is mounted on the sample tower.

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID VIN140	Technician Korey Devins	Site Visit Date 08/0	9/2021	
			-	
Site Sponsor (agency)	EPA	USGS Map	Fritchton	
Operating Group	Purdue University	Map Scale		
AQS #	18-083-9991	Map Date		
Meteorological Type	Climatronics			
Air Pollutant Analyzer	Ozone	QAPP Latitude	38.7406	
Deposition Measurement	dry, wet	QAPP Longitude	-87.4844	
Land Use	agriculture	QAPP Elevation Meters	134	
Terrain	flat	QAPP Declination	4.25	
Conforms to MLM	Yes	QAPP Declination Date	2/23/2006	
Site Telephone		Audit Latitude	38.740792	
Site Address 1	Southwest Purdue Agricultural Center	Audit Longitude	-87.484923	
Site Address 2	4669 North Purdue Road	Audit Elevation	136	
County	Knox	Audit Declination	-2.7	
City, State	Vincennes, IN	Present		
Zip Code	47591	Fire Extinguisher 🗹	New in 2015	
Time Zone	Central	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 Mo	odel 8810 (s/n 2116-1)	Shelter Size 640 cuft	
Shelter Clean	Notes The shelter is in fair condition a	and well maintained, however r	ot is forming at the bottom of the walls.	
Site OK	Notes			
Driving Directions From Agricu	Vincennes go approximately 3 miles north Itural Center. The site is just over the hill	on route 41. Turn left at the s on the dirt road to the right.	ign for the Southwest Purdue	

Fi	eld Sy	stems Data Fo	orm				F-0205	8-15	500-S3	-rev002
Site	e ID	VIN140	Technician	Korey Devins		Site Visit Date	08/09/2021]	
1	Are win being in	d speed and direction fluenced by obstructio	sensors sited so ons?	as to avoid	✓	N/A				
2	Are win (i.e. win horizon tower in	d sensors mounted so d sensors should be m tally extended boom > nto the prevailing wind	as to minimize ounted atop the 2x the max dian l)	tower effects? e tower or on a meter of the		N/A				
3	Are the	tower and sensors plu	mb?		✓	N/A				
4	Are the avoid ra	temperature shields p idiated heat sources su	ointed north or Ich as buildings	positioned to , walls, etc?	✓					
5	Are tem condition surface standing	perature and RH sens ons? (i.e. ground below and not steeply sloped g water should be avoi	ors sited to avo sensors should . Ridges, hollow ded)	id unnatural be natural vs, and areas of						
6	Is the so	olar radiation sensor p	lumb?		✓	N/A				
7	Is it site	d to avoid shading, or	any artificial o	r reflected light?		N/A				
8	Is the ra	ain gauge plumb?			✓	N/A				
9	Is it site towers,	d to avoid sheltering e etc?	ffects from buil	ldings, trees,	✓	N/A				
10	Is the su facing n	irface wetness sensor s orth?	sited with the g	rid surface	✓	N/A				
11	Is it inc	lined approximately 3	0 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 sample tower.

Field Systems Data Form

F-02058-1500-S4-rev002

Site	e ID	VIN140	Technician	Korey Devins		Site Visit Date	08/09/2021	
 Do all the meterological sensors appear to be intact, in good condition, and well maintained? Are all the meteorological sensors operational online, and reporting data? Are the shields for the temperature and RH sensors clean? 						Temperature only Temperature only		
4	Are the shields for the temperature and KH sensors clean? 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 su	rface wetness sensor g	rid clean and u	indamaged?	✓	N/A		
7	Are the s condition	ensor signal and powe	er cables intact 1?	, in good				
8	Are the s from the	ensor signal and powe elements and well ma	er cable connec hintained?	ctions protected				

Fi	eld Sy	stems Data Fo	orm	F-02058-1500-S5-rev002		
Site	e ID	VIN140	Technician	Korey Devins		Site Visit Date 08/09/2021
	<u>Siting C</u>	Criteria: Are the pollut	ant analyzers ai	<u>nd deposition eq</u>	<u>uipn</u>	nent sited in accordance with 40 CFR 58, Appendix E
1	Do the sunrestri	sample inlets have at le icted airflow?	east a 270 degree	e arc of	✓	
2	Are the	sample inlets 3 - 15 mo	eters above the	ground?	✓	
3	Are the and 20	sample inlets > 1 mete meters from trees?	er from any maj	or obstruction,		
	Polluta	nt analyzers and depos	ition equipment	t operations and	mai	ntenance
1	Do the a condition	analyzers and equipme on and well maintained	ent appear to be l?	in good	✓	
2	Are the reportin	analyzers and moniton ng data?	rs operational, o	on-line, and	✓	
3	Describ	e ozone sample tube.				1/4 teflon by 18 meters
4	Describ	e dry dep sample tube.				3/8 teflon by 18 meters
5	Are in-l indicate	line filters used in the o e location)	ozone sample lin	e? (if yes		At inlet only
6	Are san obstruc	nple lines clean, free of tions?	kinks, moisture	e, and	✓	
7	Is the ze	ero air supply desiccan	t unsaturated?		✓	
8	Are the	re moisture traps in th	e sample lines?			Flow line only
9	Is there clean?	a rotometer in the dry	v deposition filte	er line, and is it		Clean and dry

Field Systems Data Form						F-02058-1500-S6-rev002			
Site	e ID	VIN140	Technician	Korey Devins		Site Visit Da	1te 08/09/202	1	
	DAS, se	ensor translators, and j	peripheral equi	pment operation	ns ai	<u>id maintenance</u>			
1	Do the well ma	DAS instruments appe intained?	ar to be in good	l condition and	✓				
2	Are all modem	the components of the , backup, etc)	DAS operation	al? (printers,	✓				
3	Do the a lightnin	analyzer and sensor sig g protection circuitry	gnal leads pass † ?	through	✓	Temperature onl	у		
4	Are the well ma	signal connections pro intained?	otected from the	e weather and	✓				
5	Are the	signal leads connected	l to the correct	DAS channel?	✓				
6	Are the ground	DAS, sensor translato ed?	ors, and shelter	properly	✓				
7	Does th	e instrument shelter h	ave a stable pov	ver source?	✓				
8	Is the ir	nstrument shelter temp	perature contro	lled?	✓				
9	Is the m	net tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	ample tower stable and	l grounded?						
11	Tower of	comments?						Ľ	

Field Systems Data Form								1500-S7-rev002
Site ID	VIN140]]	Fechnic	ian Korey Dev	ins Site Visit Date	08/09/2021		
Document	tation							
Does the s	ite have the required	instr	<u>rument</u>	and equipmen	<u>t manuals?</u>			
	Ye	S	No	N/A		Yes	No	N/A
Wind speed	sensor	_		\checkmark	Data logger			
Wind directi	on sensor			\checkmark	Data logger			
Temperature	e sensor				Strip chart recorder			
Relative hun	nidity sensor			\checkmark	Computer		\checkmark	
Solar radiati	on sensor			\checkmark	Modem		\checkmark	
Surface wetn	less sensor			\checkmark	Printer			
Wind sensor	translator			\checkmark	Zero air pump			
Temperature	e translator			\checkmark	Filter flow pump		\checkmark	
Humidity ser	1sor translator			\checkmark	Surge protector			
Solar radiati	on translator			\checkmark	UPS			
Tipping bucl	ket rain gauge 🛛 🗌			\checkmark	Lightning protection device			
Ozone analyz	zer 🗸				Shelter heater		\checkmark	
Filter pack fl	low controller				Shelter air conditioner		\checkmark	
Filter pack N	IFC power supply			\checkmark				
Does the	site have the require	d and	d most	recent QC doc	uments and report forms?			
	P	reser	nt			Currer	nt	
Station Log		✓]			\checkmark		
SSRF		✓				\checkmark		
Site Ops Mar	nual	✓	Ма	y 2019		\checkmark		
HASP		✓	Ma	y 2019		\checkmark		
Field Ops Ma	anual	\checkmark	Ma	y 2019		\checkmark		
Calibration I	Reports			-				
Ozone z/s/p (Control Charts							
Preventive m	aintenance schedule							

I	Is the station log properly completed during every site visit?	
2	Are the Site Status Report Forms being completed and	

- 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 use	d
------------------------	---

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

VIN140 Technician Korey Devins Site Visit Date 08/09/2021 Site ID Site operation procedures Trained by the previous site operator Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

	Frequency	Compliant
	Semiannually	\checkmark
\checkmark	N/A	\checkmark
	N/A	\checkmark
\checkmark	N/A	\checkmark
✓	N/A	\checkmark
\checkmark	N/A	\checkmark
	> > > >	Frequency Semiannually N/A N/A N/A N/A N/A N/A N/A

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

Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at inlet) In-line Filter Replacement (at analyze Sample Line Check for Dirt/Water **Zero Air Desiccant Check**

	Frequency	Co
	Semiannually	
✓	Daily	
✓	As needed	
✓	Daily	
✓	As needed	
✓	Weekly	
✓	Every 3 weeks	
	N/A	
✓	Weekly	
✓	Weekly	

- Do multi-point calibration gases go through the complete 1 sample train including all filters?
- Do automatic and manual z/s/p gasses go through the 2 complete sample train including all filters?

3	Are the automatic and manual z/s/p checks monitored ar	ıd
	reported? If yes, how?	

Unknown
Logbook, 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:

Compliant

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Field Systems Data Form F-02058-1500-S9-rev002 VIN140 Technician Korey Devins Site Visit Date 08/09/2021 Site ID Site operation procedures Is the filter pack being changed every Tuesday as scheduled? Filter changed morinings 1 Are the Site Status Report Forms being completed and filed 2 correctly? No longer required 3 Are data downloads and backups being performed as scheduled? ✓ SSRF Are general observations being made and recorded? How? 4 ✓ Are site supplies on-hand and replenished in a timely 5 fashion? SSRF, logbook, call-in Are sample flow rates recorded? How? 6 \checkmark Are samples sent to the lab on a regular schedule in a timely 7 fashion? ✓ Clean gloves on and off Are filters protected from contamination during handling 8 and shipping? How? ✓ Are the site conditions reported regularly to the field 9 operations manager or staff? **QC Check Performed** Compliant Frequency

Multi-point MFC Calibrations	Semiannually	
Flow System Leak Checks	✓ Weekly	
Filter Pack Inspection		
Flow Rate Setting Checks	✓ Weekly	\checkmark
Visual Check of Flow Rate Rotometer	✓ Weekly	\checkmark
In-line Filter Inspection/Replacement	Semiannually	\checkmark
Sample Line Check for Dirt/Water	Weekly	\checkmark

Field	S	vsten	ns E) ata	Fo	rm
	\sim				• •	

VIN140

F-02058-1500-S10-rev002

Technician Korey Devins

Site Visit Date 08/09/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	6K2MC12	07040
DAS	Campbell	CR3000	2136	000358
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	060300019956	04920
Flow Rate	Apex	AXMC105LPMDPC	43974	000465
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07166
Ozone	ThermoElectron Inc	49i A1NAA	1105347311	000740
Ozone Standard	ThermoElectron Inc	49i A3NAA	0929938239	000546
Sample Tower	Aluma Tower	B	none	000137
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VC	6699	04685
Zero air pump	Werther International	C 70/4	000821908	06906

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
NPT)06-Martin	Valvur-08/10/2021				
1	8/10/2021	DAS	Campbell	000836	CR850	32797
2	8/10/2021	Ozone	ThermoElectron Inc	000612	49i A1NAA	1009241779
3	8/10/2021	Ozone Standard	ThermoElectron Inc	000448	49i A3NAA	CM08200024
4	8/10/2021	Zero air pump	Werther International	000626	PC 70/4	000815300

Ozone Data Form

Mfg		Serial Numbe	er Tag S	Site		Teo	chnician	Site Visit Date	Parameter	Owner ID	
ThermoElectro	on Inc	1009241779		NPT006		Ma	artin Valvur	08/10/2021	Ozone	000612	
Slope: Intercept CorrCoff:	Slope: 1.00445 Slope: 0.0000 Intercept -0.06069 Intercept 0.0000 CorrCoff: 0.999999 CorrCoff: 0.0000				.00000 .00000 .00000		Mfg Serial Number Tfer ID	ThermoElectron 49CPS-70008-3 01110	Inc Paramet	er ozone	
DAS 1.		D	45.2.				C1	1.0024		0.00000	
A Avg % Dif	f: A N	/ax % Dif A	15 2. Ανσ %Γ)iff A	Max % D	Dif	Slope	1.0034	Intercept	0.02230	
0.0%	b	0.0%					Cert Date	1/20/202	21 CorrCoff	1.00000	
UseDescript	ion	ConcGroup	Tfor	Raw	Tfer (orr	Site	Site Unit	RelPerDif	AbsDif	
primary	1011	1	0.1	10		7	0.35	nnh	KeireiDii	0.28	
primary		2	15	36	15.2	23	15.07	ppb		-0.16	
primary		3	33.	52	33.2	28	33.17	ppb	-0.33	0.10	
primary		4	65.	17	64.7	2	64.82	ppb	0.15		
primary		5	115	.37	114.	60	115.20	ppb	0.52		
Sensor Con	npone	ent Audit Press	ure		Co	onditio	on 684 mmHg		Status pass		
Sensor Con	npone	ent 26.6 degree	unobstru	ucted rul	e Co	onditio	n False		Status Fail		
Sensor Component Tree dewline >10m or below inlet					inlet Co	onditio	n True		Status pass		
Sensor Component ADT <100 vehicles further than 2					an 20 _{Co}	onditio	n True		Status pass		
Sensor Con	npone	ent ADT >100 v	ehicles f	urther the	an 50 Co	onditio	on True		Status pass		
Sensor Con	npone	e <mark>nt</mark> Sample Trai	n		Co	onditio	on Good		Status pass		
Sensor Con	npone	nt Inlet Filter C	ondition		Co	Condition Clean			Status pass		
Sensor Con	npone	ent Offset			Co	Condition 0.000			Status pass		
Sensor Con	npone	ent Span			Co	onditio	on 1.058		Status pass		
Sensor Con	npone	ent Zero Voltage	Э		Co	onditio	on N/A		Status pass		
Sensor Con	npone	ent Fullscale Vo	ltage		Co	onditio	on N/A		Status pass		
Sensor Con	npone	ent Cell A Freq.			Co	onditio	on 89.7 kHz		Status pass		
Sensor Con	npone	ent Cell A Noise	;		Co	onditio	on 0.5 ppb		Status pass		
Sensor Con	npone	ent Cell A Flow			Co	onditio	on 0.69 lpm		Status pass		
Sensor Con	npone	ent Cell A Press	sure		Co	onditio	on 658.4 mmHg		Status pass		
Sensor Con	npone	ent Cell A Tmp.			Co	onditio	on 33.2 C		Status pass		
Sensor Component Cell B Freq.				Co	onditio	on 89.6 kHz		Status pass			
Sensor Con	npone	ent Cell B Noise	;		Co	onditio	on 0.8 ppb		Status pass		
Sensor Con	npone	Cell B Flow			Co	onditio	on 0.73 lpm		Status pass		
Sensor Con	npone	ent Cell B Press	sure		Co	onditio	on 657.8 mmHg		Status pass		
Sensor Con	npone	ent System Mer	no		Co	onditio	on		Status pass		

Site Inventory by Site Visit

Site V	isit Date/	Parameter	Mfg	Owner ID	Model Number	Serial Number
UVLI	24-Eric H	ebert-08/11/2021				
1	8/11/2021	DAS	Campbell	000347	CR3000	2126
2	8/11/2021	Ozone	ThermoElectron Inc	000680	49i A1NAA	1030244792
3	8/11/2021	Ozone Standard	ThermoElectron Inc	000438	49i A3NAA	CM08200014
4	8/11/2021	Zero air pump	Werther International	06936	C 70/4	000829169

Ozone Data Form

Mfg		Serial Numb	er Tag Site		Tec	hnician	Site Visit Date	Parameter	Owner ID
ThermoElec	tron Inc	1030244792	UVL124		Eric	c Hebert	08/11/2021	Ozone	000680
Slope: Intercept CorrCoff:	lope: 0.99714 Slope: 0.0000 ntercept -1.32013 Intercept 0.0000 'orrCoff: 0.99988 CorrCoff: 0.0000 'AS 1: DAS 2: DAS 2:					Mfg Serial Number Tfer ID	ThermoElectron 1180930075 01115	Inc Paramete	er ozone c. Ozone primary stan
DAS 1:		D	AS 2:		1	Slope	1.0056	0 Intercept	0.14070
A Avg % D	oiff: A I	Max % Dif A	Avg %Diff A	Max % D	oif	Cert Date	4/7/202	21 CorrCoff	0.99990
		0.070		1		1			
UseDescri	ption	ConcGroup	Tfer Raw	Tfer C	Corr	Site	Site Unit	RelPerDif	AbsDif
primar	ry	1	0.05	-0.0	8	-0.41	ppb		-0.33
primar	тy	2	17.33	16.8	4	14.74	ppb	5.24	-2.13
primar	ry 	3	<u> </u>	55.9 67.5	4	<u> </u>	ppb	-5.34	
primar	y ny		112.22	110 ()))	108 70	ppu	-2.44	
prina	y		112.22	110.0		700.0 mml la	рро	-1.17	
Sensor Co	ompon	ent Audit Press	sure	Co	nditio	n 738.6 mmHg		Status pass	
Sensor Co	ompon	ent 26.6 degree	e unobstructed ru	lle Co	nditio	n True		Status pass	
Sensor Co	ompon	ent Tree dewlin	e >10m or below	inlet Co	nditio	n True		Status pass	
Sensor Co	ompon	ent ADT <100 v	vehicles further th	nan 20 Co	nditio	<mark>n</mark> True		Status pass	
Sensor Co	ompon	ent ADT >100	vehicles further th	nan 50 Co	nditio	<mark>n</mark> 205 m		Status Fail	
Sensor Co	ompon	ent Sample Tra	iin	Со	nditio	n Good		Status pass	
Sensor Co	ompon	ent Inlet Filter (Condition	Со	Condition Moderately clean			Status pass	
Sensor Co	ompon	ent Offset		Co	Condition 0.60			Status pass	
Sensor Co	ompon	ent Span		Со	nditio	n 1.028		Status pass	
Sensor Co	ompon	ent Zero Voltag	le	Со	nditio	n N/A		Status pass	
Sensor Co	ompon	ent Fullscale V	oltage	Co	nditio	n N/A		Status pass	
Sensor Co	ompon	ent Cell A Freq		Со	nditio	<mark>n</mark> 100.8 kHz		Status pass	
Sensor Co	ompon	ent Cell A Nois	е	Co	nditio	<mark>n</mark> 0.6 ppb		Status pass	
Sensor Co	ompon	ent Cell A Flow		Со	nditio	<mark>n</mark> 0.43 lpm		Status pass	
Sensor Co	ompon	ent Cell A Pres	sure	Co	nditio	n 721.2 mmHg		Status pass	
Sensor Co	ompon	ent Cell A Tmp		Со	nditio	n 38.0 C		Status pass	
Sensor Co	ompon	ent Cell B Freq	•	Co	nditio	<mark>n</mark> 90.4 kHz		Status pass	
Sensor Co	ompon	ent Cell B Nois	e	Со	nditio	n 0.6 ppb		Status pass	
Sensor Co	ompon	ent Cell B Flow	,	Со	nditio	<mark>n</mark> 0.69 lpm		Status pass	
Sensor Co	ompon	ent Cell B Pres	sure	Со	nditio	n 721.8 mmHg		Status pass	
Sensor Co	ompon	ent System Me	mo	Со	nditio	n		Status pass	

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
MAC	426-Korey	Devins-08/11/2021				
1	8/11/2021	Computer	Hewlett Packard	none	6560 b	5CB1520H70
2	8/11/2021	DAS	Environmental Sys Corp	none	8832	unknown4
3	8/11/2021	Elevation	Elevation	None	1	None
4	8/11/2021	Filter pack flow pump	Thomas	none	107CAB18B	070000012920
5	8/11/2021	Flow Rate	Tylan	none	FC280	AW02213005
6	8/11/2021	Infrastructure	Infrastructure	none	none	none
7	8/11/2021	Met tower	Climatronics	none	illegible	illegible
8	8/11/2021	MFC power supply	Tylan	03677	RO-32	illegible
9	8/11/2021	Ozone	ThermoElectron Inc	none	49i A3NAA	1030745085
10	8/11/2021	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1015543061
11	8/11/2021	Sample Tower	Aluma Tower	none	В	none
12	8/11/2021	Shelter Temperature	ARS	60	none	none
13	8/11/2021	Siting Criteria	Siting Criteria	None	1	None
14	8/11/2021	Temperature2meter	RM Young	none	41342	15104
15	8/11/2021	Zero air pump	Teledyne	none	701H	394

DAS Data Form

DAS Time Max Error: 0.17

Mfg	Serial Nur	Serial Number Site		Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sy	/s unknown4		MAC426	Korey Devins	08/11/2021	DAS	Primary
Das Date:	3/11/2021	Audit Da	te 8 /11/2021	Mfg	Fluke	Parameter	DAS
Das Time:	223	Audit Da	v 223	Serial Number	95740135	Tfer Desc.	DVM
Low Channel:		High Cha	nnel:	Tfer ID	01311		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0000	0.0000	0.0	0.000	Cert Date	2/11/202	1 CorrCoff	1.00000
				Mfg	Datel	Parameter	DAS
				Serial Number	15510194	Tfer Desc.	Source generator (D
				Tfer ID	01320		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/13/201	2 CorrCoff	1.00000
Channel	Input D'	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
4	0.0000	0.000	0.000	00 V	V	0.0000	

Flow Data Form

Mfg	Serial Nun	Serial Number Tag Site			hnician	Site Visit D	ate Param	eter	Owner ID	
Tylan	AW022130)05	MAC426	Ko	rey Devins	08/11/2021	Flow R	ate	none	
Mfg	Tylan				Mfg	BIOS	P	arameter Flow	w Rate	
SN/Owner ID	illegible	03677			Serial Number	131818	Т	fer Desc. BIC	S 220-H	
Parameter:	MFC power su	oply			Tfer ID	01417				
					Slope	0.9	99756 Inte	ercept	-0.00058	
					Cert Date	2/10	/2021 Cor	rCoff	0.99993	
DAS 1:		DAS 2:			Cal Factor Z	ero		0		
A Avg % Diff:	A Max % Dif	A Avg %l	Diff A Max	% Dif	Cal Factor F	ull Scale	0			
2.44%	3.02%				Rotometer R	eading:		0		
Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference	
primary	pump off	0.000	0.000	-0.20	0.0000	-0.08	l/m	l/m		
primary	leak check	0.000	0.000	-0.16	0.0000	-0.04	l/m	l/m		
primary	test pt 1	1.569	1.570	1.30	0.0000	1.54	l/m	l/m	-1.78%	
primary	test pt 2	1.577	1.580	1.30	0.0000	1.54	l/m	l/m	-2.53%	
primary	test pt 3	1.586	1.590	1.30	0.0000	1.54	l/m	l/m	-3.02%	
Sensor Comp	onent Leak Tes	it		Conditio	n		Status	pass		
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Status	pass		
Sensor Comp	onent Filter Pos	sition		Conditio	n Poor		Status	Fail		
Sensor Comp	onent Rotomete	er Conditior	1	Conditio	Clean and dry		Status	pass		
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	resent	Status	pass		
Sensor Comp	onent Filter Dis	tance		Conditio	n 5.0 cm		Status	pass		
Sensor Comp	onent Filter Dep	oth		Conditio	Condition -3.0 cm			Fail		
Sensor Comp	onent Filter Azi	muth		Conditio	n 255 deg		Status	pass		
Sensor Comp	onent System N	/lemo		Conditio	Condition See comments			pass		

Ozone Data Form

Mfg		Serial Number Tag Site			Technician		Site Visit Date	Paramet	ter	Owner II)	
ThermoElec	tron Inc	10307450	85	MAC426	3	Koi	ey Devins	08/11/2021	Ozone		none	
Slope: 0.98950 Slope: 0.0000 Intercept 0.55881 Intercept 0.0000 CorrCoff: 1.00000 CorrCoff: 0.0000 DAS 1: DAS 2: A Avg % Diff: A Max % Dif A Avg % Diff A Max % 0.0% 0.0%).00000).00000).00000 Max % D	bif	Mfg Serial Number Tfer ID Slope Cert Date	ThermoElectron 1180030022 01114 1.0003 1/20/202	Inc Par Tfer 30 Interc 21 Corr(rameter r Desc. cept Coff	ozone Ozone primary 0.30	stan 550 000			
LiceDesor	intion	ConcGrou	in Tfe	r Dow	Tfor (Corr	Site	Site Unit	DalDarr);f	AbaDif	
prima	rv	1		.33	0.02	2	0.76	ppb	KelPerL	лі —	0.74	
prima	ry	2	14	1.87	14.4	8	14.81	ppb			0.33	
prima	ry	3	34	4.43	33.9	94	34.02	ppb		0.24		
prima	ry	4	67	7.37	66.7	0	66.48	ppb	-	-0.33		
prima	ry	5	10	9.94	109.0	05	108.56	ppb		-0.45		
Sensor C	ompon	ent Audit Pr	essure		Co	onditio	<mark>n</mark> 744.6 mmHg		Status P	oass		
Sensor C	ompon	ent 26.6 deg	gree unobst	tructed ru	le Co	onditio	<mark>n</mark> True		Status F	oass		
Sensor C	ompon	ent Tree dev	wline >10m	or below	inlet Co	nditio	<mark>n</mark> True		Status F	oass		
Sensor Component ADT <100 vehicles further than 20				an 20 Co	nditio	<mark>n</mark> True		Status F	oass			
Sensor C	ompon	ent ADT >10	00 vehicles	further th	ian 50 Co	onditio	<mark>n</mark> True		Status P	oass		
Sensor C	ompon	ent Sample	Train		Co	onditio	n Good		Status F	oass		
Sensor C	ompon	ent Inlet Filt	er Conditio	n	Co	Condition Clean			Status F	oass		
Sensor C	ompon	ent Offset			Co	onditio	n -0.7		Status F	oass		
Sensor C	ompon	ent Span			Co	onditio	n 1.000		Status F	oass		
Sensor C	ompon	ent Zero Vo	ltage		Co	onditio	n N/A		Status F	oass		
Sensor C	ompon	ent Fullscale	e Voltage		Co	onditio	n N/A		Status P	oass		
Sensor C	ompon	ent Cell A F	req.		Co	onditio	<mark>n</mark> 98.1 kHz		Status P	oass		
Sensor C	ompon	ent Cell A N	oise		Co	onditio	n 0.6 ppb		Status F	oass]
Sensor C	ompon	ent Cell A F	low		Co	onditio	<mark>n</mark> 0.71 lpm		Status F	oass]
Sensor C	ompon	ent Cell A P	ressure		Co	nditio	n 733.6 mmHg		Status F	oass		
Sensor C	ompon	ent Cell A T	mp.		Co	nditio	n 36.4 C		Status F	oass		
Sensor Component Cell B Freq.			Co	onditio	n 104.3 kHz		Status P	oass				
Sensor C	ompon	ent Cell B N	oise		Co	onditio	n 0.6 ppb		Status F	oass		
Sensor C	ompon	ent Cell B F	low		Co	onditio	n 0.71 lpm		Status F	oass		
Sensor C	ompon	ent Cell B P	ressure		Co	onditio	n 734.2 mmHg		Status F	oass		
Sensor C	ompon	ent System	Memo		Co	onditio	n		Status P	oass]

2 Meter Temperature Data Form

0 1		D		20					
1 9	0		11		01	-0	n	e	Δ
V.a	U .				C I			U	c

Mfg	Serial Number T	ag Site	Т	Technician	Site Visit Date	Parameter	r	Owner ID
RM Young	15104	MAC426		Korey Devins	08/11/2021	08/11/2021 Temperature2meter		none
				Mfg Serial Number	Extech H232734	Para Tfer	meter Tem Desc. RTD	perature
DAS 1:	DAS 1: DAS 2:		May Fre	Tfer ID Slope	01227	43 Interce	pt	0.21666
0.16	0.42				2,10,2			
UseDescription	Test type In	putTmpRaw 1	InputTmpCo	orrected OutputTn	npSignal Outpu	tSignalEng	OSE Unit	Difference
primary (Temp Low Rang	0.29		0.07	0.0000	0.490	<u> </u>	0.42
primary	Temp Mid Range	29.32		28.89	0.0000	28.900	2	0.01
Sensor Compo	temp High Rang	47.77	Condi	tion Clean	0.0000	Status pa	ISS	0.03
Sensor Compo	nent Properly Sited		Condi	tion Properly sited		Status pa	ISS	
Sensor Compo	nent Blower		Condi	tion Functioning		Status pa	ISS	
Sensor Compo	nent System Memo		Condi	tion		Status pa	ISS	

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	none	MAC426	Korey Devins	08/11/2021 Shelter Tempera		e 60
DAS 1:	DAS 2:		Mfg	Extech	Parameter Sh	elter Temperature
Abs Avg Err Abs	Max Err Abs Avg 0.76	Err Abs Max Err	Serial Number	H232734	Tfer Desc. RT	D
			Tfer ID	01227		
			Slope	1.0074	Intercept	0.21666
			Cert Date	2/18/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	26.90	26.49	0.000	25.7	С	-0.76
primary	Temp Mid Range	26.09	25.68	0.000	25.6	С	-0.1
primary	Temp Mid Range	26.50	26.09	0.000	25.7	С	-0.38
Sensor Con	nponent System Memo)	Condition		Status	pass	

Infrastructure Data For

Site ID	MAC426	Technician Korey	Devins Site Visit Date 08/11/2021
Shelter 1	Make	Shelter Model	Shelter Size
custom		N/A	1536 cuft

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	Status	pass
Sensor Component Met Tower	Condition	Good	Status	pass
Sensor Component Moisture Trap	Condition	Installed	Status	pass
Sensor Component Moisture Trap Type	Condition	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

Siting Criteria Form

Sensor Component Limited agriculture operations	Condition 10 m	Status Fail
Sensor Component City > 50,000	Condition 35 km	Status Fail
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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status pass

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem
Flow Rate	MAC426	Korey Devins	08/11/2021	Filter Depth	Tylan	4410		

The filter attachment plate is mounted too low in the enclosure resulting in the filter being exposed to wind-driven rain and in the standard geometric orientation.

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator is very knowledgeable with air quality monitoring. He is doing a very good job with site activities and filter handling.

2 Parameter: SitingCriteriaCom

Bowling Green is within 40 km of the site. The site is in a hay field which is harvested twice per year. The area to the west and south is comprised of livestock farms including cattle and poultry.

3 Parameter: ShelterCleanNotes

The shelter is well maintained, clean, neat, and well organized.

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID MAC426	Technician Korey Devins	Site Visit Date 08/1	1/2021			
Site Sponsor (agency)	NPS	USGS Map	Rhoda			
Operating Group	NPS	Map Scale				
AQS #	21-061-0501	Map Date				
Meteorological Type	Climatronics					
Air Pollutant Analyzer	Ozone, SO2, NOy, Hg, IMPROVE, PM	QAPP Latitude	37.2806			
Deposition Measurement	dry, wet, Hg	QAPP Longitude	-86.2639			
Land Use	agriculture, woodland - mixed	QAPP Elevation Meters	236			
Terrain	rolling	QAPP Declination	3			
Conforms to MLM	Marginally	QAPP Declination Date	12/27/2004			
Site Telephone	(270) 758-2136	Audit Latitude	37.131794			
Site Address 1	Alfred Cook Road	Audit Longitude	-86.142953			
Site Address 2		Audit Elevation	230			
County	Edmonson	Audit Declination	-4.0			
City, State	Smiths Grove, KY	Present				
Zip Code	42171	Fire Extinguisher 🗹	inspected March 2011			
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 M	odel N/A	Shelter Size 1536 cuft			
Shelter Clean	Notes The shelter is well maintained,	clean, neat, and well organized	1.			
Site OK	Notes					
Driving Directions From Bowling Green go east on 31W. Turn left (north) on 442 toward Pig. At the stop sign in Pig, turn right on route 259, or Brownsville Road. Continue approximately 1 mile, just past two churches (one on each side of the road). Take the 2nd left past the church on the left onto Chaumount Road. Then take the first left onto Doyle Road. Continue straight onto Alfred Cook Road. The site will be on the left approximately 0.6 miles.						

Fie	eld Sy	stems Data Fo	orm				F-0205	58-15	500-S3	-rev002
Site	e ID	MAC426	Technician	Korey Devins		Site Visit Date	08/11/2021]	
1	Are win being in	d speed and direction fluenced by obstructio	sensors sited so ons?	as to avoid		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 plu	mb?		✓	N/A				
4	Are the avoid ra	temperature shields p diated heat sources su	ointed north or Ich as buildings	positioned to , walls, etc?	✓					
5	Are tem conditio surface a standing	perature and RH sens ns? (i.e. ground below and not steeply sloped swater should be avoi	sors sited to avo y sensors should l. Ridges, hollow ded)	id unnatural be natural vs, and areas of						
6	Is the so	lar radiation sensor p	lumb?		✓	N/A				
7	Is it site	d to avoid shading, or	any artificial o	r reflected light?		N/A				
8	Is the ra	in gauge plumb?			✓	N/A				
9	Is it site towers, o	d to avoid sheltering e etc?	ffects from buil	dings, trees,	✓	N/A				
10	Is the su facing n	rface wetness sensor s orth?	sited with the g	rid surface	✓	N/A				
11	Is it inc	lined approximately 3	0 degrees?			N/A				

Field Systems Data Form

F-02058-1500-S4-rev002

Site	e ID	MAC426	Technician	Korey Devins		Site Visit Date 08/11/2021
 Do all the meterological sensors appear to be intact, in good condition, and well maintained? Are all the meteorological sensors operational online, and reporting data? Are the shields for the temperature and RH sensors clean? 						2 meter Temperature only 2 meter Temperature only
4	4 Are the aspirated motors working?				✓	
5	Is the sol scratches	ar radiation sensor's	lens clean and f	free of		N/A
6	Is the su	rface wetness sensor g	rid clean and u	indamaged?	✓	N/A
7	Are the s condition	ensor signal and powers	er cables intact 1?	, in good		
8	Are the s from the	sensor signal and pow elements and well ma	er cable connec hintained?	ctions protected		
Field Systems Data Form						F-02058-1500-S5-rev002
-------------------------	--	---	------------------------	--------------------	-------------	--
Sit	e ID	MAC426	Technician	Korey Devins		Site Visit Date 08/11/2021
	<u>Siting C</u>	riteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipr</u>	oment sited in accordance with 40 CFR 58, Appendix E
1	Do the s unrestri	ample inlets have at le acted airflow?	east a 270 degre	e arc of	✓	
2	Are the	sample inlets 3 - 15 me	eters above the	ground?	✓	
3	Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees?					
	<u>Pollutar</u>	nt analyzers and depos	ition equipmen	t operations and	mai	<u>aintenance</u>
1	Do the a conditio	nalyzers and equipme n and well maintained	ent appear to be ?	e in good	✓	
2	Are the reportin	analyzers and monitor ng data?	rs operational, (on-line, and	✓	
3	Describe	e ozone sample tube.				1/4 teflon by 10 meters
4	Describe	e dry dep sample tube.				3/8 teflon by 12 meters
5	Are in-li indicate	ine filters used in the o location)	ozone sample lir	ne? (if yes	✓	At inlet only
6	Are sam obstruct	ple lines clean, free of tions?	kinks, moistur	e, and	✓	
7	Is the ze	ero air supply desiccan	t unsaturated?		✓	
8	Are the	re moisture traps in th	e sample lines?		✓]
9	Is there clean?	a rotometer in the dry	v deposition filte	er line, and is it	✓	Clean and dry

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-S6-rev00				
Site	e ID	MAC426	Technician	Korey Devins		Site Visit Date	08/11/2021		
	DAS, se	ensor translators, and	<u>peripheral equi</u>	pment operation	<u>15 ai</u>	nd maintenance			
1	Do the well ma	DAS instruments appe intained?	ear to be in good	l condition and					
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?			e weather and	✓				
5	Are the	signal leads connected	l to the correct	DAS channel?	✓				
6	Are the ground	DAS, sensor translato ed?	ors, and shelter	properly	✓				
7	Does th	e instrument shelter h	ave a stable pov	ver source?	✓				
8	Is the ir	nstrument shelter temp	perature contro	lled?					
9	Is the m	net tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	ample tower stable and	d grounded?						
11	Tower	comments?							

Fie	ld Sy	stems Data	Fo	rm					F-02	058-1	500- S7-rev 002
Site]	ID	MAC426		Tec	hnician	Korey Devi	ns	Site Visit Date	08/11/2021		
Do	Documentation										
Do	oes the s	ite have the require	ed in	<u>strun</u>	ent and	equipment	<u>t manuals?</u>				
Wind Wind Temp Relat Solar Surfa Wind Temp Hum Solar Tippi Ozon Filter	l speed : l directi perature ive hun radiati ce wetn l sensor perature idity sen radiati ing bucl e analy: pack fl	sensor on sensor e sensor hidity sensor on sensor ess sensor translator e translator on translator on translator set rain gauge zer low controller AFC power supply	Yes V V V V V V V V V V V V V			A	Data logge Data logge Strip chart Computer Modem Printer Zero air pu Filter flow Surge prot UPS Lightning Shelter hea Shelter air	er er t recorder ump pump sector protection device ater conditioner	Yes ✓ □ □ □ □ □ □ □ □ □ □ □ □ □		N/A □ ✓ ✓ ✓ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
<u>[</u>	Does the	site have the requi	ired a	and m	ost rece	<u>nt QC docı</u>	iments and	<u>report forms?</u>			
Static SSRF Site C HASI Field Calib Ozon	on Log Dps Mar P Ops M oration 1 e z/s/p (nual anual Reports Control Charts	Pres	sent	DataVie	ew2			Currer	ıt	
Preve	entive n	aintenance schedu	le								
1	1 Is the station log properly completed during every site visit? ✓ DataView										
2	Are the current	Site Status Report ?	Form	ns bei	ing comp	leted and					
3	Are the sample	chain-of-custody for the second se	orms m lat	prop)?	erly used	l to docum	ent 🗹				
4	Are ozo current	ne z/s/p control cha ?	arts p	orope	rly comp	leted and	□ C	ontrol charts not ι	used		
Provi natur	ide any ·al or m	additional explana an-made, that may	tion (/ affe	(photo ct the	ograph o monitor	r sketch if ing param	necessary) eters:	regarding condi	tions listed a	bove, or	any other features,

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ID	MAC426	Technician	Korey Devins		Site Visit Date 08/11/2021				
Site ope	ration procedures								
Has the course?	site operator attended If yes, when and who	l a formal CAS instructed?	TNET training	✓	Receives training every 6 months during calibration visits				
Has the training	backup operator atte course? If yes, when	nded a formal (and who instru	CASTNET cted?	✓	Receives training every 6 months during calibration visits				
Is the site schedule	e visited regularly on ?	the required T ı	iesday	✓					
Are the s flollowed	standard CASTNET o I by the site operator?	perational proc	cedures being	✓					
Is the site the requi	e operator(s) knowled ired site activities? (in	geable of, and a cluding docum	able to perform entation)	✓					
	ID Site ope Has the course? Has the training Is the sit schedule Are the s flollowed Is the sit the requi	ID MAC426 <u>Site operation procedures</u> Has the site operator attended course? If yes, when and who Has the backup operator attended training course? If yes, when Is the site visited regularly on schedule? Are the standard CASTNET of followed by the site operator? Is the site operator(s) knowled the required site activities? (in	ID MAC426 Technician Site operation procedures Has the site operator attended a formal CAS course? If yes, when and who instructed? Has the backup operator attended a formal C training course? If yes, when and who instructed? Has the backup operator attended a formal C training course? If yes, when and who instru Is the site visited regularly on the required Tu schedule? Are the standard CASTNET operational proof followed by the site operator? Is the site operator(s) knowledgeable of, and a the required site activities? (including documents)	IDMAC426TechnicianKorey DevinsSite operation proceduresHas the site operator attended a formal CASTNET training course? If yes, when and who instructed?Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed?Is the backup operator attended a formal CASTNET training course? If yes, when and who instructed?Is the site visited regularly on the required Tuesday schedule?Are the standard CASTNET operational procedures being flollowed by the site operator?Is the site operator(s) knowledgeable of, and able to perform the required site activities? (including documentation)	ID MAC426 Technician Korey Devins Site operation procedures Has the site operator attended a formal CASTNET training Image: Course? If yes, when and who instructed? Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Image: Course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday schedule? Image: Cast operator? Are the standard CASTNET operational procedures being flollowed by the site operator? Image: Cast operator? 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	\checkmark	Semiannually	
Visual Inspections	\checkmark	Weekly	\checkmark
Translator Zero/Span Tests (climatronics)		N/A	\checkmark
Manual Rain Gauge Test	\checkmark	Monthly	\checkmark
Confirm Reasonableness of Current Values	\checkmark	Weekly	\checkmark
Test Surface Wetness Response	\checkmark	N/A	\checkmark

Frequency

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

QC	Check	Performed
----	-------	-----------

Multi-point Calibrations Automatic Zero/Span Tests Manual Zero/Span Tests **Automatic Precision Level Tests** Manual Precision Level Test **Analyzer Diagnostics Tests In-line Filter Replacement (at inlet) In-line Filter Replacement (at analyze** Sample Line Check for Dirt/Water Zero Air Desiccant Check

Semiannually	
Daily	
Monthly	
Daily	
N/A	
Alarm values only	
Monthly	
N/A	
Weekly	
Weekly	

- 1 Do multi-point calibration gases go through the complete sample train including all filters?
- 2 Do automatic and manual z/s/p gasses go through the complete sample train including all filters?
- Are the automatic and manual z/s/p checks monitored and 3 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:

Compliant

Field Systems Data Form F-02058-1500-S9-rev002 MAC426 Technician Korey Devins Site Visit Date 08/11/2021 Site ID Site operation procedures Is the filter pack being changed every Tuesday as scheduled? Filter changed various times Are the Site Status Report Forms being completed and filed correctly? No longer required Are data downloads and backups being performed as scheduled? ✓ SSRF, logbook Are general observations being made and recorded? How? ✓ Are site supplies on-hand and replenished in a timely

SSRF

Clean gloves on and off

 \checkmark

✓

Г

1

2

3

4

5

6

7

8

fashion?

fashion?

and shipping? How?

Are sample flow rates recorded? How?

Are samples sent to the lab on a regular schedule in a timely 🗹

Are filters protected from contamination during handling

9 Are the site conditions reported regu operations manager or staff?	larly to the field	
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 to 3 weeks	
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:

The site operator is very knowledgeable with air quality monitoring. He is doing a very good job with site activities and filter handling.

Field Systems Data Form

MAC426

F-02058-1500-S10-rev002

Site ID

Tech

Technician Korey Devins

Site Visit Date 08/11/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Hewlett Packard	6560 b	5CB1520H70	none
DAS	Environmental Sys Corp	8832	unknown4	none
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18B	07000012920	none
Flow Rate	Tylan	FC280	AW02213005	none
Infrastructure	Infrastructure	none	none	none
Met tower	Climatronics	illegible	illegible	none
MFC power supply	Tylan	RO-32	illegible	03677
Ozone	ThermoElectron Inc	49i A3NAA	1030745085	none
Ozone Standard	ThermoElectron Inc	49i A1NAA	1015543061	none
Sample Tower	Aluma Tower	В	none	none
Shelter Temperature	ARS	none	none	60
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	RM Young	41342	15104	none
Zero air pump	Teledyne	701H	394	none

Site Inventory by Site Visit

Site V	'isit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number				
CDZI	'DZ171-Korey Devins-08/12/2021									
1	8/12/2021	Computer	Dell	07063	Inspiron 15	HX4MC12				
2	8/12/2021	DAS	Campbell	000355	CR3000	2133				
3	8/12/2021	Elevation	Elevation	None	1	None				
4	8/12/2021	Filter pack flow pump	Thomas	06020	107CAB18D	060400022646				
5	8/12/2021	Flow Rate	Арех	000604	AXMC105LPMDPCV	unknown				
6	8/12/2021	Infrastructure	Infrastructure	none	none	none				
7	8/12/2021	Modem	Digi	07118	LR54	Illegible				
8	8/12/2021	Ozone	ThermoElectron Inc	000727	49i A1NAA	1105347320				
9	8/12/2021	Ozone Standard	ThermoElectron Inc	000220	49i A3NAA	0622717868				
10	8/12/2021	Sample Tower	Aluma Tower	000125	В	none				
11	8/12/2021	Shelter Temperature	Campbell	none	107-L	none				
12	8/12/2021	Siting Criteria	Siting Criteria	None	1	None				
13	8/12/2021	Temperature	RM Young	06403	41342VC	14036				
14	8/12/2021	Zero air pump	Werther International	06879	C 70/4	000814275				

DAS Data Form

DAS Time Max Error: 0

Mfg	Serial Nu	mber Site	T	Technician	Site Visit Date	Parameter	Use Desc.
Campbell	2133	CDZ	171	Korey Devins	08/12/2021	DAS	Primary
Das Date:	8 /12/2021	Audit Date	8 /12/2021	Mfg	Fluke	Parameter	DAS
Das Time: Das Day:	14:06:30 224	Audit Time Audit Day	14:06:30 224	Serial Number	95740135	Tfer Desc.	DVM
Low Channel:		High Channel	:	Tfer ID	01311		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0001	0.0001	0.0001	0.0001	Cert Date	2/11/202	CorrCoff	1.00000
				Mfg	Datel	Parameter	DAS
				Serial Number	15510194	Tfer Desc.	Source generator (D
				Tfer ID	01320		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/13/201	2 CorrCoff	1.00000
Channel	Input D	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
7	0.0000	0.0000	0.0000) V	V	0.0000	
7	0.1000	0.0999	0.0999) V	V	0.0000	
7	0.3000	0.2997	0.2998	S V	V	0.0001	
7	0.5000	0.4996	0.4995	5 V	V	-0.0001	
7	0.7000	0.6994	0.6994	V	V	0.0000	
7	0.9000	0.8994	0.8993	S V	V	-0.0001	
7	1.0000	0.9992	0.9991	V	V	-0.0001	

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit D	ate Param	eter	Owner ID
Apex	unknown		CDZ171	Ko	rey Devins	08/12/2021	Flow R	ate	000604
					Mfg	BIOS	P	arameter Flov	v Rate
					Serial Number	131818	Tfer Desc. BIOS 220-H		
					Tfer ID	01417			
					Slope	0.	99756 Inte	ercept	-0.00058
					Cert Date	2/10	0/2021 Cor	rCoff	0.99993
DAS 1:		DAS 2:			Cal Factor Z	ero	0.00)3	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	: % Dif	Cal Factor F	ull Scale	0.97	71	
2.38%	2.60%				Rotometer R	eading:	ading: 1.5		
Desc.	Test type Input l/m Input Corr Mfc		MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	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	-0.01	l/m	l/m	
primary	test pt 1	1.537	1.540	1.55	0.000	1.50	l/m	l/m	-2.60%
primary	test pt 2	1.537	1.540	1.55	0.000	1.51	l/m	l/m	-1.95%
primary	test pt 3	1.544	1.550	1.55	0.000	1.51	l/m	l/m	-2.58%
Sensor Comp	onent Leak Tes	t		Conditio	on	Status pass			
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Status	pass	
Sensor Comp	onent Filter Pos	ition		Conditio	n Good		Status	pass	
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	Clean and dry		Status	pass	
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	resent	Status	pass	
Sensor Component Filter Distance			Conditio	ndition 2.5 cm			pass		
Sensor Component Filter Depth			Conditio	n 3.5 cm		Status		pass	
Sensor Comp	onent Filter Azir	muth		Conditio	n 90 deg		Status	pass	
Sensor Comp	onent System M	lemo		Conditio	ondition			pass	

Ozone Data Form

Mfg		Serial Numbe	er Tag Site		Tec	hnician	Site Visit Date	Parameter	Owner ID	
ThermoElec	tron Inc	1105347320	CDZ171		Ko	rey Devins	08/12/2021	Ozone	000727	
Slope: 0.99944 Slope: 0.00000 Intercept -0.15444 Intercept 0.00000 CorrCoff: 0.999999 CorrCoff: 0.00000		0.00000 0.00000 0.00000	Mfg Serial Number Tfer ID		ThermoElectron 1180030022 01114	Inc Paramete	er ozone c. Ozone primary stan			
DAS 1:		D	AS 2:			Slope	1.0003	0 Intercept	0.30550	
A Avg % D	oiff: A I	Max % Dif A	Avg %Diff A	Max % E	Dif	a se	4/00/000			
0.0	0%	0.0%				Cert Date	1/20/202	CorrCoff	1.00000	
UseDescri	intion	ConcGroup	Tfer Raw	Tfer (Corr	Site	Site Unit	RelPerDif	AbsDif	
primar	ry	1	0.36	0.0	5	0.22	ppb		0.17	
prima	ry	2	15.25	14.8	36	14.53	ppb		-0.33	
prima	ry	3	35.44	34.9	94	34.48	ppb	-1.33		
prima	ry	4	68.76	68.0)9	67.94	ppb	-0.22		
primai	ry	5	111.73	110.	83	110.70	ppb	-0.12		
Sensor C	ompon	ent Audit Press	ure	Co	onditio	n 746.2 mmHg		Status pass		
Sensor C	ompon	ent 26.6 degree	unobstructed ru	le Co	onditio	n True		Status pass		
Sensor C	ompon	ent Tree dewlin	e >10m or below	inlet Co	onditio	n True		Status pass		
Sensor C	ompon	ent ADT <100 v	ehicles further th	nan 20 Co	onditio	n True		Status pass		
Sensor C	ompon	ent ADT >100 v	ehicles further th	nan 50 Co	onditio	n True		Status pass		
Sensor C	ompon	e <mark>nt</mark> Sample Tra	in	Co	onditio	n Good		Status pass		
Sensor C	ompon	ent Inlet Filter C	Condition	Co	Condition Clean			Status pass		
Sensor C	ompon	ent Offset		Co	Condition -0.1			Status pass		
Sensor C	ompon	ent Span		Co	onditio	n 1.019		Status pass		
Sensor C	ompon	ent Zero Voltag	e	Co	onditio	n N/A		Status pass		
Sensor C	ompon	ent Fullscale Vo	oltage	Co	onditio	n N/A		Status pass		
Sensor C	ompon	ent Cell A Freq.		Co	onditio	n 90.7 kHz		Status pass		
Sensor C	ompon	ent Cell A Noise	9	Co	onditio	n 0.7 ppb		Status pass		
Sensor C	ompon	ent Cell A Flow		Co	onditio	n 0.78 lpm		Status pass		
Sensor C	ompon	ent Cell A Press	sure	Co	onditio	n 703.4 mmHg		Status pass		
Sensor C	ompon	ent Cell A Tmp.		Co	onditio	on 36.7 C		Status pass		
Sensor C	ompon	ent Cell B Freq.		Co	onditio	on 94.3 mmHg		Status pass		
Sensor C	ompon	ent Cell B Noise	•	Co	onditio	on 0.6 ppb		Status pass		
Sensor C	ompon	ent Cell B Flow		Co	onditio	on 0.86 lpm		Status pass		
Sensor C	ompon	ent Cell B Press	sure	Co	onditio	n 704.0 mmHg		Status pass		
Sensor C	ompon	ent System Me	no	Co	onditio	n		Status pass		

Temperature Data Form

Mfg	Serial Number	Tag Site	Т	echni	ician	Site V	isit Date	Param	eter	Owner ID	
RM Young	14036	CDZ171	ł	Korey	Devins	08/12	/2021	Temper	ature	06403	
				Mf	g	Extech	1	Pa	rameter Te	emperature	
				Ser	ial Number	H2327	34	Tf	er Desc. R	٢D	
				Tfe	er ID	01227					
DAS 1:	DAS 1: DAS 2:				ре	1.00743 Interc		rcept 0.21666			
Abs Avg Err Abs Max Err Abs Avg Err Abs Ma			Max Err	x Err Cert Date			2/18/202	1 Cor	rCoff	1.00000	
0.34	4 0.58										
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	OutputSig	gnalEng	OSE Unit	Difference	
primary	Temp Low Range	0.29	0.07		0.000		0.2	2	С	0.1	
primary	Temp Mid Range	25.41	25.01		0.000		24.	7	С	-0.35	
primary	Temp High Range	45.48	44.93		0.000		44.	4	С	-0.58	
Sensor Con	nponent Shield		Condi	tion N	loderately clea	an		Status	pass		
Sensor Component Blower				Condition N/A				Status	us pass		
Sensor Component Properly Sited				Condition Properly sited				Status	Is pass		
Sensor Con	nponent System Memo)	Condi	Condition				Status	us pass		

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	CDZ171	Korey Devins	08/12/2021	Shelter Temperatu	ire none
DAS 1:	DAS 2:		Mfg	Extech	Parameter S	Shelter Temperature
Abs Avg ErrAbs Max ErrAbs Avg ErrAbs Max Err0.390.90		Serial Number	H232734	Tfer Desc.	RTD	
			Tfer ID	01227		
			Slope	1.0074	3 Intercept	0.21666
			Cert Date	2/18/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference	
primary	Temp Mid Range	31.01	30.57	0.000	30.3	С	-0.28	
primary	Temp Mid Range	30.67	30.23	0.000	30.2	С	0	
primary	Temp Mid Range	26.55	26.14	0.000	27.0	С	0.9	
Sensor Component System Memo Condition Status pass								

Infrastructure Data For

Site ID	CDZ171	Technician Korey D	evins Site Visit Date 08/12/2021
Shelter	Make	Shelter Model	Shelter Size
Ekto		8810	640 cuft

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	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	Fair	Status	pass
Sensor Component Shelter Roof	Condition	Good	Status	pass
Sensor Component Shelter Floor	Condition	Good	Status	pass
Sensor Component Shelter walls	Condition	Fair	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

Siting Criteria Form

Sensor Component Limited agriculture operations	Condition 15 m	Status Fail
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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status pass

Field Systems Comments

1 Parameter: SitingCriteriaCom

The site is in a corn field with limited agricultural operations within 15 meters.

2 Parameter: ShelterCleanNotes

The shelter floor has been repaired.

3 Parameter: MetSensorComme

The temperature sensor has been installed in a naturally aspirated shield on the north side of the sample tower.

Field Systems Data Form

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Site ID CDZ171	Technician Korey Devins	Site Visit Date 08/12	2/2021					
		USCS Man	Cadiz					
Site Sponsor (agency)	EPA							
Operating Group	private, TVA	Map Scale						
AQS #	21-221-9991	Map Date						
Meteorological Type	R.M. Young							
Air Pollutant Analyzer	Ozone, SO2, NOy, PM2.5, IMPROVE	QAPP Latitude	36.7841					
Deposition Measurement	dry	QAPP Longitude	-87.8500					
Land Use	agriculture, woodland - mixed	QAPP Elevation Meters	189					
Terrain	gently rolling	QAPP Declination	-2.01					
Conforms to MLM	Yes	QAPP Declination Date	2/23/2006					
Site Telephone	(270) 522-9373	Audit Latitude	36.784053					
Site Address 1	4560 Old Dover Road	Audit Longitude	-87.85015					
Site Address 2	ite Address 2 route 1175		190					
County	Trigg	Audit Declination	-2.7					
City, State	Cadiz, KY	Present						
Zip Code	42211	Fire Extinguisher 🔽	New in 2015					
Time Zone	Central	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 Mo	odel 8810	Shelter Size 640 cuft					
Shelter Clean	Notes The shelter floor has been repared	aired.						
Site OK	Notes							
Driving Directions From route 68 in Cadiz turn south on 1175 and continue approximately 4.7 miles. The site will be visible in the field on the right. Turn onto the gravel road just past the site operator's house at 4560 Old Dover Road, which is on the left.								

Fi	eld Sy	stems Data Fo	orm				F-0205	8-15	00-S3-1	ev002
Site	e ID	CDZ171	Technician	Korey Devins		Site Visit Date	08/12/2021			
1	Are win being in	d speed and direction fluenced by obstructio	sensors sited so	as to avoid	>	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)				tower effects? e tower or on a neter of the	V					
3	Are the	tower and sensors plu	mb?		✓	N/A				
4	Are the avoid ra	temperature shields p Idiated heat sources su	ointed north or Ich as buildings	positioned to , walls, etc?						
5	Are tem conditio surface standing	perature and RH sens ns? (i.e. ground below and not steeply sloped g water should be avoi	sors sited to avo y sensors should l. Ridges, hollow ded)	id unnatural be natural vs, and areas of						
6	Is the so	lar radiation sensor p	lumb?		✓	N/A				
7	Is it site	d to avoid shading, or	any artificial o	r reflected light?		N/A				
8	Is the ra	in gauge plumb?			✓	N/A				
9	Is it site towers,	d to avoid sheltering e etc?	ffects from buil	dings, trees,	✓	N/A				
10	Is the su facing n	urface wetness sensor s orth?	sited with the gr	id surface	✓	N/A				
11	Is it inc	lined approximately 3	0 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 has been installed in a naturally aspirated shield on the north side of the sample tower.

Field Systems Data Form

F-02058-1500-S4-rev002

Site	e ID	CDZ171	Technician	Korey Devins		Site Visit Date 08/12/2021	
1	 Do all the meterological sensors appear to be intact, in good condition, and well maintained? Are all the meteorological sensors operational online, and 					Temperature only Temperature only	
3	reporting data?Are the shields for the temperature and RH sensors clean?						
4	Are the aspirated motors working?					N/A	
5	Is the sol scratches	ar radiation sensor's	lens clean and f	free of	✓	N/A	
6	Is the su	rface wetness sensor g	rid clean and u	indamaged?		N/A	
7	Are the s condition	ensor signal and pow 1, and well maintained	er cables intact l?	, in good			
8	Are the s from the	ensor signal and pow elements and well ma	er cable connec intained?	ctions protected			

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-	55-rev002
Sit	e ID	CDZ171	Technician	Korey Devins		Site Visit Date 08/12/2021	
	Siting (Criteria: Are the pollut	ant analyzers ai	nd deposition eq	uipn	nent sited in accordance with 40 CFR 58, App	endix E
1	Do the sunrestr	sample inlets have at le icted airflow?	east a 270 degree	e arc of			
2	Are the	sample inlets 3 - 15 mo	eters above the	ground?	✓		
3	Are the sample inlets > 1 meter from any major obstruction and 20 meters from trees?						
	Polluta	nt analyzers and depos	ition equipment	t operations and	mai	ntenance	
1	Do the a condition	analyzers and equipme on and well maintained	ent appear to be ?	in good	✓		
2	Are the reportion	analyzers and moniton ng data?	rs operational, o	on-line, and	✓		
3	Describ	e ozone sample tube.				1/4 teflon by 18 meters	
4	Describ	e dry dep sample tube.				3/8 teflon by 15 meters	
5	Are in-l indicate	line filters used in the o e location)	ozone sample lin	e? (if yes		At inlet only	
6	Are san obstruc	nple lines clean, free of tions?	kinks, moisture	e, and	✓		
7	Is the zo	ero air supply desiccan	t unsaturated?		✓		
8	Are the	re moisture traps in th	e sample lines?		✓		
9	Is there clean?	a rotometer in the dry	deposition filte	er line, and is it		Clean and dry	

Fi	eld Sy	stems Data Fo	orm	F-02058-1500-S6-rev002					
Site	e ID	CDZ171	Technician	Korey Devins		Site Visit Date	08/12/2021		
	DAS, se	nsor translators, and p	eripheral equi	pment operation	ns ar	<u>ıd maintenance</u>			
1	Do the l well ma	DAS instruments appearintained?	ar to be in good	l condition and					
2	Are all t modem,	the components of the backup, etc)	DAS operation	al? (printers,	✓				
3	Do the a lightnin	nalyzer and sensor sig g protection circuitry?	nal leads pass	through		Temperature only			
4	Are the well ma	signal connections pro intained?	tected from the	e weather and	✓				
5	Are the	signal leads connected	to the correct	DAS channel?	✓				
6	Are the grounde	DAS, sensor translator ed?	rs, and shelter	properly	✓				
7	Does the	e instrument shelter ha	ive a stable pov	ver source?	✓				
8	Is the in	strument shelter temp	erature control	lled?	✓				
9	Is the m	et tower stable and gro	ounded?			Stable	G	rounded	
10	Is the sa	mple tower stable and	grounded?						
11	Tower o	comments?				Met tower removed	1		

Field Systems Data	F-02058-1500-S7-rev002						
Site ID CDZ171		Techni	cian K	orey Devins Site Visit Date)8/12/202	1	
Documentation							
Does the site have the requir	ed in	strumen	t and eq	uipment manuals?			
Wind speed sensor Wind direction sensor	Yes	No	N/A ✓	Data logger Data logger	Yes ✓	No	N/A □ ☑
Temperature sensor Relative humidity sensor				Strip chart recorder Computer			
Solar radiation sensor Surface wetness sensor				Modem Printer			
Wind sensor translator Temperature translator				Zero air pump Filter flow pump			
Humidity sensor translator Solar radiation translator				Surge protector UPS			
Tipping bucket rain gauge Ozone analyzer				Lightning protection device Shelter heater			
Filter pack flow controller Filter pack MFC power supply				Shelter air conditioner			
Does the site have the requ	ired a	und most	recent	OC documents and report forms?			
	Pres	sent			Curr	ent	
Station Log		✓				1	

Station Log	\checkmark		\checkmark
SSRF	\checkmark		\checkmark
Site Ops Manual		May 2019	\checkmark
HASP	✓	May 2019	\checkmark
Field Ops Manual	✓	May 2019	\checkmark
Calibration Reports			
Ozone z/s/p Control Charts			
Preventive maintenance schedule			

1	Is the station log properly completed during every site visit?	Minimal information
-	is the station log property completed during every site visit.	

- 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

Field Systems Data Form

CDZ171 Technician Korey Devins Site Visit Date 08/12/2021 Site ID Site operation procedures Trained by previous opertor Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET no backup operator training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

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

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	\checkmark	Semiannually	
Automatic Zero/Span Tests	\checkmark	Daily	\checkmark
Manual Zero/Span Tests			
Automatic Precision Level Tests	\checkmark	Daily	\checkmark
Manual Precision Level Test			
Analyzer Diagnostics Tests	\checkmark	Weekly	\checkmark
In-line Filter Replacement (at inlet)	\checkmark	Every 2 weeks	\checkmark
In-line Filter Replacement (at analyze		N/A	\checkmark
Sample Line Check for Dirt/Water			
Zero Air Desiccant Check	\checkmark	Weekly	\checkmark
1 Do multi-point calibration gases go thro	ugh the	complete	

- sample train including all filters?
- Do automatic and manual z/s/p gasses go through the 2 complete sample train including all filters?
- Are the automatic and manual z/s/p checks monitored and 3 reported? If yes, how?

\checkmark	
✓	
✓	Call-in only

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:

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Site ID CDZ171 Technician Korey Devins Site Visit Date 08/12/2021			
Site operation procedures			
1 Is the filter pack being changed every Tuesday as scheduled? ✓ Filter changed afternoons (90% 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? ✓ SSRF	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			
Flow System Leak Checks			
Filter Pack Inspection			
Flow Rate Setting Checks			
Visual Check of Flow Rate Rotometer 🗹 Weekly			
In-line Filter Inspection/Replacement Semiannually			
Sample Line Check for Dirt/Water			

Field Systems Data Form

CDZ171

F-02058-1500-S10-rev002

Techni

Technician Korey Devins

Site Visit Date 08/12/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	HX4MC12	07063
DAS	Campbell	CR3000	2133	000355
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18D	060400022646	06020
Flow Rate	Apex	AXMC105LPMDPC	unknown	000604
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07118
Ozone	ThermoElectron Inc	49i A1NAA	1105347320	000727
Ozone Standard	ThermoElectron Inc	49i A3NAA	0622717868	000220
Sample Tower	Aluma Tower	В	none	000125
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VC	14036	06403
Zero air pump	Werther International	C 70/4	000814275	06879

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number				
CKT	CKT136-Korey Devins-08/13/2021									
1	8/13/2021	Computer	Dell	07050	Inspiron 15	Unknown				
2	8/13/2021	DAS	Campbell	000336	CR3000	2115				
3	8/13/2021	Elevation	Elevation	None	1	None				
4	8/13/2021	Filter pack flow pump	Thomas	03635	107CA18	049400004430				
5	8/13/2021	Flow Rate	Арех	000873	AXMC105LPMDPCV	illegible				
6	8/13/2021	Infrastructure	Infrastructure	none	none	none				
7	8/13/2021	Modem	Digi	07190	LR54	unknown				
8	8/13/2021	Ozone	ThermoElectron Inc	000744	49i A1NAA	1105347324				
9	8/13/2021	Ozone Standard	ThermoElectron Inc	000200	49i A3NAA	0607315738				
10	8/13/2021	Sample Tower	Aluma Tower	000822	В	none				
11	8/13/2021	Shelter Temperature	Campbell	none	107-L	none				
12	8/13/2021	Siting Criteria	Siting Criteria	None	1	None				
13	8/13/2021	Temperature	RM Young	04689	41342VO	6703				
14	8/13/2021	Zero air pump	Werther International	06878	C 70/4	000815254				

DAS Data Form

7

1.0000

0.9992

DAS Time Max Error:

0

-0.0001

V

Mfg	Serial Nur	nber Site	1	Fechnician	Site Visit Date	Parameter	Use Desc.
Campbell	2115	CKT	136	Korey Devins	08/13/2021	DAS	Primary
Das Date:	8 /13/2021 16:48:35	Audit Date	8 /13/2021 16:48:35	Mfg Serial Number	Fluke 95740135	Parameter Tfer Desc.	DAS DVM
Low Channel:	220	Audit Day	225	Tfer ID	01311]	·
Avg Diff:	Max Diff: 0 0001	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0000	0.0001	0.0000	0.0001	Cert Date	2/11/202	CorrCoff	1.00000
				Mfg	Datel	Parameter	DAS
				Serial Number	15510194	Tfer Desc.	Source generator (D
				Tfer ID	01320		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/13/201	2 CorrCoff	1.00000
Channel	Input D'	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
7	0.0000	0.0000	0.0000) V	V	0.0000	
7	0.1000	0.0999	0.0999	9 V	V	0.0000	
7	0.3000	0.2997	0.2997	7 V	V	0.0000	
7	0.5000	0.4996	0.4995			-0.0001	
7	0.7000	0.8995	0.6994	+ V 3 V	V	-0.0001 0.0000	

0.9991

V

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Те	chnician	Site Visit Date Parame		eter	Owner ID		
Apex	illegible		CKT136	Kc	orey Devins	08/13/2021	Flow R	ate	000873		
					Mfg	BIOS	P	arameter Flov	v Rate		
					Serial Number	131818	Т	fer Desc. BIO	S 220-H		
					Tfer ID	01417					
				Slope 0.997				ercept	-0.00058		
					Cert Date	2/10)/2021 Cor	rCoff	0.99993		
DAS 1:		DAS 2:			Cal Factor Z	ero		0			
A Avg % Diff: A Max % Dif A Avg % Diff A Max %				x % Dif	Cal Factor F	ull Scale		0			
0.88%	1.32%				Rotometer R	eading:	1	.5			
Desc.	Test type	Input l/n	n Input Corr_	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference		
primary	pump off	0.000	0.000	0.00	0.000	-0.01	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	1.507	1.510	1.53	0.000	1.50	l/m	l/m	-0.66%		
primary	test pt 2	1.510	1.510	1.53	0.000	1.50	l/m	l/m	-0.66%		
primary	test pt 3	1.511	1.520	1.53	0.000	1.50	l/m	l/m	-1.32%		
Sensor Comp	onent Leak Tes	t		Conditio	Condition			pass			
Sensor Comp	onent Tubing C	ondition		Conditio	on Good		Status	pass			
Sensor Comp	onent Filter Pos	sition		Conditio	Good		Status	pass			
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	Clean and dry		Status	pass			
Sensor Comp	onent Moisture	Present		Conditio	n See comments	3	Status	t <mark>us</mark> pass			
Sensor Comp	onent Filter Dis	tance		Conditio	9n 4.0 cm		Status	Status pass			
Sensor Comp	onent Filter Dep	oth		Conditio)n 1.5 cm		Status pass				
Sensor Comp	onent Filter Azi	muth		Conditio	on 260 deg		Status	Status pass			
Sensor Comp	onent System N	/lemo		Conditio	Condition			Status pass			

Ozone Data Form

Mfg		Serial Numb	er Tag Site		Tecl	hnician	Site Visit Date	Parameter	Owner ID	
ThermoElec	tron Inc	1105347324	CKT13	6	Kor	ey Devins	08/13/2021	Ozone	000744	
Slope: Intercept CorrCoff:	1.00365 Slope: 0.00000 ept -0.76982 Intercept 0.00000 off: 1.00000 CorrCoff: 0.00000			0.00000 0.00000 0.00000	ת 1	Mfg Serial Number Гfer ID	ThermoElectron 1180030022 01114	Inc Paramete	er ozone c. Ozone primary stan	
DAS 1:		D	AS 2:		5	Slope	1.0003	0 Intercept	0.30550	
A Avg % Diff: A Max % Dif A Avg %Diff A Max % 0.0% 0.0%		. Max % Di		Cert Date	1/20/202	CorrCoff	1.00000			
UseDescri	ption	ConcGroup	Tfer Raw	Tfer Co	orr	Site	Site Unit	RelPerDif	AbsDif	
primar	v	1	0.46	0.15	011	-0.62	ppb		-0.77	
prima	ry	2	15.06	14.67	7	13.97	ppb		-0.7	
primai	ry	3	35.79	35.29)	34.59	ppb	-2		
prima	ry	4	67.56	66.89)	66.43	ppb	-0.69		
primai	y	5	114.09	113.1	8	112.80	ppb	-0.34		
Sensor C	ompon	ent Audit Press	sure	Сог	nditio	n 730.5 mmHg		Status pass		
Sensor C	ompon	ent 26.6 degree	e unobstructed ru	ule Cor	nditio	n True		Status pass		
Sensor C	ompon	ent Tree dewlin	ne >10m or belov	v inlet Cor	nditio	n True		Status pass		
Sensor C	ompon	ent ADT <100 v	vehicles further t	han 20 Cor	ndition	n True		Status pass		
Sensor Co	ompon	ent ADT >100 v	vehicles further t	han 50 Cor	nditio	n 440 m		Status Fail		
Sensor Co	ompon	ent Sample Tra	ain	Сог	nditio	n Good		Status pass		
Sensor Co	ompon	ent Inlet Filter (Condition	Сог	Condition Clean			Status pass		
Sensor Co	ompon	ent Offset		Сог	Condition -0.1			Status pass		
Sensor Co	ompon	ent Span		Сог	nditio	n 1.008		Status pass		
Sensor Co	ompon	ent Zero Voltag	je	Сог	nditio	n N/A		Status pass		
Sensor Co	ompon	ent Fullscale Vo	oltage	Сог	nditio	n N/A		Status pass		
Sensor Co	ompon	ent Cell A Freq	•	Сог	ndition	n 90.9 kHz		Status pass		
Sensor Co	ompon	ent Cell A Nois	e	Сог	ndition	n 0.8 ppb		Status pass		
Sensor Co	ompon	ent Cell A Flow	,	Cor	ndition	n 0.73 lpm		Status pass		
Sensor C	ompon	ent Cell A Pres	sure	Сог	ndition	n 700.5 mmHg		Status pass		
Sensor Co	ompon	ent Cell A Tmp		Сог	nditio	n 38.7 C		Status pass		
Sensor Co	ompon	ent Cell B Freq		Сог	ndition	n 94.0 kHz		Status pass		
Sensor C	ompon	ent Cell B Nois	e	Cor	ndition	n 0.6 ppb		Status pass		
Sensor C	ompon	ent Cell B Flow	,	Cor	Condition 0.69 lpm			Status pass		
Sensor C	ompon	ent Cell B Pres	sure	Cor	Condition 701.4 mmHg			Status pass		
Sensor Co	ompon	ent System Me	mo	Сог	ndition	n		Status pass		

Temperature Data Form

Mfg	Serial Number	Tag Site	Т	Technician		Site V	isit Date	Param	eter	Owner ID	
RM Young	6703	CKT136	ŀ	Korey	Devins	08/13	/2021	Temper	ature	04689	
				Mf	g	Extech	1	Pa	rameter Te	mperature	
				Serial Number		H2327	H232734 Tf		er Desc. R	ſD	
				Tfe	er ID	01227					
DAS 1: DAS 2:				Slo	pe	1.00743 Inter		rcept 0.2166			
Abs Avg Err Abs Max Err Abs Avg Err Abs Ma			Max Err	ax Err Cert Date			2/18/202	1 Cor	rCoff	1.00000	
0.11	0.21										
UseDesc.	Test type	InputTmpRaw	InputTmp	mpCorr. OutputTmpS		Signal OutputSigna		gnalEng	OSE Unit	Difference	
primary Te	emp Low Range	0.32	0.10		0.000		0.3	3	C	0.21	
primary Te	emp Mid Range	26.19	25.78		0.000		25.	9	С	0.07	
primary Te	emp High Range	45.23	44.68		0.000		44.	7	С	0.06	
Sensor Compo	onent Shield		Condi	tion C	Clean			Status	pass		
Sensor Component Blower			Condi	tion N	I/A			Status	pass		
Sensor Component Properly Sited				Condition Properly sited				Status	tatus pass		
Sensor Compo	onent System Memo		Condi	Condition				Status	pass		

Shelter Temperature Data For

Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
none	CKT136	Korey Devins	08/13/2021	Shelter Temperatur	enone
DAS 2:		Mfg	Extech	Parameter St	nelter Temperature
0.28 Max Err Abs Avg	Err Abs Max Err	Serial Number	H232734	Tfer Desc. R	TD
		Tfer ID	01227		
		Slope	1.0074	3 Intercept	0.21666
		Cert Date	2/18/202	21 CorrCoff	1.00000
	Serial Number Tag none DAS 2: Max Err 0.28	Serial Number Tag Site none CKT136 DAS 2: Max Err 0.28	Serial Number Tag Site Technician none CKT136 Korey Devins DAS 2: Mfg Max Err Abs Avg Err Abs Max Err 0.28 Serial Number Tfer ID Slope Cert Date	Serial Number Tag SiteTechnicianSite Visit DatenoneCKT136Korey Devins08/13/2021DAS 2:MfgExtechax ErrAbs Avg ErrAbs Max Err0.28Cerial NumberH23273401227Slope1.0074Cert Date2/18/202	Serial Number Tag Site Technician Site Visit Date Parameter none CKT136 Korey Devins 08/13/2021 Shelter Temperatur DAS 2: Mfg Extech Parameter Shelter Max Err Abs Avg Err Abs Max Err Serial Number H232734 0.28 Tfer ID 01227 Slope 1.00743 Intercept Cert Date 2/18/2021 CorrCoff

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference	
primary	Temp Mid Range	27.67	27.25	0.000	27.5	С	0.28	
primary	Temp Mid Range	28.35	27.93	0.000	28.0	С	0.11	
primary	Temp Mid Range	28.09	27.67	0.000	28.0	С	0.28	
Sensor Con	nponent System Memo	•	Condition	1 Status pass				

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status pass

Infrastructure Data For

Site ID CK	(T136	Technician	Korey Devins		Site Visit Date	08/13/2021]
Shelter Make		Shelter Model		Shelte	r Size		
Ekto		8810 (s/n 2116-	2)	640 cu	ift		
		NARABRI (NARABAR AND		Alexan 2015			

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	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	Fair	Status	pass
Sensor Component Shelter Door	Condition	Fair	Status	pass
Sensor Component Shelter Roof	Condition	Good	Status	pass
Sensor Component Shelter Floor	Condition	Fair	Status	pass
Sensor Component Shelter walls	Condition	Fair	Status	pass
Sensor Component Excessive mold present	Condition	Fair	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

Site Visit Comments

Parameter	Site	Technician	S.V. Date	Component	Mfg	Serial No.	Hazard	Problem			
Flow Rate	CKT136	Korey Devins	08/13/2021	Moisture Present	Apex	4675					
he filter sample tubing has drops of moisture in low sections outside the shelter.											

Field Systems Comments

1 Parameter: SiteOKNotes

The road to the site is in need of repair.

2 Parameter: ShelterCleanNotes

The shelter is in fair condition. The shelter walls adjacent to the air conditioner have been repaired.

Field Systems Data Form

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Site ID CKT136	Technician Korey Devins	Site Visit Date 08/1	3/2021								
		UCCOM	Disgue								
Site Sponsor (agency)	EPA	USGS Map									
Operating Group	private	Map Scale									
AQS #	21-175-9991	Map Date									
Meteorological Type	R.M. Young										
Air Pollutant Analyzer	Ozone	QAPP Latitude	37.9211								
Deposition Measurement	dry	QAPP Longitude	-83.0658								
Land Use	woodland - mixed	QAPP Elevation Meters	455								
Terrain	rolling	QAPP Declination	5.9								
Conforms to MLM	Yes	QAPP Declination Date	2/22/2006								
Site Telephone	(606) 522-3560	Audit Latitude	37.92146								
Site Address 1	7687 Highway 437	Audit Longitude	-83.066295								
Site Address 2		Audit Elevation	376								
County	Morgan	Audit Declination	-6.1								
City, State	West Liberty, KY	Present									
Zip Code	41472	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 M	odel 8810 (s/n 2116-2)	Shelter Size 640 cuft								
Shelter Clean	Notes The shelter is in fair condition.	The shelter walls adjacent to t	he air conditioner have been repaired.								
Site OK	Notes The road to the site is in need	of repair.									
Driving Directions From onto r turn ri dirt ro appro	Site OK Image: Notes The road to the site is in need of repair. Driving Directions From I-64 in Morehead go south on route 519 to West Liberty. At the first traffic light in West Liberty, turn left (east) onto route 460. Continue approximately 1 mile and turn left onto route 172. continue approximately 8 miles and then turn right onto route 437. Continue approximately 8 miles staying on 437. The road will climb a hill, turn left onto a dirt road at the top of the hill before the closed gas station). There is a sign for "KY Ridgerunners". The site is approximately 1/2 mile on the left										

Fie	eld Sy	stems Data Fo	orm				F-02058	-1500)-S3-rev002	2
Site	e ID	CKT136	Technician	Korey Devins		Site Visit Date	08/13/2021			
1	Are win being in	d speed and direction fluenced by obstructio	sensors sited so ons?	as to avoid	✓	N/A				
2	Are wind (i.e. wind horizont tower in	d sensors mounted so d sensors should be ma ally extended boom > to the prevailing wind	as to minimize ounted atop the 2x the max dian ()	tower effects? e tower or on a meter of the		N/A				
3	Are the	tower and sensors plu	mb?		✓	N/A				
4	Are the avoid ra	temperature shields p diated heat sources su	ointed north or ch as buildings	positioned to , walls, etc?						_
5	Are tem conditio surface a standing	perature and RH sens ns? (i.e. ground below and not steeply sloped swater should be avoi	ors sited to avo sensors should . Ridges, hollov ded)	id unnatural be natural vs, and areas of						
6	Is the so	lar radiation sensor p	lumb?		✓	N/A				
7	Is it site	l to avoid shading, or	any artificial o	r reflected light?	✓	N/A				_
8	Is the ra	in gauge plumb?			✓	N/A				
9	Is it site towers, o	l to avoid sheltering e etc?	ffects from bui	ldings, trees,		N/A				
10	Is the su facing n	rface wetness sensor s orth?	ited with the g	rid surface	✓	N/A				
11	Is it inc	lined approximately 3	0 degrees?			N/A				
6 7 8 9 10 11	Is the so Is it sited Is the ra Is the ra Is it sited towers, o Is the su facing n Is it inc	lar radiation sensor p d to avoid shading, or in gauge plumb? d to avoid sheltering e etc? rface wetness sensor s orth? lined approximately 3	lumb? any artificial o ffects from buil ited with the gr 0 degrees?	r reflected light? Idings, trees, rid surface		N/A N/A N/A N/A N/A				
Field Systems Data Form

F-02058-1500-S4-rev002

Site	e ID	CKT136	Technician	Korey Devins		Site Visit Date 08/13/2021	
1 2	Do all th condition Are all tl	e meterological senson 1, and well maintained 1e meteorological sens	rs appear to be 1? sors operationa	intact, in good l online, and	✓	Temperature only Temperature only	
3	reporting Are the s	g data? hields for the tempera	ature and RH s	ensors clean?	✓		
4	Are the a	spirated motors work	king?		✓	N/A	
5	Is the sol scratches	ar radiation sensor's] s?	lens clean and f	free of		N/A	
6	Is the su	rface wetness sensor g	rid clean and u	indamaged?		N/A	
7	Are the s condition	ensor signal and powe	er cables intact l?	, in good			
8	Are the s from the	ensor signal and powe elements and well ma	er cable connec intained?	tions protected			

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-S	5-rev002
Sit	e ID	CKT136	Technician	Korey Devins		Site Visit Date 08/13/2021	
	Siting C	Criteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipn</u>	nent sited in accordance with 40 CFR 58, Appe	ndix E
1	Do the sunrestri	sample inlets have at le icted airflow?	east a 270 degre	e arc of			
2	Are the	sample inlets 3 - 15 me	eters above the	ground?	✓		
3	Are the and 20 r	sample inlets > 1 mete meters from trees?	er from any maj	or obstruction,			
	<u>Pollutai</u>	nt analyzers and depos	<u>ition equipmen</u>	t operations and	mai	intenance	
1	Do the a condition	analyzers and equipme on and well maintained	ent appear to be ?	e in good	✓		
2	Are the reportin	analyzers and monitor 1g data?	rs operational, o	on-line, and	✓		
3	Describ	e ozone sample tube.				1/4 teflon by 15 meters	
4	Describ	e dry dep sample tube.				3/8 teflon by 12 meters	
5	Are in-l indicate	ine filters used in the o location)	ozone sample lir	ne? (if yes		At inlet only	
6	Are san obstruc	ple lines clean, free of tions?	kinks, moistur	e, and			
7	Is the ze	ero air supply desiccan	t unsaturated?				
8	Are the	re moisture traps in th	e sample lines?		✓	Flow line only	
9	Is there clean?	a rotometer in the dry	deposition filte	er line, and is it	✓	Clean and dry	

Fi	eld Sy	stems Data Fo	orm		F-02 ()58-15	00-S6-rev002		
Site	e ID	CKT136	Technician	Korey Devins		Site Visit Date	08/13/2021		
	DAS, se	nsor translators, and <u>r</u>	oeripheral equi	pment operation	ns an	<u>id maintenance</u>			
1	Do the l well ma	DAS instruments appearintained?	ar to be in good	l condition and	✓				
2	Are all t modem,	the components of the backup, etc)	DAS operation	al? (printers,	✓				
3	Do the a lightnin	nalyzer and sensor sig g protection circuitry?	nal leads pass	through	✓	Temperature only			
4	Are the well ma	signal connections pro intained?	tected from the	e weather and					
5	Are the	signal leads connected	to the correct	DAS channel?	✓				
6	Are the grounde	DAS, sensor translato ed?	rs, and shelter	properly	✓				
7	Does the	e instrument shelter ha	ive a stable pov	ver source?	✓				
8	Is the in	strument shelter temp	erature control	lled?	✓				
9	Is the m	et tower stable and gro	ounded?			Stable	G	Frounded	
10	Is the sa	mple tower stable and	grounded?						
11	Tower o	comments?				Met tower removed			

Field Systems Data	F-02058-1500-S7-rev002						
Site ID CKT136		Tecł	<mark>mician</mark> Korey	v Devins Site Visit Date	8/13/2021	1	
Documentation							
Does the site have the requi	ired ins	strum	ent and equip	<u>ment manuals?</u>			
Wind speed sensor	Yes		N/A ✓	Data logger	Yes ✓		N/A
Wind direction sensor				Data logger			
Temperature sensor				Strip chart recorder			
Relative humidity sensor				Computer			
Solar radiation sensor			\checkmark	Modem			
Surface wetness sensor			\checkmark	Printer			
Wind sensor translator			\checkmark	Zero air pump			
Temperature translator			\checkmark	Filter flow pump			
Humidity sensor translator			\checkmark	Surge protector			
Solar radiation translator			\checkmark	UPS			
Tipping bucket rain gauge				Lightning protection device			\checkmark
Ozone analyzer	\checkmark			Shelter heater		\checkmark	
Filter pack flow controller	\checkmark			Shelter air conditioner		\checkmark	
Filter pack MFC power suppl	у 🗌		\checkmark				
Does the site have the req	<u>uired a</u>	nd m	ost recent QC	documents and report forms?			
	Pres	ent			Curre	ent	
Station Log	[✓			\checkmark		
SSRF	[~			\checkmark		
Site Ops Manual	[✓	May 2019		\checkmark		
HASP	[~	- May 2019		\checkmark		
Field Ops Manual	[✓	, May 2019		\checkmark		
Calibration Reports	[~	Electronic cop	y	\checkmark		

1	Is the station log properly completed during every site visit?	✓	
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

Ozone z/s/p Control Charts

Preventive maintenance schedule

Field Systems Data Form

CKT136 Technician Korey Devins Site Visit Date 08/13/2021 Site ID Site operation procedures Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

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

QC Check Performed
Multi-point Calibrations
Automatic Zero/Span Tests
Manual Zero/Span Tests
Automatic Precision Level Tests
Manual Precision Level Test
Analyzer Diagnostics Tests
In-line Filter Replacement (at inlet)
In-line Filter Replacement (at analyze

Sample Line Check for Dirt/Water

Zero Air Desiccant Check

Frequency	Con
Semiannually	
Daily	
Daily	
Weekly	
Every 2 weeks	
N/A	
Weekly	
Weekly	

- Do multi-point calibration gases go through the complete 1 sample train including all filters?
- Do automatic and manual z/s/p gasses go through the 2 complete sample train including all filters?

3	Are the automatic and manual z/s/p checks monitored a	and
	reported? If yes, how?	

	Unknown
✓	
✓	Logbook and 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:

npliant

F-02058-1500-S8-rev002

Fi	Field Systems Data Form				F-02058-1500-S9-rev002				
Sit	e ID	СКТ136 Тес	chnician Korey Devins		Site Visit Date 08/13/2021				
	<u>Site ope</u>	eration procedures							
1	Is the fi	lter pack being changed ever	y Tuesday as scheduled?	<mark>?</mark> 🗸	Filter changed usually about noon				
2	Are the correctl	Site Status Report Forms be y?	ing completed and filed	✓]				
3	Are dat schedul	a downloads and backups be ed?	ing performed as		No longer required				
4	Are gen	eral observations being mad	e and recorded? How?	✓	SSRF, logbook				
5	Are site fashion	supplies on-hand and repler ?	nished in a timely	✓]				
6	6 Are sample flow rates recorded? How?		✓	SSRF, logbook, call-in					
7	7 Are samples sent to the lab on a regular schedule in a timely fashion?		✓						
8	Are filte and shij	ers protected from contamina pping? How?	ation during handling	✓	Clean gloves on and off				
9	Are the operation	site conditions reported regues ons manager or staff?	ularly to the field						
QC	Check P	erformed	Frequency		Compliant				
]	Multi-poi	nt MFC Calibrations	Semiannually						
I	Flow Syst	em Leak Checks	✓ Weekly						
I	Filter Pac	k Inspection							
]	Flow Rate	e Setting Checks	✓ Weekly						
•	Visual Ch	eck of Flow Rate Rotometer	✓ Weekly						
]	In-line Fil	ter Inspection/Replacement	Semiannually						
3	Sample L	ine Check for Dirt/Water	✓ Weekly						

Field Systems Data Form

CKT136

F-02058-1500-S10-rev002

Site ID	
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Techni

Technician Korey Devins

Site Visit Date 08/13/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	Unknown	07050
DAS	Campbell	CR3000	2115	000336
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CA18	049400004430	03635
Flow Rate	Арех	AXMC105LPMDPC	illegible	000873
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	unknown	07190
Ozone	ThermoElectron Inc	49i A1NAA	1105347324	000744
Ozone Standard	ThermoElectron Inc	49i A3NAA	0607315738	000200
Sample Tower	Aluma Tower	В	none	000822
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VO	6703	04689
Zero air pump	Werther International	C 70/4	000815254	06878

Site Inventory by Site Visit

Site V	isit Date/	Parameter	Mfg	Owner ID	Model Number	Serial Number
HOX	148-Korey	Devins-08/16/2021				
1	8/16/2021	DAS	Campbell	000426	CR3000	2533
2	8/16/2021	Ozone	ThermoElectron Inc	000614	49i A1NAA	1009241794
3	8/16/2021	Ozone Standard	ThermoElectron Inc	000495	49i A3NAA	0622717849
4	8/16/2021	Zero air pump	Werther International	06938	C 70/4	000829164

Ozone Data Form

Mfg	Serial Number Tag	Site	Т	echnician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1009241794	HOX148	K	orey Devins	08/16/2021	Ozone	000614
Slope: Intercept CorrCoff:	0.95865 Slope: 0.11849 Intercept 0.99998 CorrCoff:	0.000	000 000 000	Mfg Serial Number Tfer ID	ThermoElectron 1180030022 01114	Inc Paramete	er ozone c. Ozone primary stan
DAS 1:	DAS 2:			SI	1 0002		0.20550
A Avg % Diff: A N	Max % Dif A Avg %	6Diff A May	x % Dif	Slope	1.0003	• Intercept	0.30550
0.0%	0.0%			Cert Date	1/20/202	CorrCoff	1.00000
UseDescription	ConcGroup Tf	er Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.36	0.05	0.34	ppb		0.29
primary	2 1	5.07	14.68	13.71	ppb		-0.97
primary	3 3	5.48	34.98	33.27	ppb	-5.01	
primary	4 6	57.58	66.91	63.78	ppb	-4.79	
primary	5 1	12.76	111.85	107.33	ppb	-4.12	
Sensor Compone	audit Pressure		Condit	ion 738.3 mmHg		Status pass	
Sensor Compone	ent 26.6 degree unob	structed rule	Condit	ion True		Status pass	
Sensor Compone	ent Tree dewline >10r	n or below inle	Condit	ion True		Status pass	
Sensor Compone	ent ADT <100 vehicle	s further than 2	0 Condit	ion 55 m		Status Fail	
Sensor Compone	ent ADT >100 vehicle	s further than 5	0 Condit	ion True		Status pass	
Sensor Compone	ent Sample Train		Condit	ion Good		Status pass	
Sensor Compone	Inlet Filter Condition	on	Condit	ion Moderately cle	an	Status pass	
Sensor Compone	ent Offset		Condit	ion -0.2		Status pass	
Sensor Compone	ent Span		Condit	ion 1.012		Status pass	
Sensor Compone	ent Zero Voltage		Condit	ion N/A		Status pass	
Sensor Compone	ent Fullscale Voltage		Condit	ion N/A		Status pass	
Sensor Compone	ent Cell A Freq.		Condit	ion 100.0 kHz		Status pass	
Sensor Compone	ent Cell A Noise		Condit	ion 0.8 ppb		Status pass	
Sensor Compone	Cell A Flow		Condit	ion 0.73 lpm		Status pass	
Sensor Compone	ent Cell A Pressure		Condit	ion 705.5 mmHg		Status pass	
Sensor Compone	ent Cell A Tmp.		Condit	ion 37.1 C		Status pass	
Sensor Compone	ent Cell B Freq.		Condit	ion 92.7 kHz		Status pass	
Sensor Compone	Cell B Noise		Condit	ion 0.5 ppb		Status pass	
Sensor Compone	Cell B Flow		Condit	ion 0.73 lpm		Status pass	
Sensor Compone	ent Cell B Pressure		Condit	ion 706.1 mmHg		Status pass	
Sensor Compone	System Memo		Condit	ion		Status pass	

Site Inventory by Site Visit

Site V	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
ANA	15-Korey	Devins-08/18/2021				
1	8/18/2021	DAS	Campbell	000339	CR3000	2118
2	8/18/2021	Ozone	ThermoElectron Inc	000699	49i A1NAA	1030244804
3	8/18/2021	Ozone Standard	ThermoElectron Inc	000686	49i A3NAA	1030244818
4	8/18/2021	Zero air pump	Werther International	06933	C 70/4	000836202

Ozone Data Form

Mfg	Serial Number	r Tag Site	Т	echnician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1030244804	ANA115	5	Korey Devins	08/18/2021	Ozone	000699
Slope: Intercept CorrCoff:	1.03324 Slope -0.28739 Inter 0.99999 Corr	e: () cept () Coff: ()	D.00000 D.00000 D.00000	Mfg Serial Number Tfer ID	ThermoElectron 1180030022 01114	Inc Paramete Tfer Desc	r ozone . Ozone primary stan
DAS 1:	DA	AS 2:		Slope	1.0003	0 Intercept	0.30550
A Avg % Diff: A	Max % Dif A A	Avg %Diff A	Max % Dif		1/20/202		1 00000
0.0%	0.0%			Cert Date	1/20/202	CorrCoff	1.00000
UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.41	0.10	0.07	ppb		-0.03
primary	2	15.45	15.06	15.15	ppb		0.09
primary	3	35.08	34.59	35.28	ppb	1.98	
primary	4	67.68	67.01	68.87	ppb	2.74	
primary	5	109.06	108.17	111.60	ppb	3.12	
Sensor Compon	ent Audit Pressu	re	Condi	tion 741.2 mmHg		Status pass	
Sensor Compon	ent 26.6 degree	unobstructed ru	le Condi	tion True		Status pass	
Sensor Compon	ent Tree dewline	>10m or below	inlet Condi	tion True		Status pass	
Sensor Compon	ent ADT <100 ve	chicles further th	nan 20 Condi	t <mark>ion</mark> 85 m		Status Fail	
Sensor Compon	ent ADT >100 ve	chicles further th	nan 50 Condi	t <mark>ion</mark> 325 m		Status Fail	
Sensor Compon	ent Sample Trair	ı	Condi	tion Good		Status pass	
Sensor Compon	ent Inlet Filter Co	ondition	Condi	tion Clean		Status pass	
Sensor Compon	ent Offset		Condi	tion 0.000		Status pass	
Sensor Compon	ent Span		Condi	tion 1.052		Status pass	
Sensor Compon	ent Zero Voltage	•	Condi	tion N/A		Status pass	
Sensor Compon	ent Fullscale Vol	tage	Condi	tion N/A		Status pass	
Sensor Compon	ent Cell A Freq.		Condi	tion 92.4 kHz		Status pass	
Sensor Compon	ent Cell A Noise		Condi	tion 0.9 ppb		Status pass	
Sensor Compon	ent Cell A Flow		Condi	tion 0.72 lpm		Status pass	
Sensor Compon	ent Cell A Pressu	ure	Condi	tion 703.8 mmHg		Status pass	
Sensor Compon	ent Cell A Tmp.		Condi	tion 37.8 C		Status pass	
Sensor Compon	ent Cell B Freq.		Condi	tion 93.5 kHz		Status pass	
Sensor Compon	ent Cell B Noise		Condi	tion 0.9 ppb		Status pass	
Sensor Compon	ent Cell B Flow		Condi	tion 0.68 lpm		Status pass	
Sensor Compon	ent Cell B Pressu	ure	Condi	tion 704.1 mmHg		Status pass	
Sensor Compon	ent System Mem	10	Condi	tion		Status pass	

Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
PRK	134-Korey	Devins-08/22/2021				
1	8/22/2021	Computer	Dell	07021	Inspiron 15	2884848822
2	8/22/2021	DAS	Campbell	000411	CR3000	2509
3	8/22/2021	Elevation	Elevation	None	1	None
4	8/22/2021	Filter pack flow pump	Thomas	04918	107CAB18	060300019989
5	8/22/2021	Flow Rate	Арех	000656	AXMC105LPMDPCV	illegible
6	8/22/2021	Infrastructure	Infrastructure	none	none	none
7	8/22/2021	Modem	Digi	07198	LR54	unknown
8	8/22/2021	Ozone	ThermoElectron Inc	000693	49i A1NAA	1030244806
9	8/22/2021	Ozone Standard	ThermoElectron Inc	000440	49i A3NAA	CM08200016
10	8/22/2021	Sample Tower	Aluma Tower	000930	В	AT214072-Z-7-2
11	8/22/2021	Shelter Temperature	Campbell	none	107-L	unknown
12	8/22/2021	Siting Criteria	Siting Criteria	None	1	None
13	8/22/2021	Temperature	RM Young	06306	41342VC	12545
14	8/22/2021	Zero air pump	Werther International	06905	C 70/4	000821907

DAS Data Form

0 DAS Time Max Error:

Mfg	Serial I	Number Site	e T	Sechnician	Site Visit Date	Parameter	Use Desc.
Campbell	2509	PF	RK134	Korey Devins	08/22/2021	DAS	Primary
Das Date:	8 /22/2021	Audit Date	8 /22/2021	Mfg	Fluke	Parameter	DAS
Das Dav:	234	Audit Dav	234	Serial Number	95740135	Tfer Desc.	DVM
Low Channe	d:	High Chann	el:	Tfer ID	01311		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.000	0.00	00 0.000	0.0000	Cert Date	2/11/202	1 CorrCoff	1.00000
				Mfg	Datel	Parameter	DAS
				Serial Number	15510194	Tfer Desc.	Source generator (D
				Tfer ID	01320		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/13/201	2 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	0.0999	0.0999	V V	V	0.0000	
7	0.3000	0.2997	0.2997	V V	V	0.0000	

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	0.4996	V	V	0.0000
7	0.7000	0.6995	0.6995	V	V	0.0000
7	0.9000	0.8993	0.8993	V	V	0.0000
7	1.0000	0.9992	0.9992	V	V	0.0000

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit D	ate Paran	neter	Owner ID
Apex	illegible		PRK134	Ko	rey Devins	08/22/2021	Flow F	Rate	000656
					Mfg	BIOS	I	Parameter Flow	v Rate
					Serial Number	131818]	Ffer Desc. BIO	S 220-H
					Tfer ID	01417			
					Slope	0.	99756 Int	ercept	-0.00058
					Cert Date	2/10)/2021 Co	rrCoff	0.99993
DAS 1:		DAS 2:			Cal Factor Z	ero		0	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	w Dif	Cal Factor F	ull Scale	0.	.98	
0.67%	0.67%				Rotometer R	eading:		1.5	
Desc.	Test type	Input l/n	n Input Corr_	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	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	0.00	l/m	l/m	
primary	test pt 1	1.490	1.490	1.54	0.000	1.50	l/m	l/m	0.67%
primary	test pt 2	1.488	1.490	1.54	0.000	1.50	l/m	l/m	0.67%
primary	test pt 3	1.486	1.490	1.53	0.000	1.50	l/m	l/m	0.67%
Sensor Comp	onent Leak Tes	t		Conditio	on		Statu	s pass	
Sensor Comp	onent Tubing C	ondition		Conditio	Good		Statu	s pass	
Sensor Comp	onent Filter Pos	ition		Conditio	Good		Statu	s pass	
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	Clean and dry		Statu	s pass	
Sensor Comp	onent Moisture	Present		Conditio	No moisture pr	esent	Statu	s pass	
Sensor Comp	onent Filter Dis	tance		Conditio	n 4.0 cm		Statu	s pass	
Sensor Comp	onent Filter Dep	oth		Conditio	1.0 cm		Statu	s pass	
Sensor Comp	onent Filter Azi	muth		Conditio	n 60 deg		Statu	s pass	
Sensor Comp	onent System N	lemo		Conditio	on		Statu	s pass	

Ozone Data Form

Mfg		Serial Numbe	er Tag S	ite	Т	echnic	ian	Site Visit Date	Parameter	Owner ID
ThermoElectro	on Inc	1030244806	F	PRK134	k	Korey D	evins	08/22/2021	Ozone	000693
Slope:		0.97941 Slop 0.87249 Inte 0.99999 Corr	e: rcept rCoff:	0.00	000 000 000	Mfg Seria Tfer	al Number ID	ThermoElectron 1180030022 01114	Inc Paramet	er ozone c. Ozone primary stan
DAS 1:		D	AS 2:			Slon	e	1.0003	0 Intercent	0.30550
A Avg % Dif	f: A N	Aax % Dif A	Avg %D	oiff A Ma	x % Dif	Slop	•			
0.0%	6	0.0%				Cert	Date	1/20/202	CorrCoff	1.00000
UseDescrip	tion	ConcGroup	Tfer I	Raw	Tfer Corr		Site	Site Unit	RelPerDif	AbsDif
primary		1	0.4	-1	0.10		-0.52	ppb		-0.62
primary		2	15.7	75	15.36		14.07	ppb		-1.29
primary		3	35.4	40	34.90		33.06	ppb	-5.41	
primary		4	66.5	59	65.93		63.70	ppb	-3.44	
primary		5	107.	.86	106.98		104.00	ppb	-2.82	
Sensor Cor	npone	ent Audit Press	ure		Condit	tion 72	4.2 mmHg		Status pass	
Sensor Cor	npone	ent 26.6 degree	unobstru	ucted rule	Condit	tion Tru	ue		Status pass	
Sensor Cor	npone	nt Tree dewline	e >10m o	or below inle	et Condit	tion Tru	ue		Status pass	
Sensor Cor	npone	ent ADT <100 v	ehicles fu	urther than :	20 Condit	t <mark>ion</mark> 16	0 m		Status Fail	
Sensor Cor	npone	ent ADT >100 v	ehicles fu	urther than	50 Condit	tion 16	0 m		Status Fail	
Sensor Cor	npone	e <mark>nt</mark> Sample Trai	'n		Condit	t <mark>ion</mark> Go	bod		Status pass	
Sensor Cor	npone	ent Inlet Filter C	ondition		Condit	tion Cle	ean		Status pass	
Sensor Cor	npone	ent Offset			Condit	tion 0.0	000		Status pass	
Sensor Cor	npone	ent Span			Condit	tion 1.0	008		Status pass	
Sensor Cor	npone	ent Zero Voltage	e		Condit	tion N/	A		Status pass	
Sensor Cor	npone	ent Fullscale Vo	ltage		Condit	tion N/	A		Status pass	
Sensor Cor	npone	ent Cell A Freq.			Condit	t <mark>ion</mark> 93	.2 kHz		Status pass	
Sensor Cor	npone	ent Cell A Noise	;		Condit	tion 0.8	3 ррb		Status pass	
Sensor Cor	npone	ent Cell A Flow			Condit	tion 0.6	69 lpm		Status pass	
Sensor Cor	npone	ent Cell A Press	sure		Condit	tion 70	3.5 mmHg		Status pass	
Sensor Cor	npone	ent Cell A Tmp.			Condit	tion 36	.0 C		Status pass	
Sensor Cor	npone	ent Cell B Freq.			Condit	tion 94	.7 kHz		Status pass	
Sensor Cor	npone	ent Cell B Noise	;		Condit	tion 0.9) ppb		Status pass	
Sensor Cor	npone	Cell B Flow			Condit	tion 0.6	60 lpm		Status pass	
Sensor Cor	npone	ent Cell B Press	sure		Condit	tion 70	4.4 mmHg		Status pass	
Sensor Cor	npone	ent System Mer	no		Condit	tion			Status pass	

Temperature Data Form

Mfg	Serial Number	Tag Site	Т	echni	ician	Site V	isit Date	Param	eter	Owner ID	
RM Young	12545	PRK134	ļ	Korey	Devins	08/22	/2021	Temper	ature	06306	
				Mf	ġ	Extecl	1	Pa	rameter Te	mperature	
				Ser	rial Number	H2327	'34	Tf	er Desc. R	D	
				Tfe	er ID	01227					
DAS 1:	DAS	5 2:		Slo	pe		1.0074	3 Inte	rcept	0.21666	6
Abs Avg Err	Abs Max Err Abs	Avg Err Abs	Max Err	Cer	rt Date		2/18/202	21 Cor	rCoff	1.00000	C
0.20	0.30										
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	OutputSig	gnalEng	OSE Unit	Difference	
primary	Temp Low Range	0.19	-0.03		0.000		0.3	3	С	0.3	
primary	Temp Mid Range	25.79	25.38		0.000		25.	3	С	-0.04	
primary	Temp High Range	45.52	44.97		0.000		44.	7	С	-0.25	
Sensor Con	ponent Shield		Condi	tion C	Clean			Status	pass		
Sensor Con	nponent Blower		Condi	tion N	I/A			Status	pass		
Sensor Con	ponent Properly Sited		Condi	tion F	Properly sited			Status	pass		
Sensor Con	ponent System Memory)	Condi	tion				Status	pass		

Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	unknown	PRK134	Korey Devins	08/22/2021	Shelter Temperatu	ire none
DAS 1:	DAS 2:		Mfg	Extech	Parameter S	helter Temperature
Abs Avg Err Abs	0.93 Max Err Abs Avg	Err Abs Max Err	Serial Number	H232734	Tfer Desc.	RTD
			Tfer ID	01227		
			Slope	1.0074	3 Intercept	0.21666
			Cert Date	2/18/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	27.95	27.53	0.000	28.0	С	0.5
primary	Temp Mid Range	26.31	25.90	0.000	26.8	С	0.93
primary	Temp Mid Range	26.22	25.81	0.000	26.0	С	0.14
Sensor Con	nponent System Memo	•	Condition		Status	pass	

Infrastructure Data For

Site ID	PRK134	Technician Korey De	vins Site Visit Date 08/22/2021
Shelter M	lake	Shelter Model	Shelter Size
Ekto		8810 (s/n 2116-11)	640 cuft

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	N/A	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

Siting Criteria Form

Sensor Component Limited agriculture operations	Condition 20 m	Status Fail
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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status pass

Field Systems Comments

1 Parameter: SitingCriteriaCom

Clover and Barley have been planted for hay within 20m of the site starting in 2008.

2 Parameter: ShelterCleanNotes

The shelter is clean, neat, and well organized.

Field Systems Data Form

F-02058-1500-S1-rev002

Site ID PRK134	Technician Korey Devins	Site Visit Date 08/22	2/2021
Site Success (a contra)	EDA	USGS Man	Perkinstown
Site Sponsor (agency)		Man Saala	
Operating Group	Private	Map Scale	
AQS #	55-119-9991	Map Date	
Meteorological Type	R.M. Young		
Air Pollutant Analyzer	Ozone, PM2.5	QAPP Latitude	45.2066
Deposition Measurement	dry, wet	QAPP Longitude	-90.5972
Land Use	woodland - mixed	QAPP Elevation Meters	472
Terrain	gently rolling	QAPP Declination	1.6
Conforms to MLM	Yes	QAPP Declination Date	2/22/2006
Site Telephone		Audit Latitude	45.206525
Site Address 1	W 10776 CTH M	Audit Longitude	-90.597209
Site Address 2		Audit Elevation	462
County	Taylor	Audit Declination	-1.3
City, State	Medford, WI	Present	
Zip Code	54451	Fire Extinguisher 🔽	new in 2015
Time Zone	Central	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 Mo	odel 8810 (s/n 2116-11)	Shelter Size 640 cuft
Shelter Clean	Notes The shelter is clean, neat, and	well organized.	
Site OK	Notes		
Driving Directions From approximation the site	Medford continue north on 13 approximat ximately 13 miles. Before reaching Perkir e will be visible behind the landowners ho	ely 4.5 miles and turn left (west nstown, and just after crossing ouse on the right.	t) onto county route M. Continue a small creek and two sharp curves,

Fie	eld Sy	stems Data Fo	orm				F-020	58-15	00- S 3-r	ev002
Site	e ID	PRK134	Technician	Korey Devins		Site Visit Date	08/22/2021			
1	Are win being in	d speed and direction fluenced by obstructio	sensors sited so ns?	as to avoid	✓	N/A				
2	Are win (i.e. wind horizont tower in	d sensors mounted so d sensors should be me cally extended boom > to the prevailing wind	as to minimize ounted atop the 2x the max dian)	tower effects? e tower or on a meter of the		N/A				
3	Are the	tower and sensors plu	mb?		✓	N/A				
4	Are the avoid ra	temperature shields p diated heat sources su	ointed north or ch as buildings	positioned to , walls, etc?	✓	Mounted to sample	tower			
5	Are tem conditio surface standing	perature and RH sens ns? (i.e. ground below and not steeply sloped gwater should be avoi	ors sited to avo sensors should . Ridges, hollov ded)	id unnatural be natural vs, and areas of						
6	Is the so	lar radiation sensor p	lumb?		✓	N/A				
7	Is it site	d to avoid shading, or	any artificial o	r reflected light?		N/A				
8	Is the ra	in gauge plumb?				N/A				
9	Is it site towers,	d to avoid sheltering e etc?	ffects from buil	ldings, trees,		N/A				
10	Is the su facing n	rface wetness sensor s orth?	ited with the g	rid surface	✓	N/A				
11	Is it inc	lined approximately 3	0 degrees?		✓	N/A				
						- <u>-</u>				

Field Systems Data Form

F-02058-1500-S4-rev002

Site	e ID	PRK134	Technician	Korey Devins		Site Visit Date 08/22/2021
1 2 3	 Do all the meterological sensors appear to be intact, in good condition, and well maintained? Are all the meteorological sensors operational online, and reporting data? Are the shields for the temperature and RH sensors clean? 					Temperature only Temperature only
4	Are the aspirated motors working?					N/A
5	Is the sol scratches	ar radiation sensor's	lens clean and f	ree of		N/A
6	Is the sur	rface wetness sensor g	rid clean and u	ndamaged?	✓	N/A
7	Are the s conditior	ensor signal and pow n, and well maintained	er cables intact, 1?	, in good	✓	
8	Are the s from the	ensor signal and powe elements and well ma	er cable connec hintained?	tions protected		

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-85-rev002
Site	e ID	PRK134	Technician	Korey Devins		Site Visit Date 08/22/2021
	<u>Siting C</u>	riteria: Are the pollut	ant analyzers ai	<u>1d deposition equ</u>	<u>ıipn</u>	nent sited in accordance with 40 CFR 58, Appendix E
1	Do the s unrestri	ample inlets have at le icted airflow?	east a 270 degree	e arc of	✓	
2	Are the	sample inlets 3 - 15 m	eters above the	ground?	✓	
3	Are the and 20 r	sample inlets > 1 mete neters from trees?	er from any maj	or obstruction,	✓	
	<u>Pollutar</u>	nt analyzers and depos	sition equipment	t operations and	mai	<u>ntenance</u>
1	Do the a conditio	nalyzers and equipme n and well maintained	ent appear to be l?	in good	✓	
2	Are the reportin	analyzers and monitoning data?	rs operational, o	on-line, and	✓	
3	Describe	e ozone sample tube.				1/4 teflon by 15 meters
4	Describ	e dry dep sample tube				3/8 teflon by 15 meters
5	Are in-li indicate	ine filters used in the o location)	ozone sample lin	e? (if yes		At inlet only
6	Are sam obstruct	ple lines clean, free of tions?	[°] kinks, moisture	e, and		
7	Is the ze	ero air supply desiccan	it unsaturated?		✓	
8	Are the	re moisture traps in th	e sample lines?		✓	Flow line only
9	Is there clean?	a rotometer in the dry	y deposition filte	er line, and is it		Clean and dry

Fi	eld Sy	stems Data Fo	orm			F-02	058-15	00-S6-rev002	
Site	e ID	PRK134	Technician	Korey Devins		Site Visit Date	08/22/2021		
	DAS, se	ensor translators, and j	peripheral equi	pment operation	ns a	nd maintenance			
1	Do the well ma	DAS instruments appe intained?	ear to be in good	l condition and					
2	Are all modem	the components of the , backup, etc)	DAS operation	al? (printers,	✓				
3	Do the lightnir	analyzer and sensor signs of the sensor signs and sensor signs are sensor signs and sensor signs are sensor signs and sensor signs are sensor sensor signs are se	gnal leads pass † ?	through	✓	Met sensors only			
4	Are the well ma	signal connections pro intained?	otected from the	e weather and	✓				
5	Are the	signal leads connected	l to the correct	DAS channel?	✓				
6	Are the ground	DAS, sensor translato ed?	ors, and shelter	properly	✓				
7	Does th	e instrument shelter h	ave a stable pov	ver source?	✓				
8	Is the in	nstrument shelter temp	perature control	lled?	✓				
9	Is the n	net tower stable and gr	ounded?			Stable		Grounded	
10	Is the s	ample tower stable and	l grounded?						
11	Tower	comments?							

Field Sy	stems Data	For	·m				F-0 2	2058-	-1500-	87-rev002
Site ID	PRK134		Tech	nician	Korey Devins	Site Visit Date	08/22/202	1		
<u>Documen</u>	<u>tation</u>									
Does the	site have the requir	ed ins	strume	nt and	equipment manuals?	-				
		Yes	No	N/.	A		Yes	No	N/A	
Wind speed	sensor			\checkmark	Data logg	er		\checkmark		
Wind direct	ion sensor			\checkmark	Data logg	er			\checkmark	
Temperatur	e sensor	\checkmark			Strip chai	rt recorder			\checkmark	
Relative hu	nidity sensor			\checkmark	Computer	r	\checkmark			
Solar radiat	ion sensor			\checkmark	Modem			\checkmark		
Surface wet	ness sensor			\checkmark	Printer				\checkmark	
Wind sensor	r translator			\checkmark	Zero air p	oump		\checkmark		
Temperatur	e translator			\checkmark	Filter flov	v pump		\checkmark		
Humidity se	nsor translator			\checkmark	Surge pro	tector				
Solar radiat	ion translator			\checkmark	UPS					
Tipping buc	ket rain gauge			\checkmark	Lightning	protection devic	e 🗌			
Ozone analy	zer	\checkmark			Shelter he	eater		\checkmark		
Filter pack	flow controller	\checkmark			Shelter ai	r conditioner	\checkmark			
Filter pack	MFC power supply			\checkmark						
Does the	<u>e site have the requ</u>	ired a	<u>nd mo</u>	<u>st rece</u>	nt QC documents and	<u>l report forms?</u>				
		Pres	ent				Curre	ent		
Station Log		ŀ	✓				\checkmark			
SSRF			<				\checkmark			

✓		
✓	May 2019	
✓	May 2019	
\checkmark	May 2019	
\checkmark		
	Y Y Y Y Y Y Y Y	✓ May 2019 ✓ May 2019 ✓ May 2019 ✓ May 2019 ✓ Image: Control of the second

1

2

3

4

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

✓

✓

✓

✓

Field Systems Data Form

PRK134 Technician Korey Devins Site Visit Date 08/22/2021 Site ID Site operation procedures Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? \checkmark Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

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

QC Check Performed Multi-point Calibrations

Automatic Zero/Span Tests Manual Zero/Span Tests Automatic Precision Level Tests Manual Precision Level Test Analyzer Diagnostics Tests In-line Filter Replacement (at inlet) In-line Filter Replacement (at analyze Sample Line Check for Dirt/Water **Zero Air Desiccant Check**

Semiannually	
Daily	
As needed	
Daily	
As needed	
Weekly	
Every 2 weeks	
N/A	
Weekly	
Weekly	

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

✓ ✓ ✓ Logbook, 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:

mpliant

F-02058-1500-S8-rev002

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-S9-rev002					
Site	e ID	PRK134	Technician Korey Devins		Site Visit Date 08/22/2021					
	<u>Site ope</u>	ration procedures								
1	Is the fil	ter pack being change	ed 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 gen	eral observations bein	g made and recorded? How?	✓	SSRF, logbook					
5	Are site fashion?	supplies on-hand and	replenished in a timely							
6	Are sam	ple flow rates recorde	d? How?		SSRF, logbook, call-in					

✓

7 Are samples sent to the lab on a regu fashion?	lar schedule in a timely	✓	
8 Are filters protected from contamina and shipping? How?	tion during handling	✓	Clean gloves on and off
9 Are the site conditions reported regulation operations manager or staff?	larly to the field		
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	Veekly		

Semiannually In-line Filter Inspection/Replacement ✓ ✓ ✓ Weekly Sample Line Check for Dirt/Water

Field Systems Data Form

PRK134

F-02058-1500-S10-rev002

Techni

Technician Korey Devins

Site Visit Date 08/22/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	2884848822	07021
DAS	Campbell	CR3000	2509	000411
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	060300019989	04918
Flow Rate	Apex	AXMC105LPMDPC	illegible	000656
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	unknown	07198
Ozone	ThermoElectron Inc	49i A1NAA	1030244806	000693
Ozone Standard	ThermoElectron Inc	49i A3NAA	CM08200016	000440
Sample Tower	Aluma Tower	B	AT214072-Z-7-2	000930
Shelter Temperature	Campbell	107-L	unknown	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VC	12545	06306
Zero air pump	Werther International	C 70/4	000821907	06905

Site Inventory by Site Visit

Site V	visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
GRB4	411-Martin	n Valvur-08/23/2021				
1	8/23/2021	DAS	Environmental Sys Corp	90635	8816	2507
2	8/23/2021	Ozone	ThermoElectron Inc	none	49i A3NAA	1200666539
3	8/23/2021	Ozone Standard	ThermoElectron Inc	none	49C	0330302753
4	8/23/2021	Zero air pump	Werther International	90722	TT70/4E	507782

Ozone Data Form

Mfg	Serial Number	Tag Site	Т	echnician	Site Visit Date	Parameter	Owner ID
ThermoElectron Ir	nc 1200666539	GRB41	I N	/lartin Valvur	08/23/2021	Ozone	none
Slope:	0.96480 Slope: 0.22309 Interc	ept (0.00000	Mfg Serial Number	ThermoElectron 49CPS-70008-30	Inc Paramete	er ozone Ozone primary stan
CorrCoff:	0.99994 CorrC		0.00000	Tfer ID	01110		
DAS 1:	DAS	5 2:		Slope	1 0034	0 Intercent	0.02230
A Avg % Diff: A	Max % Dif A A	vg %Diff A	Max % Dif	Slope	1.0001	• Intercept	0.02200
0.0%	0.0%			Cert Date	1/20/202	CorrCoff	1.00000
UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.14	0.11	0.98	ppb		0.87
primary	2	16.99	16.85	16.19	ppb		-0.66
primary	3	36.25	35.99	34.54	ppb	-4.11	
primary	4	67.77	67.30	64.85	ppb	-3.71	
primary	5	115.02	114.25	110.80	ppb	-3.07	
Sensor Compo	nent Audit Pressure	9	Condit	ion 598 mmHg		Status pass	
Sensor Compo	nent 26.6 degree u	nobstructed ru	le Condit	ion True		Status pass	
Sensor Compo	nent Tree dewline >	>10m or below	inlet Condit	ion True		Status pass	
Sensor Compo	nent ADT <100 veh	nicles further th	nan 20 Condit	ion 145 m		Status Fail	
Sensor Compo	nent ADT >100 veh	nicles further th	an 50 Condit	ion 145 m		Status Fail	
Sensor Compo	nent Sample Train		Condit	ion Good		Status pass	
Sensor Compo	nent Inlet Filter Cor	ndition	Condit	ion Clean		Status pass	
Sensor Compo	nent Offset		Condit	ion -0.1		Status pass	
Sensor Compo	<mark>nent</mark> Span		Condit	ion 0.998		Status pass	
Sensor Compo	nent Zero Voltage		Condit	ion N/A		Status pass	
Sensor Compo	nent Fullscale Volta	age	Condit	ion N/A		Status pass	
Sensor Compo	nent Cell A Freq.		Condit	ion 86.8 kHz		Status pass	
Sensor Compo	nent Cell A Noise		Condit	ion 0.4 ppb		Status pass	
Sensor Compo	nent Cell A Flow		Condit	ion 0.64 lpm		Status pass	
Sensor Compo	nent Cell A Pressur	re	Condit	ion 579.6 mmHg		Status pass	
Sensor Compo	nent Cell A Tmp.		Condit	ion 32.4 C		Status pass	
Sensor Compo	nent Cell B Freq.		Condit	ion 72.3 kHz		Status pass	
Sensor Compo	nent Cell B Noise		Condit	ion 0.6 ppb		Status pass	
Sensor Compo	nent Cell B Flow		Condit	ion 0.63 lpm		Status pass	
Sensor Compo	nent Cell B Pressur	re	Condit	ion 579.3 mmHg		Status pass	
Sensor Compo	nent System Memo)	Condit	ion		Status pass	

Site Inventory by Site Visit

Site V	isit Date/	Parameter	Mfg	Owner ID	Model Number	Serial Number
VOY4	413-Eric H	lebert-08/25/2021				
1	8/25/2021	DAS	Environmental Sys Corp	90632	8816	2505
2	8/25/2021	Elevation	Elevation	None	1	None
3	8/25/2021	Filter pack flow pump	Thomas	none	107CAB18	081700057764
4	8/25/2021	Flow Rate	Alicat	none	MC-10SLPM-D-PCV	Unknown
5	8/25/2021	Infrastructure	Infrastructure	none	none	none
6	8/25/2021	Ozone	ThermoElectron Inc	90714	49C	49C-66828-354
7	8/25/2021	Ozone Standard	ThermoElectron Inc	90569	49C	49C-59260-322
8	8/25/2021	Sample Tower	Aluma Tower	none	В	AT-51159-11-G
9	8/25/2021	Shelter Temperature	ARS	none	none	none
10	8/25/2021	Siting Criteria	Siting Criteria	None	1	None
11	8/25/2021	Temperature2meter	RM Young	none	41342VC	029199
12	8/25/2021	Zero air pump	Twin Tower Engineering	90719	TT70/E4	526294

DAS Data Form

DAS Time Max Error: 0.25

Mfg	Serial Nur	nber Si	te T	Fechnician	Site Visit Date	Parameter	Use Desc.
Environmental S	Sys 2505	V	'OY413	Eric Hebert	08/25/2021	DAS	Primary
Das Date:	8 /26/2021	Audit Dat	e 8 /26/2021	Mfg	Datel	Parameter	DAS
Das Time: Das Day:	10:59:45 238	Audit Tim Audit Day	238	Serial Number	4000392	Tfer Desc.	Source generator (D
Low Channel:		High Chan	nel:	Tfer ID	01321		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0000	0.0000	0.00	0.0000	Cert Date	1/22/201	5 CorrCoff	1.00000
				Mfg	Fluke	Parameter	DAS
				Serial Number	86590148	Tfer Desc.	DVM
				Tfer ID	01310		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/11/202	CorrCoff	1.00000
Channel	Input D	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
7	0.0000	0.000	0.0000) V	V	0.0000	

Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit D	ate Param	eter	Owner ID
Alicat	Unknown		VOY413	Eri	c Hebert	08/25/2021	Flow R	ate	none
					Mfg	BIOS	P	arameter Flo	ow Rate
					Serial Number		Т	fer Desc. Bl	OS 530-H
					Tfer ID	01414			
					Slope	1.(00185 Inte	ercept	0.02453
					Cert Date	2/10)/2021 Cor	rCoff	0.99999
DAS 1:		DAS 2:			Cal Factor Z	ero	-0.00)8	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	: % Dif	Cal Factor F	ull Scale	5.0)2	
0.78%	1.01%				Rotometer R	eading:	3.1	15	
Desc.	Test type	Input l/n	n Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignal	I PctDifference
primary	pump off	0.000	0.000	0.00	0.0000	0.00	l/m	l/m	
primary	leak check	0.000	0.000	0.00	0.0000	0.01	l/m	l/m	
primary	test pt 1	3.004	2.970	2.99	0.0000	3.00	l/m	l/m	1.01%
primary	test pt 2	3.006	2.980	2.99	0.0000	3.00	l/m	l/m	0.67%
primary	test pt 3	3.007	2.980	2.99	0.0000	3.00	l/m	l/m	0.67%
Sensor Comp	onent Leak Tes	t		Conditio	on		Status	pass	
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Status	pass	
Sensor Comp	onent Filter Pos	ition		Conditio	n Good		Status	pass	
Sensor Comp	onent Rotomete	er Conditio	n	Conditio	n Clean and dry		Status	pass	
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	resent	Status	pass	
Sensor Comp	onent Filter Dist	tance		Conditio	n 6.0 cm		Status	pass	
Sensor Comp	onent Filter Dep	oth		Conditio	n 1.0 cm		Status	pass	
Sensor Comp	onent Filter Azir	muth		Conditio	n 180 deg		Status	pass	
Sensor Comp	onent System M	lemo		Conditio	n		Status	pass	

Ozone Data Form

Mfg	Serial Number	· Tag Site	Т	echnician	Site Visit Date	Parameter	Owner ID
ThermoElectron In	c 49C-66828-354	4 VOY413	B E	ric Hebert	08/25/2021	Ozone	90714
Slope: Intercept CorrCoff:	1.00433 Slope 0.49412 Interd 0.99998 Correl	: () cept () Coff: ()	0.00000 0.00000 0.00000	Mfg Serial Number	ThermoElectron	Inc Paramete	r ozone Ozone primary stan
				Tfer ID	01115		
DAS 1:	DA	.S 2:		Slope	1.0056	0 Intercept	0.14070
A Avg % Diff: A	Max % Dif A A	Avg %Diff A	Max % Dif	Cert Date	4/7/202	21 CorrCoff	0.99990
0.076	0.076				1 		· · · ·
UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	-0.01	-0.14	0.11	ppb		0.25
primary	2	14.43	14.02	14.68	ppb	1.02	0.66
primary	3	35.60	34.80	35.44	ppb	1.82	
primary	4	68.25	66.84	68.03	ррв	1./6	
primary	5	110.49	108.30	109.00	ррь	0.64	
Sensor Compo	nent Audit Pressur	re	Condit	ion Not tested		Status pass	
Sensor Compo	nent 26.6 degree u	unobstructed ru	le Condit	ion False		Status Fail	
Sensor Compo	nent Tree dewline	>10m or below	inlet Condit	<mark>ion</mark> 8.5 m		Status Fail	
Sensor Compo	nent ADT <100 ve	hicles further th	an 20 Condit	ion True		Status pass	
Sensor Compo	nent ADT >100 ve	hicles further th	an 50 Condit	ion True		Status pass	
Sensor Compo	nent Sample Train	1	Condit	ion Good		Status pass	
Sensor Compo	nent Inlet Filter Co	ondition	Condit	ion Clean		Status pass	
Sensor Compo	nent Offset		Condit	ion -0.2		Status pass	
Sensor Compo	nent Span		Condit	ion 1.002		Status pass	
Sensor Compo	nent Zero Voltage		Condit	ion -0.0001		Status pass	
Sensor Compo	nent Fullscale Volt	tage	Condit	ion 1.0000		Status pass	
Sensor Compo	nent Cell A Freq.		Condit	ion 104.8 kHz		Status pass	
Sensor Compo	nent Cell A Noise		Condit	ion 0.8 ppb		Status pass	
Sensor Compo	nent Cell A Flow		Condit	ion 0.71 lpm		Status pass	
Sensor Compo	nent Cell A Pressu	ıre	Condit	ion 718.6 mmHg		Status pass	
Sensor Compo	nent Cell A Tmp.		Condit	ion 37.8 C		Status pass	
Sensor Compo	nent Cell B Freq.		Condit	ion 85.9 kHz		Status pass	
Sensor Compo	nent Cell B Noise		Condit	ion 0.5 ppb		Status pass	
Sensor Compo	nent Cell B Flow		Condit	ion 0.73 lpm		Status pass	
Sensor Compo	nent Cell B Pressu	lre	Condit	ion 718.1 mmHg		Status pass	
Sensor Compo	nent System Mem	0	Condit	ion		Status pass	

2 Meter Temperature Data Form

Calc. Difference

Mfg	Serial Number	Serial Number Tag Site		Technician		Site Vis	sit Date Paran		er	Owner ID	
RM Young	029199	VOY413	E	Eric Hebert		08/25/2	2021 Tempera		ure2meter	none	
				Mfg Serial	Number	Extech H23267	9	Para Tfer	meter Tem Desc. RTD	perature	
				Tfer I	D	01228]			
DAS 1: DAS 2:				Slope			1.00751 Interce		ept	0.16174	
Abs Avg Err Abs Max Err Abs Avg Err Abs Max E				Cert Date			2/18/2021 CorrCoff		off	1.00000	
0.2	0.34										
UseDescription	Test type	InputTmpRaw	InputTmpCo	orrected	OutputTm	pSignal	OutputS	ignalEng	OSE Unit	Difference	
primary	Temp Low Rang	0.45		0.29		0.0000		0.63	С	0.34	
primary	Temp Mid Range	24.91		24.56		0.0000		24.80C		0.24	
primary	Temp High Rang	47.76		47.24		0.0000		47.27	С	0.03	
Sensor Component Shield			Condit	Condition Moderately clean				Status pa	ass		
Sensor Component Properly Sited			Condit	Condition Properly sited				Status pass			
Sensor Component Blower			Condit	Condition Functioning				Status pass			
Sensor Component System Memo			Condit	Condition				Status pass			
Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	none	VOY413	Eric Hebert	08/25/2021	Shelter Temperatu	re none
DAS 1:	DAS 2:		Mfg	Extech	Parameter S	helter Temperature
Abs Avg ErrAbs Max ErrAbs Avg ErrAbs Max Err1.702.03		Serial Number	H232679	Tfer Desc. R	TD	
			Tfer ID	01228		
			Slope	1.0075	1 Intercept	0.16174
			Cert Date	2/18/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference	
primary	Temp Mid Range	24.02	23.68	0.000	24.9	С	1.24	
primary	Temp Mid Range	23.30	22.97	0.000	24.8	С	1.83	
primary	Temp Mid Range	22.71	22.38	0.000	24.4	С	2.03	
Sensor Component System Memo Condition Status pass								

Infrastructure Data For

Site ID	VOY413	Technician Eric Het	ert Site Visit Date 08/25/2021
Shelter	Make	Shelter Model	Shelter Size
Ekto		8810 (s/n 2880-2)	640 cuft
19. 75. 6.77.49.3			

Sensor Component Sam	nple Tower Type	Condition	Туре В	Status	pass
Sensor Component Con	duit	Condition	Good	Status	pass
Sensor Component Met	Tower	Condition	Good	Status	pass
Sensor Component Mois	sture Trap	Condition	Installed	Status	pass
Sensor Component Mois	sture Trap Type	Condition	Filter	Status	pass
Sensor Component Pow	ver Cables	Condition	Good	Status	pass
Sensor Component She	Iter Temp Control	Condition	Functioning	Status	pass
Sensor Component Roto	ometer	Condition	Installed	Status	pass
Sensor Component Sam	nple Tower	Condition	Good	Status	pass
Sensor Component She	Iter Condition	Condition	Fair	Status	pass
Sensor Component She	lter Door	Condition	Good	Status	pass
Sensor Component She	lter Roof	Condition	Fair	Status	pass
Sensor Component She	Iter Floor	Condition	Fair	Status	pass
Sensor Component She	Iter walls	Condition	Fair	Status	pass
Sensor Component Exce	essive mold present	Condition	Good	Status	pass
Sensor Component Sign	al Cable	Condition	Good	Status	pass
Sensor Component Tubi	ing Type	Condition	3/8 teflon	Status	pass
Sensor Component Sam	nple Train	Condition	Good	Status	pass
Sensor Component Syst	tem Memo	Condition		Status	pass

Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status pass

Field Systems Comments

1 Parameter: SiteOpsProcComm

The site operator uses the filter bag to handle the dry deposition filter during installation and removal.

2 Parameter: DasComments

The sample tower itself is not grounded, however it is bolted to the shelter which is grounded. The roof leak above the instrument rack may have been repaired, it is dry at this time.

3 Parameter: SitingCriteriaCom

The site is located at the top of a hill in a forest. There are trees surrounding the site which are below the tower height, but within 10 m of the inlet.

4 Parameter: ShelterCleanNotes

The shelter is in fair condition, and is neat and well organized.

5 Parameter: PollAnalyzerCom

There are no trees violating the 22.5 degree cone above the ozone sample inlet. However, there is a communication tower which is above the 22.5 degree threshold.

F-02058-1500-S1-rev002

Site ID VOY413	Technician Eric Hebert	Site Visit Date 08/2	5/2021							
Site Sponsor (agency)	NPS	USGS Map	Ash River NE							
Operating Group	NPS	Map Scale								
AQS #	27-137-0034	Map Date								
Meteorological Type	Climatronics									
Air Pollutant Analyzer	Ozone, IMPROVE	QAPP Latitude	48.4128							
Deposition Measurement	dry, wet	QAPP Longitude	-92.8292							
Land Use	woodland - mixed	QAPP Elevation Meters	429							
Terrain	rolling	QAPP Declination								
Conforms to MLM	Marginally	QAPP Declination Date								
Site Telephone		Audit Latitude	48.412518							
Site Address 1	CR 129	Audit Longitude	-92.829225							
Site Address 2	Ash River Visitor Center Rd.	Audit Elevation	427							
County	St. Louis	Audit Declination	0.5							
City, State	Orr, MN	Present								
Zip Code	55771	Fire Extinguisher								
Time Zone	Central	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 2880-2)	Shelter Size 640 cuft							
Shelter Clean	Notes The shelter is in fair condition	n, and is neat and well organized								
Site OK	Notes									
Driving Directions From Duluth take route 53 north towards International Falls. Approximately 20 miles south of International Falls and just north of Orr, turn right (east) on County Road 129. Continue approximately 9.5 miles and turn left toward the Ash River Visitor Center. Continue approximately 1.5 miles and look for a closed gate on the right. The site is approximately 1 mile up the trail from the road.										

Fie	eld Sy	stems Data Fo	orm		F-02058-1500-S3-rev002					
Site	e ID	VOY413	Technician	Eric Hebert		Site Visit Date	08/25/2021]	
1	Are wind being in	d speed and direction fluenced by obstruction	sensors sited so ons?	as to avoid	✓	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 plu		✓	N/A					
4	4 Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?									
5	Are tem conditio surface a standing	perature and RH sens ns? (i.e. ground below and not steeply sloped swater should be avoi	ors sited to avo sensors should . Ridges, hollov ded)	id unnatural be natural vs, and areas of						
6	Is the so	lar radiation sensor p	lumb?		✓	N/A				
7	Is it site	l to avoid shading, or	any artificial o	r reflected light?	✓	N/A				
8	Is the ra	in gauge plumb?			✓	N/A				
9	Is it site towers, o	l to avoid sheltering e etc?	ffects from buil	dings, trees,	✓	N/A				
10	Is the su facing n	rface wetness sensor s orth?	ited with the g	rid surface	✓	N/A				
11	Is it incl	lined approximately 3	0 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:

E 02050 1500 82 .003

F-02058-1500-S4-rev002

Site	e ID	VOY413	Technician	Eric Hebert		Site Visit Date	08/25/2021	
1 2 3	 Do all the meterological sensors appear to be intact, in good condition, and well maintained? Are all the meteorological sensors operational online, and reporting data? Are the shields for the temperature and RH sensors clean? 					Temperature only Temperature only		
4	4 Are the aspirated motors working?							
5	Is the solar radiation sensor's lens clean and free of scratches?				✓	N/A		
6	Is the sur	rface wetness sensor g	grid clean and u	indamaged?	✓	N/A		
7 8	Are the s condition Are the s from the	eensor signal and pow n, and well maintained sensor signal and pow elements and well ma	er cables intact 1? er cable connec iintained?	, in good tions protected	✓			

Fi	eld Sy	stems Data Fo	orm			F-02058	8-1500-S5-rev002
Sit	e ID	VOY413	Technician Eric Hebert		Site Visit Date	08/25/2021	
	Siting C	Criteria: Are the pollut	ant analyzers and deposition e	<u>quip</u> ı	nent sited in accor	dance with 40 C	FR 58, Appendix E
1	Do the sunrestri	sample inlets have at le icted airflow?	ast a 270 degree arc of	✓			
2	Are the	sample inlets 3 - 15 me	eters above the ground?	✓			
3	Are the and 20	sample inlets > 1 mete meters from trees?	r from any major obstruction,		Trees within 8.5 me	eters	
	Pollutar	nt analyzers and depos	ition equipment operations an	d ma	intenance		
1	Do the a condition	analyzers and equipme on and well maintained	nt appear to be in good ?	✓			
2	Are the reportin	analyzers and monitor ng data?	s operational, on-line, and	✓			
3	Describ	e ozone sample tube.			1/4 teflon by 12 me	eters	
4	Describ	e dry dep sample tube.			3/8 teflon by 9 mete	ers	
5	Are in-l indicate	line filters used in the o e location)	zone sample line? (if yes	✓	At inlet only		
6	Are san obstruc	nple lines clean, free of tions?	kinks, moisture, and	✓			
7	Is the ze	ero air supply desiccan	t unsaturated?	✓			
8	Are the	re moisture traps in th	e sample lines?				
9	Is there clean?	e a rotometer in the dry	deposition filter line, and is it	✓	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:

There are no trees violating the 22.5 degree cone above the ozone sample inlet. However, there is a communication tower which is above the 22.5 degree threshold.

Fi	eld Sy	stems Data Fo	orm				F	-02058-1	500-S6-rev002
Site	e ID	VOY413	Technician	Eric Hebert		Site Visit	Date 08/25	/2021	
	DAS, se	nsor translators, and	peripheral equi	pment operation	<u>15 ai</u>	<u>ıd maintenan</u>	<u>ce</u>		
1	Do the l well ma	DAS instruments appe intained?	ear to be in good	l condition and					
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 o	only		
4	4 Are the signal connections protected from the weather and well maintained?								
5	Are the	signal leads connected	l to the correct]	DAS channel?	✓				
6	Are the grounde	DAS, sensor translato ed?	ors, and shelter	properly	✓				
7	Does the	e instrument shelter h	ave a stable pov	ver source?	✓				
8	Is the in	strument shelter temp	oerature contro	lled?					
9	Is the m	et tower stable and gr	ounded?			Stable		Grounde	ed
10	Is the sa	mple tower stable and	l grounded?						
11	Tower o	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:

The sample tower itself is not grounded, however it is bolted to the shelter which is grounded. The roof leak above the instrument rack may have been repaired, it is dry at this time.

Fie	eld Systems I	Data Fo	rm				F-0 2	2058-	-1500-S	7-rev002
Site	VOY413		Tech	nician	Eric Hebert	Site Visit Dat	e 08/25/202	1		
D	<u>ocumentation</u>									
D	oes the site have the	required in	<u>ıstrume</u>	nt and	equipment manuals?					
		Yes	No	N/A	A		Yes	No	N/A	
Win	d speed sensor			\checkmark	Data logge	er				
Win	d direction sensor			✓	Data logge	er				
Tem	perature sensor				Strip char	t recorder				
Rela	tive humidity senso	r 🗌			Computer					
Sola	r radiation sensor				Modem					
Surf	face wetness sensor				Printer					
Win	d sensor translator				Zero air p	ump				
Tem	iperature translator				Filter flow	pump				
Hun	nidity sensor transla	tor 🗆			Surge prot	tector				
Sola	r radiation translate)r			UPS					
Тірр	bing bucket rain gau	ge			Lightning	protection devic				
UZ0	ne analyzer				Shelter he	ater				
Filte	er pack flow controll	er 🗆			Shelter air	· conditioner		V		
Flite	er pack MFC power	supply 🗀								
	Does the site have th	<u>le required</u>	and mo	st recei	<u>nt QC documents and</u>	report forms?				
		Pre	esent				Curre	ent		
Stat	ion Log			Datavie	W		\checkmark			
SSR	F						\checkmark			
Site	Ops Manual			Jan 200)6		\checkmark			
HAS	SP									
Field	d Ops Manual									
Cali	bration Reports									
Ozo:	ne z/s/p Control Cha	irts								
Prev	ventive maintenance	schedule								
1	Is the station log pr	operly com	pleted d	luring e	every site visit? 🔽 🗖	ataview				
2	Are the Site Status current?	Report For	ms bein	g comp	oleted and 🔽 F	low section only				
3	Are the chain-of-cu sample transfer to a	stody forms and from la	s prope b?	rly used	d to document 🗹					
4	Are ozone z/s/p con current?	trol charts	properl	y comp	leted and 🔲 C	Control charts not	used			
Prov natu	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:									
	,	•								

F-02058-1500-S8-rev002

Site	Technician Eric Hebert		Site Visit Date 08/25/2021	
	Site operation procedures	_ [
1	Has the site operator attended a formal CASTNET trainic course? If yes, when and who instructed?	ng 🗌	Irained by ARS	
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)	'm 🗹		
	Are regular operational OA/OC checks performed on met	eorologi	ical instruments?	

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

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

~~~	~ .	-	
<b>OC</b>	Check	Pert	ormed
VU.	CHUCK	IUII	UT MICO

**Multi-point Calibrations Automatic Zero/Span Tests** Manual Zero/Span Tests **Automatic Precision Level Tests** Manual Precision Level Test **Analyzer Diagnostics Tests In-line Filter Replacement (at inlet) In-line Filter Replacement (at analyze** Sample Line Check for Dirt/Water Zero Air Desiccant Check

Frequency	Со
Semiannually	
Daily	
Weekly	
Daily	
Weekly	
Alarm values only	
Every 3 weeks	
N/A	
Weekly	
Weekly	

- 1 Do multi-point calibration gases go through the complete sample train including all filters?
- 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?

	Unknown	
✓		
✓	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:

### Compliant

#### **Field Systems Data Form** F-02058-1500-S9-rev002 VOY413 Technician Eric Hebert Site Visit Date 08/25/2021 Site ID Site operation procedures Is the filter pack being changed every Tuesday as scheduled? Filter changed various times 1 Are the Site Status Report Forms being completed and filed 2 correctly? No longer required 3 Are data downloads and backups being performed as scheduled? ✓ SSRF Are general observations being made and recorded? How? 4 ✓ Are site supplies on-hand and replenished in a timely 5 fashion? SSRF Are sample flow rates recorded? How? 6 $\checkmark$ Are samples sent to the lab on a regular schedule in a timely 🗹 7 fashion? ✓ Are filters protected from contamination during handling 8 and shipping? How? Are the site conditions reported regularly to the field 9 operations manager or staff? **QC Check Performed** Compliant Frequency $\checkmark$ Semiannually **Multi-point MFC Calibrations** ✓ Weekly ✓ **Flow System Leak Checks Filter Pack Inspection** $\checkmark$ ✓ Weekly **Flow Rate Setting Checks** ✓ Weekly $\checkmark$ Visual Check of Flow Rate Rotometer ✓ As needed $\checkmark$ **In-line Filter Inspection/Replacement** $\checkmark$ ✓ Weekly 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:

The site operator uses the filter bag to handle the dry deposition filter during installation and removal.

Field Systems Data Form					F-02058-1500-S10-rev00				
	Site ID	VOY413	Technician	Eric Hebert	Site Visit Date	08/25/2021			

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Environmental Sys Corp	8816	2505	90632
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	081700057764	none
Flow Rate	Alicat	MC-10SLPM-D-PCV	Unknown	none
Infrastructure	Infrastructure	none	none	none
Ozone	ThermoElectron Inc	49C	49C-66828-354	90714
Ozone Standard	ThermoElectron Inc	49C	49C-59260-322	90569
Sample Tower	Aluma Tower	В	AT-51159-11-G	none
Shelter Temperature	ARS	none	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	RM Young	41342VC	029199	none
Zero air pump	Twin Tower Engineering	TT70/E4	526294	90719

# Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
SND	152-Eric H	lebert-08/29/2021				
1	8/29/2021	DAS	Campbell	000357	CR3000	2135
2	8/29/2021	Ozone	ThermoElectron Inc	000743	49i A1NAA	1105347321
3	8/29/2021	Ozone Standard	ThermoElectron Inc	000704	49i A3NAA	1030244816
4	8/29/2021	Zero air pump	Werther International	06907	C 70/4	000829179

## **Ozone Data Form**

Mfg		Serial Numbe	er Tag Site		Те	chnician	Site Visit Date	Parameter	<b>Owner ID</b>
ThermoElect	tron Inc	1105347321	SND1	52	Eri	ic Hebert	08/29/2021	Ozone	000743
Slope: [ Intercept [ CorrCoff: [		1.00921         Slop           0.52639         Intel           1.00000         Corr	e: rcept rCoff:	0.00000 0.00000 0.00000		Mfg Serial Number Tfer ID	ThermoElectron 1180930075 01115	Inc Paramete	r ozone Ozone primary stan
DAS 1:		D	AS 2:			Slope	1.0056	0 Intercent	0.14070
A Avg % Di	iff: A N	Iax % Dif A	Avg %Diff	A Max %	Dif	Stope			
0.0	)%	0.0%				Cert Date	4/7/202	1 CorrCoff	0.99990
UseDescri	ption	ConcGroup	Tfer Raw	Tfe	r Corr	Site	Site Unit	RelPerDif	AbsDif
primar	y I	1	0.13	-(	0.01	0.69	ppb		0.7
primar	y	2	14.26	13	3.85	14.39	ppb		0.54
primar	y	3	31.30	30	0.58	31.34	ppb	2.45	
primar	y	4	68.49	67	7.08	68.12	ppb	1.54	
primar	y	5	110.98	10	8.78	110.40	ppb	1.48	
Sensor Co	ompone	nt Audit Press	ure		Conditio	<b>733.3 mmHg</b>		Status pass	
Sensor Co	ompone	nt 26.6 degree	unobstructed	rule	Conditio	n True		Status pass	
Sensor Co	ompone	nt Tree dewline	e >10m or belo	w inlet	Conditio	n True		Status pass	
Sensor Co	ompone	nt ADT <100 v	ehicles further	than 20	Conditio	<b>)n</b> 170 m		Status Fail	
Sensor Co	ompone	nt ADT >100 v	ehicles further	than 50	Conditio	<b>on</b> 170 m		Status Fail	
Sensor Co	ompone	<mark>nt</mark> Sample Trai	'n		Conditio	on Good		Status pass	
Sensor Co	ompone	nt Inlet Filter C	ondition		Conditio	Moderately cle	an	Status pass	
Sensor Co	ompone	nt Offset			Conditio	on -0.50		Status pass	
Sensor Co	ompone	nt Span			Conditio	ition 1.013		Status pass	
Sensor Co	ompone	nt Zero Voltag	e		Conditio	on N/A		Status pass	
Sensor Co	ompone	nt Fullscale Vo	ltage		Conditio	on N/A		Status pass	
Sensor Co	ompone	nt Cell A Freq.			Conditio	on 104.9 kHz		Status pass	
Sensor Co	ompone	nt Cell A Noise	;		Conditio	<b>0.9</b> ppb		Status pass	
Sensor Co	ompone	nt Cell A Flow			Conditio	on 0.61 lpm		Status pass	
Sensor Co	ompone	nt Cell A Press	sure		Conditio	<b>)n</b> 700.0 mmHg		Status pass	
Sensor Co	ompone	nt Cell A Tmp.			Conditio	<b>34.5</b> C		Status pass	
Sensor Co	ompone	nt Cell B Freq.			Conditio	99.7 kHz		Status pass	
Sensor Co	ompone	nt Cell B Noise	;		Conditio	<b>0.8</b> ppb		Status pass	
Sensor Co	ompone	nt Cell B Flow			Conditio	on 0.69 lpm		Status pass	
Sensor Co	ompone	nt Cell B Press	sure		Conditio	<b>700.7 mmHg</b>		Status pass	
Sensor Co	ompone	nt System Mer	no	•	Conditio	on		Status pass	

# Site Inventory by Site Visit

Site <b>I</b>	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number				
ROM206-Martin Valvur-09/23/2021										
1	9/23/2021	Computer	Dell	07068	Inspiron 15	552MC12				
2	9/23/2021	DAS	Campbell	000419	CR3000	2527				
3	9/23/2021	Dilution system	Teledyne	000790	T700U	110				
4	9/23/2021	Elevation	Elevation	None	1	None				
5	9/23/2021	Filter pack flow pump	Thomas	01339	107CAB18	00002630587				
6	9/23/2021	Flow Rate	Арех	000598	AXMC105LPMDPCV	unknown				
7	9/23/2021	Infrastructure	Infrastructure	none	none	none				
8	9/23/2021	Modem	Digi	07127	LR54	Illegible				
9	9/23/2021	Noy	Teledyne	000798	T200U	103				
10	9/23/2021	Ozone	ThermoElectron Inc	000683	49i A1NAA	1030244798				
11	9/23/2021	Ozone Standard	ThermoElectron Inc	000464	49i A3NAA	0622717858				
12	9/23/2021	Sample Tower	Aluma Tower	000810	С	Unknowm				
13	9/23/2021	Shelter Temperature	Campbell	none	107-L	none				
14	9/23/2021	Siting Criteria	Siting Criteria	None	1	None				
15	9/23/2021	Temperature	RM Young	06309	41342	12534				
16	9/23/2021	Zero air pump	Werther International	06917	PC70/4	000829166				
17	9/23/2021	Zero air system	Teledyne	000777	701H	607				

## **DAS Data Form**

DAS Time Max Error:

0

Mfg	Serial Nur	nber Site	Т	echnician	Site Visit Date	Parameter	Use Desc.
Campbell	2527	ROM	I206	/lartin Valvur	09/23/2021	DAS	Primary
Das Date: Das Time:	9 /23/2021 08:31:00	Audit Date	9 /23/2021 08:31:00	Mfg	HY	Parameter	DAS
Das Day:	266	Audit Day	266	Serial Number	12010039329	Tfer Desc.	Source generator (D
Low Channel:		High Channel:	:	Tfer ID	01322		
Avg Diff:	Max Diff:	Avg Diff:	Max Diff:	Slope	1.0000	0 Intercept	0.00000
0.0002	0.0007	0.0002	0.0007	Cert Date	6/15/201	4 CorrCoff	1.00000
				Mfg	Fluke	Parameter	DAS
				Serial Number	95740243	Tfer Desc.	DVM
				Tfer ID	01312		
				Slope	1.0000	0 Intercept	0.00000
				Cert Date	2/11/202	1 CorrCoff	1.00000
Channel	Input D	VM Output	DAS Output	InputUnit	OutputUnit	Difference	
7	0.0000	-0.0005	-0.0006	V	V	-0.0001	
7	0.1000	0.0995	0.0998	V	V	0.0003	
7	0.3000	0.2995	0.2996	V	V	0.0001	
7	0.5000	0.4994	0.4993	V	V	-0.0001	
7	0.7000	0.7008	0.7001	V	V	-0.0007	
7	0.9000	0.8996	0.8996	V	V	0.0000	
7	1.0000	0.9993	0.9994	V	V	0.0001	

## Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit Da	ate Paran	neter	<b>Owner ID</b>
Apex	unknown		ROM206	Ma	artin Valvur	09/23/2021	Flow R	late	000598
					Mfg	BIOS	Р	arameter Flo	w Rate
					Serial Number	148613	Т	fer Desc. BIC	S 220-H
					Tfer ID	01421			
					Slope	1.0	0850 Inte	ercept	0.00160
					Cert Date	2/10	/2021 <b>Co</b>	rrCoff	0.99999
DAS 1:		<b>DAS 2:</b>			Cal Factor Z	ero	-0.0	01	
A Avg % Diff:	A Max % Dif	A Avg %	Diff A Max	% Dif	Cal Factor F	ull Scale	0.9	97	
0.33%	0.67%				<b>Rotometer R</b>	eading:	3	8.8	
Desc.	Test type	Input l/n	n Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference
primary	pump off	0.000	0.000	0.00	0.000	-0.01	l/m	l/m	
primary	leak check	0.000	0.000	0.00	0.000	-0.01	l/m	l/m	
primary	test pt 1	3.040	3.010	3.07	0.000	3.00	l/m	l/m	-0.33%
primary	test pt 2	3.030	3.000	3.07	0.000	3.00	l/m	l/m	0.00%
primary	test pt 3	3.020	2.990	3.07	0.000	3.01	l/m	l/m	0.67%
Sensor Comp	<mark>onent</mark> Leak Tes	t		Conditio	on		Statu	s pass	
Sensor Comp	onent Tubing C	ondition		Conditio	n Good		Statu	s pass	
Sensor Comp	onent Filter Pos	sition		Conditio	Good		Statu	s pass	
Sensor Comp	onent Rotomete	er Conditic	n	Conditio	Clean and dry		Statu	s pass	
Sensor Comp	onent Moisture	Present		Conditio	n No moisture pr	resent	Statu	s pass	
Sensor Comp	onent Filter Dis	tance		Conditio	<b>n</b> 5.5 cm		Statu	s pass	
Sensor Comp	onent Filter Dep	oth		Conditio	n 1.0 cm		Statu	s pass	
Sensor Comp	onent Filter Azi	muth		Conditio	n 225 deg		Statu	s pass	
Sensor Comp	onent System N	/lemo		Conditio	on		Statu	s pass	

## **Ozone Data Form**

Mfg	Serial Number	Tag Site	Т	echnician	Site Visit Date	Parameter	<b>Owner ID</b>	
ThermoElectron Inc	1030244798	ROM20	6 N	/lartin Valvur	09/23/2021	Ozone	000683	
Slope: Intercept CorrCoff:	1.00892       Slope:       0.00000       Mfg       ThermoElectration         -0.36857       Intercept       0.00000       Serial Number       49CPS-70000         0.99995       CorrCoff:       0.00000       Tfer ID       01110		ThermoElectron 49CPS-70008-30 01110	Inc Paramete	r ozone . Ozone primary stan			
DAS 1:	DA	S 2:		Slope	1 0034	0 Intercent	0.02230	
A Avg % Diff: A N	Max % Dif A A	Avg %Diff A	Max % Dif	Slope	1.0004	intercept	0.02200	
0.0%	0% 0.0% Cert Date 1/20/202		21 CorrCoff	1.00000				
UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif	
primary	1	0.04	0.01	0.24	ppb		0.23	
primary	2	16.35	16.27	15.85	ppb		-0.42	
primary	3	36.72	36.58	36.15	ppb	-1.18		
primary	4	65.48	65.25	65.10	ppb	-0.23		
primary	5	118.16	117.77	118.80	ppb	0.87		
Sensor Compone	ent Audit Pressu	re	Condi	tion 555 mmHg		Status pass		
Sensor Compone	ent 26.6 degree u	unobstructed ru	le Condi	tion True		Status pass		
Sensor Compone	ent Tree dewline	>10m or below	inlet Condi	t <mark>ion</mark> True		Status pass		
Sensor Compone	ent ADT <100 ve	hicles further th	an 20 Condi	tion 70 m		Status Fail		
Sensor Compone	ent ADT >100 ve	hicles further th	an 50 Condi	t <mark>ion</mark> 270 m		Status Fail		
Sensor Compone	ent Sample Train	1	Condi	tion Good		Status pass		
Sensor Compone	ent Inlet Filter Co	ondition	Condi	t <mark>ion</mark> Clean		Status pass		
Sensor Compone	ent Offset		Condi	tion -0.2		Status pass		
Sensor Compone	ent Span		Condi	tion 1.031		Status pass		
Sensor Compone	ent Zero Voltage		Condi	tion N/A		Status pass		
Sensor Compone	ent Fullscale Volt	tage	Condi	tion N/A		Status pass		
Sensor Compone	ent Cell A Freq.		Condi	tion 92.4 kHz		Status pass		
Sensor Compone	ent Cell A Noise		Condi	tion 0.8 ppb		Status pass		
Sensor Compone	ent Cell A Flow		Condi	tion 0.60 lpm		Status pass		
Sensor Compone	ent Cell A Pressu	ure	Condi	tion 526.9 mmHg		Status pass		
Sensor Compone	ent Cell A Tmp.		Condi	tion 37.8 C		Status pass		
Sensor Compone	ent Cell B Freq.		Condi	t <mark>ion</mark> 92.8 kHz		Status pass		
Sensor Compone	ent Cell B Noise		Condi	tion 0.7 ppb		Status pass		
Sensor Compone	ent Cell B Flow		Condi	t <mark>ion</mark> 0.61 lpm		Status pass		
Sensor Compone	ent Cell B Pressu	ure	Condi	tion 526.3 mmHg		Status pass		
Sensor Compone	ent System Mem	0	Condi	tion		Status pass		

# **Temperature Data Form**

Mfg	Serial Number	Tag Site	Т	Technician S		Site V	isit Date	Paramo	eter	<b>Owner ID</b>	)
RM Young	12534	ROM206	I	Martin	Valvur	09/23	/2021	Temper	ature	06309	
				Mfg		Fluke		Pa	rameter Te	mperature	
			Serial Number		32751	3275143 Tf		er Desc. R	ſD		
				Tfer ID		01229					
DAS 1: DAS 2:				Slo	ре	0.99975 Intercept		rcept	-0.00824		
Abs Avg Err Abs Max Err Abs Avg Err Abs Ma			Max Err	ax Err Cert Date			2/9/202	1 Corr	rCoff	1.000	00
0.14	0.20										
UseDesc.	Test type	InputTmpRaw	InputTmp	Corr.	OutputTmpS	Signal	gnal OutputSignalEng		OSE Unit	Difference	
primary	Temp Low Range	0.04	0.05		0.000		0.1		С	0.08	
primary	Temp Mid Range	22.93	22.94		0.000		22.	8	С	-0.15	
primary	Temp High Range	48.92	48.94		0.000		49.	1	С	0.2	
Sensor Com	ponent Shield		Condi	tion C	Clean			Status	pass		
Sensor Component Blower				Condition N/A				Status	pass		
Sensor Component Properly Sited				Condition Properly sited				Status	Status pass		
Sensor Com	ponent System Memo	,	Condi	Condition				Status pass			

# Shelter Temperature Data For

Mfg	Serial Number Tag	Site	Technician	Site Visit Date	Parameter	<b>Owner ID</b>
Campbell	none	ROM206	Martin Valvur	09/23/2021	Shelter Temperatur	re none
DAS 1:	<b>DAS 2:</b>		Mfg	Fluke	Parameter St	nelter Temperature
Abs Avg Err Abs	Max Err Abs Avg 0.51	Err Abs Max Err	Serial Number	3275143	Tfer Desc. R	TD
			Tfer ID	01229		
			Slope	0.9997	75 Intercept	-0.00824
			Cert Date	2/9/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	26.05	26.06	0.000	26.1	С	0.01
primary	Temp Mid Range	24.77	24.78	0.000	25.3	С	0.48
primary	Temp Mid Range	25.05	25.06	0.000	25.6	С	0.51
Sensor Con	nponent System Memo	•	Status pass				

# Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status pass

### **Infrastructure Data For**

Site ID	ROM206	Technician Martin V	alvur Site Visit Date 09/23/2021
Shelter	Make	Shelter Model	Shelter Size
Ekto		8810 (s/n 2182-1)	640 cuft

Sensor Component Sample Tower Type	Condition	Туре В	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	3/8 teflon	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:** ShelterCleanNotes

The shelter is clean, neat, and well organized. There are signs of previous roof leaks, but they have been repaired. The floor and counter top have been replaced.

### 2 Parameter: MetSensorComme

The temperature sensor has been removed from the met tower and mounted in a naturally aspirated shield on the sample tower, facing south and over the shelter roof.

## F-02058-1500-S1-rev002

Site ID ROM206	Technician Martin Valvur	Site Visit Date 09/2	3/2021							
Site Sponsor (agency)	EPA	USGS Map	Longs Peak							
Operating Group	private	Map Scale								
	08-069-9991	Map Date								
Meteorological Type			[]							
Air Pollutant Analyzer	ir Pollutant Analyzer Ozone, IMPROVE		40.2778							
<b>Deposition Measurement</b>	dry	QAPP Longitude	-105.5453							
Land Use	woodland - mixed	<b>QAPP Elevation Meters</b>	2743							
Terrain	Terrain complex		10.3							
Conforms to MLM	Marginally	QAPP Declination Date	2/22/2006							
Site Telephone	(970) 586-2598	Audit Latitude	40.27812							
Site Address 1	High Peak Camp	Audit Longitude	-105.545635							
Site Address 2	Route 7	Audit Elevation	2742							
County	Larimer	Audit Declination	9.0							
City, State	Estes Park, CO	Present								
Zip Code	80517	Fire Extinguisher 🗹	New in 2015							
Time Zone	Mountain	First Aid Kit								
<b>Primary Operator</b>		Safety Glasses								
Primary Op. Phone #		Safety Hard Hat 🗹								
Primary Op. E-mail		Climbing Belt								
<b>Backup Operator</b>		Security Fence								
Backup Op. Phone #		Secure Shelter								
Backup Op. E-mail		Stable Entry Steps ☑								
Shelter Working Room	Make Ekto M	odel 8810 (s/n 2182-1)	Shelter Size 640 cuft							
Shelter Clean	Notes The shelter is clean, neat, and been repaired. The floor and c	l well organized. There are sig counter top have been replaced	ns of previous roof leaks, but they have							
Site OK	Notes									
Driving Directions From for Hig	<b>Driving Directions</b> From Estes Park take route 7 south approximately 8.5 miles. Turn right onto Preservation Road (dirt road) at the sign for High Peak Camp operated by the Salvation Army. The site is approximately 100 meters on the left.									

I Systems Data Fo	orm			<b>F-0205</b>	8-1500-	<b>S3-rev002</b>
ROM206	Technician Ma	rtin Valvur	Site Visit Date	09/23/2021		
re wind speed and direction ing influenced by obstruction	sensors sited so as pons?	to avoid 🔽	N/A			
re wind sensors mounted so e. wind sensors should be m rizontally extended boom > wer into the prevailing wind	as to minimize tow ounted atop the toy 2x the max diamete )	er effects? wer or on a er of the	N/A			
e the tower and sensors plu	mb?	$\checkmark$	N/A			
e the temperature shields p oid radiated heat sources su	ointed north or pos och as buildings, wa	sitioned to	South			
re temperature and RH sens nditions? (i.e. ground below rface and not steeply sloped anding water should be avoi	ors sited to avoid u sensors should be . Ridges, hollows, a ded)	innatural natural ind areas of				
the solar radiation sensor <b>p</b>	lumb?		N/A			
it sited to avoid shading, or	any artificial or re	flected light? 🗹	N/A			
the rain gauge plumb?			N/A			
it sited to avoid sheltering e wers, etc?	ffects from building	gs, trees,	N/A			
the surface wetness sensor s cing north?	ited with the grid s	surface 🔽	N/A			
it inclined approximately 3	0 degrees?		N/A			
	ROM206 re wind speed and direction ing influenced by obstruction re wind sensors mounted so e. wind sensors mounted so e. wind sensors should be main rizontally extended boom > wer into the prevailing wind re the tower and sensors plu re the temperature shields provide a sources sur- re temperature and RH senses nditions? (i.e. ground below rface and not steeply sloped anding water should be avoir the solar radiation sensor pro- it sited to avoid shading, or the rain gauge plumb? it sited to avoid sheltering end wers, etc? the surface wetness sensor so cing north? it inclined approximately 3	ROM206       Technician       Ma         e wind speed and direction sensors sited so as ing influenced by obstructions?       Technician       Ma         e wind sensors mounted so as to minimize tow       e. wind sensors should be mounted atop the tow       rizontally extended boom >2x the max diameted wer into the prevailing wind)         re the tower and sensors plumb?       Technician       Ma         re the tower and sensors plumb?       Technician       Ma         re the temperature shields pointed north or posoid radiated heat sources such as buildings, was       Technician       Ma         re temperature and RH sensors sited to avoid unditions? (i.e. ground below sensors should be       rface and not steeply sloped. Ridges, hollows, a       Ma         the solar radiation sensor plumb?       Technician or re       Technician or re         the rain gauge plumb?       Technician or re       Technician or re         the surface wetness sensor sited with the grid second or re       Technician or re         the surface wetness sensor sited with the grid second or re       Technician or re         the surface wetness sensor sited with the grid second or re       Technician or re         the surface wetness sensor sited with the grid second or re       Technician or re         the surface wetness sensor sited with the grid second or re       Technician or re         the surface wetness sensor sited with the grid second or	ROM206       Technician       Martin Valvur         e wind speed and direction sensors sited so as to avoid ing influenced by obstructions?       Image: Comparison of the town of the tow	ROM206       Technician       Martin Valvur       Site Visit Date         e wind speed and direction sensors sited so as to avoid ing influenced by obstructions?       N/A       N/A         e wind sensors mounted so as to minimize tower effects?       N/A       N/A         e wind sensors should be mounted atop the tower or on a rizontally extended boom >2x the max diameter of the wer into the prevailing wind)       N/A         e the tower and sensors plumb?       N/A         e the temperature shields pointed north or positioned to oid radiated heat sources such as buildings, walls, etc?       South         e temperature and RH sensors sited to avoid unnatural nditions? (i.e. ground below sensors should be natural rface and not steeply sloped. Ridges, hollows, and areas of inding water should be avoided)       N/A         the solar radiation sensor plumb?       N/A         it sited to avoid shading, or any artificial or reflected light?       N/A         it sited to avoid sheltering effects from buildings, trees, wers, etc?       N/A         the surface wetness sensor sited with the grid surface cing north?       N/A         it inclined approximately 30 degrees?       N/A	ROM206       Technician       Martin Valvur       Site Visit Date       09/23/2021         e wind speed and direction sensors sited so as to avoid ing influenced by obstructions?       N/A       N/A         e wind sensors mounted so as to minimize tower effects?       N/A       N/A         e wind sensors should be mounted atop the tower or on a rizontally extended boom >2x the max diameter of the ver into the prevailing wind)       N/A       N/A         e the tower and sensors plumb?       N/A       N/A       South         id radiated heat sources such as buildings, walls, etc?       South       South         id radiated heat sources such as buildings, walls, etc?       N/A       N/A         re temperature and RH sensors should be natural rface and not steeply sloped. Ridges, hollows, and areas of unding water should be avoided)       N/A         the solar radiation sensor plumb?       N/A       N/A         it sited to avoid shading, or any artificial or reflected light?       N/A         it sited to avoid sheltering effects from buildings, trees, were, etc?       N/A       N/A         the surface wetness sensor sited with the grid surface cing north?       N/A       N/A	ROM206       Technician       Martin Valvur       Site Visit Date       09/23/2021         e wind speed and direction sensors sited so as to avoid ing influenced by obstructions?       N/A       N/A         e wind sensors mounted so as to minimize tower effects?       N/A       N/A         e wind sensors mounted so as to minimize tower effects?       N/A       N/A         e wind sensors mounted atop the tower or on a rizontally extended boom >2x the max diameter of the over or on a rizontally extended boom >2x the max diameter of the over and sensors plumb?       N/A         e the tower and sensors plumb?       N/A       South         e temperature and RH sensors sited to avoid unnatural rface and not steeply sloped. Ridges, hollows, and areas of unding water should be avoided)       N/A         the solar radiation sensor plumb?       N/A         it sited to avoid shading, or any artificial or reflected light?       N/A         it sited to avoid sheltering effects from buildings, trees, wers, etc?       N/A         the surface wetness sensor sited with the grid surface ing north?       N/A         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 has been removed from the met tower and mounted in a naturally aspirated shield on the sample tower, facing south and over the shelter roof.

## F-02058-1500-S4-rev002

Site	e ID	ROM206	Technician	Martin Valvur		Site Visit Date 09/23/2	2021	
1	Do all th condition	e meterological senso 1, and well maintained	rs appear to be d?	intact, in good	✓	Temperature only		
2	Are all the reporting	he meteorological sen g data?	sors operationa	l online, and	✓	Temperature only		
3	Are the s	shields for the temper	ature and RH s	ensors clean?	✓			
4	Are the a	aspirated motors wor	king?			N/A		
5	Is the sol scratche	ar radiation sensor's s?	lens clean and f	free of		N/A		
6	Is the su	rface wetness sensor g	grid clean and u	indamaged?	✓	N/A		
7	Are the s condition	sensor signal and pow	er cables intact d?	, in good		Signs of wear		
8	Are the s from the	sensor signal and pow elements and well ma	er cable connec aintained?	ctions protected	✓			

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-85-rev0					
Sit	e ID	ROM206	<b>Technician</b>	artin Valvur		Site Visit Date	09/23/2021			
	Siting C	Criteria: Are the pollu	tant analyzers and	deposition equ	<u>iipn</u>	<u>nent sited in accor</u>	dance with 40 C	<u>CFR 58, A</u>	<u>ppendix E</u>	
1	Do the sunrestri	sample inlets have at le icted airflow?	east a 270 degree a	nrc of						
2	Are the	sample inlets 3 - 15 m	eters above the gr	ound?	✓					
3	3 Are the sample inlets > 1 meter from any major obstruction and 20 meters from trees?									
	Polluta	nt analyzers and depos	sition equipment o	perations and	mai	<u>ntenance</u>				
1	Do the a condition	analyzers and equipmon and well maintained	ent appear to be in d?	ı good	✓					
2	Are the reportin	analyzers and monito ng data?	rs operational, on	-line, and	✓					
3	Describ	e ozone sample tube.				1/4 teflon by 12 me	eters			
4	Describ	e dry dep sample tube	<b>).</b>			3/8 teflon by 12 me	eters			
5	Are in-l indicate	line filters used in the electric location)	ozone sample line?	' (if yes		At inlet only				
6	Are san obstruc	nple lines clean, free of tions?	f kinks, moisture,	and	✓					
7	Is the zo	ero air supply desicca	nt unsaturated?		✓					
8	Are the	re moisture traps in th	ne sample lines?		✓					
9	Is there clean?	a rotometer in the dr	y deposition filter	line, and is it		Clean and dry				

Fi	eld Sy	stems Data Fo	orm				<b>F-0</b> 2	2058-15	00-S6-rev002
Site	e ID	ROM206	Technician	Martin Valvur		Site Visit Da	te 09/23/202	1	
	DAS, sei	<u>nsor translators, and j</u>	peripheral equi	pment operation	<u>ns ar</u>	<u>nd maintenance</u>			
1	Do the E well mai	AS instruments appe ntained?	ar to be in good	l condition and	✓				
2	Are all t modem,	he components of the backup, etc)	DAS operation	al? (printers,	✓				
3 Do the analyzer and sensor signal leads pass through lightning protection circuitry?					✓	Temperature only	ý		
4	4 Are the signal connections protected from the weather and well maintained?				✓				
5	5 Are the signal leads connected to the correct DAS channel?				✓				
6	Are the grounde	DAS, sensor translato d?	rs, and shelter	properly	✓				
7	Does the	instrument shelter h	ave a stable pov	ver source?	✓				
8	Is the in	strument shelter temp	perature contro	lled?					
9	Is the m	et tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	mple tower stable and	l grounded?						
11	Tower c	omments?						Ľ	

Field Systems Data Form						<b>F-0</b>	F-02058-1500-S7-rev002		
Site ID	ROM206		Tech	nician	Martin Valvur Site Visit D	ate 09/23/202	21		
<b>Docume</b>	ntation								
Does the	e site have the requir	ed ins	strume	ent and	<u>equipment manuals?</u>				
		Yes	No	<b>N/</b> .	A	Yes	No	N/A	
Wind speed	d sensor			✓	Data logger		$\checkmark$		
Wind direc	ction sensor			✓	Data logger				
Temperatu	ire sensor		$\checkmark$		Strip chart recorder			$\checkmark$	
Relative hu	imidity sensor			$\checkmark$	Computer	$\checkmark$			
Solar radia	tion sensor			✓	Modem		$\checkmark$		
Surface we	tness sensor			$\checkmark$	Printer			$\checkmark$	
Wind sense	or translator			$\checkmark$	Zero air pump		$\checkmark$		
Temperatu	re translator			$\checkmark$	Filter flow pump		$\checkmark$		
Humidity s	ensor translator			$\checkmark$	Surge protector				
Solar radia	tion translator			$\checkmark$	UPS		$\checkmark$		
Tipping bu	cket rain gauge			$\checkmark$	Lightning protection de	vice 🗌		$\checkmark$	
Ozone anal	lvzer				Shelter heater		$\checkmark$		
Filter pack	flow controller				Shelter air conditioner		$\checkmark$		
Filter pack	MFC power supply								
Does t	<u>he site have the requ</u>	ired a	nd mo	<u>st rece</u>	nt QC documents and report forms	<u>?</u>			
		Pres	ent			Cur	rent		
Station Log	5	[	✓						
SSRF		[	✓						
Site Ons M	anual	[	~	Eab 20	1 /		/		

Site Ops Manual	$\checkmark$	Feb 2014
HASP	$\checkmark$	Feb 2014
Field Ops Manual		
<b>Calibration Reports</b>		
Ozone z/s/p Control Charts		
Preventive maintenance schedule	$\checkmark$	

Current
$\checkmark$
$\checkmark$
$\checkmark$
$\checkmark$
$\checkmark$
$\checkmark$

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

#### ROM206 Technician Martin Valvur Site Visit Date 09/23/2021 Site ID Site operation procedures Trained by previous operator Has the site operator attended a formal CASTNET training 1 course? If yes, when and who instructed? 2 Has the backup operator attended a formal CASTNET Trained by site operator training course? If yes, when and who instructed? Is the site visited regularly on the required Tuesday ✓ 3 schedule? $\checkmark$ Are the standard CASTNET operational procedures being 4 flollowed by the site operator? Is the site operator(s) knowledgeable of, and able to perform 5 the required site activities? (including documentation)

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

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

Frequency

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

QC Check Performed
Multi-point Calibrations
Automatic Zero/Span Tests
Manual Zero/Span Tests
Automatic Precision Level Tests
<b>Manual Precision Level Test</b>
Analyzer Diagnostics Tests
In-line Filter Replacement (at inlet)
In-line Filter Replacement (at analyze

Sample Line Check for Dirt/Water

**Zero Air Desiccant Check** 

110quello,	
Semiannually	
Daily	
Daily	
Weekly	
Every 2 weeks	
N/A	
Weekly	
Weekly	

- Do multi-point calibration gases go through the complete 1 sample train including all filters?
- Do automatic and manual z/s/p gasses go through the 2 complete sample train including all filters?

3	Are the automatic and manual z/s/p checks monit	ored a	nd
	reported? If yes, how?		

	Unknown	
✓		
✓	SSRF, logbook, 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:

### F-02058-1500-S8-rev002

**Compliant** 

#### **Field Systems Data Form** F-02058-1500-S9-rev002 ROM206 Technician Martin Valvur Site Visit Date 09/23/2021 Site ID Site operation procedures Is the filter pack being changed every Tuesday as scheduled? Filter changed evenings 1 Are the Site Status Report Forms being completed and filed 2 correctly? No longer required 3 Are data downloads and backups being performed as scheduled? ✓ SSRF, logbook Are general observations being made and recorded? How? 4 ✓ Are site supplies on-hand and replenished in a timely 5 fashion? SSRF, logbook, call-in Are sample flow rates recorded? How? 6 $\checkmark$ Are samples sent to the lab on a regular schedule in a timely 7 fashion? ✓ one set of gloves only Are filters protected from contamination during handling 8 and shipping? How?

✓

Compliant

9 Are the site conditions reported regularly to the field operations manager or staff?

QC Check Performed

### Frequency

Multi-point MFC Calibrations	Semiannually	✓
Flow System Leak Checks	✓ Weekly	
Filter Pack Inspection		
Flow Rate Setting Checks	✓ Weekly	$\checkmark$
Visual Check of Flow Rate Rotometer	✓ Weekly	$\checkmark$
In-line Filter Inspection/Replacement	Semiannually	$\checkmark$
Sample Line Check for Dirt/Water	Veekly	✓

ROM206

## F-02058-1500-S10-rev002

Site ID

Techn

Technician Martin Valvur

Site Visit Date 09/23/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	552MC12	07068
DAS	Campbell	CR3000	2527	000419
Dilution system	Teledyne	T700U	110	000790
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	00002630587	01339
Flow Rate	Арех	AXMC105LPMDPC	unknown	000598
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07127
Noy	Teledyne	T200U	103	000798
Ozone	ThermoElectron Inc	49i A1NAA	1030244798	000683
Ozone Standard	ThermoElectron Inc	49i A3NAA	0622717858	000464
Sample Tower	Aluma Tower	C	Unknowm	000810
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342	12534	06309
Zero air pump	Werther International	PC70/4	000829166	06917
Zero air system	Teledyne	701H	607	000777

# Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number		
ACA	ACA416-Korey Devins-09/27/2021							
1	9/27/2021	Computer	Hewlett Packard	none	8460p	CNU20941M6		
2	9/27/2021	DAS	Environmental Sys Corp	none	8832	A3506K		
3	9/27/2021	Elevation	Elevation	None	1	None		
4	9/27/2021	Flow Rate	Alicat	none	MC-10SLPM-D-PCV	Illgeible		
5	9/27/2021	Infrastructure	Infrastructure	none	none	none		
6	9/27/2021	Met tower	Climatronics	none	unknown	illegible		
7	9/27/2021	Ozone	ThermoElectron Inc	90744	49C	49C-74536-376		
8	9/27/2021	Ozone Standard	T-API	none	T-703V	71		
9	9/27/2021	Sample Tower	Aluma Tower	none	В	AT-71103-7I-3		
10	9/27/2021	Shelter Temperature	Agilaire	none	Unknown	None		
11	9/27/2021	Shield (2 meter)	Climatronics	none	100325	illegible		
12	9/27/2021	Siting Criteria	Siting Criteria	None	1	None		
13	9/27/2021	Temperature2meter	Climatronics	none	100093	missing		
14	9/27/2021	Zero air pump	ThermoElectron Inc	none	111	111-30215-237		

### DAS Time Max Error:

1.00000

2/13/2012

Intercept

CorrCoff

0

0.00000

1.00000

### **DAS Data Form**

Mfg **Serial Number** Site Technician Site Visit Date Parameter Use Desc. DAS Environmental Sys A3506K ACA416 Korey Devins 09/27/2021 Primary Das Date: 9 /27/2021 **Audit Date** 9 /27/2021 Fluke Parameter DAS Mfg 09:21:35 09:22:00 **Das Time:** Audit Time 95740135 Tfer Desc. DVM Serial Number 270 270 Das Day: Audit Day Tfer ID 01311 Low Channel: High Channel: Avg Diff: Avg Diff: Max Diff: Max Diff: 0.00000 1.00000 Slope Intercept 0.0000 0.0000 0.0000 0.0000 2/11/2021 1.00000 **Cert Date CorrCoff** Datel **Parameter** DAS Mfg Tfer Desc. Source generator (D **Serial Number** 15510194 01320 Tfer ID

Slope

**Cert Date** 

## Flow Data Form

Mfg	Serial Nun	ıber Tag	Site	Тес	chnician	Site Visit I	Date Paran	neter	<b>Owner ID</b>	
Alicat	Illgeible		ACA416	Ko	rey Devins	09/27/2021	1 Flow F	Rate	none	
					Mfg	BIOS		Parameter Flow	rameter Flow Rate	
				Serial Number 131818		]	Tfer Desc. BIOS 220-H			
					Tfer ID	01417				
					Slope	0.	.99756 Int	ercept	-0.00058	
					Cert Date	2/1	0/2021 <b>Co</b>	rrCoff	0.99993	
DAS 1: DAS 2:					Cal Factor Zero			0		
A Avg % Diff: A Max % Dif A Avg %Diff A Max				x % Dif	% Dif         Cal Factor Full Scale			0		
1.90%	2.15%				<b>Rotometer R</b>	eading:		1.8		
Desc.	Test type	Input l/m	n Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference	
primary	pump off	0.000	0.000	0.00	0.000	0.04	l/m	l/m		
primary	leak check	0.000	0.000	0.01	0.000	0.04	l/m	l/m		
primary	test pt 1	1.486	1.490	1.50	0.000	1.52	l/m	l/m	2.08%	
primary	test pt 2	1.488	1.490	1.50	0.000	1.52	l/m	l/m	2.15%	
primary	test pt 3	1.492	1.500	1.50	0.000	1.52	l/m	l/m	1.47%	
Sensor Component Leak Test			Conditio	Condition			Status pass			
Sensor Component Tubing Condition			Conditio	Condition Good			Status pass			
Sensor Comp	onent Filter Pos	sition		Conditio	n Good		Statu	s pass		
Sensor Component Rotometer Condition			Conditio	ondition Clean and dry			s pass			
Sensor Component Moisture Present				Conditio	dition No moisture present			us pass		
Sensor Component Filter Distance				Conditio	ition 4.5 cm			Status pass		
Sensor Component Filter Depth				Conditio	<b>n</b> 0.5 cm	Statu	Status pass			
Sensor Component Filter Azimuth				Conditio	n 135 deg	Statu	Status pass			
Sensor Component System Memo				Conditio	on	Statu	Status pass			
# 2 Meter Temperature Data Form

0 1		D		20					
1 9	0		11		01	-0	n	e	Δ
V.a	<b>U</b> .				C I			U	c

Mfg	Serial Number	r Tag Site	,	Technician		Site Visi	it Date P	Paramete	er	Owner ID	
Climatronics	missing	ACA416		Korey De	vins	09/27/2	021 T	emperati	ure2meter	none	
			Mfg		Extech		Para	meter Tem	perature		
				Serial	Number	H232734	4	Tfer	Desc. RID		
				Tfer I	D	01227					
DAS 1: DAS 2:				Slope		1.00743 Intercept		ept	0.21666		
Abs Avg Err Abs Max Err Abs Avg Err Abs Ma			s Max Err	Cert I	Date		2/18/2021	CorrC	off	1.00000	
0.34	0.81										
UseDescription	Test type	InputTmpRaw	InputTmpC	Corrected	OutputTm	pSignal	OutputSig	gnalEng	OSE Unit	Difference	
primary 7	Temp Low Rang	0.24		0.02		0.000		0.08	С	0.06	
primary 7	Temp Mid Range	25.99		25.58		0.000		25.43	С	-0.15	
primary 7	Femp High Rang	46.61		46.05		0.000		45.24	C	-0.81	
Sensor Compon	ent Shield		Cond	ition Mod	erately clea	an	\$	Status pa	ass		
Sensor Component Properly Sited			Cond	Condition Properly sited				Status pass			
Sensor Component Blower			Cond	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	<b>Owner ID</b>
Agilaire	None	ACA416	Korey Devins	09/27/2021	Shelter Temperatu	renone
<b>DAS 1:</b>	<b>DAS 2:</b>		Mfg	Extech	Parameter S	helter Temperature
Abs Avg ErrAbs Max ErrAbs Avg ErrAbs Max Err0.130.23		Serial Number	H232734	Tfer Desc.	TD	
			Tfer ID	01227		
			Slope	1.0074	3 Intercept	0.21666
			Cert Date	2/18/202	21 CorrCoff	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference		
primary	Temp Mid Range	25.53	25.13	0.000	25.1	С	-0.01		
primary	Temp Mid Range	25.63	25.23	0.000	25.1	С	-0.15		
primary	Temp Mid Range	25.72	25.32	0.000	25.1	С	-0.23		
Sensor Component         System Memo         Condition         Status         pass									

## Siting Criteria Form

Sensor Component Limited agriculture operations	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 Intensive agriculture operations	Condition	Status pass
Sensor Component Large point source of So2 or Nox	Condition	Status pass
Sensor Component Major highway, airport, or rail yard	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 Large parking lot	Condition	Status pass

#### **Infrastructure Data For**

Site ID	ACA416	Technician Korey [	Devins Site Visit Date 09/27/2021
Shelter	Make	Shelter Model	Shelter Size
Custom		Unknown	Unknown

Sensor Component Sample Tower Type	Condition	Туре В	Status	pass
Sensor Component Conduit	Condition	Good	Status	pass
Sensor Component Met Tower	Condition	Good	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

This site is operated by both the NPS and the State of Maine DEP. It is not visited by ARS for semiannual calibration and maintenance visits. The site operator does not perform many of the routine checks conducted at other CASTNET sites, such as tip checks, wetness sensor tests, and visual checks of the blowers. The state of Maine personnel maintain the meteorological systems and the ozone monitor.

#### 2 Parameter: SiteOpsProcedures

The meteorological and ozone instrument checks and maintenance are performed by the State of Maine DEP.

#### 3 Parameter: ShelterCleanNotes

The shelter is new, clean and well organized.

### F-02058-1500-S1-rev002

Site ID ACA416	Technician Korey Devins	Site Visit Date 09/27	7/2021								
Site Sponsor (agency)	NPS/EPA	USGS Map	Salsbury Cove								
<b>Operating Group</b>	NPS/MEDEP	Map Scale									
AQS #	23-009-0103	Map Date									
Meteorological Type	Climatronics										
Air Pollutant Analyzer	Ozone, SO2, NOx, NOy, PM, VOC	QAPP Latitude	44.3770								
<b>Deposition Measurement</b>	dry, wet, Hg	QAPP Longitude	-68.2610								
Land Use	Costal, woodland - mixed	<b>QAPP Elevation Meters</b>	158								
Terrain	rolling	QAPP Declination									
Conforms to MLM	No	QAPP Declination Date									
Site Telephone	(432) 288-9322	Audit Latitude	44.377086								
Site Address 1	Route 233	Audit Longitude	-68.2608								
Site Address 2		Audit Elevation	153								
County	Hancock	Audit Declination	-16.4								
City, State	Bar Harbor, ME	Present									
Zip Code	04609	Fire Extinguisher 🔽	Inspected Aug 2017								
Time Zone	Eastern	First Aid Kit									
Primary Operator		Safety Glasses									
Primary Op. Phone #		Safety Hard Hat									
Primary Op. E-mail		Climbing Belt									
<b>Backup Operator</b>		Security Fence									
Backup Op. Phone #		Secure Shelter									
Backup Op. E-mail		Stable Entry Steps ☑									
Shelter Working Room	Make Custom Mo	odel Unknown	Shelter Size Unknown								
Shelter Clean	Notes The shelter is new, clean and w	vell organized.									
Site OK	Notes										
Driving Directions From take E road, a	Driving Directions From Bangor go east on 1A to Ellsworth. From Ellsworth take route 3 east to Bar Harbor. At the west edge of town, take Eagle Lake Rd (route 233) west toward Acadia National Park. The site is through a gate, at the end of a gravel road, across from the Park Headquarters.										

Fi	eld Sy	stems Data Fo	orm		F-02058-1500-S3-rev0					3-rev002
Site	e ID	ACA416	Technician	Korey Devins		Site Visit Date	09/27/2021		]	
1	Are win being in	d speed and direction fluenced by obstructio	sensors sited so ons?	as to avoid	✓	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	3 Are the tower and sensors plumb?					N/A				
4	4 Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?									
5	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 so	lar radiation sensor p	lumb?		✓	N/A				
7	Is it site	d to avoid shading, or	any artificial o	r reflected light?	✓	N/A				
8	Is the ra	in gauge plumb?			✓	N/A				
9	Is it site towers,	d to avoid sheltering e etc?	ffects from bui	ldings, trees,		N/A				
10	Is the su facing n	rface wetness sensor s orth?	ited with the g	rid surface	✓	N/A				
11	Is it inc	lined approximately 3	0 degrees?		✓	N/A				

### F-02058-1500-S4-rev002

	ID	ACA416	Technician	Korey Devins		Site Visit Date	09/27/2021	
1   2 . 3 .	Do all the conditior Are all th reporting Are the s	e meterological sensor 1, and well maintained 1e meteorological sens 3 data? hields for the tempera	rs appear to be l? sors operationa ature and RH s	intact, in good l online, and ensors clean?	<b>&gt; &gt;</b>	Temperature only Temperature only		
4	Are the aspirated motors working?							
5	Is the solar radiation sensor's lens clean and free of scratches?					N/A		
6	Is the sur	face wetness sensor g	rid clean and u	ndamaged?	✓	N/A		
7 . 8 .	Are the s conditior Are the s from the	ensor signal and powe a, and well maintained ensor signal and powe elements and well ma	er cables intact l? er cable connec intained?	, in good tions protected	<ul><li>✓</li></ul>			

Fi	eld Sy	stems Data Fo	orm			F-02058-1500-S5-rev002	
Site	e ID	ACA416	Technician	Korey Devins		Site Visit Date 09/27/2021	
	<u>Siting C</u>	riteria: Are the pollut	ant analyzers a	nd deposition eq	<u>uipn</u>	nent sited in accordance with 40 CFR 58, Appendix E	
1	Do the s unrestri	ample inlets have at le cted airflow?	east a 270 degre	e arc of	✓		
2	Are the	sample inlets 3 - 15 m	eters above the	ground?	✓		-
3	Are the sample inlets > 1 meter from any major obstructio and 20 meters from trees?						_
	<u>Pollutan</u>	it analyzers and depos	ition equipmen	t operations and	mai	<u>intenance</u>	
1	Do the a conditio	nalyzers and equipme n and well maintained	ent appear to be l?	e in good	✓		]
2	Are the reportin	analyzers and monitoning data?	rs operational, o	on-line, and			-
3	Describe	e ozone sample tube.				3/8 teflon by 12 meters	-
4	Describe	e dry dep sample tube				3/8 teflon by 12 meters	-
5	Are in-li indicate	ine filters used in the o location)	ozone sample lir	ne? (if yes		At inlet only	_
6	Are sam obstruct	ple lines clean, free of tions?	'kinks, moistur	e, and	✓		
7	Is the ze	ero air supply desiccan	t unsaturated?		✓		-
8	Are the	re moisture traps in th	e sample lines?		✓		_
9	Is there clean?	a rotometer in the dry	v deposition filte	er line, and is it		Clean and dry	_

Fi	eld Sy	stems Data Fo	orm				<b>F-0</b> 2	2058-15	00-S6-rev002
Site	e ID	ACA416	Technician	Korey Devins		Site Visit Da	te 09/27/202	1	
	<u>DAS, se</u>	ensor translators, and <b>p</b>	oeripheral equi	pment operation	ns and	maintenance			
1	Do the l well ma	DAS instruments appe intained?	ar to be in good	l condition and					
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?									
4 Are the signal connections protected from the weather and well maintained?									
5	5 Are the signal leads connected to the correct DAS channel?								
6	Are the ground	DAS, sensor translato ed?	rs, and shelter	properly					
7	Does th	e instrument shelter ha	ave a stable pov	ver source?					
8	8 Is the instrument shelter temperature controlled?								
9	Is the m	net tower stable and gr	ounded?			Stable		Grounded	
10	Is the sa	ample tower stable and	grounded?						
11	Tower o	comments?							

Field	Systems Data l	For	m				<b>F-0</b> 2	2058-	-1500-S7-rev002
Site ID	ACA416		Techr	nician	Korey Devins	Site Visit Date	09/27/202 ⁻	1	
<u>Docun</u>	<u>nentation</u>								
<u>Does t</u>	the site have the require	<u>d inst</u>	trume	nt and	equipment manuals?				
Wind spo Wind dir Tempera Relative Solar rac Surface v Wind ser Tempera Humidity Solar rac Tipping b Ozone an Filter pac	eed sensor rection sensor nture sensor humidity sensor diation sensor wetness sensor nsor translator nture translator y sensor translator liation translator bucket rain gauge nalyzer ck flow controller ck MFC power supply				A Data logge Data logge Data logge Strip char Computer Modem Printer Filter flow Surge prot UPS Lightning Shelter hei Shelter air	er er t recorder ump pump tector protection device ater · conditioner	Yes	No   	N/A □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
Does	the site have the requir	<u>ed ar</u>	<u>1d mos</u>	<u>st rece</u>	ent QC documents and	report forms?	Com	~~**	
Station L SSRF Site Ops HASP Field Op Calibrati Ozone z/s Preventiv	og Manual s Manual ion Reports s/p Control Charts ve maintenance schedul			Datavie	ew 000				
1 Is th	ne station log properly c	ompl	eted d	uring	every site visit? ☑ □	Pataview			
2 Are curr	the Site Status Report l rent?	Form	s bein _i	g comp	pleted and 🔽				
3 Are sam	the chain-of-custody fo ple transfer to and fron	rms p 1 lab?	oroper	ly used	d to document 🗹				
4 Are	ozone z/s/p control char rent?	rts pr	operly	comp	pleted and 🔲 C	Control charts not us	ed		
Provide a natural o	any additional explanati or man-made, that may	ion (p affect	hotog the n	raph o ionitoi	or sketch if necessary) ring parameters:	regarding condition	ons listed	above,	or any other features,

Site	ID	ACA416	Technician	Korey Devins		Site Visit Date	09/27/2021	
1	Site ope Has the course?	<u>ration procedures</u> site operator attended If yes, when and who	d a formal CAS instructed?	TNET training				
2	Has the training	backup operator atte course? If yes, when	nded a formal ( and who instru	CASTNET cted?	✓	Trained on-site by AF	RS during site installat	ion
3	Is the site schedule	e visited regularly on ?	the required <b>T</b> u	ıesday	✓			
4	Are the s flollowed	standard CASTNET of by the site operator?	perational pro	cedures being	✓	Operator procedures	are very good for filte	r replacement
5	Is the site the requi	e operator(s) knowled ired site activities? (in	geable of, and a	able to perform entation)	✓			

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

QC	Check	Performed	I

#### Frequency

Multipoint Calibrations	$\checkmark$	Semiannually by MEDEP	$\checkmark$
Visual Inspections	$\checkmark$	Weekly	$\checkmark$
Translator Zero/Span Tests (climatronics)	$\checkmark$	N/A	
Manual Rain Gauge Test	$\checkmark$	Monthly	$\checkmark$
Confirm Reasonableness of Current Values	$\checkmark$	Weekly	$\checkmark$
Test Surface Wetness Response	$\checkmark$	Not performed	$\checkmark$

Frequency

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

00		DC	
QC.	Check	Perform	ed

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

	requency	CU
✓	Monthly	✓
✓	Weekly	✓
✓	Monthly	✓
	N/A	✓
✓	Weekly	✓
$\checkmark$	Weekly	$\checkmark$

- **1** Do multi-point calibration gases go through the complete sample train including all filters?
- 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?

Results are recorded weekly on a checklist

# 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 and ozone instrument checks and maintenance are performed by the State of Maine DEP.

#### Compliant

Compliant

F-02058-1500-S8-rev002

F-02058-1500-59-rev002
------------------------

Site	ID	ACA416	Technicia	n Korey Devins		Site Visit Da	te 09/27/2021		
	<u>Site oper</u>	ation procedures							
1 Is the filter pack being changed every Tuesday as scheduled? ✓ Filter changed morinings, 90%									
2	2 Are the Site Status Report Forms being completed and filed correctly?				✓	Flow and general observation sections only			
3	Are data schedule	downloads and backu d?	ıps being pe	rformed as		No longer require	d		
4	Are gene	eral observations being	g made and a	recorded? How?	✓	SSRF			
5	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 Pe	rformed	F	requency			Compliant		
N	Iulti-poin	t MFC Calibrations	✓ Se	emiannually					
F	low Syste	m Leak Checks	✓ w	eekly			$\checkmark$		
F	Filter Pack Inspection								
F	Flow Rate Setting Checks								
V	'isual Che	eck of Flow Rate Rotor	neter 🗹 🛛	eekly			$\checkmark$		
I	n-line Filt	er Inspection/Replace	ment 🗹 As	needed			$\checkmark$		
S	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:

This site is operated by both the NPS and the State of Maine DEP. It is not visited by ARS for semiannual calibration and maintenance visits. The site operator does not perform many of the routine checks conducted at other CASTNET sites, such as tip checks, wetness sensor tests, and visual checks of the blowers. The state of Maine personnel maintain the meteorological systems and the ozone monitor.

ACA416

### F-02058-1500-S10-rev002

Techni

Technician Korey Devins

Site Visit Date 09/27/2021

Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Hewlett Packard	8460p	CNU20941M6	none
DAS	Environmental Sys Corp	8832	A3506K	none
Elevation	Elevation	1	None	None
Flow Rate	Alicat	MC-10SLPM-D-PCV	Illgeible	none
Infrastructure	Infrastructure	none	none	none
Met tower	Climatronics	unknown	illegible	none
Ozone	ThermoElectron Inc	49C	49C-74536-376	90744
Ozone Standard	T-API	T-703V	71	none
Sample Tower	Aluma Tower	B	AT-71103-7I-3	none
Shelter Temperature	Agilaire	Unknown	None	none
Shield (2 meter)	Climatronics	100325	illegible	none
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	Climatronics	100093	missing	none
Zero air pump	ThermoElectron Inc	111	111-30215-237	none

# Site Inventory by Site Visit

Site V	isit Date/	Parameter	Mfg	Owner ID	Model Number	Serial Number
PET4	27-Martin	Valvur-09/28/2021				
1	9/28/2021	DAS	Environmental Sys Corp	90641	8816	2526
2	9/28/2021	Ozone	ThermoElectron Inc	none	49i A3NAA	1023943901
3	9/28/2021	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1211052489
4	9/28/2021	Zero air pump	Werther International	none	PC 70/4	531382

### **Ozone Data Form**

Mfg	Serial Numbe	er Tag Site	Т	echnician	Site Visit Date	Parameter	<b>Owner ID</b>
ThermoElectron Ir	nc 1023943901	PET427	′ N	lartin Valvur	09/28/2021	Ozone	none
Slope:	0.97712 Slop -0.12746 Inte 0.99990 Cor	rcept	0.00000 0.00000 0.00000	Mfg Serial Number	ThermoElectron 49CPS-70008-3	Inc Paramete	er ozone
				Tfer ID	01110		
DAS 1:	D	AS 2:		Slope	1.0034	0 Intercept	0.02230
A Avg % Diff: A	Max % Dif A	Avg %Diff A	Max % Dif		1/20/202		1 00000
0.0%	0.0%			Cert Date	1/20/202	CorrCoff	1.00000
UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.02	0.00	0.20	ppb		0.2
primary	2	16.80	16.72	16.27	ppb		-0.45
primary	3	37.56	37.42	36.43	ppb	-2.68	
primary	4	67.65	67.41	64.77	ppb	-3.99	
primary	5	110.12	109.75	107.70	ppb	-1.89	
Sensor Compo	nent Audit Press	ure	Condit	ion 623.9 mmHg		Status pass	
Sensor Compo	nent 26.6 degree	unobstructed ru	le Condit	ion True		Status pass	
Sensor Compo	nent Tree dewlin	e >10m or below	/ inlet Condit	ion True		Status pass	
Sensor Compo	nent ADT <100 v	ehicles further the	nan 20 Condit	ion True		Status pass	
Sensor Compo	nent ADT >100 v	ehicles further th	nan 50 Condit	ion True		Status pass	
Sensor Compo	<mark>nent</mark> Sample Tra	in	Condit	ion Good		Status pass	
Sensor Compo	nent Inlet Filter C	Condition	Condit	ion Clean		Status pass	
Sensor Compo	nent Offset		Condit	ion 0.000		Status pass	
Sensor Compo	nent Span		Condit	ion 1.000		Status pass	
Sensor Compo	nent Zero Voltag	e	Condit	ion 0.0001		Status pass	
Sensor Compo	nent Fullscale Vo	oltage	Condit	ion 1.0003		Status pass	
Sensor Compo	nent Cell A Freq.		Condit	ion 77.6 kHz		Status pass	
Sensor Compo	nent Cell A Noise	9	Condit	ion 0.6 ppb		Status pass	
Sensor Compo	nent Cell A Flow		Condit	ion 0.52 lpm		Status pass	
Sensor Compo	nent Cell A Press	sure	Condit	ion 608.6 mmHg		Status pass	
Sensor Compo	<mark>nent</mark> Cell A Tmp.		Condit	ion 29.7 C		Status pass	
Sensor Compo	nent Cell B Freq.		Condit	ion 77.6 kHz		Status pass	
Sensor Compo	nent Cell B Noise	9	Condit	ion 0.8 ppb		Status pass	
Sensor Compo	nent Cell B Flow		Condit	ion 0.51 lpm		Status pass	
Sensor Compo	nent Cell B Press	sure	Condit	ion 608.0 mmHg		Status pass	
Sensor Compo	nent System Mer	no	Condit	ion		Status pass	

# Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
ASHI	35-Korey	Devins-09/29/2021				
1	9/29/2021	DAS	Campbell	000847	CR3000	11444
2	9/29/2021	Ozone	ThermoElectron Inc	000730	49i A1NAA	1105347325
3	9/29/2021	Ozone Standard	ThermoElectron Inc	000362	49i A3NAA	0726124686
4	9/29/2021	Zero air pump	Werther International	06923	C 70/4	000836208

### **Ozone Data Form**

Mfg	Serial Numb	er Tag Site	T	echnician	Site Visit Date	Parameter	<b>Owner ID</b>
ThermoElectror	n Inc 1105347325	ASH13	5 K	orey Devins	09/29/2021	Ozone	000730
Slope:	0.99647 Slop -1.43850 Inte 1.00000 Cor	oe:	0.00000 0.00000 0.00000	Mfg Serial Number	ThermoElectron	Inc Paramete	er ozone . Ozone primary stan
				Tfer ID	01114		
DAS 1:	D	AS 2:		Slope	1.0003	0 Intercept	0.30550
A Avg % Diff:	A Max % Dif A	Avg %Diff A	Max % Dif	Cert Date	1/20/202	CorrCoff	1.00000
0.0%	0.0%				1 		
UseDescription	on ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.44	0.13	-1.27	ppb		-1.4
primary	2	14.89	14.50	12.89	ppb		-1.61
primary	3	35.39	34.89	33.48	ppb	-4.12	
primary	4	67.25	66.58	64.81	ррб	-2.69	
primary	5	110.70	109.80	108.00	ррь	-1.65	
Sensor Com	ponent Audit Press	ure	Condit	ion 738.5 mmHg		Status pass	
Sensor Com	ponent 26.6 degree	e unobstructed ru	le Condit	ion True		Status pass	
Sensor Com	ponent Tree dewlin	e >10m or below	/ inlet Condit	ion True		Status pass	
Sensor Com	ponent ADT <100 v	/ehicles further tl	han 20 Condit	<mark>ion</mark> 105 m		Status Fail	
Sensor Com	ponent ADT >100 v	/ehicles further tl	han 50 Condit	ion True		Status pass	
Sensor Com	ponent Sample Tra	in	Condit	ion Good		Status pass	
Sensor Com	ponent Inlet Filter C	Condition	Condit	ion Clean		Status pass	
Sensor Com	ponent Offset		Condit	ion -0.2		Status pass	
Sensor Com	ponent Span		Condit	ion 1.018		Status pass	
Sensor Com	ponent Zero Voltag	e	Condit	ion N/A		Status pass	
Sensor Com	ponent Fullscale Vo	oltage	Condit	ion N/A		Status pass	
Sensor Com	ponent Cell A Freq		Condit	ion 94.5 kHz		Status pass	
Sensor Com	ponent Cell A Noise	e	Condit	ion 0.7 ppb		Status pass	
Sensor Com	ponent Cell A Flow		Condit	ion 0.72 lpm		Status pass	
Sensor Com	ponent Cell A Pres	sure	Condit	ion 731.5 mmHg		Status pass	
Sensor Com	ponent Cell A Tmp.	•	Condit	ion 33.9 C		Status pass	
Sensor Com	ponent Cell B Freq		Condit	ion 98.4 kHz		Status pass	
Sensor Com	ponent Cell B Noise	e	Condit	ion 0.6 ppb		Status pass	
Sensor Com	ponent Cell B Flow		Condit	ion 0.71 lpm		Status pass	
Sensor Com	ponent Cell B Pres	sure	Condit	ion 732.4 mmHg		Status pass	
Sensor Com	ponent System Me	mo	Condit	ion		Status pass	

# Site Inventory by Site Visit

Site V	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
GRC	474-Martin	n Valvur-09/29/2021				
1	9/29/2021	DAS	Environmental Sys Corp	90602	8816	2270
2	9/29/2021	Ozone	ThermoElectron Inc	none	49i A3NAA	1023943902
3	9/29/2021	Ozone Standard	ThermoElectron Inc	none	49i A1NAA	1130450191
4	9/29/2021	Zero air pump	Werther International	none	PC70/4	531380

### **Ozone Data Form**

Mfg	Serial Number T	ag Site	Т	echnician	Site Visit Date	Parameter	<b>Owner ID</b>
ThermoElectron In	c 1023943902	GRC47	4	Martin Valvur	09/29/2021	Ozone	none
Slope:	0.97373 Slope: -0.17870 Intercep	ot	0.00000 0.00000	Mfg Serial Number	ThermoElectron 49CPS-70008-3	Inc Paramete	er ozone c. Ozone primary stan
CorrCoff:	0.99999 CorrCo	ff:	0.00000	Tfer ID	01110		
DAS 1.	DAS				4.0024		0.00000
A Avg % Diff: A	Max % Dif A Ave	 2 %Diff A	Max % Dif	Slope	1.0034	Intercept	0.02230
0.0%	0.0%			Cert Date	1/20/202	21 CorrCoff	1.00000
UseDescription	ConcGroup	Ffer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.06	0.03	0.13	ppb		0.1
primary	2	15.32	15.25	14.35	ppb		-0.9
primary	3	36.85	36.71	35.53	ppb	-3.27	
primary	4	66.77	66.54	64.67	ppb	-2.85	
primary	5	114.33	113.95	110.80	ppb	-2.8	
Sensor Compor	nent Audit Pressure		Condi	tion 597.7 mmHg		Status pass	
Sensor Compor	tent 26.6 degree und	bstructed ru	le Condi	tion True		Status pass	
Sensor Compor	nent Tree dewline >1	0m or below	v inlet Condi	tion True		Status pass	
Sensor Compor	tent ADT <100 vehic	les further t	han 20 Condi	<b>tion</b> 199 m		Status Fail	
Sensor Compor	nent ADT >100 vehic	les further tl	han 50 Condi	tion 199 m		Status Fail	
Sensor Compor	tent Sample Train		Condi	tion Good		Status pass	
Sensor Compor	nent Inlet Filter Cond	ition	Condi	tion Clean		Status pass	
Sensor Compor	nent Offset		Condi	tion -0.1		Status pass	
Sensor Compor	<mark>lent</mark> Span		Condi	tion 1.002		Status pass	
Sensor Compor	nent Zero Voltage		Condi	tion 0.0002		Status pass	
Sensor Compor	nent Fullscale Voltag	e	Condi	tion 1.0000		Status pass	
Sensor Compor	tent Cell A Freq.		Condi	tion 80.6 kHz		Status pass	
Sensor Compor	tent Cell A Noise		Condi	tion 0.5 ppb		Status pass	
Sensor Compor	tent Cell A Flow		Condi	tion 0.69 lpm		Status pass	
Sensor Compor	tent Cell A Pressure		Condi	tion 592.4 mmHg		Status pass	
Sensor Compor	tent Cell A Tmp.		Condi	tion 34.5 C		Status pass	
Sensor Compor	nent Cell B Freq.		Condi	tion 75.3 kHz		Status pass	
Sensor Compor	tent Cell B Noise		Condi	tion 0.4 ppb		Status pass	
Sensor Compor	tent Cell B Flow		Condi	tion 0.70 lpm		Status pass	
Sensor Compor	tent Cell B Pressure		Condi	tion 592.1 kHz		Status pass	
Sensor Compor	nent System Memo		Condi	tion		Status pass	

# Site Inventory by Site Visit

Site	Visit Date	Parameter	Mfg	Owner ID	Model Number	Serial Number
WST	09-Korey	Devins-09/30/2021				
1	9/30/2021	DAS	Campbell	000354	CR3000	2132
2	9/30/2021	Ozone	ThermoElectron Inc	000611	49i A1NAA	1009241795
3	9/30/2021	Ozone Standard	ThermoElectron Inc	000514	49i A3NAA	0922236892
4	9/30/2021	Zero air pump	Werther International	06934	P 70/4	000821881

### **Ozone Data Form**

Mfg		Serial Numbe	er Tag Site		Te	chnician	Site Visit Date	Parameter	<b>Owner ID</b>
ThermoElect	tron Inc	1009241795	WST	109	Ko	orey Devins	09/30/2021	Ozone	000611
Slope: [ Intercept [ CorrCoff: [		0.99984 Slop 0.51271 Inte 1.00000 Corr	e:	0.00000	0 0	Mfg Serial Number Tfer ID	ThermoElectron 1180030022 01114	Inc Paramete Tfer Desc	r ozone . Ozone primary stan
DAS 1:		D	AS 2:			Slope	1 0003	Intercent	0.30550
A Avg % Di	iff: A N	Iax % Dif A	Avg %Diff	A Max 9	% Dif	Slope	1.0000	mercept	0.00000
0.0	)%	0.0%				Cert Date	1/20/202	21 CorrCoff	1.00000
UseDescri	ption	ConcGroup	Tfer Raw	, Tf	er Corr	Site	Site Unit	RelPerDif	AbsDif
primar	v	1	0.37		0.06	-0.48	ppb		-0.54
primar	v	2	14.92		14.53	14.10	ppb		-0.43
primar	v	3	35.02		34.53	33.93	ppb	-1.75	
primar	y	4	66.32	(	65.66	65.16	ppb	-0.76	
primar	y	5	109.42	1	08.53	108.00	ppb	-0.49	
Sensor Co	ompone	nt Audit Press	ure	·	Conditi	on 738.9 mmHg		Status pass	
Sensor Co	ompone	nt 26.6 degree	unobstructe	d rule	Conditi	on True		Status pass	
Sensor Co	ompone	nt Tree dewline	e >10m or be	elow inlet	Conditi	on True		Status pass	
Sensor Co	ompone	nt ADT <100 v	ehicles furthe	er than 20	Conditi	0 <b>n</b> 45 m		Status Fail	
Sensor Co	ompone	nt ADT >100 v	ehicles furth	er than 50	Conditi	on True		Status pass	
Sensor Co	ompone	<mark>nt</mark> Sample Tra	'n		Conditi	on Good		Status pass	
Sensor Co	ompone	nt Inlet Filter C	ondition		Conditi	on Clean		Status pass	
Sensor Co	ompone	nt Offset			Conditi	on -0.2		Status pass	
Sensor Co	ompone	nt Span			Conditi	on 1.011		Status pass	
Sensor Co	ompone	nt Zero Voltag	e		Conditi	on N/A		Status pass	
Sensor Co	ompone	nt Fullscale Vo	ltage		Conditi	on N/A		Status pass	
Sensor Co	ompone	nt Cell A Freq.			Conditi	on 99.2 kHz		Status pass	
Sensor Co	ompone	nt Cell A Noise	)		Conditi	0.8 ppb		Status pass	
Sensor Co	ompone	nt Cell A Flow			Conditi	on 0.70 lpm		Status pass	
Sensor Co	ompone	nt Cell A Press	sure		Conditi	on 715.2 mmHg		Status pass	
Sensor Co	ompone	nt Cell A Tmp.			Conditi	on 31.5 C		Status pass	
Sensor Co	ompone	nt Cell B Freq.			Conditi	on 100.0 kHz		Status pass	
Sensor Co	ompone	nt Cell B Noise	;		Conditio	0.8 ppb		Status pass	
Sensor Co	ompone	nt Cell B Flow			Condition	on 0.71 lpm		Status pass	
Sensor Co	ompone	nt Cell B Press	sure		Conditi	on 716.1 mmHg		Status pass	
Sensor Co	ompone	nt System Mer	no		Conditi	on		Status pass	

### **APPENDIX B**

**CASTNET Site Spot Report Forms** 

**Data Compiled:** 12/28/2021 16:16:50

# SiteVisitDateSiteTechnician09/27/2021ACA416Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	Р	5	0.5	3	0.34	с	Р
2	Temperature2meter max error	Р	5	0.5	3	0.81	с	Fail
3	Flow Rate average % difference	Р	10	5	3	1.9	%	Р
4	Flow Rate max % difference	Р	10	5	3	2.15	%	Р
5	Shelter Temperature average error	Р	5	2	12	0.13	c	Р
6	Shelter Temperature max error	Р	5	2	12	0.23	с	Р

### **Field Systems Comments**

#### 1 Parameter: SiteOpsProcComm

This site is operated by both the NPS and the State of Maine DEP. It is not visited by ARS for semiannual calibration and maintenance visits. The site operator does not perform many of the routine checks conducted at other CASTNET sites, such as tip checks, wetness sensor tests, and visual checks of the blowers. The state of Maine personnel maintain the meteorological systems and the ozone monitor.

#### 2 Parameter: SiteOpsProcedures

The meteorological and ozone instrument checks and maintenance are performed by the State of Maine DEP.

3 Parameter: ShelterCleanNotes

The shelter is new, clean and well organized.

**Data Compiled:** 12/27/2021 20:25:30

# SiteVisitDateSiteTechnician08/18/2021ANA115Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	1.03324	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.28739	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99999	unitless	Р
4	Ozone % difference avg	Р	7	10	4	2.1	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	-0.03	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	0.09	ppb	Р

**Data Compiled:** 12/28/2021 12:47:08

# SiteVisitDateSiteTechnician09/29/2021ASH135Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.99647	unitless	Р
2	Ozone Intercept	Р	0	5	4	-1.4385	ppb	Р
3	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
4	Ozone % difference avg	Р	7	10	4	4.9	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	-1.4	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-1.61	ppb	Fail

**Data Compiled:** 12/28/2021 17:42:08

### SiteVisitDate Site Technician

08/12/2021 CDZ171 Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	18	0.34	с	Р
2	Temperature max error	Р	4	0.5	18	0.58	с	Fail
3	Ozone Slope	Р	0	1.1	4	0.99944	unitless	Р
4	Ozone Intercept	Р	0	5	4	-0.15444	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99999	unitless	Р
6	Ozone % difference avg	Р	7	10	4	1.0	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.17	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	-0.33	ppb	Р
9	Flow Rate average % difference	Р	10	5	8	2.38	%	Р
10	Flow Rate max % difference	Р	10	5	8	2.6	%	Р
11	DAS Voltage average error	Р	7	0.003	21	0.0001	V	Р
12	Shelter Temperature average error	Р	5	2	15	0.39	с	Р
13	Shelter Temperature max error	Р	5	2	15	0.90	с	Р

### **Field Systems Comments**

#### 1 Parameter: SitingCriteriaCom

The site is in a corn field with limited agricultural operations within 15 meters.

#### 2 Parameter: ShelterCleanNotes

The shelter floor has been repaired.

#### 3 Parameter: MetSensorComme

The temperature sensor has been installed in a naturally aspirated shield on the north side of the sample tower.

**Data Compiled:** 12/28/2021 18:06:33

### SiteVisitDate Site Technician

08/13/2021 CKT136 Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	15	0.11	с	Р
2	Temperature max error	Р	4	0.5	15	0.21	с	Р
3	Ozone Slope	Р	0	1.1	4	1.00365	unitless	Р
4	Ozone Intercept	Р	0	5	4	-0.76982	ppb	Р
5	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
6	Ozone % difference avg	Р	7	10	4	1.9	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	-0.77	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	-0.7	ppb	Р
9	Flow Rate average % difference	Р	10	5	2	0.88	%	Р
10	Flow Rate max % difference	Р	10	5	2	1.32	%	Р
11	DAS Voltage average error	Р	7	0.003	28	0.0000	V	Р
12	Shelter Temperature average error	Р	5	2	21	0.22	с	Р
13	Shelter Temperature max error	Р	5	2	21	0.28	с	Р

Technician

08/13/2021 CKT136

Korey Devins

### **Field Performance Comments**

1	Parameter:	Flow Rate	SensorComponent:	Moisture Present	CommentCode: 72

The filter sample tubing has drops of moisture in low sections outside the shelter.

## **Field Systems Comments**

1 Parameter: SiteOKNotes

The road to the site is in need of repair.

2 Parameter: ShelterCleanNotes

The shelter is in fair condition. The shelter walls adjacent to the air conditioner have been repaired.

Data Compiled:

8/8/2021 17:52:21

### SiteVisitDate Site Technician

07/27/2021 CNT169 Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	12	0.07	с	Р
2	Temperature max error	Р	4	0.5	12	0.11	с	Р
3	Ozone Slope	Р	0	1.1	4	0.99810	unitless	Р
4	Ozone Intercept	Р	0	5	4	-0.65088	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99975	unitless	Р
6	Ozone % difference avg	Р	7	10	4	2.9	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.27	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	-0.65	ppb	Р
9	Flow Rate average % difference	Р	10	5	9	0.55	%	Р
10	Flow Rate max % difference	Р	10	5	9	0.99	%	Р
11	DAS Voltage average error	Р	7	0.003	77	0.0002	V	Р
12	Shelter Temperature average error	Р	5	2	21	0.70	с	Р
13	Shelter Temperature max error	Р	5	2	21	1.04	c	Р

# **Field Systems Comments**

1 Parameter: SiteOpsProcedures

The ozone inlet filter is changed once each month.

2 Parameter: ShelterCleanNotes

The shelter is dirty. Many floor tiles are old and broken, the floor is deteriorating.

**Data Compiled:** 9/14/2021 15:51:30

# SiteVisitDateSiteTechnician08/03/2021CRM435Martin Valvur

#### Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	1.00903	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.42203	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99999	unitless	Р
4	Ozone % difference avg	Р	7	10	4	0.6	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	-0.33	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-0.12	ppb	Р

### **Field Performance Comments**

1 Parameter: Ozone

SensorComponent: Cell B Freq.

CommentCode: 99

This analyzer diagnostic check is outside the manufacturer's recommended value.

**Data Compiled:** 9/14/2021 16:45:22

### SiteVisitDate Site Technician

08/05/2021 GLR468 Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	Р	5	0.5	3	0.15	с	Р
2	Temperature2meter max error	Р	5	0.5	3	0.27	с	Р
3	Ozone Slope	Р	0	1.1	4	0.98037	unitless	Р
4	Ozone Intercept	Р	0	5	4	0.04967	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99996	unitless	Р
6	Ozone % difference avg	Р	7	10	4	2.6	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.58	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	-0.64	ppb	Р
9	Flow Rate average % difference	Р	10	5	6	0.29	%	Р
10	Flow Rate max % difference	Р	10	5	6	0.54	%	Р
11	DAS Voltage average error	Р	15	0.003	14	0.0003	V	Р
12	Shelter Temperature average error	Р	5	2	21	0.49	с	Р
13	Shelter Temperature max error	Р	5	2	21	0.76	с	Р

### **Field Systems Comments**

#### 1 Parameter: SitingCriteriaCom

The site is located in a small clearing within 100 meters of a horse stable. There is a plywood and aluminum processing plant within 20 km of the site.

#### 2 Parameter: ShelterCleanNotes

The shelter is in fair condition. Evidence of repairs to roof leaks attempted. Some floor tiles are loose.

#### 3 Parameter: PollAnalyzerCom

The desiccant for the zero air system is saturated.

4 Parameter: MetSensorComme

The recorded temperature data at this site is measured at approximately 2 meters above the ground.
**Data Compiled:** 12/28/2021 08:18:09

## SiteVisitDateSiteTechnician08/23/2021GRB411Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.96480	unitless	Р
2	Ozone Intercept	Р	0	5	4	0.22309	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99994	unitless	Р
4	Ozone % difference avg	Р	7	10	4	3.7	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	0.87	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-0.66	ppb	Р

**Data Compiled:** 12/28/2021 13:37:37

## SiteVisitDateSiteTechnician09/29/2021GRC474Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.97373	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.1787	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99999	unitless	Р
4	Ozone % difference avg	Р	7	10	4	3.7	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	0.10	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-0.9	ppb	Р

**Data Compiled:** 12/27/2021 18:28:17

## SiteVisitDateSiteTechnician08/16/2021HOX148Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.95865	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.11849	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99998	unitless	Р
4	Ozone % difference avg	Р	7	10	4	5.1	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	0.29	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-0.97	ppb	Р

**Data Compiled:** 8/4/2021 16:37:12

## SiteVisitDateSiteTechnician07/08/2021HWF187Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.95611	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.22108	ppb	Р
3	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
4	Ozone % difference avg	Р	7	10	4	5.1	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	-0.26	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-0.85	ppb	Р

**Data Compiled:** 12/28/2021 17:15:07

### SiteVisitDate Site Technician

08/11/2021 MAC426 Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	Р	5	0.5	3	0.16	с	Р
2	Temperature2meter max error	Р	5	0.5	3	0.42	с	Р
3	Ozone Slope	Р	0	1.1	4	0.98950	unitless	Р
4	Ozone Intercept	Р	0	5	4	0.55881	ppb	Р
5	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
6	Ozone % difference avg	Р	7	10	4	0.8	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.74	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	0.33	ppb	Р
9	Flow Rate average % difference	Р	10	5	4	2.44	%	Р
10	Flow Rate max % difference	Р	10	5	4	3.02	%	Р
11	DAS Voltage average error	Р	4	0.003	6	0.0000	V	Р
12	Shelter Temperature average error	Р	5	2	18	0.41	с	Р
13	Shelter Temperature max error	Р	5	2	18	0.76	c	Р

08/11/2021 MAC426

Technician Korey Devins

### **Field Performance Comments**

 1
 Parameter:
 Flow Rate
 SensorComponent:
 Filter Depth
 CommentCode:
 71

The filter attachment plate is mounted too low in the enclosure resulting in the filter being exposed to wind-driven rain and in the standard geometric orientation.

### **Field Systems Comments**

1 Parameter: SiteOpsProcComm

The site operator is very knowledgeable with air quality monitoring. He is doing a very good job with site activities and filter handling.

#### 2 Parameter: SitingCriteriaCom

Bowling Green is within 40 km of the site. The site is in a hay field which is harvested twice per year. The area to the west and south is comprised of livestock farms including cattle and poultry.

#### 3 Parameter: ShelterCleanNotes

The shelter is well maintained, clean, neat, and well organized.

**Data Compiled:** 8/8/2021 18:15:16

# SiteVisitDateSiteTechnician07/27/2021NIC001Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	15	0.12	с	Р
2	Temperature max error	Р	4	0.5	15	0.26	с	Р
3	Flow Rate average % difference	Р	10	5	6	0.04	%	Р
4	Flow Rate max % difference	Р	10	5	6	0.10	%	Р

07/27/2021 NIC001

Technician

#### Korey Devins

### **Field Performance Comments**

 1
 Parameter:
 Flow Rate
 SensorComponent:
 Moisture Present
 CommentCode:
 72

 The filter sample tubing has drops of moisture in low sections outside the shelter.
 The section outside the shelter.
 The section outside the shelter.
 The section outside the shelter.

## **Field Systems Comments**

1 Parameter: DasComments

Single tower with filter pack mounted at 10 meters and temperature mounted at 9 meters.

2 Parameter: DocumentationCo

There is no logbook onsite to record information regarding site status or filter information.

3 Parameter: ShelterCleanNotes

Small footprint site with no shelter. Equipment housed in enclosure on sample tower.

**Data Compiled:** 12/27/2021 17:00:51

## SiteVisitDateSiteTechnician08/10/2021NPT006Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	1.00445	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.06069	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99999	unitless	Р
4	Ozone % difference avg	Р	7	10	4	0.5	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	0.28	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-0.16	ppb	Р

**Data Compiled:** 12/28/2021 11:51:47

## SiteVisitDateSiteTechnician09/28/2021PET427Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.97712	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.12746	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99990	unitless	Р
4	Ozone % difference avg	Р	7	10	4	2.8	%	Р
5	Ozone Absolute Difference g2	Р	7	1.5	1	-0.45	ppb	Р

**Data Compiled:** 8/8/2021 16:46:22

### SiteVisitDate Site Technician

07/14/2021 PIN414 Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	Р	5	0.5	3	0.10	c	Р
2	Temperature2meter max error	Р	5	0.5	3	0.20	с	Р
3	Ozone Slope	Р	0	1.1	4	1.02535	unitless	Р
4	Ozone Intercept	Р	0	5	4	-0.07108	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99997	unitless	Р
6	Ozone % difference avg	Р	7	10	4	2.3	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.06	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	0.36	ppb	Р
9	Flow Rate average % difference	Р	10	5	4	0.33	%	Р
10	Flow Rate max % difference	Р	10	5	4	0.91	%	Р
11	DAS Voltage average error	Р	9	0.003	70	0.0000	V	Р
12	Shelter Temperature average error	Р	5	2	21	1.36	с	Р
13	Shelter Temperature max error	Р	5	2	21	1.93	c	Р

## **Field Systems Comments**

#### 1 Parameter: SiteOpsProcedures

The site operator reviews data each week to ensure proper operation of sensors and instruments.

#### 2 Parameter: ShelterCleanNotes

The lighting has been repaired. The shelter has been cleaned and organized.

**Data Compiled:** 12/28/2021 19:03:02

SiteVisitDate Site Technician

08/22/2021 PRK134 Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	15	0.20	с	Р
2	Temperature max error	Р	4	0.5	15	0.30	с	Р
3	Ozone Slope	Р	0	1.1	4	0.97941	unitless	Р
4	Ozone Intercept	Р	0	5	4	-0.87249	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99999	unitless	Р
6	Ozone % difference avg	Р	7	10	4	5.0	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	-0.62	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	-1.29	ppb	Р
9	Flow Rate average % difference	Р	10	5	6	0.67	%	Р
10	Flow Rate max % difference	Р	10	5	6	0.67	%	Р
11	DAS Voltage average error	Р	7	0.003	84	0.0000	V	Р
12	Shelter Temperature average error	Р	5	2	21	0.52	с	Р
13	Shelter Temperature max error	Р	5	2	21	0.93	с	Р

## **Field Systems Comments**

#### 1 Parameter: SitingCriteriaCom

Clover and Barley have been planted for hay within 20m of the site starting in 2008.

#### 2 Parameter: ShelterCleanNotes

The shelter is clean, neat, and well organized.

**Data Compiled:** 12/28/2021 19:44:28

### SiteVisitDate Site Technician

09/23/2021 ROM206 Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	6	0.14	с	Р
2	Temperature max error	Р	4	0.5	6	0.20	с	Р
3	Ozone Slope	Р	0	1.1	4	1.00892	unitless	Р
4	Ozone Intercept	Р	0	5	4	-0.36857	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99995	unitless	Р
6	Ozone % difference avg	Р	7	10	4	1.2	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.23	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	-0.42	ppb	Р
9	Flow Rate average % difference	Р	10	5	10	0.33	%	Р
10	Flow Rate max % difference	Р	10	5	10	0.67	%	Р
11	DAS Voltage average error	Р	7	0.003	63	0.0002	V	Р
12	Shelter Temperature average error	Р	5	2	21	0.33	c	Р
13	Shelter Temperature max error	Р	5	2	21	0.51	c	Р

## **Field Systems Comments**

#### 1 Parameter: ShelterCleanNotes

The shelter is clean, neat, and well organized. There are signs of previous roof leaks, but they have been repaired. The floor and counter top have been replaced.

#### 2 Parameter: MetSensorComme

The temperature sensor has been removed from the met tower and mounted in a naturally aspirated shield on the sample tower, facing south and over the shelter roof.

**Data Compiled:** 12/28/2021 09:31:27

## SiteVisitDate Site Technician 08/29/2021 SND152 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	1.00921	unitless	Р
2	Ozone Intercept	Р	0	5	4	0.52639	ppb	Р
3	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
4	Ozone % difference avg	Р	7	10	4	2.4	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	0.70	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	0.54	ppb	Р

**Data Compiled:** 12/27/2021 16:13:13

## SiteVisitDateSiteTechnician08/09/2021UMA009Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	1.02422	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.00247	ppb	Р
3	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
4	Ozone % difference avg	Р	7	10	4	2.2	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	0.17	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	0.27	ppb	Р

**Data Compiled:** 8/4/2021 17:26:16

## SiteVisitDateSiteTechnician07/13/2021UND002Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	9	0.11	с	Р
2	Temperature max error	Р	4	0.5	9	0.14	с	Р
3	Flow Rate average % difference	Р	10	5	8	1.13	%	Р
4	Flow Rate max % difference	Р	10	5	8	1.32	%	Р

Technician

07/13/2021 UND002

Korey Devins

### **Field Performance Comments**

1	Parameter:	Flow Rate	SensorComponent:	Moisture Present	CommentCode: 72

The filter sample tubing has drops of moisture in low sections outside the shelter.

## **Field Systems Comments**

#### 1 Parameter: DasComments

Single tower with filer pack mounted at 10 meters and temperature mounted at 9 meters.

#### 2 Parameter: DocumentationCo

Although there is no CASTNET logbook present onsite, the site operator records CASTNET information in the VT Monitoring Coop logbook.

#### 3 Parameter: ShelterCleanNotes

Small footprint site with no shelter. Equipment housed in enclosure on sample tower.

**Data Compiled:** 12/27/2021 17:16:13

## SiteVisitDate Site Technician 08/11/2021 UVL124 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.99714	unitless	Р
2	Ozone Intercept	Р	0	5	4	-1.32013	ppb	Р
3	Ozone correlation	Р	0	0.995	4	0.99988	unitless	Р
4	Ozone % difference avg	Р	7	10	4	5.4	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	-0.33	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-2.13	ppb	Fail

Data Compiled:

12/28/2021 16:47:33

#### SiteVisitDate Site Technician

08/09/2021 VIN140 Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	6	0.12	с	Р
2	Temperature max error	Р	4	0.5	6	0.26	с	Р
3	Ozone Slope	Р	0	1.1	4	0.99932	unitless	Р
4	Ozone Intercept	Р	0	5	4	-0.05724	ppb	Р
5	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
6	Ozone % difference avg	Р	7	10	4	0.5	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.10	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	-0.18	ppb	Р
9	Flow Rate average % difference	Р	10	5	9	0.67	%	Р
10	Flow Rate max % difference	Р	10	5	9	0.67	%	Р
11	DAS Voltage average error	Р	7	0.003	84	0.0000	V	Р
12	Shelter Temperature average error	Р	5	2	21	0.18	с	Р
13	Shelter Temperature max error	Р	5	2	21	0.24	c	Р

08/09/2021 VIN140

Technician

### Korey Devins

### **Field Performance Comments**

1 Parameter:         Flow Rate         SensorComponent:         Moisture Present         Com	nentCode: 72	
----------------------------------------------------------------------------------------------	--------------	--

The filter sample tubing has drops of moisture in low sections outside the shelter.

## **Field Systems Comments**

#### 1 Parameter: SitingCriteriaCom

The site is in an agricultural research center with farm activities adjacent to the site. A train track is approximately 200 meters to the north.

#### 2 Parameter: ShelterCleanNotes

The shelter is in fair condition and well maintained, however rot is forming at the bottom of the walls.

#### 3 Parameter: MetSensorComme

The temperature sensor is mounted on the sample tower.

**Data Compiled:** 12/28/2021 19:24:03

### SiteVisitDate Site Technician

08/25/2021 VOY413 Eric Hebert

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	Р	5	0.5	3	0.20	с	Р
2	Temperature2meter max error	Р	5	0.5	3	0.34	с	Р
3	Ozone Slope	Р	0	1.1	4	1.00433	unitless	Р
4	Ozone Intercept	Р	0	5	4	0.49412	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99998	unitless	Р
6	Ozone % difference avg	Р	7	10	4	2.2	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.25	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	0.66	ppb	Р
9	Flow Rate average % difference	Р	10	5	3	0.78	%	Р
10	Flow Rate max % difference	Р	10	5	3	1.01	%	Р
11	DAS Voltage average error	Р	7	0.003	11	0.0000	V	Р
12	Shelter Temperature average error	Р	5	2	24	1.7	с	Р
13	Shelter Temperature max error	Р	5	2	24	2.03	с	Fail

### **Field Systems Comments**

#### 1 Parameter: SiteOpsProcComm

The site operator uses the filter bag to handle the dry deposition filter during installation and removal.

#### 2 Parameter: DasComments

The sample tower itself is not grounded, however it is bolted to the shelter which is grounded. The roof leak above the instrument rack may have been repaired, it is dry at this time.

#### 3 Parameter: SitingCriteriaCom

The site is located at the top of a hill in a forest. There are trees surrounding the site which are below the tower height, but within 10 m of the inlet.

#### 4 Parameter: ShelterCleanNotes

The shelter is in fair condition, and is neat and well organized.

#### 5 Parameter: PollAnalyzerCom

There are no trees violating the 22.5 degree cone above the ozone sample inlet. However, there is a communication tower which is above the 22.5 degree threshold.

**Data Compiled:** 8/4/2021 16:18:07

# SiteVisitDateSiteTechnician07/01/2021WFM105Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	18	0.08	с	Р
2	Temperature max error	Р	4	0.5	18	0.12	с	Р
3	Flow Rate average % difference	Р	10	5	6	0.30	%	Р
4	Flow Rate max % difference	Р	10	5	6	0.33	%	Р

Technician

07/01/2021 WFM105

Korey Devins

### **Field Performance Comments**

 1
 Parameter:
 Flow Rate
 SensorComponent:
 Moisture Present
 CommentCode:
 72

 The filter sample tubing has drops of moisture in low sections outside the shelter.
 The filter sample tubing has drops of moisture in low sections outside the shelter.
 The filter sample tubing has drops of moisture in low sections outside the shelter.
 The filter sample tubing has drops of moisture in low sections outside the shelter.

## **Field Systems Comments**

1 Parameter: DasComments

Single tower, with filter pack at 10 meters and temperature at 9 meters.

2 Parameter: SitingCriteriaCom

The site is located at the Atmospheric Science Research Center (ASRC) operated by the NY University (SUNY) system.

3 Parameter: ShelterCleanNotes

Small footprint site with no shelter. Equipment housed in enclosure on sample tower.

**Data Compiled:** 12/28/2021 13:49:02

## SiteVisitDateSiteTechnician09/30/2021WST109Korey Devins

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	Р	0	1.1	4	0.99984	unitless	Р
2	Ozone Intercept	Р	0	5	4	-0.51271	ppb	Р
3	Ozone correlation	Р	0	0.995	4	1.00000	unitless	Р
4	Ozone % difference avg	Р	7	10	4	1.5	%	Р
5	Ozone Absolute Difference g1	Р	7	3	1	-0.54	ppb	Р
6	Ozone Absolute Difference g2	Р	7	1.5	1	-0.43	ppb	Р

Data Compiled:

8/8/2021 17:20:16

### SiteVisitDate Site Technician

07/15/2021 YOS404 Martin Valvur

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	Р	4	0.5	3	0.26	с	Р
2	Temperature max error	Р	4	0.5	3	0.39	с	Р
3	Ozone Slope	Р	0	1.1	4	1.01061	unitless	Р
4	Ozone Intercept	Р	0	5	4	0.92352	ppb	Р
5	Ozone correlation	Р	0	0.995	4	0.99999	unitless	Р
6	Ozone % difference avg	Р	7	10	4	4.0	%	Р
7	Ozone Absolute Difference g1	Р	7	3	1	0.95	ppb	Р
8	Ozone Absolute Difference g2	Р	7	1.5	1	1.24	ppb	Р
9	Flow Rate average % difference	Р	10	5	3	0.76	%	Р
10	Flow Rate max % difference	Р	10	5	3	1.38	%	Р
11	DAS Voltage average error	Р	2	0.003	56	0.0002	V	Р
12	Shelter Temperature average error	Р	5	2	21	1.93	с	Р
13	Shelter Temperature max error	Р	5	2	21	2.53	с	Fail

07/15/2021 YOS404

**Technician** Martin Valvur

CommentCode: 141

## **Field Performance Comments**

 1
 Parameter:
 Temperature
 SensorComponent:
 Properly Sited

The temperature sensor is mounted directly above the shelter roof.

## **Field Systems Comments**

#### 1 Parameter: ShelterCleanNotes

The site is neat, clean, and well organized. The shelter roof is currently covered with tar paper.