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**2021 – 1st 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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**Report Submitted**  
**April 2021**

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## List of Acronyms and Abbreviations

% diff	percent difference
A/D	analog to digital converter
ARS	Air Resource Specialists, Inc.
ASTM	American Society for Testing and Materials
BLM	Bureau of Land Management
BLM-WSO	Bureau of Land Management – Wyoming State Office
CAL	Central Analytical Laboratory
CASTNET	Clean Air Status and Trends Network
CMAQ	Community Multiscale Air Quality
DAS	data acquisition system
deg	degree
DVM	digital voltmeter
ECCC	Environment and Climate Change Canada
EEMS	Environmental, Engineering & Measurement Services, Inc.
EPA	U.S. Environmental Protection Agency
ESC	Environmental Systems Corporation
FSA	Field Systems Audit
FSAD	Field Site Audit Database
GPS	geographical positioning system
HAL	Mercury Analytical Laboratory
LADCO	Lake Michigan Air Directors Consortium
lpm	liters per minute
MD DNR	Maryland Department of Natural Resources
MLM	Multilayer Model
MN PCA	Minnesota Pollution Control Agency
m/s	meters per second
mv	millivolt
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
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 measure 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.

**Table 1. Performance Audit Challenge and Acceptance Criteria**

Sensor	Parameter	Audit Challenge	Acceptance Criteria
Precipitation	Response	10 manual tips	1 DAS count per tip
Precipitation	Accuracy	2 introductions of known amounts of water	$\leq \pm 10.0\%$ of input amount
Relative Humidity	Accuracy	Compared to reference instrument or standard solution	$\leq \pm 10.0\%$ 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)	$\leq \pm 0.5^\circ$ C
Temperature Difference	Accuracy	Comparison to station temperature sensor	$\leq \pm 0.50^\circ$ C

Sensor	Parameter	Audit Challenge	Acceptance Criteria
Shelter Temperature	Accuracy	Comparison to station temperature sensor	$\leq \pm 2.0^\circ \text{ C}$
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-point test gas concentration as measured with a certified transfer standard	$0.9000 \leq m \leq 1.1000$
Ozone	Intercept		$-5.0 \text{ ppb} \leq b \leq 5.0 \text{ ppb}$
Ozone	Correlation Coefficient		$0.9950 \leq r$
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	$\leq \pm 0.003$ 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 First Quarter 2021

This report consists of the systems and performance, and other audit results from the CASTNET sites visited during the first quarter (January through March) of 2021. The site locations, sponsor, visit dates, and parameters audited are included in Table 2.

**Table 2. CASTNET Site Audit Visits**

Site ID	Sponsor	Date	FSA	O3 PE	FLOW
ALC188	EPA	2/23/2021	1	1	1
BBE401	NPS	3/1/2021	1	1	1
SUM156	EPA	3/4/2021		1	
IRL141	EPA	3/5/2021		1	
BWR139	EPA	3/16/2021	1	1	1
BEL116	EPA	3/18/2021		1	
CND125	EPA	3/21/2021	1	1	1
EVE419	NPS	3/29/2021	1		1



## 1.4 Audit Results

The observations and results of the systems and performance 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*. The Ozone PE results and observations are included in Appendix C, *CASTNET Ozone Performance Evaluation Forms*.

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

## 2.0 NADP Quarterly Report

### 2.1 Introduction

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

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

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

### 2.2 Project Objectives

The objective of this project is to perform independent and unbiased evaluations of the sites along with its operations. 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 First Quarter 2021

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

**Table 3. NADP Site Survey Visits**

Site ID	Sponsor	Date	NTN	MDN	AMON
LA30	USGS	2/22/2021	1		
TX41	EPA	2/23/2021			1
TX10	USGS	2/24/2021	1		
TX03	USGS	2/25/2021	1		
TX16	USGS	2/26/2021	1		
TX04	NPS	3/1/2021			1
NM08	USGS	3/2/2021	1		
AZ06	NPS	3/3/2021	1		
FL23	EPA	3/4/2021			1
FL19	EPA	3/5/2021			1
CA42	USDA-FS	3/8/2021	1		
CA94	USDA-FS	3/9/2021	1	1	
MD06	EPA	3/16/2021			1
MD99	MD DNR	3/18/2021			1
NC26	EPA	3/21/2021			1
NC36	USGS	3/23/2021	1		
NC35	NC State	3/24/2021	1		
SC06	USGS	3/25/2021	1		
FL11	NPS	3/29/2021	1	1	1
CO15	BLM	3/30/2021	1		
FL95	SFWMD	3/31/2021		1	
FL97	SFWMD	3/31/2021		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.

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**APPENDIX A**

**CASTNET Audit Report Forms**

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## *Site Inventory by Site Visit*

<i>Site Visit Date</i>	<i>Parameter</i>	<i>Mfg</i>	<i>Owner ID</i>	<i>Model Number</i>	<i>Serial Number</i>	
<i>ALC188-Martin Valvur-02/23/2021</i>						
1	2/23/2021	Computer	Dell	07006	Inspiron 15	373MC12
2	2/23/2021	DAS	Campbell	000422	CR3000	2523
3	2/23/2021	Elevation	Elevation	None	1	None
4	2/23/2021	Filter pack flow pump	Thomas	02976	107CAB18	0493002475
5	2/23/2021	Flow Rate	Apex	000683	AXMC105LPMDPCV	illegible
6	2/23/2021	Infrastructure	Infrastructure	none	none	none
7	2/23/2021	Modem	Digi	07202	LR54	Illegible
8	2/23/2021	Ozone	ThermoElectron Inc	000629	49i A1NAA	1009241784
9	2/23/2021	Ozone Standard	ThermoElectron Inc	000694	49i A3NAA	1030244815
10	2/23/2021	Sample Tower	Aluma Tower	000136	B	none
11	2/23/2021	Shelter Temperature	Campbell	none	107-L	none
12	2/23/2021	Siting Criteria	Siting Criteria	None	1	None
13	2/23/2021	Temperature	RM Young	07282	41342VC	031773
14	2/23/2021	Zero air pump	Werther International	06886	C 70/4	000815259

# DAS Data Form

DAS Time Max Error:

<b>Mfg</b>	<b>Serial Number</b>	<b>Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Use Desc.</b>
Campbell	2523	ALC188	Martin Valvur	02/23/2021	DAS	Primary

<b>Das Date:</b>	<input type="text" value="2 /23/2021"/>	<b>Audit Date</b>	<input type="text" value="2 /23/2021"/>
<b>Das Time:</b>	<input type="text" value="09:30:15"/>	<b>Audit Time</b>	<input type="text" value="09:30:00"/>
<b>Das Day:</b>	<input type="text" value="54"/>	<b>Audit Day</b>	<input type="text" value="54"/>

<b>Low Channel:</b>	<b>High Channel:</b>		
<b>Avg Diff:</b>	<b>Max Diff:</b>	<b>Avg Diff:</b>	<b>Max Diff:</b>
<input type="text" value="0.0002"/>	<input type="text" value="0.0008"/>	<input type="text" value="0.0002"/>	<input type="text" value="0.0008"/>

<b>Mfg</b>	<input type="text" value="HY"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="12010039329"/>	<b>Tfer Desc.</b>	<input type="text" value="Source generator (D"/>
<b>Tfer ID</b>	<input type="text" value="01322"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="6/15/2014"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>
<b>Mfg</b>	<input type="text" value="Fluke"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="95740243"/>	<b>Tfer Desc.</b>	<input type="text" value="DVM"/>
<b>Tfer ID</b>	<input type="text" value="01312"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/11/2021"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
7	0.0000	0.0002	0.0005	V	V	0.0003
7	0.1000	0.0999	0.0999	V	V	0.0000
7	0.3000	0.2999	0.2991	V	V	-0.0008
7	0.5000	0.5000	0.5001	V	V	0.0001
7	0.7000	0.7000	0.6999	V	V	-0.0001
7	0.9000	0.9000	0.9001	V	V	0.0001
7	1.0000	1.0004	1.0002	V	V	-0.0002

# Flow Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
Apex	illegible	ALC188	Martin Valvur	02/23/2021	Flow Rate	000683

<b>Mfg</b>	BIOS	<b>Parameter</b>	Flow Rate
<b>Serial Number</b>	148613	<b>Tfer Desc.</b>	BIOS 220-H
<b>Tfer ID</b>	01421		
<b>Slope</b>	1.00850	<b>Intercept</b>	0.00160
<b>Cert Date</b>	2/10/2021	<b>CorrCoff</b>	0.99999

<b>DAS 1:</b>	<b>DAS 2:</b>
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>
0.89%	2.00%

<b>Cal Factor Zero</b>	-0.006
<b>Cal Factor Full Scale</b>	0.975
<b>Rotometer Reading:</b>	1.5

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignal	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	-0.10	0.000	0.06	l/m	l/m	
primary	test pt 1	1.510	1.500	1.52	0.000	1.53	l/m	l/m	2.00%
primary	test pt 2	1.510	1.500	1.53	0.000	1.50	l/m	l/m	0.00%
primary	test pt 3	1.510	1.500	1.53	0.000	1.49	l/m	l/m	-0.67%

<b>Sensor Component</b>	Leak Test	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Tubing Condition	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Position	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Rotometer Condition	<b>Condition</b>	Clean and dry	<b>Status</b>	pass
<b>Sensor Component</b>	Moisture Present	<b>Condition</b>	No moisture present	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Distance	<b>Condition</b>	4.0 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Depth	<b>Condition</b>	4.5 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Azimuth	<b>Condition</b>	Not tested	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass



# Ozone Data Form

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1009241784	ALC188	Martin Valvur	02/23/2021	Ozone	000629

<b>Slope:</b>	0.98450	<b>Slope:</b>	0.00000
<b>Intercept</b>	-0.30108	<b>Intercept</b>	0.00000
<b>CorrCoff:</b>	0.99999	<b>CorrCoff:</b>	0.00000

<b>Mfg</b>	ThermoElectron Inc	<b>Parameter</b>	ozone
<b>Serial Number</b>	49CPS-70008-364	<b>Tfer Desc.</b>	Ozone primary stan
<b>Tfer ID</b>	01110		
<b>Slope</b>	1.00340	<b>Intercept</b>	0.02230
<b>Cert Date</b>	1/20/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>	<b>A Avg %Diff</b>	<b>A Max % Dif</b>
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.09	0.06	-0.23	ppb		-0.29
primary	2	15.86	15.69	15.35	ppb		-0.34
primary	3	36.02	35.67	34.63	ppb	-2.96	
primary	4	63.55	62.96	61.54	ppb	-2.28	
primary	5	111.42	110.40	108.50	ppb	-1.74	

<b>Sensor Component</b>	Audit Pressure	<b>Condition</b>	758.5 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	26.6 degree unobstructed rule	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Tree dewline >10m or below inlet	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT <100 vehicles further than 20	<b>Condition</b>	84 m	<b>Status</b>	Fail
<b>Sensor Component</b>	ADT >100 vehicles further than 50	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Sample Train	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Inlet Filter Condition	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Offset	<b>Condition</b>	0.2	<b>Status</b>	pass
<b>Sensor Component</b>	Span	<b>Condition</b>	1.010	<b>Status</b>	pass
<b>Sensor Component</b>	Zero Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Fullscale Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Freq.	<b>Condition</b>	89.1 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Noise	<b>Condition</b>	0.7 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Flow	<b>Condition</b>	0.74 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Pressure	<b>Condition</b>	713.7 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Tmp.	<b>Condition</b>	32.8 C	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Freq.	<b>Condition</b>	94.8 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Noise	<b>Condition</b>	0.6 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Flow	<b>Condition</b>	0.73 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Pressure	<b>Condition</b>	713.4 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Temperature Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
RM Young	031773	ALC188	Martin Valvur	02/23/2021	Temperature	07282

<b>Mfg</b>	Fluke	<b>Parameter</b>	Temperature
<b>Serial Number</b>	3275143	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01229		
<b>Slope</b>	0.99975	<b>Intercept</b>	-0.00824
<b>Cert Date</b>	2/9/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>Abs Avg Err</b>	<b>Abs Max Err</b>	<b>Abs Avg Err</b>	<b>Abs Max Err</b>
0.54	0.63		

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Range	0.13	0.14	0.000	0.5	C	0.37
primary	Temp Mid Range	24.73	24.74	0.000	25.4	C	0.63
primary	Temp High Range	47.82	47.84	0.000	48.5	C	0.63

<b>Sensor Component</b>	Shield	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Blower	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Properly Sited	<b>Condition</b>	Not properly sited	<b>Status</b>	Fail
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Shelter Temperature Data For

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	ALC188	Martin Valvur	02/23/2021	Shelter Temperature	none

DAS 1:		DAS 2:	
Abs Avg Err	Abs Max Err	Abs Avg Err	Abs Max Err
1.33	1.43		

<b>Mfg</b>	Fluke	<b>Parameter</b>	Shelter Temperature
<b>Serial Number</b>	3275143	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01229		
<b>Slope</b>	0.99975	<b>Intercept</b>	-0.00824
<b>Cert Date</b>	2/9/2021	<b>CorrCoff</b>	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	22.32	22.33	0.000	23.6	C	1.27
primary	Temp Mid Range	22.95	22.96	0.000	24.3	C	1.3
primary	Temp Mid Range	24.55	24.56	0.000	26.0	C	1.43

<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass
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# Siting Criteria Form

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

## Infrastructure Data For

Site ID  Technician  Site Visit Date

Shelter Make	Shelter Model	Shelter Size
<input type="text" value="Shelter One"/>	<input type="text" value="8128-2311"/>	<input type="text" value="1024 cuft"/>

Sensor Component	<input type="text" value="Sample Tower Type"/>	Condition	<input type="text" value="Type B"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Conduit"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Met Tower"/>	Condition	<input type="text" value="N/A"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Moisture Trap"/>	Condition	<input type="text" value="Installed"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Power Cables"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Temp Control"/>	Condition	<input type="text" value="Functioning"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Rotometer"/>	Condition	<input type="text" value="Installed"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Sample Tower"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Condition"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Door"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Roof"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Floor"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter walls"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Excessive mold present"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Signal Cable"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Tubing Type"/>	Condition	<input type="text" value="3/8 teflon"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Sample Train"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>

# Site Visit Comments

<b>Parameter</b>	<b>Site</b>	<b>Technician</b>	<b>S.V. Date</b>	<b>Component</b>	<b>Mfg</b>	<b>Serial No.</b>	<b>Hazard</b>	<b>Problem</b>
Flow Rate	ALC188	Martin Valvur	02/23/2021	System Memo	Apex	4301	<input type="checkbox"/>	<input type="checkbox"/>
The flow rate signal was observed to oscillate and not remain constant during the audit. There was no oscillation of the actual flow rate detected by the audit device, only the signal from the flow controller.								
Temperature	ALC188	Martin Valvur	02/23/2021	System Memo	RM Young	4623	<input type="checkbox"/>	<input type="checkbox"/>
This sensor is not mounted as stated in the QAPP with respect to orientation.								

# Field Systems Comments

1 **Parameter:** SitingCriteriaCom

The site is well located with respect to CASTNET siting criteria, however there is a small campground 0.5 km to the northwest which may be a source of smoke.

2 **Parameter:** ShelterCleanNotes

The site is clean and neat.

3 **Parameter:** PollAnalyzerCom

There is a moisture trap in both the flow and ozone sample lines.

# Field Systems Data Form

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Site ID  Technician  Site Visit Date

Site Sponsor (agency)	<input type="text" value="EPA"/>	USGS Map	<input type="text" value="Dallardsville"/>
Operating Group	<input type="text" value="Alabama-Coushatta Environmental Gr"/>	Map Scale	<input type="text"/>
AQS #	<input type="text" value="48-373-9991"/>	Map Date	<input type="text"/>
Meteorological Type	<input type="text" value="R.M. Young"/>		
Air Pollutant Analyzer	<input type="text" value="Ozone"/>	QAPP Latitude	<input type="text" value="30.4210"/>
Deposition Measurement	<input type="text" value="dry"/>	QAPP Longitude	<input type="text" value="-94.4045"/>
Land Use	<input type="text" value="woodland - mixed"/>	QAPP Elevation Meters	<input type="text" value="101"/>
Terrain	<input type="text" value="gently rolling"/>	QAPP Declination	<input type="text" value="3.8"/>
Conforms to MLM	<input type="text" value="Yes"/>	QAPP Declination Date	<input type="text" value="9/16/2005"/>
Site Telephone	<input type="text" value="(936) 563-2973"/>	Audit Latitude	<input type="text" value="30.701577"/>
Site Address 1	<input type="text" value="Poncho Rd."/>	Audit Longitude	<input type="text" value="-94.674011"/>
Site Address 2	<input type="text" value="571 Park Rd. 56"/>	Audit Elevation	<input type="text" value="105"/>
County	<input type="text" value="Polk"/>	Audit Declination	<input type="text" value="2.5"/>
City, State	<input type="text" value="Livingston, TX"/>		
Zip Code	<input type="text" value="77351"/>	Fire Extinguisher <input checked="" type="checkbox"/>	<input type="text" value="New in 2015"/>
Time Zone	<input type="text" value="Central"/>	First Aid Kit <input checked="" type="checkbox"/>	<input type="text"/>
Primary Operator	<input type="text"/>	Safety Glasses <input type="checkbox"/>	<input type="text"/>
Primary Op. Phone #	<input type="text"/>	Safety Hard Hat <input type="checkbox"/>	<input type="text"/>
Primary Op. E-mail	<input type="text"/>	Climbing Belt <input type="checkbox"/>	<input type="text"/>
Backup Operator	<input type="text"/>	Security Fence <input checked="" type="checkbox"/>	<input type="text"/>
Backup Op. Phone #	<input type="text"/>	Secure Shelter <input checked="" type="checkbox"/>	<input type="text"/>
Backup Op. E-mail	<input type="text"/>	Stable Entry Steps <input checked="" type="checkbox"/>	<input type="text"/>
Shelter Working Room <input checked="" type="checkbox"/>	Make <input type="text" value="Shelter One"/>	Model <input type="text" value="8128-2311"/>	Shelter Size <input type="text" value="1024 cuft"/>
Shelter Clean <input checked="" type="checkbox"/>	Notes <input type="text" value="The site is clean and neat."/>		
Site OK <input checked="" type="checkbox"/>	Notes <input type="text"/>		

**Driving Directions**



# Field Systems Data Form

F-02058-1500-S3-rev002

Site ID

Technician

Site Visit Date

- |    |  |                                     |                                |
|----|--|-------------------------------------|--------------------------------|
| 1  | Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?  | <input checked="" type="checkbox"/> | 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)     | <input checked="" type="checkbox"/> | N/A                            |
| 3  | Are the tower and sensors plumb?   | <input checked="" type="checkbox"/> | N/A                            |
| 4  | Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?  | <input type="checkbox"/>            | Temperature sensor facing west |
| 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) | <input checked="" type="checkbox"/> |                                |
| 6  | Is the solar radiation sensor plumb?   | <input checked="" type="checkbox"/> | N/A                            |
| 7  | Is it sited to avoid shading, or any artificial or reflected light?  | <input checked="" type="checkbox"/> | N/A                            |
| 8  | Is the rain gauge plumb?   | <input checked="" type="checkbox"/> | N/A                            |
| 9  | Is it sited to avoid sheltering effects from buildings, trees, towers, etc?  | <input checked="" type="checkbox"/> | N/A                            |
| 10 | Is the surface wetness sensor sited with the grid surface facing north?  | <input checked="" type="checkbox"/> | N/A                            |
| 11 | Is it inclined approximately 30 degrees?   | <input checked="" type="checkbox"/> | N/A                            |

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

# Field Systems Data Form

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Site ID

Technician

Site Visit Date

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

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

# Field Systems Data Form

F-02058-1500-S5-rev002

Site ID

Technician

Site Visit Date

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

- |   |   |                                     |  |
|---|---|-------------------------------------|--|
| 1 | Do the sample inlets have at least a 270 degree arc of unrestricted airflow?          | <input checked="" type="checkbox"/> |  |
| 2 | Are the sample inlets 3 - 15 meters above the ground?                                 | <input checked="" type="checkbox"/> |  |
| 3 | Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? | <input checked="" type="checkbox"/> |  |

**Pollutant analyzers and deposition equipment operations and maintenance**

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

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

# Field Systems Data Form

F-02058-1500-S6-rev002

Site ID

Technician

Site Visit Date

## DAS, sensor translators, and peripheral equipment operations and maintenance

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

<b>Stable</b>	<b>Grounded</b>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
- 10 Is the sample tower stable and grounded?

<b>Stable</b>	<b>Grounded</b>
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
- 11 Tower comments?

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

# Field Systems Data Form

F-02058-1500-S7-rev002

Site ID

Technician

Site Visit Date

**Documentation**

**Does the site have the required instrument and equipment manuals?**

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

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

	Present		Current
Station Log	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
SSRF	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Site Ops Manual	<input checked="" type="checkbox"/>	Oct 2011	<input checked="" type="checkbox"/>
HASP	<input checked="" type="checkbox"/>	Oct 2014	<input checked="" type="checkbox"/>
Field Ops Manual	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Calibration Reports	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Ozone z/s/p Control Charts	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Preventive maintenance schedule	<input checked="" type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>

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

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

# Field Systems Data Form

F-02058-1500-S8-rev002

Site ID  Technician  Site Visit Date

**Site operation procedures**

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

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

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="Semiannually"/>	<input checked="" type="checkbox"/>
Visual Inspections	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
Translator Zero/Span Tests (climatronics)	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Manual Rain Gauge Test	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Confirm Reasonableness of Current Values	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
Test Surface Wetness Response	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>

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

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="Semiannually"/>	<input checked="" type="checkbox"/>
Automatic Zero/Span Tests	<input checked="" type="checkbox"/>	<input type="text" value="Daily"/>	<input checked="" type="checkbox"/>
Manual Zero/Span Tests	<input type="checkbox"/>	<input type="text" value="As needed"/>	<input checked="" type="checkbox"/>
Automatic Precision Level Tests	<input checked="" type="checkbox"/>	<input type="text" value="Daily"/>	<input checked="" type="checkbox"/>
Manual Precision Level Test	<input type="checkbox"/>	<input type="text" value="As needed"/>	<input checked="" type="checkbox"/>
Analyzer Diagnostics Tests	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at inlet)	<input checked="" type="checkbox"/>	<input type="text" value="Every 2 weeks"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at analyze)	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
Zero Air Desiccant Check	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>

- 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?

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

# Field Systems Data Form

F-02058-1500-S9-rev002

Site ID  Technician  Site Visit Date

Site operation procedures

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

QC Check Performed	Frequency	Compliant
Multi-point MFC Calibrations	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Flow System Leak Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Filter Pack Inspection	<input type="checkbox"/>	<input type="checkbox"/>
Flow Rate Setting Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Visual Check of Flow Rate Rotometer	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
In-line Filter Inspection/Replacement	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>

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

# Field Systems Data Form

F-02058-1500-S10-rev002

Site ID

Technician

Site Visit Date

## Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	373MC12	07006
DAS	Campbell	CR3000	2523	000422
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	0493002475	02976
Flow Rate	Apex	AXMC105LPMDPC	illegible	000683
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07202
Ozone	ThermoElectron Inc	49i A1NAA	1009241784	000629
Ozone Standard	ThermoElectron Inc	49i A3NAA	1030244815	000694
Sample Tower	Aluma Tower	B	none	000136
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VC	031773	07282
Zero air pump	Werther International	C 70/4	000815259	06886



# *Site Inventory by Site Visit*

<i>Site Visit Date</i>	<i>Parameter</i>	<i>Mfg</i>	<i>Owner ID</i>	<i>Model Number</i>	<i>Serial Number</i>	
<i>BBE401-Martin Valvur-03/01/2021</i>						
1	3/1/2021	Computer	Hewlett Packard	none	EliteBook	CNV347CS41
2	3/1/2021	DAS	Environmental Sys Corp	90767	8816	4592
3	3/1/2021	Elevation	Elevation	None	1	None
4	3/1/2021	Filter pack flow pump	Thomas	none	107CA18	illegible
5	3/1/2021	Flow Rate	Alicat	none	Unknown	Unknown
6	3/1/2021	Infrastructure	Infrastructure	none	none	none
7	3/1/2021	Ozone	ThermoElectron Inc	none	49i A3NCA	1201477660
8	3/1/2021	Ozone Standard	ThermoElectron Inc	90831	49C	0520012325
9	3/1/2021	Printer	Hewlett Packard	none	842C	unknown
10	3/1/2021	Sample Tower	Aluma Tower	none	B	AT-5381-F9-1
11	3/1/2021	Shelter Temperature	ARS	none	none	none
12	3/1/2021	Siting Criteria	Siting Criteria	None	1	None
13	3/1/2021	Temperature2meter	RM Young	none	41342VC	14961
14	3/1/2021	Zero air pump	Twin Tower Engineering	none	TT70/4E	526293

# DAS Data Form

DAS Time Max Error:

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	4592	BBE401	Martin Valvur	03/01/2021	DAS	Primary

**Das Date:**       **Audit Date:**   
**Das Time:**       **Audit Time:**   
**Das Day:**       **Audit Day:**

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

<b>Mfg</b>	<input type="text" value="HY"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="12010039329"/>	<b>Tfer Desc.</b>	<input type="text" value="Source generator (D"/>
<b>Tfer ID</b>	<input type="text" value="01322"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="6/15/2014"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>
<b>Mfg</b>	<input type="text" value="Fluke"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="95740243"/>	<b>Tfer Desc.</b>	<input type="text" value="DVM"/>
<b>Tfer ID</b>	<input type="text" value="01312"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/11/2021"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
10	0.0000	-0.0004	-0.0003	V	V	0.0001
10	0.1000	0.1000	0.1001	V	V	0.0001
10	0.3000	0.3002	0.3000	V	V	-0.0002
10	0.5000	0.4997	0.4999	V	V	0.0002
10	0.7000	0.7001	0.7001	V	V	0.0000
10	0.9000	0.8993	0.8996	V	V	0.0003
10	1.0000	1.0000	1.0001	V	V	0.0001

# Flow Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
Alicat	Unknown	BBE401	Martin Valvur	03/01/2021	Flow Rate	none

<b>Mfg</b>	BIOS	<b>Parameter</b>	Flow Rate
<b>Serial Number</b>	148613	<b>Tfer Desc.</b>	BIOS 220-H
<b>Tfer ID</b>	01421		
<b>Slope</b>	1.00850	<b>Intercept</b>	0.00160
<b>Cert Date</b>	2/10/2021	<b>CorrCoff</b>	0.99999

<b>DAS 1:</b>	<b>DAS 2:</b>
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>
0.94%	1.06%

<b>Cal Factor Zero</b>	0.007
<b>Cal Factor Full Scale</b>	4.985
<b>Rotometer Reading:</b>	3.25

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignal	PctDifference
primary	pump off	0.000	0.000	-0.03	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	3.056	3.030	3.01	0.000	3.00	l/m	l/m	-1.02%
primary	test pt 2	3.058	3.030	3.00	0.000	3.00	l/m	l/m	-1.06%
primary	test pt 3	3.050	3.020	3.01	0.000	3.00	l/m	l/m	-0.73%

<b>Sensor Component</b>	Leak Test	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Tubing Condition	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Position	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Rotometer Condition	<b>Condition</b>	Clean and dry	<b>Status</b>	pass
<b>Sensor Component</b>	Moisture Present	<b>Condition</b>	No moisture present	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Distance	<b>Condition</b>	5.0 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Depth	<b>Condition</b>	0.7 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Azimuth	<b>Condition</b>	190 deg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Ozone Data Form

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1201477660	BBE401	Martin Valvur	03/01/2021	Ozone	none

<b>Slope:</b>	1.01419	<b>Slope:</b>	0.00000
<b>Intercept</b>	0.18086	<b>Intercept</b>	0.00000
<b>CorrCoff:</b>	0.99999	<b>CorrCoff:</b>	0.00000

<b>Mfg</b>	ThermoElectron Inc	<b>Parameter</b>	ozone
<b>Serial Number</b>	49CPS-70008-364	<b>Tfer Desc.</b>	Ozone primary stan
<b>Tfer ID</b>	01110		
<b>Slope</b>	1.00340	<b>Intercept</b>	0.02230
<b>Cert Date</b>	1/20/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>	<b>A Avg %Diff</b>	<b>A Max % Dif</b>
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.18	0.15	0.54	ppb		0.39
primary	2	17.73	17.55	17.91	ppb		0.36
primary	3	38.14	37.77	38.41	ppb	1.68	
primary	4	67.17	66.55	67.42	ppb	1.3	
primary	5	109.08	108.09	110.00	ppb	1.75	

<b>Sensor Component</b>	Audit Pressure	<b>Condition</b>	668 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	26.6 degree unobstructed rule	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Tree dewline >10m or below inlet	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT <100 vehicles further than 20	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT >100 vehicles further than 50	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Sample Train	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Inlet Filter Condition	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Offset	<b>Condition</b>	-0.6	<b>Status</b>	pass
<b>Sensor Component</b>	Span	<b>Condition</b>	1.008	<b>Status</b>	pass
<b>Sensor Component</b>	Zero Voltage	<b>Condition</b>	-0.0001	<b>Status</b>	pass
<b>Sensor Component</b>	Fullscale Voltage	<b>Condition</b>	1.0007	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Freq.	<b>Condition</b>	90.0 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Noise	<b>Condition</b>	0.6 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Flow	<b>Condition</b>	0.65 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Pressure	<b>Condition</b>	667.0 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Tmp.	<b>Condition</b>	32.1 C	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Freq.	<b>Condition</b>	108.8 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Noise	<b>Condition</b>	0.8 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Flow	<b>Condition</b>	0.65 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Pressure	<b>Condition</b>	666.9 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# 2 Meter Temperature Data Form

Calc. Difference

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
RM Young	14961	BBE401	Martin Valvur	03/01/2021	Temperature2meter	none

<b>Mfg</b>	Fluke	<b>Parameter</b>	Temperature
<b>Serial Number</b>	3275143	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01229		
<b>Slope</b>	0.99975	<b>Intercept</b>	-0.00824
<b>Cert Date</b>	2/9/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>Abs Avg Err</b>	<b>Abs Max Err</b>	<b>Abs Avg Err</b>	<b>Abs Max Err</b>
0.31	0.33		

UseDescription	Test type	InputTmpRaw	InputTmpCorrected	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Rang	0.04	0.05	0.000	0.38	C	0.33
primary	Temp Mid Range	24.09	24.10	0.000	24.38	C	0.28
primary	Temp High Rang	46.61	46.63	0.000	46.94	C	0.31

<b>Sensor Component</b>	Shield	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Properly Sited	<b>Condition</b>	Properly sited	<b>Status</b>	pass
<b>Sensor Component</b>	Blower	<b>Condition</b>	Functioning	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Shelter Temperature Data For

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
ARS	none	BBE401	Martin Valvur	03/01/2021	Shelter Temperature	none

DAS 1:		DAS 2:	
Abs Avg Err	Abs Max Err	Abs Avg Err	Abs Max Err
0.13	0.19		

<b>Mfg</b>	Fluke	<b>Parameter</b>	Shelter Temperature
<b>Serial Number</b>	3275143	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01229		
<b>Slope</b>	0.99975	<b>Intercept</b>	-0.00824
<b>Cert Date</b>	2/9/2021	<b>CorrCoff</b>	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	21.14	21.15	0.000	21.0	C	-0.19
primary	Temp Mid Range	22.45	22.46	0.000	22.5	C	0.08
primary	Temp Mid Range	20.95	20.96	0.000	21.1	C	0.12

<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass
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# Siting Criteria Form

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

## Infrastructure Data For

Site ID  Technician  Site Visit Date

Shelter Make	Shelter Model	Shelter Size
<input type="text" value="Ekto"/>	<input type="text" value="8814"/>	<input type="text" value="896 cuft"/>

Sensor Component	<input type="text" value="Sample Tower Type"/>	Condition	<input type="text" value="Type B"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Conduit"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Met Tower"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Moisture Trap"/>	Condition	<input type="text" value="Installed"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Power Cables"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Temp Control"/>	Condition	<input type="text" value="Functioning"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Rotometer"/>	Condition	<input type="text" value="Installed"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Sample Tower"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Condition"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Door"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Roof"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Floor"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter walls"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Excessive mold present"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Signal Cable"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Tubing Type"/>	Condition	<input type="text" value="1/2 teflon"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Sample Train"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>



# Field Systems Comments

1 **Parameter:** SiteOpsProcedures

The ozone sample line is leak tested every two weeks when the inlet filter is replaced.

2 **Parameter:** ShelterCleanNotes

The shelter is clean, neat, and well organized.

# Field Systems Data Form

F-02058-1500-S1-rev002

Site ID  Technician  Site Visit Date

Site Sponsor (agency)	<input type="text" value="NPS/EPA"/>	USGS Map	<input type="text" value="Panther Junction"/>
Operating Group	<input type="text" value="NPS"/>	Map Scale	<input type="text"/>
AQS #	<input type="text" value="48-043-0101"/>	Map Date	<input type="text"/>
Meteorological Type	<input type="text" value="Climatronics"/>		
Air Pollutant Analyzer	<input type="text" value="Ozone, IMPROVE, PM2.5"/>	QAPP Latitude	<input type="text" value="29.3022"/>
Deposition Measurement	<input type="text" value="dry, wet"/>	QAPP Longitude	<input type="text" value="-103.1772"/>
Land Use	<input type="text" value="desert"/>	QAPP Elevation Meters	<input type="text" value="1052"/>
Terrain	<input type="text" value="complex"/>	QAPP Declination	<input type="text"/>
Conforms to MLM	<input type="text" value="Marginally"/>	QAPP Declination Date	<input type="text"/>
Site Telephone	<input type="text" value="(432) 477-2258"/>	Audit Latitude	<input type="text" value="29.302651"/>
Site Address 1	<input type="text" value="K-Bar Ranch"/>	Audit Longitude	<input type="text" value="-103.177813"/>
Site Address 2	<input type="text" value="Big Bend National Park"/>	Audit Elevation	<input type="text" value="1057"/>
County	<input type="text" value="Brewster"/>	Audit Declination	<input type="text" value="7.0"/>
City, State	<input type="text" value="Big Bend National Park, TX"/>		
Zip Code	<input type="text" value="79834"/>	Fire Extinguisher	<input type="checkbox"/> <input type="text"/>
Time Zone	<input type="text" value="Central"/>	First Aid Kit	<input checked="" type="checkbox"/> <input type="text"/>
Primary Operator	<input type="text"/>	Safety Glasses	<input type="checkbox"/> <input type="text"/>
Primary Op. Phone #	<input type="text"/>	Safety Hard Hat	<input type="checkbox"/> <input type="text"/>
Primary Op. E-mail	<input type="text"/>	Climbing Belt	<input type="checkbox"/> <input type="text"/>
Backup Operator	<input type="text"/>	Security Fence	<input type="checkbox"/> <input type="text"/>
Backup Op. Phone #	<input type="text"/>	Secure Shelter	<input checked="" type="checkbox"/> <input type="text"/>
Backup Op. E-mail	<input type="text"/>	Stable Entry Steps	<input checked="" type="checkbox"/> <input type="text"/>

Shelter Working Room  Make  Model  Shelter Size

Shelter Clean  Notes

Site OK  Notes

Driving Directions

# Field Systems Data Form

F-02058-1500-S3-rev002

Site ID

Technician

Site Visit Date

- |    |  |                                     |     |
|----|--|-------------------------------------|-----|
| 1  | Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?  | <input checked="" type="checkbox"/> | 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)     | <input checked="" type="checkbox"/> | N/A |
| 3  | Are the tower and sensors plumb?   | <input checked="" type="checkbox"/> | N/A |
| 4  | Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?  | <input checked="" type="checkbox"/> |     |
| 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) | <input checked="" type="checkbox"/> |     |
| 6  | Is the solar radiation sensor plumb?   | <input checked="" type="checkbox"/> | N/A |
| 7  | Is it sited to avoid shading, or any artificial or reflected light?  | <input checked="" type="checkbox"/> | N/A |
| 8  | Is the rain gauge plumb?   | <input checked="" type="checkbox"/> | N/A |
| 9  | Is it sited to avoid sheltering effects from buildings, trees, towers, etc?  | <input checked="" type="checkbox"/> | N/A |
| 10 | Is the surface wetness sensor sited with the grid surface facing north?  | <input checked="" type="checkbox"/> | N/A |
| 11 | Is it inclined approximately 30 degrees?   | <input checked="" type="checkbox"/> | N/A |

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

# Field Systems Data Form

F-02058-1500-S4-rev002

Site ID

Technician

Site Visit Date

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

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

# Field Systems Data Form

F-02058-1500-S5-rev002

Site ID

Technician

Site Visit Date

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

- |   |   |                                     |  |
|---|---|-------------------------------------|--|
| 1 | Do the sample inlets have at least a 270 degree arc of unrestricted airflow?          | <input checked="" type="checkbox"/> |  |
| 2 | Are the sample inlets 3 - 15 meters above the ground?                                 | <input checked="" type="checkbox"/> |  |
| 3 | Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? | <input checked="" type="checkbox"/> |  |

**Pollutant analyzers and deposition equipment operations and maintenance**

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

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

# Field Systems Data Form

F-02058-1500-S6-rev002

Site ID

Technician

Site Visit Date

## DAS, sensor translators, and peripheral equipment operations and maintenance

- |                                     |  |  |                      |          |                                     |                                     |  |
|-------------------------------------|--|--|----------------------|----------|-------------------------------------|-------------------------------------|--|
| 1                                   | Do the DAS instruments appear to be in good condition and well maintained?           | <input checked="" type="checkbox"/>  |                      |          |                                     |                                     |  |
| 2                                   | Are all the components of the DAS operational? (printers, modem, backup, etc)        | <input checked="" type="checkbox"/>  |                      |          |                                     |                                     |  |
| 3                                   | Do the analyzer and sensor signal leads pass through lightning protection circuitry? | <input checked="" type="checkbox"/>  | Met sensors only     |          |                                     |                                     |  |
| 4                                   | Are the signal connections protected from the weather and well maintained?           | <input checked="" type="checkbox"/>  |                      |          |                                     |                                     |  |
| 5                                   | Are the signal leads connected to the correct DAS channel?                           | <input checked="" type="checkbox"/>  |                      |          |                                     |                                     |  |
| 6                                   | Are the DAS, sensor translators, and shelter properly grounded?                      | <input checked="" type="checkbox"/>  |                      |          |                                     |                                     |  |
| 7                                   | Does the instrument shelter have a stable power source?                              | <input checked="" type="checkbox"/>  |                      |          |                                     |                                     |  |
| 8                                   | Is the instrument shelter temperature controlled?                                    | <input checked="" type="checkbox"/>  |                      |          |                                     |                                     |  |
| 9                                   | Is the met tower stable and grounded?  | <table border="1"><tr><td>Stable</td><td>Grounded</td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> | Stable               | Grounded | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| Stable                              | Grounded   |  |                      |          |                                     |                                     |  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  |  |                      |          |                                     |                                     |  |
| 10                                  | Is the sample tower stable and grounded?   | <table border="1"><tr><td>Stable</td><td>Grounded</td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> | Stable               | Grounded | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| Stable                              | Grounded   |  |                      |          |                                     |                                     |  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  |  |                      |          |                                     |                                     |  |
| 11                                  | Tower comments?  |  | <input type="text"/> |          |                                     |                                     |  |

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

# Field Systems Data Form

F-02058-1500-S7-rev002

Site ID

Technician

Site Visit Date

**Documentation**

**Does the site have the required instrument and equipment manuals?**

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

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

	Present		Current
Station Log	<input checked="" type="checkbox"/>	<input type="text" value="Dataview"/>	<input checked="" type="checkbox"/>
SSRF	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Site Ops Manual	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
HASP	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Field Ops Manual	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Calibration Reports	<input checked="" type="checkbox"/>	<input type="text" value="Electronic copy"/>	<input checked="" type="checkbox"/>
Ozone z/s/p Control Charts	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Preventive maintenance schedule	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>

- 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?

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

# Field Systems Data Form

F-02058-1500-S8-rev002

Site ID  Technician  Site Visit Date

**Site operation procedures**

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

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

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="Semiannually"/>	<input checked="" type="checkbox"/>
Visual Inspections	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
Translator Zero/Span Tests (climatronics)	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Manual Rain Gauge Test	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Confirm Reasonableness of Current Values	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
Test Surface Wetness Response	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>

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

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="Semiannually"/>	<input checked="" type="checkbox"/>
Automatic Zero/Span Tests	<input checked="" type="checkbox"/>	<input type="text" value="Daily"/>	<input checked="" type="checkbox"/>
Manual Zero/Span Tests	<input checked="" type="checkbox"/>	<input type="text" value="Monthly"/>	<input checked="" type="checkbox"/>
Automatic Precision Level Tests	<input checked="" type="checkbox"/>	<input type="text" value="Daily"/>	<input checked="" type="checkbox"/>
Manual Precision Level Test	<input checked="" type="checkbox"/>	<input type="text" value="Monthly"/>	<input checked="" type="checkbox"/>
Analyzer Diagnostics Tests	<input type="checkbox"/>	<input type="text" value="Alarm values only"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at inlet)	<input checked="" type="checkbox"/>	<input type="text" value="Every 2 weeks"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at analyze)	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input type="checkbox"/>
Zero Air Desiccant Check	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input type="checkbox"/>

- 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?

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



# Field Systems Data Form

F-02058-1500-S9-rev002

Site ID

Technician

Site Visit Date

Site operation procedures

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

QC Check Performed	Frequency	Compliant
Multi-point MFC Calibrations	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Flow System Leak Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Filter Pack Inspection	<input type="checkbox"/>	<input type="checkbox"/>
Flow Rate Setting Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Visual Check of Flow Rate Rotometer	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
In-line Filter Inspection/Replacement	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input checked="" type="checkbox"/> Weekly	<input type="checkbox"/>

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

# Field Systems Data Form

F-02058-1500-S10-rev002

Site ID

Technician

Site Visit Date

## Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Hewlett Packard	EliteBook	CNV347CS41	none
DAS	Environmental Sys Corp	8816	4592	90767
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CA18	illegible	none
Flow Rate	Alicat	Unknown	Unknown	none
Infrastructure	Infrastructure	none	none	none
Ozone	ThermoElectron Inc	49i A3NCA	1201477660	none
Ozone Standard	ThermoElectron Inc	49C	0520012325	90831
Printer	Hewlett Packard	842C	unknown	none
Sample Tower	Aluma Tower	B	AT-5381-F9-1	none
Shelter Temperature	ARS	none	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	RM Young	41342VC	14961	none
Zero air pump	Twin Tower Engineering	TT70/4E	526293	none

# *Site Inventory by Site Visit*

<i>Site Visit Date</i>	<i>Parameter</i>	<i>Mfg</i>	<i>Owner ID</i>	<i>Model Number</i>	<i>Serial Number</i>	
<i>BWR139-Korey Devins-03/16/2021</i>						
1	3/16/2021	Computer	Dell	07009	Inspiron 15	Unknown
2	3/16/2021	DAS	Campbell	000431	CR3000	2536
3	3/16/2021	Elevation	Elevation	None	1	None
4	3/16/2021	Filter pack flow pump	Thomas	06031	107CAB18	608102A
5	3/16/2021	Flow Rate	Apex	000670	AXMC105LPMDPCV	54758
6	3/16/2021	Infrastructure	Infrastructure	none	none	none
7	3/16/2021	Modem	Digi	07186	LR54	Illegible
8	3/16/2021	Ozone	ThermoElectron Inc	000618	49i A1NAA	1009241789
9	3/16/2021	Ozone Standard	ThermoElectron Inc	000697	49i A3NAA	1030244814
10	3/16/2021	Sample Tower	Aluma Tower	missing	B	none
11	3/16/2021	Shelter Temperature	Campbell	none	107-L	none
12	3/16/2021	Siting Criteria	Siting Criteria	None	1	None
13	3/16/2021	Temperature	RM Young	04315	41342	4012
14	3/16/2021	Zero air pump	Werther International	06877	C 70/4	000815258

# DAS Data Form

DAS Time Max Error:

<b>Mfg</b>	<b>Serial Number</b>	<b>Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Use Desc.</b>
Campbell	2536	BWR139	Korey Devins	03/16/2021	DAS	Primary

<b>Das Date:</b>	<input type="text" value="3 /16/2021"/>	<b>Audit Date</b>	<input type="text" value="3 /16/2021"/>
<b>Das Time:</b>	<input type="text" value="12:09:35"/>	<b>Audit Time</b>	<input type="text" value="12:09:35"/>
<b>Das Day:</b>	<input type="text" value="75"/>	<b>Audit Day</b>	<input type="text" value="75"/>
<b>Low Channel:</b>		<b>High Channel:</b>	
<b>Avg Diff:</b>	<input type="text" value="0.0000"/>	<b>Max Diff:</b>	<input type="text" value="0.0001"/>
		<b>Avg Diff:</b>	<input type="text" value="0.0000"/>
		<b>Max Diff:</b>	<input type="text" value="0.0001"/>

<b>Mfg</b>	<input type="text" value="Fluke"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="95740135"/>	<b>Tfer Desc.</b>	<input type="text" value="DVM"/>
<b>Tfer ID</b>	<input type="text" value="01311"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/11/2021"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>
<b>Mfg</b>	<input type="text" value="Datel"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="15510194"/>	<b>Tfer Desc.</b>	<input type="text" value="Source generator (D"/>
<b>Tfer ID</b>	<input type="text" value="01320"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/13/2012"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
7	0.0000	-0.0001	-0.0001	V	V	0.0000
7	0.1000	0.0997	0.0998	V	V	0.0001
7	0.3000	0.2996	0.2997	V	V	0.0001
7	0.5000	0.4994	0.4995	V	V	0.0001
7	0.7000	0.6994	0.6994	V	V	0.0000
7	0.9000	0.8992	0.8992	V	V	0.0000
7	1.0000	0.9991	0.9991	V	V	0.0000

# Flow Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
Apex	54758	BWR139	Korey Devins	03/16/2021	Flow Rate	000670

<b>Mfg</b>	BIOS	<b>Parameter</b>	Flow Rate
<b>Serial Number</b>	131818	<b>Tfer Desc.</b>	BIOS 220-H
<b>Tfer ID</b>	01417		
<b>Slope</b>	0.99756	<b>Intercept</b>	-0.00058
<b>Cert Date</b>	2/10/2021	<b>CorrCoff</b>	0.99993

<b>DAS 1:</b>	<b>DAS 2:</b>
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>
1.10%	1.32%

<b>Cal Factor Zero</b>	-0.02
<b>Cal Factor Full Scale</b>	0.98
<b>Rotometer Reading:</b>	1.6

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignal	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	0.00	0.000	-0.03	l/m	l/m	
primary	test pt 1	1.516	1.520	1.51	0.000	1.50	l/m	l/m	-1.32%
primary	test pt 2	1.514	1.520	1.52	0.000	1.50	l/m	l/m	-1.32%
primary	test pt 3	1.508	1.510	1.52	0.000	1.50	l/m	l/m	-0.66%

<b>Sensor Component</b>	Leak Test	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Tubing Condition	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Position	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Rotometer Condition	<b>Condition</b>	Clean and dry	<b>Status</b>	pass
<b>Sensor Component</b>	Moisture Present	<b>Condition</b>	No moisture present	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Distance	<b>Condition</b>	4.5 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Depth	<b>Condition</b>	2.5 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Azimuth	<b>Condition</b>	60 deg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Ozone Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
ThermoElectron Inc	1009241789	BWR139	Korey Devins	03/16/2021	Ozone	000618

<b>Slope:</b>	1.00786	<b>Slope:</b>	0.00000
<b>Intercept</b>	0.22991	<b>Intercept</b>	0.00000
<b>CorrCoff:</b>	1.00000	<b>CorrCoff:</b>	0.00000

<b>Mfg</b>	ThermoElectron Inc	<b>Parameter</b>	ozone
<b>Serial Number</b>	1180030022	<b>Tfer Desc.</b>	Ozone primary stan
<b>Tfer ID</b>	01114		
<b>Slope</b>	1.00030	<b>Intercept</b>	0.30550
<b>Cert Date</b>	1/20/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>	<b>A Avg %Diff</b>	<b>A Max % Dif</b>
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.37	0.06	0.32	ppb		0.26
primary	2	15.14	14.76	15.12	ppb		0.36
primary	3	35.01	34.53	35.06	ppb	1.52	
primary	4	68.02	67.37	67.97	ppb	0.89	
primary	5	110.78	109.92	111.10	ppb	1.07	

<b>Sensor Component</b>	Audit Pressure	<b>Condition</b>	766.2 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	26.6 degree unobstructed rule	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Tree dewline >10m or below inlet	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT <100 vehicles further than 20	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT >100 vehicles further than 50	<b>Condition</b>	False	<b>Status</b>	Fail
<b>Sensor Component</b>	Sample Train	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Inlet Filter Condition	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Offset	<b>Condition</b>	-0.3	<b>Status</b>	pass
<b>Sensor Component</b>	Span	<b>Condition</b>	1.023	<b>Status</b>	pass
<b>Sensor Component</b>	Zero Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Fullscale Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Freq.	<b>Condition</b>	92.7 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Noise	<b>Condition</b>	0.3 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Flow	<b>Condition</b>	0.73 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Pressure	<b>Condition</b>	733.7 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Tmp.	<b>Condition</b>	34.7 C	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Freq.	<b>Condition</b>	106.6 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Noise	<b>Condition</b>	0.6 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Flow	<b>Condition</b>	0.73 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Pressure	<b>Condition</b>	734.6 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Temperature Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
RM Young	4012	BWR139	Korey Devins	03/16/2021	Temperature	04315

<b>Mfg</b>	Extech	<b>Parameter</b>	Temperature
<b>Serial Number</b>	H232734	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01227		
<b>Slope</b>	1.00743	<b>Intercept</b>	0.21666
<b>Cert Date</b>	2/18/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>Abs Avg Err</b>	<b>Abs Max Err</b>	<b>Abs Avg Err</b>	<b>Abs Max Err</b>
0.22	0.34		

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Range	0.12	-0.10	0.000	0.1	C	0.23
primary	Temp Mid Range	25.48	25.08	0.000	25.0	C	-0.09
primary	Temp High Range	44.77	44.22	0.000	43.9	C	-0.34

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

# Shelter Temperature Data For

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	BWR139	Korey Devins	03/16/2021	Shelter Temperature	none

DAS 1:		DAS 2:	
Abs Avg Err	Abs Max Err	Abs Avg Err	Abs Max Err
0.13	0.17		

<b>Mfg</b>	Extech	<b>Parameter</b>	Shelter Temperature
<b>Serial Number</b>	H232734	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01227		
<b>Slope</b>	1.00743	<b>Intercept</b>	0.21666
<b>Cert Date</b>	2/18/2021	<b>CorrCoff</b>	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	25.75	25.35	0.000	25.2	C	-0.17
primary	Temp Mid Range	26.15	25.74	0.000	25.7	C	-0.05
primary	Temp Mid Range	25.60	25.20	0.000	25.4	C	0.16

<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass
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# Siting Criteria Form

<b>Sensor Component</b>	Limited agriculture operations	<b>Condition</b>	10 m	<b>Status</b>	Fail
<b>Sensor Component</b>	City > 50,000	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	City 1,000 to 10,000	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	City 10,000 to 50,000	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Feedlot operations	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Intensive agriculture operations	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Large point source of So <sub>2</sub> or Nox	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Major highway, airport, or rail yard	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Major industrial source	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Secondary road < or = 100 per da	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Secondary road >100 vehicles/da	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Small parking lot	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Large parking lot	<b>Condition</b>		<b>Status</b>	pass

## Infrastructure Data For

Site ID  Technician  Site Visit Date

Shelter Make	Shelter Model	Shelter Size
<input type="text" value="Ekto"/>	<input type="text" value="8810"/>	<input type="text" value="640 cuft"/>

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

# Field Systems Comments

1 **Parameter:** SiteOpsProcedures

The ozone sample train is leak checked every two weeks following the inlet filter change.

2 **Parameter:** SitingCriteriaCom

Very light agriculture activities near site, not harvested, just to provide food for wildlife.

3 **Parameter:** ShelterCleanNotes

The shelter has been repaired since the previous site audit visit.

4 **Parameter:** PollAnalyzerCom

Ozone sample train has inline dryer.

# Field Systems Data Form

F-02058-1500-S1-rev002

Site ID  Technician  Site Visit Date

Site Sponsor (agency)	<input type="text" value="EPA"/>	USGS Map	<input type="text"/>
Operating Group	<input type="text" value="BNWR/private"/>	Map Scale	<input type="text"/>
AQS #	<input type="text" value="24-019-9991"/>	Map Date	<input type="text"/>
Meteorological Type	<input type="text" value="R.M. Young"/>		
Air Pollutant Analyzer	<input type="text" value="Ozone"/>	QAPP Latitude	<input type="text"/>
Deposition Measurement	<input type="text" value="dry"/>	QAPP Longitude	<input type="text"/>
Land Use	<input type="text" value="woodlands - mixed, wetlands"/>	QAPP Elevation Meters	<input type="text"/>
Terrain	<input type="text" value="flat"/>	QAPP Declination	<input type="text"/>
Conforms to MLM	<input type="text" value="Yes"/>	QAPP Declination Date	<input type="text"/>
Site Telephone	<input type="text"/>	Audit Latitude	<input type="text" value="38.444971"/>
Site Address 1	<input type="text" value="Blackwater Nat Wildlife Refuge"/>	Audit Longitude	<input type="text" value="-76.111274"/>
Site Address 2	<input type="text" value="2145 Key Wallace Dr."/>	Audit Elevation	<input type="text" value="1"/>
County	<input type="text" value="Dorchester"/>	Audit Declination	<input type="text" value="-11.2"/>
City, State	<input type="text" value="Cambridge, MD"/>		
Zip Code	<input type="text" value="21613"/>	Fire Extinguisher <input checked="" type="checkbox"/>	<input type="text" value="dated 2015"/>
Time Zone	<input type="text" value="Eastern"/>	First Aid Kit <input checked="" type="checkbox"/>	<input type="text"/>
Primary Operator	<input type="text"/>	Safety Glasses <input checked="" type="checkbox"/>	<input type="text"/>
Primary Op. Phone #	<input type="text"/>	Safety Hard Hat <input checked="" type="checkbox"/>	<input type="text"/>
Primary Op. E-mail	<input type="text"/>	Climbing Belt <input checked="" type="checkbox"/>	<input type="text"/>
Backup Operator	<input type="text"/>	Security Fence <input type="checkbox"/>	<input type="text"/>
Backup Op. Phone #	<input type="text"/>	Secure Shelter <input checked="" type="checkbox"/>	<input type="text"/>
Backup Op. E-mail	<input type="text"/>	Stable Entry Steps <input checked="" type="checkbox"/>	<input type="text"/>
Shelter Working Room <input checked="" type="checkbox"/>	Make <input type="text" value="Ekto"/>	Model <input type="text" value="8810"/>	Shelter Size <input type="text" value="640 cuft"/>
Shelter Clean <input checked="" type="checkbox"/>	Notes <input type="text" value="The shelter has been repaired since the previous site audit visit."/>		
Site OK <input checked="" type="checkbox"/>	Notes <input type="text"/>		

**Driving Directions** From I95 take route 50 east to Cambridge, MD. At mile marker 81 turn right on Woods Rd. Continue approximately 1 mile to the stop sign, turn right onto SR 16 west. Continue approximately 1.7 miles, past the school, and turn left onto Egypt Road. Continue approximately 7.1 miles to the stop sign. Turn right onto Key Wallace Drive towards the visitors center. Continue approximately 0.8 mile to the gate on the left. The site will be visible.

# Field Systems Data Form

F-02058-1500-S3-rev002

Site ID

Technician

Site Visit Date

- |    |  |                                     |     |
|----|--|-------------------------------------|-----|
| 1  | Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?  | <input checked="" type="checkbox"/> | 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)     | <input checked="" type="checkbox"/> | N/A |
| 3  | Are the tower and sensors plumb?   | <input checked="" type="checkbox"/> | N/A |
| 4  | Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?  | <input checked="" type="checkbox"/> |     |
| 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) | <input checked="" type="checkbox"/> |     |
| 6  | Is the solar radiation sensor plumb?   | <input checked="" type="checkbox"/> | N/A |
| 7  | Is it sited to avoid shading, or any artificial or reflected light?  | <input checked="" type="checkbox"/> | N/A |
| 8  | Is the rain gauge plumb?   | <input checked="" type="checkbox"/> | N/A |
| 9  | Is it sited to avoid sheltering effects from buildings, trees, towers, etc?  | <input checked="" type="checkbox"/> | N/A |
| 10 | Is the surface wetness sensor sited with the grid surface facing north?  | <input checked="" type="checkbox"/> | N/A |
| 11 | Is it inclined approximately 30 degrees?   | <input checked="" type="checkbox"/> | N/A |

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

# Field Systems Data Form

F-02058-1500-S4-rev002

Site ID

Technician

Site Visit Date

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

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

# Field Systems Data Form

F-02058-1500-S5-rev002

Site ID

Technician

Site Visit Date

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

- |   |   |                                     |  |
|---|---|-------------------------------------|--|
| 1 | Do the sample inlets have at least a 270 degree arc of unrestricted airflow?          | <input checked="" type="checkbox"/> |  |
| 2 | Are the sample inlets 3 - 15 meters above the ground?                                 | <input checked="" type="checkbox"/> |  |
| 3 | Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? | <input checked="" type="checkbox"/> |  |

**Pollutant analyzers and deposition equipment operations and maintenance**

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

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

Ozone sample train has inline dryer.

# Field Systems Data Form

F-02058-1500-S6-rev002

Site ID

Technician

Site Visit Date

## DAS, sensor translators, and peripheral equipment operations and maintenance

- |                                     |  |   |                   |                 |                          |                          |                                     |                                     |  |
|-------------------------------------|--|---|-------------------|-----------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--|
| 1                                   | Do the DAS instruments appear to be in good condition and well maintained?           | <input checked="" type="checkbox"/>   |                   |                 |                          |                          |                                     |                                     |  |
| 2                                   | Are all the components of the DAS operational? (printers, modem, backup, etc)        | <input checked="" type="checkbox"/>   |                   |                 |                          |                          |                                     |                                     |  |
| 3                                   | Do the analyzer and sensor signal leads pass through lightning protection circuitry? | <input checked="" type="checkbox"/>   | Temperature only  |                 |                          |                          |                                     |                                     |  |
| 4                                   | Are the signal connections protected from the weather and well maintained?           | <input checked="" type="checkbox"/>   |                   |                 |                          |                          |                                     |                                     |  |
| 5                                   | Are the signal leads connected to the correct DAS channel?                           | <input checked="" type="checkbox"/>   |                   |                 |                          |                          |                                     |                                     |  |
| 6                                   | Are the DAS, sensor translators, and shelter properly grounded?                      | <input checked="" type="checkbox"/>   |                   |                 |                          |                          |                                     |                                     |  |
| 7                                   | Does the instrument shelter have a stable power source?                              | <input checked="" type="checkbox"/>   |                   |                 |                          |                          |                                     |                                     |  |
| 8                                   | Is the instrument shelter temperature controlled?                                    | <input checked="" type="checkbox"/>   |                   |                 |                          |                          |                                     |                                     |  |
| 9                                   | Is the met tower stable and grounded?  | <table border="1"><tr><td><b>Stable</b></td><td><b>Grounded</b></td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> | <b>Stable</b>     | <b>Grounded</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| <b>Stable</b>                       | <b>Grounded</b>  |   |                   |                 |                          |                          |                                     |                                     |  |
| <input type="checkbox"/>            | <input type="checkbox"/>   |   |                   |                 |                          |                          |                                     |                                     |  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  |   |                   |                 |                          |                          |                                     |                                     |  |
| 10                                  | Is the sample tower stable and grounded?   | <table border="1"><tr><td><b>Stable</b></td><td><b>Grounded</b></td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> | <b>Stable</b>     | <b>Grounded</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| <b>Stable</b>                       | <b>Grounded</b>  |   |                   |                 |                          |                          |                                     |                                     |  |
| <input type="checkbox"/>            | <input type="checkbox"/>   |   |                   |                 |                          |                          |                                     |                                     |  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  |   |                   |                 |                          |                          |                                     |                                     |  |
| 11                                  | Tower comments?  |   | Met tower removed |                 |                          |                          |                                     |                                     |  |

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



# Field Systems Data Form

F-02058-1500-S7-rev002

Site ID

Technician

Site Visit Date

**Documentation**

**Does the site have the required instrument and equipment manuals?**

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

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

	Present		Current
Station Log	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
SSRF	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Site Ops Manual	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
HASP	<input checked="" type="checkbox"/>	March 2015	<input type="checkbox"/>
Field Ops Manual	<input checked="" type="checkbox"/>	March 2015	<input type="checkbox"/>
Calibration Reports	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Ozone z/s/p Control Charts	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Preventive maintenance schedule	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>

- 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

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

# Field Systems Data Form

F-02058-1500-S8-rev002

Site ID  Technician  Site Visit Date

**Site operation procedures**

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

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

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Visual Inspections	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Translator Zero/Span Tests (climatronics)	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Manual Rain Gauge Test	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Confirm Reasonableness of Current Values	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Test Surface Wetness Response	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>

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

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

- 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?

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

# Field Systems Data Form

F-02058-1500-S9-rev002

Site ID  Technician  Site Visit Date

Site operation procedures

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

QC Check Performed	Frequency	Compliant
Multi-point MFC Calibrations	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Flow System Leak Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Filter Pack Inspection	<input type="checkbox"/>	<input type="checkbox"/>
Flow Rate Setting Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Visual Check of Flow Rate Rotometer	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
In-line Filter Inspection/Replacement	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>

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

# Field Systems Data Form

F-02058-1500-S10-rev002

Site ID

Technician

Site Visit Date

## Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	Unknown	07009
DAS	Campbell	CR3000	2536	000431
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	608102A	06031
Flow Rate	Apex	AXMC105LPMDPC	54758	000670
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07186
Ozone	ThermoElectron Inc	49i A1NAA	1009241789	000618
Ozone Standard	ThermoElectron Inc	49i A3NAA	1030244814	000697
Sample Tower	Aluma Tower	B	none	missing
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342	4012	04315
Zero air pump	Werther International	C 70/4	000815258	06877

# *Site Inventory by Site Visit*

<i>Site Visit Date</i>	<i>Parameter</i>	<i>Mfg</i>	<i>Owner ID</i>	<i>Model Number</i>	<i>Serial Number</i>	
<i>CND125-Korey Devins-03/21/2021</i>						
1	3/21/2021	Computer	Dell	07015	Inspiron 15	BQ3MC12
2	3/21/2021	DAS	Campbell	000499	CR3000	3816
3	3/21/2021	Elevation	Elevation	None	1	None
4	3/21/2021	Filter pack flow pump	Thomas	01235	107CA18	illegible
5	3/21/2021	Flow Rate	Apex	000638	AXMC105LPMDPCV	illegible
6	3/21/2021	Infrastructure	Infrastructure	none	none	none
7	3/21/2021	Modem	Digi	07122	LR54	Illegible
8	3/21/2021	Ozone	ThermoElectron Inc	000692	49i A1NAA	1030244803
9	3/21/2021	Ozone Standard	ThermoElectron Inc	000376	49i A3NAA	0726124693
10	3/21/2021	Sample Tower	Aluma Tower	03495	A	none
11	3/21/2021	Shelter Temperature	Campbell	none	107-L	none
12	3/21/2021	Siting Criteria	Siting Criteria	None	1	None
13	3/21/2021	Temperature	RM Young	06402	41342VC	14035
14	3/21/2021	Zero air pump	Werther International	06868	C 70/4	000814284

# DAS Data Form

DAS Time Max Error:

<b>Mfg</b>	<b>Serial Number</b>	<b>Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Use Desc.</b>
Campbell	3816	CND125	Korey Devins	03/21/2021	DAS	Primary

<b>Das Date:</b>	<input type="text" value="3 /21/2021"/>	<b>Audit Date</b>	<input type="text" value="3 /21/2021"/>
<b>Das Time:</b>	<input type="text" value="12:52:50"/>	<b>Audit Time</b>	<input type="text" value="12:52:59"/>
<b>Das Day:</b>	<input type="text" value="80"/>	<b>Audit Day</b>	<input type="text" value="80"/>

<b>Low Channel:</b>	<b>High Channel:</b>		
<b>Avg Diff:</b>	<b>Max Diff:</b>	<b>Avg Diff:</b>	<b>Max Diff:</b>
<input type="text" value="0.0001"/>	<input type="text" value="0.0002"/>	<input type="text" value="0.0001"/>	<input type="text" value="0.0002"/>

<b>Mfg</b>	<input type="text" value="Fluke"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="95740135"/>	<b>Tfer Desc.</b>	<input type="text" value="DVM"/>
<b>Tfer ID</b>	<input type="text" value="01311"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/11/2021"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>
<b>Mfg</b>	<input type="text" value="Datel"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="15510194"/>	<b>Tfer Desc.</b>	<input type="text" value="Source generator (D"/>
<b>Tfer ID</b>	<input type="text" value="01320"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/13/2012"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>

Channel	Input	DVM Output	DAS Output	InputUnit	OutputUnit	Difference
7	0.0000	-0.0001	0.0000	V	V	0.0001
7	0.1000	0.0998	0.0999	V	V	0.0001
7	0.3000	0.2996	0.2997	V	V	0.0001
7	0.5000	0.4994	0.4996	V	V	0.0002
7	0.7000	0.6994	0.6994	V	V	0.0000
7	0.9000	0.8992	0.8993	V	V	0.0001
7	1.0000	0.9991	0.9992	V	V	0.0001

# Flow Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
Apex	illegible	CND125	Korey Devins	03/21/2021	Flow Rate	000638

<b>Mfg</b>	BIOS	<b>Parameter</b>	Flow Rate
<b>Serial Number</b>	131818	<b>Tfer Desc.</b>	BIOS 220-H
<b>Tfer ID</b>	01417		
<b>Slope</b>	0.99756	<b>Intercept</b>	-0.00058
<b>Cert Date</b>	2/10/2021	<b>CorrCoff</b>	0.99993

<b>DAS 1:</b>	<b>DAS 2:</b>
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>
5.06%	5.06%

<b>Cal Factor Zero</b>	-0.01
<b>Cal Factor Full Scale</b>	0.99
<b>Rotometer Reading:</b>	1.5

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignalI	PctDifference
primary	pump off	0.000	0.000	-0.04	0.000	-0.05	l/m	l/m	
primary	leak check	0.000	0.000	-0.05	0.000	-0.09	l/m	l/m	
primary	test pt 1	1.573	1.580	1.51	0.000	1.50	l/m	l/m	-5.06%
primary	test pt 2	1.574	1.580	1.51	0.000	1.50	l/m	l/m	-5.06%
primary	test pt 3	1.572	1.580	1.51	0.000	1.50	l/m	l/m	-5.06%

<b>Sensor Component</b>	Leak Test	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Tubing Condition	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Position	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Rotometer Condition	<b>Condition</b>	Clean and dry	<b>Status</b>	pass
<b>Sensor Component</b>	Moisture Present	<b>Condition</b>	See comments	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Distance	<b>Condition</b>	4.5 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Depth	<b>Condition</b>	1.5 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Azimuth	<b>Condition</b>	150 deg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Ozone Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
ThermoElectron Inc	1030244803	CND125	Korey Devins	03/21/2021	Ozone	000692

<b>Slope:</b>	1.01456	<b>Slope:</b>	0.00000
<b>Intercept</b>	-0.60771	<b>Intercept</b>	0.00000
<b>CorrCoff:</b>	1.00000	<b>CorrCoff:</b>	0.00000

<b>Mfg</b>	ThermoElectron Inc	<b>Parameter</b>	ozone
<b>Serial Number</b>	1180030022	<b>Tfer Desc.</b>	Ozone primary stan
<b>Tfer ID</b>	01114		
<b>Slope</b>	1.00030	<b>Intercept</b>	0.30550
<b>Cert Date</b>	1/20/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>	<b>A Avg %Diff</b>	<b>A Max % Dif</b>
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.49	0.18	-0.38	ppb		-0.56
primary	2	15.41	15.02	14.64	ppb		-0.38
primary	3	35.09	34.61	34.45	ppb	-0.46	
primary	4	66.79	66.15	66.47	ppb	0.48	
primary	5	112.22	111.35	112.40	ppb	0.94	

<b>Sensor Component</b>	Audit Pressure	<b>Condition</b>	753.7 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	26.6 degree unobstructed rule	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Tree dewline >10m or below inlet	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT <100 vehicles further than 20	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT >100 vehicles further than 50	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Sample Train	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Inlet Filter Condition	<b>Condition</b>	Moderately clean	<b>Status</b>	pass
<b>Sensor Component</b>	Offset	<b>Condition</b>	0.4	<b>Status</b>	pass
<b>Sensor Component</b>	Span	<b>Condition</b>	1.033	<b>Status</b>	pass
<b>Sensor Component</b>	Zero Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Fullscale Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Freq.	<b>Condition</b>	96.9 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Noise	<b>Condition</b>	0.3 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Flow	<b>Condition</b>	0.72 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Pressure	<b>Condition</b>	721.4 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Tmp.	<b>Condition</b>	34.5 C	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Freq.	<b>Condition</b>	101.5 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Noise	<b>Condition</b>	0.4 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Flow	<b>Condition</b>	0.80 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Pressure	<b>Condition</b>	722.0 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass



# Temperature Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
RM Young	14035	CND125	Korey Devins	03/21/2021	Temperature	06402

<b>Mfg</b>	Extech	<b>Parameter</b>	Temperature
<b>Serial Number</b>	H232734	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01227		
<b>Slope</b>	1.00743	<b>Intercept</b>	0.21666
<b>Cert Date</b>	2/18/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>Abs Avg Err</b>	<b>Abs Max Err</b>	<b>Abs Avg Err</b>	<b>Abs Max Err</b>
0.15	0.41		

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Low Range	0.13	-0.09	0.000	0.3	C	0.41
primary	Temp Mid Range	25.57	25.17	0.000	25.2	C	0.03
primary	Temp High Range	45.72	45.17	0.000	45.2	C	-0.01

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

# Shelter Temperature Data For

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
Campbell	none	CND125	Korey Devins	03/21/2021	Shelter Temperature	none

DAS 1:		DAS 2:	
Abs Avg Err	Abs Max Err	Abs Avg Err	Abs Max Err
0.34	0.37		

<b>Mfg</b>	Extech	<b>Parameter</b>	Shelter Temperature
<b>Serial Number</b>	H232734	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01227		
<b>Slope</b>	1.00743	<b>Intercept</b>	0.21666
<b>Cert Date</b>	2/18/2021	<b>CorrCoff</b>	1.00000

UseDesc.	Test type	InputTmpRaw	InputTmpCorr.	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary	Temp Mid Range	25.00	24.60	0.000	25.0	C	0.37
primary	Temp Mid Range	25.78	25.37	0.000	25.7	C	0.34
primary	Temp Mid Range	26.26	25.85	0.000	26.2	C	0.32

<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass
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# Siting Criteria Form

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

## Infrastructure Data For

Site ID  Technician  Site Visit Date

Sensor Component	<input type="text" value="Sample Tower Type"/>	Condition	<input type="text" value="Type A"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Conduit"/>	Condition	<input type="text" value="N/A"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Met Tower"/>	Condition	<input type="text" value="N/A"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Moisture Trap"/>	Condition	<input type="text" value="Installed"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Moisture Trap Type"/>	Condition	<input type="text" value="Glass bottle"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Power Cables"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Temp Control"/>	Condition	<input type="text" value="Functioning"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Rotometer"/>	Condition	<input type="text" value="Installed"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Sample Tower"/>	Condition	<input type="text" value="Fair"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Condition"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Door"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Roof"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter Floor"/>	Condition	<input type="text" value="Fair"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Shelter walls"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Excessive mold present"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Signal Cable"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Tubing Type"/>	Condition	<input type="text" value="3/8 teflon"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="Sample Train"/>	Condition	<input type="text" value="Good"/>	Status	<input type="text" value="pass"/>
Sensor Component	<input type="text" value="System Memo"/>	Condition	<input type="text"/>	Status	<input type="text" value="pass"/>

# Site Visit Comments

<b>Parameter</b>	<b>Site</b>	<b>Technician</b>	<b>S.V. Date</b>	<b>Component</b>	<b>Mfg</b>	<b>Serial No.</b>	<b>Hazard</b>	<b>Problem</b>
Flow Rate	CND125	Korey Devins	03/21/2021	Moisture Present	Apex	4628	<input type="checkbox"/>	<input type="checkbox"/>
The filter sample tubing has drops of moisture in low sections outside the shelter.								

# Field Systems Comments

1 **Parameter:** SitingCriteriaCom

The land owner maintains a pine tree forest on the property within 50 meters of the site. The trees were planted just before the site was installed in 1990 and may or may not be harvested in the future.

2 **Parameter:** ShelterCleanNotes

The shelter is well clean and well organized. There are signs of insect infestation on floor.

3 **Parameter:** PollAnalyzerCom

Ozone sample train has inline dryer.

4 **Parameter:** MetOpMaintCom

The temperature sensor is mounted on the sample tower in a naturally aspirated shield.

# Field Systems Data Form

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Site ID  Technician  Site Visit Date

Site Sponsor (agency)	<input type="text" value="EPA"/>	USGS Map	<input type="text"/>
Operating Group	<input type="text" value="private"/>	Map Scale	<input type="text"/>
AQS #	<input type="text" value="37-123-9991"/>	Map Date	<input type="text"/>
Meteorological Type	<input type="text" value="Claytronic"/>		
Air Pollutant Analyzer	<input type="text" value="Ozone"/>	QAPP Latitude	<input type="text"/>
Deposition Measurement	<input type="text" value="dry, Hg, PM2.5, PM10"/>	QAPP Longitude	<input type="text"/>
Land Use	<input type="text" value="woodland"/>	QAPP Elevation Meters	<input type="text"/>
Terrain	<input type="text" value="rolling"/>	QAPP Declination	<input type="text"/>
Conforms to MLM	<input type="text" value="Marginally"/>	QAPP Declination Date	<input type="text"/>
Site Telephone	<input type="text"/>	Audit Latitude	<input type="text" value="35.26333"/>
Site Address 1	<input type="text" value="136 Perry Drive"/>	Audit Longitude	<input type="text" value="-79.83754"/>
Site Address 2	<input type="text"/>	Audit Elevation	<input type="text" value="172"/>
County	<input type="text" value="Montgomery"/>	Audit Declination	<input type="text" value="-8"/>
City, State	<input type="text" value="Candor, NC"/>		
Zip Code	<input type="text" value="27229"/>	Fire Extinguisher <input checked="" type="checkbox"/>	<input type="text" value="New in 2015"/>
Time Zone	<input type="text" value="Eastern"/>	First Aid Kit <input checked="" type="checkbox"/>	<input type="text"/>
Primary Operator	<input type="text"/>	Safety Glasses <input checked="" type="checkbox"/>	<input type="text"/>
Primary Op. Phone #	<input type="text"/>	Safety Hard Hat <input checked="" type="checkbox"/>	<input type="text"/>
Primary Op. E-mail	<input type="text"/>	Climbing Belt <input type="checkbox"/>	<input type="text"/>
Backup Operator	<input type="text"/>	Security Fence <input type="checkbox"/>	<input type="text"/>
Backup Op. Phone #	<input type="text"/>	Secure Shelter <input checked="" type="checkbox"/>	<input type="text"/>
Backup Op. E-mail	<input type="text"/>	Stable Entry Steps <input checked="" type="checkbox"/>	<input type="text"/>
Shelter Working Room <input checked="" type="checkbox"/>	Make <input type="text" value="Ekto"/>	Model <input type="text" value="8810"/>	Shelter Size <input type="text" value="640 cuft"/>
Shelter Clean <input checked="" type="checkbox"/>	Notes <input type="text" value="The shelter is well clean and well organized. There are signs of insect infestation on floor."/>		
Site OK <input checked="" type="checkbox"/>	Notes <input type="text"/>		

**Driving Directions** From Greensboro take Hwy 220 (future I-73) south to Candor. Exit at 211 west to Candor. At the traffic light turn left (south) onto 220 south and 731 west. Continue approximately 1.3 miles which will take you out of town. Bear right onto 731 west at the split. Take an immediate right onto McCallum Rd. (there is a sign for E-KU-SUMEE at the intersection). Continue approximately 5.4 miles to Perry Drive which is on the left. Turn left onto the gravel road and follow it to the end. The site is behind the house, drive around the grapevines on the left.

# Field Systems Data Form

F-02058-1500-S3-rev002

Site ID

Technician

Site Visit Date

- |    |  |                                     |     |
|----|--|-------------------------------------|-----|
| 1  | Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?  | <input checked="" type="checkbox"/> | 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)     | <input checked="" type="checkbox"/> | N/A |
| 3  | Are the tower and sensors plumb?   | <input checked="" type="checkbox"/> | N/A |
| 4  | Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?  | <input checked="" type="checkbox"/> |     |
| 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) | <input checked="" type="checkbox"/> |     |
| 6  | Is the solar radiation sensor plumb?   | <input checked="" type="checkbox"/> | N/A |
| 7  | Is it sited to avoid shading, or any artificial or reflected light?  | <input checked="" type="checkbox"/> | N/A |
| 8  | Is the rain gauge plumb?   | <input checked="" type="checkbox"/> | N/A |
| 9  | Is it sited to avoid sheltering effects from buildings, trees, towers, etc?  | <input checked="" type="checkbox"/> | N/A |
| 10 | Is the surface wetness sensor sited with the grid surface facing north?  | <input checked="" type="checkbox"/> | N/A |
| 11 | Is it inclined approximately 30 degrees?   | <input checked="" type="checkbox"/> | N/A |

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



# Field Systems Data Form

F-02058-1500-S4-rev002

Site ID

Technician

Site Visit Date

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

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

# Field Systems Data Form

F-02058-1500-S5-rev002

Site ID

Technician

Site Visit Date

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

- |   |   |                                     |  |
|---|---|-------------------------------------|--|
| 1 | Do the sample inlets have at least a 270 degree arc of unrestricted airflow?          | <input checked="" type="checkbox"/> |  |
| 2 | Are the sample inlets 3 - 15 meters above the ground?                                 | <input checked="" type="checkbox"/> |  |
| 3 | Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? | <input checked="" type="checkbox"/> |  |

**Pollutant analyzers and deposition equipment operations and maintenance**

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

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

Ozone sample train has inline dryer.

# Field Systems Data Form

F-02058-1500-S6-rev002

Site ID

Technician

Site Visit Date

## DAS, sensor translators, and peripheral equipment operations and maintenance

- |                                     |  |   |                  |  |          |                                     |  |                          |  |
|-------------------------------------|--|---|------------------|--|----------|-------------------------------------|--|--------------------------|--|
| 1                                   | Do the DAS instruments appear to be in good condition and well maintained?           | <input checked="" type="checkbox"/>   |                  |  |          |                                     |  |                          |  |
| 2                                   | Are all the components of the DAS operational? (printers, modem, backup, etc)        | <input checked="" type="checkbox"/>   |                  |  |          |                                     |  |                          |  |
| 3                                   | Do the analyzer and sensor signal leads pass through lightning protection circuitry? | <input checked="" type="checkbox"/>   | Temperature only |  |          |                                     |  |                          |  |
| 4                                   | Are the signal connections protected from the weather and well maintained?           | <input checked="" type="checkbox"/>   |                  |  |          |                                     |  |                          |  |
| 5                                   | Are the signal leads connected to the correct DAS channel?                           | <input checked="" type="checkbox"/>   |                  |  |          |                                     |  |                          |  |
| 6                                   | Are the DAS, sensor translators, and shelter properly grounded?                      | <input checked="" type="checkbox"/>   |                  |  |          |                                     |  |                          |  |
| 7                                   | Does the instrument shelter have a stable power source?                              | <input checked="" type="checkbox"/>   |                  |  |          |                                     |  |                          |  |
| 8                                   | Is the instrument shelter temperature controlled?                                    | <input checked="" type="checkbox"/>   |                  |  |          |                                     |  |                          |  |
| 9                                   | Is the met tower stable and grounded?  | <table border="1"><tr><td>Stable</td><td></td><td>Grounded</td></tr><tr><td><input type="checkbox"/></td><td></td><td><input type="checkbox"/></td></tr></table>            | Stable           |  | Grounded | <input type="checkbox"/>            |  | <input type="checkbox"/> |  |
| Stable                              |  | Grounded  |                  |  |          |                                     |  |                          |  |
| <input type="checkbox"/>            |  | <input type="checkbox"/>  |                  |  |          |                                     |  |                          |  |
| 10                                  | Is the sample tower stable and grounded?   | <table border="1"><tr><td>Stable</td><td></td><td>Grounded</td></tr><tr><td><input checked="" type="checkbox"/></td><td></td><td><input type="checkbox"/></td></tr></table> | Stable           |  | Grounded | <input checked="" type="checkbox"/> |  | <input type="checkbox"/> |  |
| Stable                              |  | Grounded  |                  |  |          |                                     |  |                          |  |
| <input checked="" type="checkbox"/> |  | <input type="checkbox"/>  |                  |  |          |                                     |  |                          |  |
| 11                                  | Tower comments?  |   |                  |  |          |                                     |  |                          |  |

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

# Field Systems Data Form

F-02058-1500-S7-rev002

Site ID

Technician

Site Visit Date

**Documentation**

**Does the site have the required instrument and equipment manuals?**

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

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

	Present		Current
Station Log	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
SSRF	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Site Ops Manual	<input checked="" type="checkbox"/>	May 2019	<input checked="" type="checkbox"/>
HASP	<input checked="" type="checkbox"/>	May 2019	<input checked="" type="checkbox"/>
Field Ops Manual	<input checked="" type="checkbox"/>	May 2019	<input checked="" type="checkbox"/>
Calibration Reports	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Ozone z/s/p Control Charts	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Preventive maintenance schedule	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>

- 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

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

# Field Systems Data Form

F-02058-1500-S8-rev002

Site ID  Technician  Site Visit Date

**Site operation procedures**

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

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

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Visual Inspections	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Translator Zero/Span Tests (climatronics)	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Manual Rain Gauge Test	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Confirm Reasonableness of Current Values	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Test Surface Wetness Response	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>

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

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="Semiannually"/>	<input checked="" type="checkbox"/>
Automatic Zero/Span Tests	<input checked="" type="checkbox"/>	<input type="text" value="Daily"/>	<input checked="" type="checkbox"/>
Manual Zero/Span Tests	<input checked="" type="checkbox"/>	<input type="text" value="As needed"/>	<input checked="" type="checkbox"/>
Automatic Precision Level Tests	<input checked="" type="checkbox"/>	<input type="text" value="Daily"/>	<input checked="" type="checkbox"/>
Manual Precision Level Test	<input checked="" type="checkbox"/>	<input type="text" value="As needed"/>	<input checked="" type="checkbox"/>
Analyzer Diagnostics Tests	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at inlet)	<input checked="" type="checkbox"/>	<input type="text" value="Every 2 weeks"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at analyze)	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>
Zero Air Desiccant Check	<input checked="" type="checkbox"/>	<input type="text" value="Weekly"/>	<input checked="" type="checkbox"/>

- 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?

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

# Field Systems Data Form

F-02058-1500-S9-rev002

Site ID  Technician  Site Visit Date

Site operation procedures

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

QC Check Performed	Frequency	Compliant
Multi-point MFC Calibrations	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Flow System Leak Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Filter Pack Inspection	<input type="checkbox"/>	<input type="checkbox"/>
Flow Rate Setting Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Visual Check of Flow Rate Rotometer	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
In-line Filter Inspection/Replacement	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>

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

# Field Systems Data Form

F-02058-1500-S10-rev002

Site ID

Technician

Site Visit Date

## Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
Computer	Dell	Inspiron 15	BQ3MC12	07015
DAS	Campbell	CR3000	3816	000499
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CA18	illegible	01235
Flow Rate	Apex	AXMC105LPMDPC	illegible	000638
Infrastructure	Infrastructure	none	none	none
Modem	Digi	LR54	Illegible	07122
Ozone	ThermoElectron Inc	49i A1NAA	1030244803	000692
Ozone Standard	ThermoElectron Inc	49i A3NAA	0726124693	000376
Sample Tower	Aluma Tower	A	none	03495
Shelter Temperature	Campbell	107-L	none	none
Siting Criteria	Siting Criteria	1	None	None
Temperature	RM Young	41342VC	14035	06402
Zero air pump	Werther International	C 70/4	000814284	06868

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## *Site Inventory by Site Visit*

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<i>Site Visit Date</i>	<i>Parameter</i>	<i>Mfg</i>	<i>Owner ID</i>	<i>Model Number</i>	<i>Serial Number</i>
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*EVE419-Eric Hebert-03/29/2021*

1	3/29/2021	DAS	Environmental Sys Corp	90642	8816	2527
2	3/29/2021	Elevation	Elevation	None	1	None
3	3/29/2021	Filter pack flow pump	Thomas	none	107CAB18	081000036784
4	3/29/2021	Flow Rate	Alicat	none	MC-10SLPM-D-PCV	150340
5	3/29/2021	Infrastructure	Infrastructure	none	none	none
6	3/29/2021	Modem	US Robotics	none	56k	unknown
7	3/29/2021	Sample Tower	Aluma Tower	none	B	illegible
8	3/29/2021	Siting Criteria	Siting Criteria	None	1	None
9	3/29/2021	Temperature2meter	Vaisala	none	E3-05XX-ACT-01	20218168



# DAS Data Form

DAS Time Max Error:

Mfg	Serial Number	Site	Technician	Site Visit Date	Parameter	Use Desc.
Environmental Sys	2527	EVE419	Eric Hebert	03/29/2021	DAS	Primary

<b>Das Date:</b>	<input type="text" value="3 /29/2021"/>	<b>Audit Date</b>	<input type="text" value="3 /29/2021"/>
<b>Das Time:</b>	<input type="text" value="08:44:00"/>	<b>Audit Time</b>	<input type="text" value="08:43:40"/>
<b>Das Day:</b>	<input type="text" value="88"/>	<b>Audit Day</b>	<input type="text" value="88"/>
<b>Low Channel:</b>		<b>High Channel:</b>	
<b>Avg Diff:</b>	<input type="text" value="0.0001"/>	<b>Max Diff:</b>	<input type="text" value="0.0002"/>
		<b>Avg Diff:</b>	<input type="text" value="0.0001"/>
		<b>Max Diff:</b>	<input type="text" value="0.0002"/>

<b>Mfg</b>	<input type="text" value="Fluke"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="95740135"/>	<b>Tfer Desc.</b>	<input type="text" value="DVM"/>
<b>Tfer ID</b>	<input type="text" value="01311"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/11/2021"/>	<b>CorrCoff</b>	<input type="text" value="1.00000"/>
<b>Mfg</b>	<input type="text" value="Datel"/>	<b>Parameter</b>	<input type="text" value="DAS"/>
<b>Serial Number</b>	<input type="text" value="15510194"/>	<b>Tfer Desc.</b>	<input type="text" value="Source generator (D"/>
<b>Tfer ID</b>	<input type="text" value="01320"/>		
<b>Slope</b>	<input type="text" value="1.00000"/>	<b>Intercept</b>	<input type="text" value="0.00000"/>
<b>Cert Date</b>	<input type="text" value="2/13/2012"/>	<b>CorrCoff</b>	<input type="text" value="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	0.1000	V	V	0.0001
7	0.3000	0.2997	0.2999	V	V	0.0002
7	0.5000	0.4996	0.4995	V	V	-0.0001
7	0.7000	0.6995	0.6993	V	V	-0.0002
7	0.9000	0.8993	0.8992	V	V	-0.0001
7	1.0000	0.9992	0.9990	V	V	-0.0002

# Flow Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
Alicat	150340	EVE419	Eric Hebert	03/29/2021	Flow Rate	none

<b>Mfg</b>	BIOS	<b>Parameter</b>	Flow Rate
<b>Serial Number</b>	131818	<b>Tfer Desc.</b>	BIOS 220-H
<b>Tfer ID</b>	01417		
<b>Slope</b>	0.99756	<b>Intercept</b>	-0.00058
<b>Cert Date</b>	2/10/2021	<b>CorrCoff</b>	0.99993

<b>DAS 1:</b>	<b>DAS 2:</b>
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>
2.28%	2.40%

<b>Cal Factor Zero</b>	0.012
<b>Cal Factor Full Scale</b>	5.035
<b>Rotometer Reading:</b>	2.95

Desc.	Test type	Input l/m	Input Corr	MfcDisp.	OutputSignal	Output S E	InputUnit	OutputSignal	PctDifference
primary	pump off	0.000	0.000	0.02	0.000	0.07	l/m	l/m	
primary	leak check	0.000	0.000	0.01	0.000	0.06	l/m	l/m	
primary	test pt 1	2.918	2.930	2.96	0.000	2.99	l/m	l/m	2.05%
primary	test pt 2	2.917	2.920	2.96	0.000	2.99	l/m	l/m	2.40%
primary	test pt 3	2.915	2.920	2.96	0.000	2.99	l/m	l/m	2.40%

<b>Sensor Component</b>	Leak Test	<b>Condition</b>		<b>Status</b>	pass
<b>Sensor Component</b>	Tubing Condition	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Position	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Rotometer Condition	<b>Condition</b>	Clean and dry	<b>Status</b>	pass
<b>Sensor Component</b>	Moisture Present	<b>Condition</b>	See comments	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Distance	<b>Condition</b>	5.0 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Depth	<b>Condition</b>	0.5 cm	<b>Status</b>	pass
<b>Sensor Component</b>	Filter Azimuth	<b>Condition</b>	360 deg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# 2 Meter Temperature Data Form

Calc. Difference

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
Vaisala	20218168	EVE419	Eric Hebert	03/29/2021	Temperature2meter	none

<b>Mfg</b>	Extech	<b>Parameter</b>	Temperature
<b>Serial Number</b>	H232734	<b>Tfer Desc.</b>	RTD
<b>Tfer ID</b>	01227		
<b>Slope</b>	1.00743	<b>Intercept</b>	0.21666
<b>Cert Date</b>	2/18/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>		<b>DAS 2:</b>	
<b>Abs Avg Err</b>	<b>Abs Max Err</b>	<b>Abs Avg Err</b>	<b>Abs Max Err</b>

0.09	0.09		
------	------	--	--

UseDescription	Test type	InputTmpRaw	InputTmpCorrected	OutputTmpSignal	OutputSignalEng	OSE Unit	Difference
primary		26.36	25.95	0.000	26.04	C	0.09

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

# Siting Criteria Form

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

## Infrastructure Data For

Site ID  Technician  Site Visit Date

Shelter Make	Shelter Model	Shelter Size
<input type="text" value="Ekto"/>	<input type="text" value="8810"/>	<input type="text" value="640 cuft"/>

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

# Site Visit Comments

<b>Parameter</b>	<b>Site</b>	<b>Technician</b>	<b>S.V. Date</b>	<b>Component</b>	<b>Mfg</b>	<b>Serial No.</b>	<b>Hazard</b>	<b>Problem</b>
Flow Rate	EVE419	Eric Hebert	03/29/2021	Moisture Present	Alicat	4630	<input type="checkbox"/>	<input type="checkbox"/>
The filter sample tubing has drops of moisture in low sections outside the shelter.								
Temperature2meter	EVE419	Eric Hebert	03/29/2021	System Memo	Vaisala	4631	<input type="checkbox"/>	<input type="checkbox"/>
Temperature and relative humidity are being measured using a combination sensor which cannot be submerged in a water bath for audits.								

# Field Systems Comments

1 **Parameter:** SiteOpsProcComm

Gloves were not used when changing the filter.

2 **Parameter:** SiteOpsProcedures

The inline filter upstream of the flow controller has not been replaced since 2005.

3 **Parameter:** DocumentationCo

Electronic checklists within Dataview for the dry deposition filter procedures are being completed.

4 **Parameter:** SitingCriteriaCom

Small parking lot for park employees and fire fighting equipment is within 100 meters of the site.

5 **Parameter:** ShelterCleanNotes

The shelter is very clean, neat and well organized. The shelter floor and walls have excessive rot present.

6 **Parameter:** PollAnalyzerCom

The dry deposition flow controller was recently replaced by the site operator. It has not been calibrated onsite.

7 **Parameter:** MetSensorComme

The 10 meter temperature sensor has been removed and temperature is now being measured using a combination RH/temperature sensor mounted in a naturally aspirated shield at approximately 2 meters above the ground. The temperature measurement system was challenged with a one point comparison at ambient conditions using an RTD.

# Field Systems Data Form

F-02058-1500-S1-rev002

Site ID  Technician  Site Visit Date

Site Sponsor (agency)	<input type="text" value="NPS/EPA"/>	USGS Map	<input type="text" value="Long Pine Key"/>
Operating Group	<input type="text" value="NPS"/>	Map Scale	<input type="text"/>
AQS #	<input type="text"/>	Map Date	<input type="text"/>
Meteorological Type	<input type="text" value="R.M. Young"/>		
Air Pollutant Analyzer	<input type="text"/>	QAPP Latitude	<input type="text"/>
Deposition Measurement	<input type="text" value="dry, wet, Hg, IMPROVE"/>	QAPP Longitude	<input type="text"/>
Land Use	<input type="text" value="wetlands"/>	QAPP Elevation Meters	<input type="text"/>
Terrain	<input type="text" value="flat"/>	QAPP Declination	<input type="text"/>
Conforms to MLM	<input type="text" value="Yes"/>	QAPP Declination Date	<input type="text"/>
Site Telephone	<input type="text" value="(305) 242-7838"/>	Audit Latitude	<input type="text" value="25.391223"/>
Site Address 1	<input type="text" value="Everglades National Park"/>	Audit Longitude	<input type="text" value="-80.680819"/>
Site Address 2	<input type="text" value="40001 State Road 9336"/>	Audit Elevation	<input type="text" value="1"/>
County	<input type="text" value="Dade"/>	Audit Declination	<input type="text" value="-5.1"/>
City, State	<input type="text" value="Homestead, FL"/>		
Zip Code	<input type="text" value="33034"/>	Fire Extinguisher <input checked="" type="checkbox"/>	<input type="text" value="Inspected July 2017"/>
Time Zone	<input type="text" value="Eastern"/>	First Aid Kit <input type="checkbox"/>	<input type="text"/>
Primary Operator	<input type="text"/>	Safety Glasses <input type="checkbox"/>	<input type="text"/>
Primary Op. Phone #	<input type="text"/>	Safety Hard Hat <input type="checkbox"/>	<input type="text"/>
Primary Op. E-mail	<input type="text"/>	Climbing Belt <input type="checkbox"/>	<input type="text"/>
Backup Operator	<input type="text"/>	Security Fence <input type="checkbox"/>	<input type="text"/>
Backup Op. Phone #	<input type="text"/>	Secure Shelter <input checked="" type="checkbox"/>	<input type="text"/>
Backup Op. E-mail	<input type="text"/>	Stable Entry Steps <input checked="" type="checkbox"/>	<input type="text"/>

Shelter Working Room  Make  Model  Shelter Size

Shelter Clean  Notes

Site OK  Notes

**Driving Directions** Take the Florida Turnpike (Rat 821) south to the end and junction with Rat 1. Continue south on Rat 1 about 1/4 mile to the intersection of East Palm Drive (Rat 9336). Turn right (west) on 9336 and continue to the park entrance. Check-in at the guard station. Take the Main Park Road to Long Pine Key Road. Turn left on Long Pine Key Rd. and continue to the research facility. The site is on the right at the fire station.



# Field Systems Data Form

F-02058-1500-S3-rev002

Site ID

Technician

Site Visit Date

- |    |  |                                     |     |
|----|--|-------------------------------------|-----|
| 1  | Are wind speed and direction sensors sited so as to avoid being influenced by obstructions?  | <input checked="" type="checkbox"/> | 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)     | <input checked="" type="checkbox"/> | N/A |
| 3  | Are the tower and sensors plumb?   | <input checked="" type="checkbox"/> | N/A |
| 4  | Are the temperature shields pointed north or positioned to avoid radiated heat sources such as buildings, walls, etc?  | <input checked="" type="checkbox"/> |     |
| 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) | <input checked="" type="checkbox"/> |     |
| 6  | Is the solar radiation sensor plumb?   | <input checked="" type="checkbox"/> | N/A |
| 7  | Is it sited to avoid shading, or any artificial or reflected light?  | <input checked="" type="checkbox"/> | N/A |
| 8  | Is the rain gauge plumb?   | <input checked="" type="checkbox"/> | N/A |
| 9  | Is it sited to avoid sheltering effects from buildings, trees, towers, etc?  | <input checked="" type="checkbox"/> | N/A |
| 10 | Is the surface wetness sensor sited with the grid surface facing north?  | <input checked="" type="checkbox"/> | N/A |
| 11 | Is it inclined approximately 30 degrees?   | <input checked="" type="checkbox"/> | 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 10 meter temperature sensor has been removed and temperature is now being measured using a combination RH/temperature sensor mounted in a naturally aspirated shield at approximately 2 meters above the ground. The temperature measurement system was challenged with a one point comparison at ambient conditions using an RTD.

# Field Systems Data Form

F-02058-1500-S4-rev002

Site ID

Technician

Site Visit Date

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

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

# Field Systems Data Form

F-02058-1500-S5-rev002

Site ID

Technician

Site Visit Date

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

- |   |   |                                     |  |
|---|---|-------------------------------------|--|
| 1 | Do the sample inlets have at least a 270 degree arc of unrestricted airflow?          | <input checked="" type="checkbox"/> |  |
| 2 | Are the sample inlets 3 - 15 meters above the ground?                                 | <input checked="" type="checkbox"/> |  |
| 3 | Are the sample inlets > 1 meter from any major obstruction, and 20 meters from trees? | <input checked="" type="checkbox"/> |  |

**Pollutant analyzers and deposition equipment operations and maintenance**

- |   |  |                                     |                                |
|---|--|-------------------------------------|--------------------------------|
| 1 | Do the analyzers and equipment appear to be in good condition and well maintained? | <input checked="" type="checkbox"/> |                                |
| 2 | Are the analyzers and monitors operational, on-line, and reporting data?           | <input checked="" type="checkbox"/> |                                |
| 3 | Describe ozone sample tube.  |                                     | N/A                            |
| 4 | Describe dry dep sample tube.  |                                     | 3/8 teflon by 9 meters         |
| 5 | Are in-line filters used in the ozone sample line? (if yes indicate location)      | <input type="checkbox"/>            | N/A                            |
| 6 | Are sample lines clean, free of kinks, moisture, and obstructions?                 | <input checked="" type="checkbox"/> | Moisture in tubing only        |
| 7 | Is the zero air supply desiccant unsaturated?                                      | <input type="checkbox"/>            | N/A                            |
| 8 | Are there moisture traps in the sample lines?                                      | <input checked="" type="checkbox"/> | Filter moisture trap installed |
| 9 | Is there a rotometer in the dry deposition filter line, and is it clean?           | <input checked="" type="checkbox"/> | 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 dry deposition flow controller was recently replaced by the site operator. It has not been calibrated onsite.

# Field Systems Data Form

F-02058-1500-S6-rev002

Site ID

Technician

Site Visit Date

## DAS, sensor translators, and peripheral equipment operations and maintenance

- |                                     |  |  |                  |          |                                     |                                     |  |
|-------------------------------------|--|--|------------------|----------|-------------------------------------|-------------------------------------|--|
| 1                                   | Do the DAS instruments appear to be in good condition and well maintained?           | <input checked="" type="checkbox"/>  |                  |          |                                     |                                     |  |
| 2                                   | Are all the components of the DAS operational? (printers, modem, backup, etc)        | <input checked="" type="checkbox"/>  |                  |          |                                     |                                     |  |
| 3                                   | Do the analyzer and sensor signal leads pass through lightning protection circuitry? | <input checked="" type="checkbox"/>  | Met sensors only |          |                                     |                                     |  |
| 4                                   | Are the signal connections protected from the weather and well maintained?           | <input checked="" type="checkbox"/>  |                  |          |                                     |                                     |  |
| 5                                   | Are the signal leads connected to the correct DAS channel?                           | <input checked="" type="checkbox"/>  |                  |          |                                     |                                     |  |
| 6                                   | Are the DAS, sensor translators, and shelter properly grounded?                      | <input checked="" type="checkbox"/>  |                  |          |                                     |                                     |  |
| 7                                   | Does the instrument shelter have a stable power source?                              | <input checked="" type="checkbox"/>  |                  |          |                                     |                                     |  |
| 8                                   | Is the instrument shelter temperature controlled?                                    | <input checked="" type="checkbox"/>  |                  |          |                                     |                                     |  |
| 9                                   | Is the met tower stable and grounded?  | <table border="1"><tr><td>Stable</td><td>Grounded</td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> | Stable           | Grounded | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| Stable                              | Grounded   |  |                  |          |                                     |                                     |  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  |  |                  |          |                                     |                                     |  |
| 10                                  | Is the sample tower stable and grounded?   | <table border="1"><tr><td>Stable</td><td>Grounded</td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> | Stable           | Grounded | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| Stable                              | Grounded   |  |                  |          |                                     |                                     |  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  |  |                  |          |                                     |                                     |  |
| 11                                  | Tower comments?  |  |                  |          |                                     |                                     |  |

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

# Field Systems Data Form

F-02058-1500-S7-rev002

Site ID  Technician  Site Visit Date

**Documentation**

**Does the site have the required instrument and equipment manuals?**

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

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

	Present		Current
Station Log	<input checked="" type="checkbox"/>	<input type="text" value="Dataview"/>	<input checked="" type="checkbox"/>
SSRF	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Site Ops Manual	<input checked="" type="checkbox"/>	<input type="text"/>	<input checked="" type="checkbox"/>
HASP	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Field Ops Manual	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Calibration Reports	<input checked="" type="checkbox"/>	<input type="text" value="June 2020"/>	<input type="checkbox"/>
Ozone z/s/p Control Charts	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Preventive maintenance schedule	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>

- 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?

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

# Field Systems Data Form

F-02058-1500-S8-rev002

Site ID  Technician  Site Visit Date

**Site operation procedures**

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

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

QC Check Performed		Frequency	Compliant
Multipoint Calibrations	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Visual Inspections	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Translator Zero/Span Tests (climatronics)	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Manual Rain Gauge Test	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Confirm Reasonableness of Current Values	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Test Surface Wetness Response	<input checked="" type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>

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

QC Check Performed		Frequency	Compliant
Multi-point Calibrations	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Automatic Zero/Span Tests	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Manual Zero/Span Tests	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Automatic Precision Level Tests	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Manual Precision Level Test	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Analyzer Diagnostics Tests	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at inlet)	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
In-line Filter Replacement (at analyze)	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Sample Line Check for Dirt/Water	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>
Zero Air Desiccant Check	<input type="checkbox"/>	<input type="text" value="N/A"/>	<input checked="" type="checkbox"/>

- 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?

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

# Field Systems Data Form

F-02058-1500-S9-rev002

Site ID

Technician

Site Visit Date

Site operation procedures

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

QC Check Performed	Frequency	Compliant
Multi-point MFC Calibrations	<input checked="" type="checkbox"/> Semiannually	<input checked="" type="checkbox"/>
Flow System Leak Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Filter Pack Inspection	<input type="checkbox"/>	<input type="checkbox"/>
Flow Rate Setting Checks	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
Visual Check of Flow Rate Rotometer	<input checked="" type="checkbox"/> Weekly	<input checked="" type="checkbox"/>
In-line Filter Inspection/Replacement	<input type="checkbox"/>	<input type="checkbox"/>
Sample Line Check for Dirt/Water	<input type="checkbox"/>	<input type="checkbox"/>

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:

Gloves were not used when changing the filter.

# Field Systems Data Form

F-02058-1500-S10-rev002

Site ID

Technician

Site Visit Date

## Site Visit Sensors

Parameter	Manufacturer	Model	S/N	Client ID
DAS	Environmental Sys Corp	8816	2527	90642
Elevation	Elevation	1	None	None
Filter pack flow pump	Thomas	107CAB18	081000036784	none
Flow Rate	Alicat	MC-10SLPM-D-PCV	150340	none
Infrastructure	Infrastructure	none	none	none
Modem	US Robotics	56k	unknown	none
Sample Tower	Aluma Tower	B	illegible	none
Siting Criteria	Siting Criteria	1	None	None
Temperature2meter	Vaisala	E3-05XX-ACT-01	20218168	none



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**APPENDIX B**

**CASTNET Site Spot Report Forms**

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# EEMS Spot Report

Data Compiled: 3/10/2021 16:27:28

SiteVisitDate	Site	Technician
02/23/2021	ALC188	Martin Valvur

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	3	0.54	c	Fail
2	Temperature max error	P	4	0.5	3	0.63	c	Fail
3	Ozone Slope	P	0	1.1	4	0.98450	unitless	P
4	Ozone Intercept	P	0	5	4	-0.30108	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	2.3	%	P
7	Ozone Absolute Difference g1	P	7	3	1	-0.29	ppb	P
8	Ozone Absolute Difference g2	P	7	1.5	1	-0.34	ppb	P
9	Flow Rate average % difference	P	10	5	4	0.89	%	P
10	Flow Rate max % difference	P	10	5	4	2.00	%	P
11	DAS Voltage average error	P	7	0.003	84	0.0002	V	P
12	Shelter Temperature average error	P	5	2	15	1.33	c	P
13	Shelter Temperature max error	P	5	2	15	1.43	c	P

## Field Performance Comments

- 1 **Parameter:** Flow Rate **SensorComponent:** System Memo **CommentCode:** 74

The flow rate signal was observed to oscillate and not remain constant during the audit. There was no oscillation of the actual flow rate detected by the audit device, only the signal from the flow controller.

- 2 **Parameter:** Temperature **SensorComponent:** System Memo **CommentCode:** 190

This sensor is not mounted as stated in the QAPP with respect to orientation.

## Field Systems Comments

- 1 **Parameter:** SitingCriteriaCom

The site is well located with respect to CASTNET siting criteria, however there is a small campground 0.5 km to the northwest which may be a source of smoke.

- 2 **Parameter:** ShelterCleanNotes

The site is clean and neat.

- 3 **Parameter:** PollAnalyzerCom

There is a moisture trap in both the flow and ozone sample lines.

# EEMS Spot Report

Data Compiled: 3/28/2021 18:46:11

SiteVisitDate	Site	Technician
03/01/2021	BBE401	Martin Valvur

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	P	5	0.5	3	0.31	c	P
2	Temperature2meter max error	P	5	0.5	3	0.33	c	P
3	Ozone Slope	P	0	1.1	4	1.01419	unitless	P
4	Ozone Intercept	P	0	5	4	0.18086	ppb	P
5	Ozone correlation	P	0	0.995	4	0.99999	unitless	P
6	Ozone % difference avg	P	7	10	4	1.7	%	P
7	Ozone Absolute Difference g1	P	7	3	1	0.39	ppb	P
8	Ozone Absolute Difference g2	P	7	1.5	1	0.36	ppb	P
9	Flow Rate average % difference	P	10	5	4	0.94	%	P
10	Flow Rate max % difference	P	10	5	4	1.06	%	P
11	DAS Voltage average error	P	10	0.003	42	0.0001	V	P
12	Shelter Temperature average error	P	5	2	18	0.13	c	P
13	Shelter Temperature max error	P	5	2	18	0.19	c	P

## Field Systems Comments

**1 Parameter:** SiteOpsProcedures

The ozone sample line is leak tested every two weeks when the inlet filter is replaced.

**2 Parameter:** ShelterCleanNotes

The shelter is clean, neat, and well organized.

# EEMS Spot Report

Data Compiled: 4/11/2021 11:57:05

SiteVisitDate	Site	Technician
03/18/2021	BEL116	Korey Devins

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.00006	unitless	P
2	Ozone Intercept	P	0	5	4	0.45332	ppb	P
3	Ozone correlation	P	0	0.995	4	1.00000	unitless	P
4	Ozone % difference avg	P	7	10	4	1.3	%	P
5	Ozone Absolute Difference g1	P	7	3	1	0.49	ppb	P
6	Ozone Absolute Difference g2	P	7	1.5	1	0.40	ppb	P

# EEMS Spot Report

Data Compiled: 4/11/2021 11:40:29

SiteVisitDate	Site	Technician
03/16/2021	BWR139	Korey Devins

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	18	0.22	c	P
2	Temperature max error	P	4	0.5	18	0.34	c	P
3	Ozone Slope	P	0	1.1	4	1.00786	unitless	P
4	Ozone Intercept	P	0	5	4	0.22991	ppb	P
5	Ozone correlation	P	0	0.995	4	1.00000	unitless	P
6	Ozone % difference avg	P	7	10	4	1.5	%	P
7	Ozone Absolute Difference g1	P	7	3	1	0.26	ppb	P
8	Ozone Absolute Difference g2	P	7	1.5	1	0.36	ppb	P
9	Flow Rate average % difference	P	10	5	8	1.1	%	P
10	Flow Rate max % difference	P	10	5	8	1.32	%	P
11	DAS Voltage average error	P	7	0.003	84	0.0000	V	P
12	Shelter Temperature average error	P	5	2	21	0.13	c	P
13	Shelter Temperature max error	P	5	2	21	0.17	c	P

## Field Systems Comments

1 **Parameter:** SiteOpsProcedures

The ozone sample train is leak checked every two weeks following the inlet filter change.

2 **Parameter:** SitingCriteriaCom

Very light agriculture activities near site, not harvested, just to provide food for wildlife.

3 **Parameter:** ShelterCleanNotes

The shelter has been repaired since the previous site audit visit.

4 **Parameter:** PollAnalyzerCom

Ozone sample train has inline dryer.



# EEMS Spot Report

Data Compiled: 4/11/2021 12:43:40

SiteVisitDate	Site	Technician
03/21/2021	CND125	Korey Devins

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature average error	P	4	0.5	15	0.15	c	P
2	Temperature max error	P	4	0.5	15	0.41	c	P
3	Ozone Slope	P	0	1.1	4	1.01456	unitless	P
4	Ozone Intercept	P	0	5	4	-0.60771	ppb	P
5	Ozone correlation	P	0	0.995	4	1.00000	unitless	P
6	Ozone % difference avg	P	7	10	4	1.1	%	P
7	Ozone Absolute Difference g1	P	7	3	1	-0.56	ppb	P
8	Ozone Absolute Difference g2	P	7	1.5	1	-0.38	ppb	P
9	Flow Rate average % difference	P	10	5	2	5.06	%	Fail
10	Flow Rate max % difference	P	10	5	2	5.06	%	Fail
11	DAS Voltage average error	P	7	0.003	84	0.0001	V	P
12	Shelter Temperature average error	P	5	2	21	0.34	c	P
13	Shelter Temperature max error	P	5	2	21	0.37	c	P

## 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:** SitingCriteriaCom  
The land owner maintains a pine tree forest on the property within 50 meters of the site. The trees were planted just before the site was installed in 1990 and may or may not be harvested in the future.
- 2 **Parameter:** ShelterCleanNotes  
The shelter is well clean and well organized. There are signs of insect infestation on floor.
- 3 **Parameter:** PollAnalyzerCom  
Ozone sample train has inline dryer.
- 4 **Parameter:** MetOpMaintCom  
The temperature sensor is mounted on the sample tower in a naturally aspirated shield.

# EEMS Spot Report

Data Compiled: 4/11/2021 13:33:44

SiteVisitDate Site Technician

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03/29/2021 EVE419 Eric Hebert

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Temperature2meter average error	P	5	0.5	1	0.09	c	P
2	Temperature2meter max error	P	5	0.5	1	0.09	c	P
3	Flow Rate average % difference	P	10	5	2	2.28	%	P
4	Flow Rate max % difference	P	10	5	2	2.4	%	P
5	DAS Voltage average error	P	7	0.003	49	0.0001	V	P

## Field Performance Comments

- Parameter:** Flow Rate      **SensorComponent:** Moisture Present      **CommentCode:** 72  
The filter sample tubing has drops of moisture in low sections outside the shelter.
- Parameter:** Temperature2meter      **SensorComponent:** System Memo      **CommentCode:** 217  
Temperature and relative humidity are being measured using a combination sensor which cannot be submerged in a water bath for audits.

## Field Systems Comments

- Parameter:** SiteOpsProcComm  
Gloves were not used when changing the filter.
- Parameter:** SiteOpsProcedures  
The inline filter upstream of the flow controller has not been replaced since 2005.
- Parameter:** DocumentationCo  
Electronic checklists within Dataview for the dry deposition filter procedures are being completed.
- Parameter:** SitingCriteriaCom  
Small parking lot for park employees and fire fighting equipment is within 100 meters of the site.
- Parameter:** ShelterCleanNotes  
The shelter is very clean, neat and well organized. The shelter floor and walls have excessive rot present.
- Parameter:** MetSensorComme  
The 10 meter temperature sensor has been removed and temperature is now being measured using a combination RH/temperature sensor mounted in a naturally aspirated shield at approximately 2 meters above the ground. The temperature measurement system was challenged with a one point comparison at ambient conditions using an RTD.
- Parameter:** PollAnalyzerCom  
The dry deposition flow controller was recently replaced by the site operator. It has not been calibrated onsite.

# EEMS Spot Report

Data Compiled: 3/21/2021 14:17:03

SiteVisitDate Site Technician

03/05/2021 IRL141 Eric Hebert

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	0.99183	unitless	P
2	Ozone Intercept	P	0	5	4	0.29117	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99997	unitless	P
4	Ozone % difference avg	P	7	10	4	0.7	%	P
5	Ozone Absolute Difference g2	P	7	1.5	1	-0.15	ppb	P

# EEMS Spot Report

Data Compiled: 3/21/2021 13:54:40

SiteVisitDate	Site	Technician
03/04/2021	SUM156	Eric Hebert

## Records with valid pass/fail criteria

Line	Audited Parameter	DAS	Ch. #	Criteria +/-	Counts	QaResult	Units	Pass/Fail
1	Ozone Slope	P	0	1.1	4	1.01109	unitless	P
2	Ozone Intercept	P	0	5	4	-0.55187	ppb	P
3	Ozone correlation	P	0	0.995	4	0.99991	unitless	P
4	Ozone % difference avg	P	7	10	4	2.1	%	P
5	Ozone Absolute Difference g1	P	7	3	1	0.27	ppb	P
6	Ozone Absolute Difference g2	P	7	1.5	1	-1.02	ppb	P

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**APPENDIX C**

**CASTNET Ozone Performance Evaluation Forms**

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# Ozone Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
ThermoElectron Inc	1030244795	BEL116	Korey Devins	03/18/2021	Ozone	000684

<b>Slope:</b>	1.00006	<b>Slope:</b>	0.00000
<b>Intercept</b>	0.45332	<b>Intercept</b>	0.00000
<b>CorrCoff:</b>	1.00000	<b>CorrCoff:</b>	0.00000

<b>Mfg</b>	ThermoElectron Inc	<b>Parameter</b>	ozone
<b>Serial Number</b>	1180030022	<b>Tfer Desc.</b>	Ozone primary stan
<b>Tfer ID</b>	01114		
<b>Slope</b>	1.00030	<b>Intercept</b>	0.30550
<b>Cert Date</b>	1/20/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>	<b>A Avg %Diff</b>	<b>A Max % Dif</b>
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.39	0.08	0.57	ppb		0.49
primary	2	14.98	14.60	15.00	ppb		0.4
primary	3	35.45	34.96	35.47	ppb	1.45	
primary	4	66.04	65.40	65.79	ppb	0.59	
primary	5	109.47	108.61	109.10	ppb	0.45	

<b>Sensor Component</b>	Audit Pressure	<b>Condition</b>	751.6 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	26.6 degree unobstructed rule	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Tree dewline >10m or below inlet	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT <100 vehicles further than 20	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT >100 vehicles further than 50	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Sample Train	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Inlet Filter Condition	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Offset	<b>Condition</b>	-0.6	<b>Status</b>	pass
<b>Sensor Component</b>	Span	<b>Condition</b>	1.017	<b>Status</b>	pass
<b>Sensor Component</b>	Zero Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Fullscale Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Freq.	<b>Condition</b>	104.1 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Noise	<b>Condition</b>	0.5 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Flow	<b>Condition</b>	0.60 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Pressure	<b>Condition</b>	710.9 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Tmp.	<b>Condition</b>	36.1 C	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Freq.	<b>Condition</b>	94.5 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Noise	<b>Condition</b>	0.6 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Flow	<b>Condition</b>	0.55 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Pressure	<b>Condition</b>	711.8 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass



# Ozone Data Form

Mfg	Serial Number	Tag Site	Technician	Site Visit Date	Parameter	Owner ID
ThermoElectron Inc	1009241782	IRL141	Eric Hebert	03/05/2021	Ozone	000609

<b>Slope:</b>	0.99183	<b>Slope:</b>	0.00000
<b>Intercept</b>	0.29117	<b>Intercept</b>	0.00000
<b>CorrCoff:</b>	0.99997	<b>CorrCoff:</b>	0.00000

<b>Mfg</b>	ThermoElectron Inc	<b>Parameter</b>	ozone
<b>Serial Number</b>	1180030022	<b>Tfer Desc.</b>	Ozone primary stan
<b>Tfer ID</b>	01114		
<b>Slope</b>	1.00030	<b>Intercept</b>	0.30550
<b>Cert Date</b>	1/20/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>	<b>A Avg %Diff</b>	<b>A Max % Dif</b>
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.31	0.00	0.77	ppb		0.77
primary	2	16.37	15.97	15.82	ppb		-0.15
primary	3	37.57	37.05	36.71	ppb	-0.92	
primary	4	69.78	69.08	68.82	ppb	-0.38	
primary	5	110.99	110.06	109.60	ppb	-0.42	

<b>Sensor Component</b>	Audit Pressure	<b>Condition</b>	760.6 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	26.6 degree unobstructed rule	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Tree dewline >10m or below inlet	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT <100 vehicles further than 20	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT >100 vehicles further than 50	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Sample Train	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Inlet Filter Condition	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Offset	<b>Condition</b>	-0.60	<b>Status</b>	pass
<b>Sensor Component</b>	Span	<b>Condition</b>	1.013	<b>Status</b>	pass
<b>Sensor Component</b>	Zero Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Fullscale Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Freq.	<b>Condition</b>	92.4 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Noise	<b>Condition</b>	0.6 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Flow	<b>Condition</b>	0.74 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Pressure	<b>Condition</b>	720.0 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Tmp.	<b>Condition</b>	33.4 C	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Freq.	<b>Condition</b>	99.8 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Noise	<b>Condition</b>	0.9 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Flow	<b>Condition</b>	0.74 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Pressure	<b>Condition</b>	719.4 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass

# Ozone Data Form

<b>Mfg</b>	<b>Serial Number</b>	<b>Tag Site</b>	<b>Technician</b>	<b>Site Visit Date</b>	<b>Parameter</b>	<b>Owner ID</b>
ThermoElectron Inc	1009241791	SUM156	Eric Hebert	03/04/2021	Ozone	000619

<b>Slope:</b>	1.01109	<b>Slope:</b>	0.00000
<b>Intercept</b>	-0.55187	<b>Intercept</b>	0.00000
<b>CorrCoff:</b>	0.99991	<b>CorrCoff:</b>	0.00000

<b>Mfg</b>	ThermoElectron Inc	<b>Parameter</b>	ozone
<b>Serial Number</b>	1180030022	<b>Tfer Desc.</b>	Ozone primary stan
<b>Tfer ID</b>	01114		
<b>Slope</b>	1.00030	<b>Intercept</b>	0.30550
<b>Cert Date</b>	1/20/2021	<b>CorrCoff</b>	1.00000

<b>DAS 1:</b>	<b>DAS 2:</b>		
<b>A Avg % Diff:</b>	<b>A Max % Dif</b>	<b>A Avg %Diff</b>	<b>A Max % Dif</b>
0.0%	0.0%		

UseDescription	ConcGroup	Tfer Raw	Tfer Corr	Site	Site Unit	RelPerDif	AbsDif
primary	1	0.41	0.10	0.37	ppb		0.27
primary	2	17.37	16.96	15.94	ppb		-1.02
primary	3	36.99	36.47	35.99	ppb	-1.32	
primary	4	68.93	68.24	68.29	ppb	0.07	
primary	5	105.37	104.47	105.40	ppb	0.89	

<b>Sensor Component</b>	Audit Pressure	<b>Condition</b>	761.0 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	26.6 degree unobstructed rule	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	Tree dewline >10m or below inlet	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT <100 vehicles further than 20	<b>Condition</b>	True	<b>Status</b>	pass
<b>Sensor Component</b>	ADT >100 vehicles further than 50	<b>Condition</b>	295 m	<b>Status</b>	Fail
<b>Sensor Component</b>	Sample Train	<b>Condition</b>	Good	<b>Status</b>	pass
<b>Sensor Component</b>	Inlet Filter Condition	<b>Condition</b>	Clean	<b>Status</b>	pass
<b>Sensor Component</b>	Offset	<b>Condition</b>	0.000	<b>Status</b>	pass
<b>Sensor Component</b>	Span	<b>Condition</b>	1.048	<b>Status</b>	pass
<b>Sensor Component</b>	Zero Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Fullscale Voltage	<b>Condition</b>	N/A	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Freq.	<b>Condition</b>	93.3 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Noise	<b>Condition</b>	0.9 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Flow	<b>Condition</b>	0.71 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Pressure	<b>Condition</b>	725.5 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	Cell A Tmp.	<b>Condition</b>	37.1 C	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Freq.	<b>Condition</b>	90.8 kHz	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Noise	<b>Condition</b>	0.9 ppb	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Flow	<b>Condition</b>	0.72 lpm	<b>Status</b>	pass
<b>Sensor Component</b>	Cell B Pressure	<b>Condition</b>	725.8 mmHg	<b>Status</b>	pass
<b>Sensor Component</b>	System Memo	<b>Condition</b>		<b>Status</b>	pass